National Collaborating Centre for Mental Health

First draft

Children's Attachment

Attachment in children and young people who are adopted from care, in care or at high risk of going into care

Clinical Guideline <…>

Methods, evidence and recommendations

May 2015

Draft for Consultation

Commissioned by the National Institute for Health and Clinical Excellence

RC PSYCH ROYAL COLLEGE OF PSYCHIATRISTS

The British Psychological Society

NATIONAL COLLABORATING CENTRE FOR MENTAL HEALTH

Disclaimer
Healthcare professionals are expected to take NICE clinical guidelines fully into account when exercising their clinical judgement. However, the guidance does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of each patient, in consultation with the patient and/or their guardian or carer.

Funding
National Institute for Health and Care Excellence

Contents

Guideline Committee members and National Collaborating Centre for Mental Health (NCCMH) review team 7
Acknowledgments 10
1 Preface 11
1.1 National clinical guideline 11
1.2 The national Children's Attachment guideline 13
2 Introduction to children's attachment 17
2.1 What is attachment? 17
2.2 Terminology used in this guideline 17
2.3 Types of attachment patterns 18
2.4 Assessment and measures of attachment in childhood and adolescence 19
2.5 How common are attachment difficulties? 20
2.6 When do attachment difficulties start and how long do they last? 21
2.7 What mental health behaviour and problems are associated with attachment 22
2.8 How do attachment difficulties manifest in education, health, social care and criminal settings? 23
2.9 Daily life: family and relationships 25
2.10 The causes of attachment difficulties 26
2.11 Treatment and management of attachment difficulties in England and Wales 27
2.12 The economic cost 30
3 Methods used to develop this guideline 32
3.1 Overview 32
3.2 The scope 32
3.3 The Guideline Committee 33
3.4 Review protocols 34
3.5 Clinical review methods 35
3.6 Health economics methods 45
3.7 From evidence to recommendations 48
3.8 Stakeholder contributions 49
3.9 Validation of the guideline 49
4 Biological factors associated with the development of attachment difficulties in children and young people 50
4.1 Introduction 50
4.2 Review question: what familial biological and environmental factors are associated with the development of attachment difficulties in children and young people? 50
4.3 Recommendations and link to evidence 79
5 Environmental factors associated with the development of attachment difficulties in children and young people 82
5.1 Introduction…… ……82

5.2 Review question: What environmental factors are associated with the development of attachment difficulties in children and young people? ... 82
5.3 Recommendations and link to evidence ... 104
6 Process and arrangement features for taking children and young people into local authority care associated with an increased or decreased risk of developing or worsening attachment difficulties ... 110
6.1 Introduction ... 110
6.2 Review question: What process and arrangement features for taking children and young people into local authority care are associated with an increased or decreased risk of developing or worsening attachment difficulties? ... 111
6.3 Recommendations and link to evidence ... 195
7 Prediction of attachment difficulties ... 217
7.1 Introduction ... 217
7.2 Review question: What measurements/tools can be used to predict children and young people at risk of developing attachment difficulties? How valid and reliable are they? ... 217
7.3 Recommendations and link to evidence ... 234
8 Identification and assessment of attachment difficulties ... 239
8.1 Introduction ... 239
8.2 Review question: What measurements/tools can be used to identify/assess attachment difficulties in children and young people? How valid and reliable are they? ... 239
8.3 Review question: What measurements/tools can be used to identify/assess attachment disorders in children and young people? How valid and reliable are they? ... 267
8.4 Recommendations and link to evidence ... 282
9 Interventions for children and young people on the edge of care ... 288
9.1 Introduction ... 288
9.2 Review question: What interventions are effective in promoting attachment in children and young people on the edge of care? ... 289
9.3 Recommendations and link to evidence ... 383
10 Interventions for children and young people who are in care ... 395
10.1 Introduction ... 395
10.2 Review question: Clinical review on interventions aimed at preventing or treating attachment difficulties for children and young adults in the care system 396
10.3 Recommendations and link to evidence ... 423
11 Interventions for children and young people who have been adopted ... 436
11.1 Introduction ... 436
11.2 Clinical review on interventions aimed at promoting attachment in children and young adults who have been adopted ... 437
11.3 Recommendations and link to evidence ... 447
12 Pharmacological interventions ... 448
12.1 Introduction ... 448
12.2 Review question: what pharmacological interventions are effective in the treatment of children and young people with attachment difficulties? What are

the adverse effects associated with each intervention? 448
12.3 Recommendations and link to evidence 458
13 References 461

Guideline Committee members and National Collaborating Centre for Mental Health (NCCMH) review team

Peter Fonagy (Chair)

Freud Memorial Professor of Psychoanalysis, University College London; Chief Executive, The Anna Freud Centre, London

Jane Barlow (Deputy Chair)

Professor of Public Health in Early Years, University of Warwick

Tim Kendall (Facilitator)

Director, NCCMH

Sara Barratt

Consultant Systemic Psychotherapist and Team Leader – Fostering, Adoption and Kinship Care Team, Tavistock and Portman NHS Trust

Tony Clifford

Headteacher Virtual School Children in Care – Children and Young People's Services, Stoke on Trent, Staffordshire

Nuala Ernest

Assistant Editor, NCCMH

Pasco Fearon

Professor of Development Psychology, University College London

Eva Gautam-Aitken (November 2014 onwards)

Project Manager, NCCMH

Danya Glaser

Consultant Child and Adolescent Psychiatrist, Great Ormond Street Hospital for Children NHS Trust

Judith James

Director of Therapeutic Practice and Head of Fostering, Halliwell

Àine Rose Kelly

Care leaver

Scott King

Care leaver

June Leat

Carer representative

Christina Loucas (until August 2014)

Research Assistant, NCCMH

Paul Mitchell

Clinical Lead, Hindley YOI Mental Health Team

Clare Morgan

Carer representative

Maryla Moulin (until November 2014)

Project Manager, NCCMH

Rosemarie Roberts

National Implementation Service, Evidence Based Interventions for Children Looked After or on the Edge of Care or Custody

Kenny Ross

Consultant Adolescent Forensic Psychiatrist and Named Doctor for Safeguarding Children, Greater Manchester West NHS Mental Health Foundation Trust

Leanne Saxon

Systematic Reviewer, NCCMH

Stephen Scott

Professor of Child Health and Behaviour, Institute of Psychiatry, London; Consultant Child and Adolescent Psychiatrist and Head of the National Adoption and Fostering Service, Maudsley Hospital

David Shemmings

Professor of Child Protection Research, University of Kent; Visiting Professor of Child Protection Research, Royal Holloway, University of London

Miriam Silver

Consultant Child and Family Clinical Psychologist, LifePsychol Ltd; Clinical Director, Keys Childcare Group, Milton Keynes

Eric Slade

Health Economist, NCCMH

Sarah Stockton

Senior Information Scientist, NCCMH

Iona Symington (August 2014 onwards)

Research Assistant, NCCMH

Doug Simkiss

Consultant Paediatrician and Clinical Director, Birmingham Community Healthcare NHS Trust

Clare Taylor

Senior Editor, NCCMH

Harriet Ward

Professor of Child and Family Research, Department of Social Sciences, Loughborough University

Acknowledgments

The Guideline Committee and the National Collaborating Centre for Mental Health would like to thank the following people:

Julie Selwyn

1 Preface

This guideline has been developed to advise on the attachment in children and young people who are adopted from care, in care or at high risk of going into care. The guideline recommendations have been developed by a multidisciplinary team of healthcare professionals, care-leavers who have had attachment difficulties, carers and guideline methodologists after careful consideration of the best available evidence. It is intended that the guideline will be useful to clinicians and service commissioners in providing and planning high-quality care for children with attachment difficulties while also emphasising the importance of the experience of care for children with attachment difficulties and their carers (see Appendix A for more details on the scope of the guideline).

Although the evidence base is rapidly expanding, there are a number of major gaps. The guideline makes a number of research recommendations specifically to address gaps in the evidence base. In the meantime, it is hoped that the guideline will assist clinicians, and children with attachment difficulties and their carers, by identifying the merits of particular treatment approaches where the evidence from research and clinical experience exists.

1.1 National clinical guideline

1.1.1 What are clinical guidelines?

Clinical guidelines are 'systematically developed statements that assist clinicians and service users in making decisions about appropriate treatment for specific conditions' (Mann, 1996) . They are derived from the best available research evidence, using predetermined and systematic methods to identify and evaluate the evidence relating to the specific condition in question. Where evidence is lacking, the guidelines include statements and recommendations based upon the consensus statements developed by the Guideline Committee (GC).

Clinical guidelines are intended to improve the process and outcomes of healthcare in a number of different ways. They can:

- provide up-to-date evidence-based recommendations for the management of conditions and disorders by healthcare professionals
- be used as the basis to set standards to assess the practice of healthcare professionals
- form the basis for education and training of healthcare professionals
- assist service users and their carers in making informed decisions about their treatment and care
- improve communication between healthcare professionals, service users and their carers
- help identify priority areas for further research.

1.1.2 Uses and limitations of clinical guidelines

Guidelines are not a substitute for professional knowledge and clinical judgement. They can be limited in their usefulness and applicability by a number of different factors: the availability of high-quality research evidence, the quality of the methodology used in the development of the guideline, the generalisability of research findings and the uniqueness of individuals.

Although the quality of research in this field is variable, the methodology used here reflects current international understanding on the appropriate practice for guideline development (Appraisal of Guidelines for Research and Evaluation Instrument [AGREE]) (AGREE Collaboration, 2003), ensuring the collection and selection of the best research evidence

available and the systematic generation of treatment recommendations applicable to the majority of people with attachment difficulties. However, there will always be some people and situations where clinical guideline recommendations are not readily applicable. This guideline does not, therefore, override the individual responsibility of healthcare professionals to make appropriate decisions in the circumstances of the individual, in consultation with the person with attachment difficulties or their carer.

In addition to the clinical evidence, cost-effectiveness information, where available, is taken into account in the generation of statements and recommendations in clinical guidelines. While national guidelines are concerned with clinical and cost effectiveness, issues of affordability and implementation costs are to be determined by the National Health Service (NHS).

In using guidelines, it is important to remember that the absence of empirical evidence for the effectiveness of a particular intervention is not the same as evidence for ineffectiveness. In addition, and of particular relevance in mental health, evidence-based treatments are often delivered within the context of an overall treatment programme including a range of activities, the purpose of which may be to help engage the person and provide an appropriate context for the delivery of specific interventions. It is important to maintain and enhance the service context in which these interventions are delivered, otherwise the specific benefits of effective interventions will be lost. Indeed, the importance of organising care in order to support and encourage a good therapeutic relationship is at times as important as the specific treatments offered.

1.1.3 Why develop national guidelines?

The National Institute for Health and Care Excellence (NICE) was established as a Special Health Authority for England and Wales in 1999, with a remit to provide a single source of authoritative and reliable guidance for service users, professionals and the public. NICE guidance aims to improve standards of care, diminish unacceptable variations in the provision and quality of care across the NHS, and ensure that the health service is person-centred. All guidance is developed in a transparent and collaborative manner, using the best available evidence and involving all relevant stakeholders.

NICE generates guidance in a number of different ways, three of which are relevant here. First, national guidance is produced by the Technology Appraisal Committee to give robust advice about a particular treatment, intervention, procedure or other health technology. Second, NICE commissions public health intervention guidance focused on types of activity (interventions) that help to reduce people's risk of developing a disease or condition, or help to promote or maintain a healthy lifestyle. Third, NICE commissions the production of national clinical guidelines focused upon the overall treatment and management of a specific condition. To enable this latter development, NICE has established four National Collaborating Centres in conjunction with a range of professional organisations involved in healthcare.

1.1.4 From national clinical guidelines to local protocols

Once a national guideline has been published and disseminated, local healthcare groups will be expected to produce a plan and identify resources for implementation, along with appropriate timetables. Subsequently, a multidisciplinary group involving commissioners of healthcare, primary care and specialist mental health professionals, service users and carers should undertake the translation of the implementation plan into local protocols, taking into account both the recommendations set out in this guideline and the priorities in the National Service Framework for Mental Health (Department of Health, 1999) and related documentation. The nature and pace of the local plan will reflect local healthcare needs and the nature of existing services; full implementation may take a considerable time, especially where substantial training needs are identified.

1.1.5 Auditing the implementation of clinical guidelines

This guideline identifies key areas of clinical practice and service delivery for local and national audit. Although the generation of audit standards is an important and necessary step in the implementation of this guidance, a more broadly-based implementation strategy will be developed. Nevertheless, it should be noted that the Care Quality Commission in England, and the Healthcare Inspectorate Wales, will monitor the extent to which commissioners and providers of health and social care and Health Authorities have implemented these guidelines.

1.2 The national Children's Attachment guideline

1.2.1 Who has developed this guideline?

This guideline has been commissioned by NICE and developed within the National Collaborating Centre for Mental Health (NCCMH). The NCCMH is a collaboration of the professional organisations involved in the field of mental health, national service user and carer organisations, a number of academic institutions and NICE. The NCCMH is funded by NICE and is led by a partnership between the Royal College of Psychiatrists and the British Psychological Society's Centre for Outcomes Research and Effectiveness, based at University College London.

The GC was convened by the NCCMH and supported by funding from NICE. The GC included people with attachment difficulties and carers, and professionals with experience of looked-after children from psychiatry, clinical psychology, paediatrics, social care, public health, education and youth offending, and the private and voluntary sectors.

Staff from the NCCMH provided leadership and support throughout the process of guideline development, undertaking systematic searches, information retrieval, appraisal and systematic review of the evidence. Members of the GC received training in the process of guideline development from NCCMH staff, and the service users and carers received training and support from the NICE Patient and Public Involvement Programme. The NICE Guidelines Technical Adviser provided advice and assistance regarding aspects of the guideline development process.

All GC members made formal declarations of interest at the outset, which were updated at every GC meeting. The GC met a total of 11 times throughout the process of guideline development. The GC was supported by the NCCMH technical team, with additional expert advice from special advisers where needed. The group oversaw the production and synthesis of research evidence before presentation. All statements and recommendations in this guideline have been generated and agreed by the whole GC.

1.2.2 For whom is this guideline intended?

This guideline will be relevant for children and young people with attachment difficulties who are in-care, adopted from care or on the edge of care, and their carers, and covers the care provided by primary, community, secondary, tertiary and other healthcare professionals who have direct contact with, and make decisions concerning the care of children and young people with attachment difficulties.

The guideline will also be relevant to the work, but will not cover the practice, of those in:

- occupational health services
- social services
- the independent sector.

1.2.3 Specific aims of this guideline

The guideline makes recommendations for the identification, assessment and treatment for attachment difficulties in children. It aims to:

- improve access and engagement with treatment and services for children with attachment difficulties and their carers
- evaluate the role of specific psychological, psychosocial and pharmacological interventions in the treatment of children's attachment
- evaluate the role of psychological and psychosocial interventions in combination with pharmacological interventions in the treatment of attachment difficulties
- evaluate the role of specific service-level interventions for people with attachment difficulties
- integrate the above to provide best-practice advice on the care of individuals throughout the course of their treatment
- promote the implementation of best clinical practice through the development of recommendations tailored to the requirements of the NHS in England and Wales.

1.2.4 The structure of this guideline

The guideline is divided into chapters, each covering a set of related topics. The first three chapters provide a general introduction to guidelines, an introduction to the topic of children's attachment and to the methods used to develop them. Chapter 4 to Chapter 12 provide the evidence that underpins the recommendations about the treatment and management of attachment difficulties.

Each evidence chapter begins with a general introduction to the topic that sets the recommendations in context. Depending on the nature of the evidence, narrative reviews or meta-analyses were conducted, and the structure of the chapters varies accordingly. Where appropriate, details about current practice, the evidence base and any research limitations are provided. Where meta-analyses were conducted, information is given about both the interventions included and the studies considered for review. Clinical summaries are then used to summarise the evidence presented. Finally, recommendations related to each topic are presented at the end of each chapter. On the CD-ROM, full details about the included studies can be found in Appendix J, K and L. Where meta-analyses were conducted, the data are presented using forest plots in Appendix O. (see Table 1 for details).

Table 1: Appendices

Scope for the development of the clinical guideline	Appendix A
Declarations of interests by Guideline Committee members	Appendix B
Special advisors to the Guideline Committee	Appendix C
Stakeholders and experts who submitted comments in response to the consultation draft of the guideline	Appendix D
Researchers contacted to request information about unpublished or soon-to-be published studies	Appendix E
Analytic framework, review protocols and questions	Appendix F
Research recommendations	Appendix G
Clinical Evidence – Search strategies	Appendix H
HE Evidence – Search strategies	Appendix I
Clinical Evidence – Study characteristics and quality checklists for associated factors reviews	Appendix J
Clinical Evidence – Study characteristics and quality checklists for prediction and identification	Appendix K
Clinical Evidence – Study characteristics and quality for all intervention studies	Appendix L
Clinical Evidence – Excluded studies for all reviews	Appendix M
Clinical Evidence – GRADE tables for all reviews	Appendix N
Clinical Evidence – Forest plots for all studies	Appendix O
Clinical Evidence – Flow diagrams	Appendix P
HE Evidence – Completed HE checklists	Appendix Q
HE Evidence – Evidence tables	Appendix R

In the event that amendments or minor updates need to be made to the guideline, please check either the NCCMH or NICE website, where these will be listed and a corrected PDF file available to download.

1

2 Introduction to children's attachment

2.1 What is attachment?

Infants are born into the world equipped with a range of innate behaviours to maximise their survival. Attachment behaviour allows the infant to draw others towards them at moments of need or distress (Fonagy et al., 1995). Infants who experience a secure attachment relationship develop a reasonably firm expectation of feeling protected and safe, which in turn allows them to explore their world more confidently.

Our innate instinct for attachment, which is shared by most mammals, is a basic adaptation for survival in infancy. When infants (or indeed adults) are frightened, stressed, feel unwell or are under threat, their attachment system is alerted. Infants in this state will initiate proximity-seeking behaviours (such as crying, clinging, following or smiling in babies; more verbal or sophisticated behaviours in older children) towards their primary attachment figure (normally a parent or the main caregiver). Once proximity and reassurance have been achieved, the attachment system can be deactivated. The seeking out of help and the different approaches an individual uses to obtain help, constitute the building blocks of the attachment process.

More broadly, attachment theory also describes the ways in which individuals handle their most intimate relationships with their parents, children and life-partners: their attachment figures. But as we have developed an increasingly sophisticated understanding of the relationship between early brain development, early psychosocial experiences and developmental psychopathology, it has also become clear that the role of attachment in humans goes significantly beyond its primary evolutionary purpose, the immediate survival of an infant. The attachment strategies that a child develops are shaped by their environment, and this has major implications for the ways in which children learn to behave in close interpersonal relationships. From birth, the interactions of an infant with his/her primary carers will establish a base for personality development and will mould subsequent close relationships, expectations of social acceptance, and attitudes to rejection. Through interacting with others, infants learn about their role within the relationship and in time they begin to make sense of their own and others' psychological states (Fonagy et al., 2002).

A secure base is formed when the attachment figure provides stability and safety in moments of stress, which allows the infant to explore his/her surroundings. Thus, the child creates a set of mental models of him/herself and of others in social interactions ('internal working models'), based on repeated interactions with significant others (Bowlby, 1973). These early attachment relations are thought to be crucial for their later social relationships, the acquisition of capacities for emotional and stress regulation, self-control, mentalisation and emotional maturity. Children who have experienced insecure attachments are more likely to struggle in these areas and to experience emotional and behavioural difficulties.

2.2 Terminology used in this guideline

In this guideline, a number of terms need to be defined.

The term 'children and young people' refers to ages 0-18 years. The children to be considered may have been adopted from care, may be living in an alternative foster or kinship family or in residential care or may be at the edge of being moved from their family. Factors indicating children on the edge of care include: clear history of maltreatment, parents with mental health disorders or substance misuse.

The term 'attachment difficulties' refers to an insecure or disorganised attachment pattern or diagnosed attachment disorders. The latter may be an inhibited/reactive attachment disorder or a disinhibited attachment disorder, now termed 'disinhibited social engagement disorder'

in the Diagnostic and Statistical Manual of Mental Disorders, 5th edition, (DSM-5) (American Psychiatric Association, 2013).

Interventions

Video feedback is an intervention that involves the video-recording of the parent–child interaction, followed by carer review of the video with the therapist with reflection about the interaction and guidance as to how they can change their behaviour to be more sensitive to their child's cues.

Parent sensitivity and behaviour training teaches the carer how to respond sensitively to the child's cues and thus improving the carer's capacity to interpret the child's signals.

Parent- child psychotherapy is a psychodynamic intervention, influenced by attachment theory. It works upon modifying the caregiver's own attachment representations and enhancing the caregiver–child relationship.

Home visiting include programs usually delivered by a nurse in the home when the child is less than two years old. Various elements include building a trusting relationship with the parent, education and guidance about child development and guidance about improving caregiver–child interactions.

2.3 Types of attachment patterns

Four attachment classifications have been defined in young children:

- secure,
- avoidant,
- resistant (also called ambivalent)
- and disorganised.

These classifications are relatively stable over time in the absence of changes to caregiving. This stability is underpinned by continuities in a child's 'internal working models of attachment' that develop as a result of early interactions between the parent and child. The avoidant and resistant patterns are sometimes referred to collectively as 'insecure' attachment patterns because they are thought to be a less optimal organisation of attachment behaviour, as is a disorganised attachment pattern.

Children who have a 'secure' attachment are generally able to be comforted by their caregivers when distressed and to use their caregiver as what is known as a 'secure base' from which to explore their environment when they are not distressed. It is estimated that around two-thirds of children in population samples have a secure pattern of attachment across cultures (Van Ijzendoorn & Kroonenberg, 1988), although this falls rapidly to around one-third in disadvantaged populations (Carlson, 1998; Weinfield et al., 2004) and less in maltreated populations.

Children who have an 'ambivalent' attachment pattern are thought to maintain proximity to their caregiver by 'up-regulating' their attachment behaviour: when they are separated from a carer, they may become very distressed and may be angry, and resist contact when the carer returns, and not quickly calmed when comfort is offered. These children are less confident in terms of exploring their environment and may be wary of strangers. Estimates suggest that around 8–10% of children are insecure-ambivalent.

Children who develop an 'avoidant' attachment pattern are thought to maintain proximity to their caregiver by 'down-regulating' their attachment behaviour: they appear to manage their own distress and do not strongly signal a need for comfort. Most importantly, when reunited with a carer after a brief separation, these children may be quite distant, and tend to avoid

contact with the carer. Estimates suggest that around 10–15% of children are insecure-avoidant.

In addition to children being classified as secure or insecure, they are also rated in terms of the extent to which they show signs of a disorganised attachment. This refers to behaviours that appear to be contradictory in terms of the child's approach to the attachment figure and examples include where the child approaches but with the head averted or with fearful expressions, oblique approaches or disoriented behaviours such as dazed or trance-like expressions or freezing of all movement (Lyons-Ruth & Jacobvitz, 2008). Estimates suggest that around 15-19% of population samples (De Wolff & van Ijzendoorn, 1997b), up to 40% of disadvantaged populations (Carlson, 1998; Weinfield et al., 2004) and as many as 80% of maltreated populations (Carlson et al., 1989b; Cyr et al., 2010a; Cyr et al., 2010b) have a disorganised attachment.

Although particular types of attachment pattern (especially disorganised attachment) may indicate a risk for later problems, these classifications do not represent a disorder.

Two disorders related to attachment have been described in the literature and are defined in the DSM and ICD classification systems. Reactive attachment disorder (RAD) refers to a consistent and pervasive pattern of behaviour in which a child shows extremely withdrawn behaviour, particularly a marked tendency to not show attachment behaviour toward caregivers (not seeking proximity when distressed, and not responding when comforted), accompanied by a general lack of responsiveness to others, limited positive affect and/or episodes of marked sadness, fearfulness or irritability. The diagnosis requires that there is clear evidence of extremes of insufficient care, such as severe neglect or repeated changes in caregivers (for example, through multiple foster care placements, or institutional care), and the difficulties should be evident prior to the age of five. The second disorder in this area has been referred to as 'disinhibited attachment disorder' (currently in ICD-10) (World Health Organization, 2010), but more recently has been relabelled as 'disinhibited social engagement disorder' (DSED) in DSM-V (American Psychiatric Association, 2013). The core of this disorder is a marked and pervasive tendency to not show appropriate cautiousness with respect to unfamiliar adults and a failure to be sensitive to social boundaries. Examples include going off willingly with a stranger with no hesitation, overly familiar verbal and physical interaction with a stranger and limited or absent checking back to a caregiver when in a new place. As in the case of RAD, DSED is only considered when there is clear evidence of a history of highly insufficient care.

2.4 Assessment and measures of attachment in childhood and adolescence

The assessment of patterns of attachment is complex. Attachment is assessed for its quality or pattern, not quantitatively for its intensity. In childhood and adolescence, the patterns are the organised secure, insecure avoidant, insecure resistant (ambivalent), and disorganised patterns. There are different ways of assessing attachment which are appropriate to different ages on the basis of observed behaviour, representation of attachment relationships and coherence of the child's account regarding her/his attachment relationships respectively. Based on longitudinal studies and concurrent assessments using different methods, there is an assumption that the different methods are measuring the same concept.

The Strange Situation Procedure, used between the ages of 12 and 24 months, assesses the infant's attachment behaviour towards their attachment figure following a significant stressor of separation. There is also a similar assessment of a more prolonged separation for pre-school children. Another observational method uses Q-sort to assess attachment behaviour during a more prolonged observation period. Attachment patterns of children between the ages of 4 and 8 years can be assessed using the child's verbal and toy-enacted completion of beginnings (stems) of a number of stories that depict stressful scenarios

involving a child and his/her parents (MacArthur; MCAST). For older school-aged children, attachment is assessed by verbal and non-verbal responses using two different procedures. In the Dynamic Maturational Model of attachment (DMM) the child is presented with a number of pictures of stressful scenarios and is invited to describe the response of a hypothetical child as well as their own responses to the scenarios. In the Child Attachment Interview (CAI), which extends into adolescence, the child or adolescent is invited to describe his/her relationships with their caregivers in various stressful situations. In this procedure, the focus of assessment is the coherence of the child's account, as well as the child's demeanour during the interview.

For each of these methods or procedures, there are coding manuals with variations for each of the methods. Attachment may also be assessed indirectly by examining the primary caregiver's sensitivity to the child, particularly in response to the child's distress or fear, as a significant association has been found between maternal sensitivity and child security of attachment. Attachment disorders are typically assessed using structured interviews with carers, and may be supplemented by questionnaires and direct observation of the child's behaviour.

2.5 How common are attachment difficulties?

Given that 30-35% of representative populations have an insecure attachment, it is arguably unhelpful to view insecure attachment as an 'attachment problem'. Thus in this guidance we have used the term 'attachment problem' to refer to children who have a disorganised attachment or an attachment disorder.

'Disorganised attachment behaviour' (DAB) refers to what Mary Main, one of John Bowlby's students, evocatively termed 'fear without solution'. It occurs when a child is simultaneously frightened of – or for – someone who they should be able to rely upon. It is important to appreciate that these behaviours may only last for a few seconds – hence, the term disorganised attachment behaviour, to emphasise its fleeting nature. DAB is seen at high rates when a child is maltreated by their parent or carer. In 'high-risk' (that is, abusive) populations its prevalence has been noted in studies to lie between 48% to over 80%, depending on the measurement used (but many researchers believe the more accurate figure is around 80%, because DAB so closely reflects the 'fear without solution' that abused children experience).

Other children, such as those on the autistic spectrum, can also exhibit DAB in the absence of maltreatment, so great care is needed when making assessments. Similarly, it is possible for children who are abused not to show DAB (for example, if the abuse is less severe and less frequent). Finally, some children will show DAB when they are frightened for their carer, for example when a parent is terminally ill or who is subjected to violence from another individual (typically in domestic abuse cases).

The term 'attachment disorders', as noted above, refers to a highly atypical constellation of behaviours indicative of children who find extreme difficulty forming close attachments. The prevalence of attachment disorders in the general population is not well established, but is likely to be low. Both disorders are seen at substantially higher rates among young children raised in institutional care or exposed to abuse or neglect.

Perhaps because of the overlap with maltreatment, it is not uncommon for professionals to use the term 'attachment problems' to cover a wider pattern of behaviour that might include the sequelae of maltreatment or be otherwise experienced relatively commonly by children in the care system. This may mean people conflate attachment difficulties with other developmental problems, such as:

- Aggression, oppositional or defiant behaviours
- Hyperactivity, poor concentration and risk-taking

- Lying, stealing and manipulative behaviours.

Thus it is important to hold in mind that not all concerning behaviours displayed by children who are looked after or are on the edge of care should be considered attachment difficulties.

2.6 When do attachment difficulties start and how long do they last?

Studies of normative development suggest that clear selective attachment bonds become evident sometime between the ages of 6 and 9 months, as indicated by preferential seeking of comfort from selected individuals, distress triggered by being separated from them and stranger wariness (Schaffer, 1966). Prior to that, early interactive processes most likely important for the subsequent development of attachment are clearly observed (e.g., mutual eye contact, social smiling, contingent interactions, provision of contact and comfort), although remarkably little research has investigated in detail the role that these play in the formation of attachments. Standard assessments (like the Strange Situation Procedure) are generally used from the end of the first year and can reliably categorise attachment patterns and behaviours. It is therefore generally accepted that insecure or disorganised attachments can be clearly observed at one year of age, although it is not straightforward to conclude that they are not present earlier, and the interaction patterns that are believed to give rise to them are certainly present, and measurable, earlier than that.

Similarly, structured interview techniques and related observational procedures are used at this age to assess the presence of attachment-related disorders and their associated behaviours (Zeanah & Gleason, 2014). Furthermore, the diagnoses of Reactive Attachment Disorder requires that signs of RAD must have been present before the age of five years. For both RAD and DSED highly insufficient care must have been present and would typically have occurred in infancy or early childhood.

The question of how stable attachment patterns and disorders are is a complex one, partly because there is a general lack of measurement tools that can reliably assess attachment in the same way for all age groups. Nevertheless, there is some consensus on the following key points. First, attachment patterns in infancy and early childhood show some stability over time, but are also open to change. Second, short- and medium term change in attachment patterns (for example, from insecure to secure) tends to be linked to changes in caregiving (for example, from relatively insensitive to relatively sensitive), or other family circumstances (for example, marital difficulties or separation). Third, long-term stability in attachment security (that is, from infancy into late adolescence or adulthood) is limited, but later attachment outcomes are related to a broader assessment of the quality of familial experiences occurring right across childhood; for example, quality of care, divorce, parental wellbeing, see Groh et al. (2014a).

Reactive attachment disorder shows relatively high stability short-term in the context of a stable environmental context, for example within an institutional care setting or treatment-as-usual foster care (Gleason et al., 2011), but resolves quite quickly when appropriate stable attachment figures are provided e.g. in foster care with suitably trained foster carers (Rutter et al., 2009). By contrast, DSED shows quite high levels of persistence over time in studies that have been conducted to date both in early childhood and into adolescence (Zeanah & Gleason, 2014), even when appropriate foster care has been in place for some time. However, it is important to note that the great majority of these studies have focused on children previously raised in institutions and less work has examined the stability of DSED in the context of children who entered foster care, or adopted, from non-institutional circumstances, though see, for example, Pears et al. (2010).

2.7 What mental health behaviour and problems are associated with attachment

Attachment is a measure of a relationship, and not necessarily something intrinsic to the child: for example, a substantial minority of children have different attachment patterns to their father and their mother, quite often being secure with one and insecure with the other. It seems clear from the research literature that attachment difficulties are almost always caused by inappropriate parenting; behavioural genetic studies show very little genetic influence on attachment patterns, so that it is rare to observe significant attachment difficulties in the context of normatively sensitive and responsive parenting. Thus children with ADHD and autism usually have secure attachments to their parents.

In attachment disorders, there is by definition a severe lack in the expectable, normal, caregiving environment. In DSM-5, Reactive Attachment Disorder has the experience of extremely insufficient care as a requirement for diagnosis, and manifests as a pattern of highly inhibited withdrawn behaviour towards adult caregivers, essentially an absence of attachment behaviour, with persistent social and emotional disturbance. What used to be called Disinhibited Attachment Disorder however, is now referred to as Disinhibited Social Engagement Disorder (DSED) in DSM-5, with the manifestation that the child is inappropriately friendly and approaches unfamiliar adults in an incautious way. Thus in RAD and DSED, there is by definition a severe and impairing disturbance of behaviour and relationships.

As might be expected, in RAD there is an increased prevalence of anxiety, fears and phobias. DSED is not necessarily associated with a diagnosable mental health problems, although as might be expected, there is an increased risk of both internalising (anxiety depression) and externalising problems (conduct and aggressive problems) and a risk that social disinhibition may lead the individual to become abused by unscrupulous older children and adults, and to go down the path of antisocial behaviour, drugs misuse and promiscuity. And for both RAD and DSED, there can be disturbances of emotions and behaviour that will be associated with the neglect or abuse that led to them, including emotional dysregulation and poor temper control, leading to oppositional defiant disorder, and dysregulated mood disorder. In the English Romanian adoptee study, there were four specific patterns associated with severe neglect/privation: a quasi-autistic syndrome, ADHD, social disinhibition similar to DSED, and impaired cognitive ability. Thus, a child with the disinhibited attachment picture could have any or all of the other three mental health problems.

Turning to the association of insecure attachment patterns with mental health problems, the picture is more complex. Here an insecure attachment pattern will be taken to include a disorganised pattern as well as avoidant and ambivalent patterns. To generalise, meta analyses that put together a large number of studies find no increase or a modest increase in prevalence of all kinds of mental health problems associated with avoidant and ambivalent patterns, but significant and greater increases in mental health problems (particularly externalising problems) amongst children displaying disorganised attachment patterns (Solomon & George, 2011) .

One particular mental health problem that seems to have a higher prevalence than the others is oppositional defiant disorder/conduct disorder (ODD/CD). Meta-analyses suggest that around 55% of children with ODD/CD have any pattern of insecure attachment (compared to around 30% to 40% in controls) of whom about 30% have disorganised attachment (compared to 15% in controls); thus in children with ODD/CD, the odds ratio of having disorganised attachment is nearly fourfold.

In conclusion, for insecure attachment patterns, any mental health problem is likely to be more common, but particularly amongst children with disorganised patterns, where ODD/CD is especially prevalent. However, this is not to say that the attachment problem has led to the behaviour problem; rather, it is much more likely that the disturbed parenting has had effects

on several systems, including making the child more anxious, more frustrated and aggressive, less able to comfort themselves and more emotionally dysregulated, and physiologically more prone to get rapidly emotionally aroused and to take longer to calm down and return to a more normal physiological and mood state. More severe neglect will affect a child's neurological configuration and ability to concentrate and make social relationships.

2.8 How do attachment difficulties manifest in education, health, social care and criminal settings?

2.8.1 Education

Attachment may be an important influence on school students' academic success and wellbeing at school. Firstly, security of child-parent attachment has been found to influence a number of areas of child development that are extremely important in the school setting – self-regulation (controlling one's behaviour, sustaining attention, controlling emotions), willingness to take on challenges and persist in the face of setbacks, social competence with peers and less aggressive behaviour (Bergin & Bergin, 2009). Furthermore, children can and do form relationships with teachers that have an attachment quality to them, and serve a similar function of creating a feeling in the child of safety and security. The quality or security of that relationship in turn may influence the child's emotional wellbeing and engagement with learning. For young people with attachment difficulties, the challenging business of learning and coping in the classroom can be very difficult.

Department for Education data for the success of looked after children in education – many of who will have attachment difficulties – shows a very significant gap between their outcomes and those of non-looked-after children. In 2013 only 15.3% of looked-after children achieved five or more A* to C grade GCSEs including English and maths, compared with 58% of non-looked-after children. Nationally, in English and maths, approximately 70% of all children make three levels of progress from the end of key stage 2 [age 11] to the end of key stage 4. For looked-after children these percentages in 2013 were 32.6% in English and 29.2% in maths. Looked-after children were twice as likely to be permanently excluded from school and nearly three times more likely to have a fixed term exclusion than all children. Unsurprisingly, around half of all looked after children aged 5-16 were considered to be 'borderline' or 'cause for concern' in relation to their emotional and behavioural health' (Depatment for Education, 2013).

Behaviours associated with attachment difficulties such as disruptive behaviour in the classroom and difficulties forming relationships with teachers or positive peers are commonly seen in schools. Some children may display clinginess to teachers, older children may have difficulties with boundaries. For teachers it is really important to be able to 'read' these behaviours and respond appropriately. It is a concern that the majority of teachers will not have covered such issues in their training.

It is important to note that an awareness and understanding of children's attachment difficulties should not obviate the need to examine additional reasons for a child's difficulties in the educational setting, such as physical health problems (sight, hearing) and specific learning and reading difficulties which tend to be masked by more overt behavioural or emotional difficulties and are under-diagnosed in looked-after children. It is also important to manage the sequelae of trauma and maltreatment. For children who have been maltreated or exposed to trauma, learning is more difficult, as the normal and necessary 'fight, flight or freeze' response is triggered very easily. Changes of placement often involve a change of school. The resulting sense of dislocation and disruption to relationships, the need to negotiate new settings and relationships and to enter already established friendship groups increases levels of stress and decreases the ability to learn.

2.8.12 Health

Health settings cover a wide range including primary, secondary and more specialised settings. They include mental as well as physical heath.

Direct manifestations of attachment difficulties may be observed when a child does not show distress in situations when this might be expected, does not seek comfort or shows difficulty in accepting comfort from a carer when frightened or feeling threatened. Another aspect which may be observed is a child's indiscriminate friendliness and approach to strangers, as might occur in an inpatient health setting.

Attachment difficulties are also correlated with a range of emotional and behavioural problems which will be noted in health settings or for which the child may be referred, especially to child and adolescent mental health services (CAMHS). These difficulties include both internalising problems (such as anxiety, depression, social withdrawal and somatic complaints) and externalising problems – difficult and challenging behaviour and aggression and threatening behaviour. However, possible attachment difficulties cannot be assumed to be present, but, upon assessment, may be considered as part of a formulation of a child's difficulties.

Neglectful, unresponsive, insensitive or hostile parent–child interactions may be observed in health settings. While these may lead to attachment difficulties, the latter cannot be assumed to be present, although if these parent–child interactions are persistent, it is likely that they will have led to attachment difficulties.

2.8.13 Social Care

Within social care settings, children and young people may be placed in a variety of placement types, with varied contact arrangements and levels of insight about why they no longer live with their family of origin. They are often cared for by people who have not had specific training about attachment difficulties, who may perceive the child's behaviour simply as 'problem behaviour' and struggle to connect it to their past experiences or to respond with consistency and sensitivity. Children in care settings may show one of two patterns of relationships with their carers that may be a cause of concern: one group of children are likely to become very agitated in their new surroundings, as well as with their new carers, especially if they have experienced disrupted placements over a short period of time (McDonald & Millen, 2012). For them, the world of relationships will have become unpredictable, to the point where their 'best' strategy for survival is to be unpredictable themselves. This offers them an, albeit short-term, way of being noticed. Consequently, these children externalise their behaviour and tend to be aggressive, demanding and hostile. The second group are, in some respects, more worrying because they appear to internalise their distress and trauma. They tend not to show their feelings and can become superficially compliant and undemanding. They appear to 'settle in well', but underneath the facade these children are often in turmoil and experience considerable distress.

Both of these groups of children who have experienced highly troubled attachment relationships in the past can struggle to trust adults (Barton et al., 2011). Confusingly, they can become very demanding if they are offered a genuinely secure base and safe haven. They are not used to adults being predictable, kind and nurturing, so they inadvertently reject the very people they need in order for them to grow and develop emotionally, and to help them survive traumatic childhood experiences (Rivard et al., 2005).

Young people in contact with the youth justice system are known to have higher levels of mental health problems (Chitsabesan et al., 2006) and other unmet needs than their peers (Chitsabesan & Bailey, 2006). Although less is known specifically about attachment difficulties in this population, we do know that many of them have either been looked-after children or have had multiple carers (Harrington et al., 2005), and they have had a high level of exposure to traumatic events (Abram et al., 2004), all of which may be associated with

attachment difficulties. Additionally, they have often had multiple education placements and are likely to have come into contact with many professionals, either directly as a result of their offending behaviour, or as an indirect consequence (due to placement breakdown and so on) A recent policy change (LASPO, 2012) explicitly acknowledged their need for additional support, and now young people remanded either to custody or to the care of the local authority are deemed to be looked-after children.

This instability of relationships with primary care-givers, and the sheer number of professionals they have had contact with, means young people within the justice system often have difficulty in trusting professionals they meet. As a result professionals may find the young people constantly "test out" the relationship in a number of different ways, or that it is difficult to engage them at all. It may take multiple contacts with a young person before they feel willing to engage at any level with a new professional. Some young people may focus on short-term gains within any encounter with a professional, and hence initially engage well, but the professional may have difficulty sustaining the engagement when difficult topics are broached or the young person feels challenged. Some young people have found that escalating their behaviour is an effective way to regulate relationships with professionals, as the immediate behaviour (rather than underlying issues) becomes the focus of the interaction.

Professionals may well have difficulty establishing relationships with them (probably at the end of a long chain of contacts with professionals), meaning that it is harder to work with this population. They may present with low empathy or escalate behaviours when challenged, have problematic relationships with staff and peers and are likely to make multiple transitions that will exacerbate problems. Behavioural problems arise in residential/custodial settings (escalation to make problems go away or in hope of ending placement). Children and young people will also present with the same difficulties that would occur in any residential setting (see social care above).

2.9 Daily life: family and relationships

As looked-after children's relationships with previous caregivers are often disrupted and unreliable, they are unlikely to have experienced secure and stable attachments. By the very nature of entering the care system, another attachment has been disrupted. This leads children to perceive parental figures as unreliable and incapable of providing protection. Children who experience insecure attachments begin to develop defensive behavioural techniques to protect themselves from a world of insecurity and hostility (Howe et al., 2001b). Moreover, if children experience high levels of arousal and have no strategies in which to deal with them, they will face further problems, such as sleeping and eating problems (McNamara et al., 2003).

Those who have lived in the looked-after system tell us that each loss of caregiver or placement is a big change, and even where the feelings are not evident to an observer or are covered with challenging behaviour, these are losses that lead to a grieving process. Having nobody that you can trust and confide in becomes a fact of life, and you learn to invest less in each subsequent relationship. To the child, it feels like the problems (including placement breakdowns) are all because of something wrong with them, leading to intense feelings of shame, sadness, anger or isolation. Learning to trust in relationships again enough to share their experiences and feelings can be a slow and often painful process that needs to be given time and support. But it is the most important thing in the world for these young people.

Birth family relationships, although not always healthy, are often very important to children who are looked after. Contact can be de-stabilising as it may bring up old wounds, but it can also be reassuring to know that relatives are still alive and care enough to come. Young people may be very concerned for the wellbeing of parents or siblings (particularly where there have been issues with alcohol or substance use, self-harm, domestic violence).

Maintaining a relationship with siblings can be an important source of identity and shared experiences, as well as the longest relationships in people's lives.

Adopted children with attachment difficulties can have further difficulties in many aspects of daily life. They need to be and feel safe, to live in a caring, nurturing and structured home. Their attachment difficulties, and their behaviour needs to be fully understood by their adoptive parents, educators and supporters. The number and quality of foster care placements and previous maltreatment will impact on the attachment pattern that they bring into their adoptive placements (Sinclair et al., 2007). It is important to them to control many areas of daily life and this can often be difficult for parents, teachers and supporters to understand. Adopted children, will present with many overlapping difficulties (Schmid et al., 2013) but regardless of age and the length of time that they are in their adoptive families, they need their parents to be attuned to all of those needs. In the absence of parents receiving consistent support and education to be and remain sensitive to their child's attachment needs, adopted children can – and often do – present with challenging behaviours (Selwyn et al., 2014).

2.10 The causes of attachment difficulties

A significant body of research has investigated the causes of variations in the attachment patterns shown by infants and young children. The evidence is quite clear that the causal factors giving rise to security versus insecurity are distinct from those influencing the development of attachment disorders (Rutter et al., 2009). We therefore consider each of these separately.

Attachment security-insecurity: A key issue concerns the extent to which attachment security versus insecurity reflects the influence of the environment (including the behaviour of the care-giver), rather than the child's genetically-based behavioural and emotional dispositions. Several twin studies have consistently indicated that attachment security in infancy and toddlerhood is almost exclusively influenced by the environment, and minimally by genetics (Bokhorst et al., 2003a; Roisman & Fraley, 2008), consistent with the emphasis within the field of attachment research on the preeminent role of parenting.

Early intensive observational work conducted by Mary Ainsworth (1969b) identified variation in parental *sensitivity* in particular as a critical variable in determining the child's attachment security as assessed in procedures like the Strange Situation. Parental sensitivity, broadly speaking refers to the tendency of a parent to be aware of a child's more or less subtle cues and communications, particularly though not exclusively those relating to distress, to interpret those cues accurately and to respond contingently to them with an appropriate response. Sensitive parenting is typically characterised by harmonious, smooth and responsive interactions in which the parent is able to read – and therefore be attuned to – the child's behaviours and cues, and to accurately imagine what the child's feelings, thoughts and focus of attention might be. It is generally *not* considered to be equivalent to warmth, and in research studies these two constructs may or may not be correlated, depending on the way they are measured and the populations concerned (see Mesman & Emmen, 2013b). Parental sensitivity can only be measured properly by direct observation of interactions, ideally over a significant period of time, and in more than one context or occasion. Insecure attachment is generally considered to be associated with parenting that is insensitive, either because the parent's behaviour is intrusive (not following the child's cues, rigid or forcing the direction of interactions), rejecting (negative response to, or discouraging of the child's bids for contact or comfort, hostile), withdrawn or the parent is inconsistently available to the child.

Cross-sectional and longitudinal associations between these parenting features and attachment insecurity have been observed in numerous studies in a wide range of social, clinical and cultural contexts (for a narrative review see (Belsky & Fearon, 2008). Meta-analysis of these studies suggest that the average association is highly statistically

significant, but small in size (De Wolff & van Ijzendoorn, 1997a), which suggests that typical assessments of sensitivity do not capture all of the causal factors, either due to measurement error, or because other factors are involved. Crucially, intervention studies focused on improving sensitivity have been successful in improving rates of secure attachment, which suggests that sensitivity is a causal factor in attachment security, not just a correlate of it (see Bakermans-Kranenburg et al., 2003).

Disorganised attachment: A substantial number of studies have found that standard assessments of sensitivity do not reliably predict disorganised attachment (van IJzendoorn et al., 1999b). Instead, existing studies indicate that disorganised attachment is associated with a cluster of parenting behaviours referred to as 'frightening/frightened' and include extreme intrusiveness, unmarked frightening facial expressions, unusual vocal tone, dissociative behaviour. Several studies have also indicated that a broader range of 'atypical' parenting behaviour may be involved, including affective communication errors, role/boundary confusion, and withdrawal (see Jacobvitz et al., 2006; Out et al., 2009). Disorganised attachment has also been observed at very high rates in samples of infants and young children who have been exposed to maltreatment (Cyr et al., 2010b; van IJzendoorn et al., 1999a) and among children who have been adopted or are in foster care. Less research has been done to rigorously test in intervention studies the causal nature of these observed associations than that concerning the role of parental sensitivity.

Attachment disorders are observed almost exclusively in conditions that represent extreme departures from normative care, including extreme neglect and institutional care. In particular, the disorder referred to as Reactive Attachment Disorder in the DSM-V is only given when children have experienced extremely 'insufficient care', meaning a persistent disregard of the child's emotional or physical needs, or repeated changes in primary caregivers (for example, in foster care or within institutions). It is notable that no cases of RAD have been identified in the literature in which neglect was not clearly present (Zeanah & Gleason, 2014). Disinhibited Social Engagement Disorder, though not currently defined as a disorder of attachment in the DSM-V, has been associated with a similar set of highly disturbed early caregiving experiences, and requires the same insufficient care criteria to be met as RAD. Both these difficulties are observed at relatively high rates in children within institutions, children adopted out of institutions and children in foster care, although in both cases they do not represent the majority (Zeanah & Gleason, 2014). Relatively little is known about the precise environmental processes that are responsible for the emergence of RAD or DSED. Although DSED is no longer defined as an attachment disorder, there is some disagreement in the literature about this.

There is widespread recognition regarding the importance of addressing attachment difficulties in older children and adolescents who have experienced highly disrupted care, but currently the literature is lacking clear consensus about how these should be defined and measured (Kay & Green, 2013) and very few prospective studies that have addressed the factors that cause them.

2.11 Treatment and management of attachment difficulties in England and Wales

2.11.1 Psychological treatment

Psychological interventions for children with attachment difficulties can be conceptualised as those that directly address child attachment security, and those that address associated problems. With respect to those that address attachment security, for children still living in the family where the attachment problem has arisen, the first line of treatment is to improve the relationship between carer and child. The largest number of randomised controlled trials have been done in infancy, and in the meta-analysis by (Bakermans-Kranenburg et al., 2003), the conclusion was that in this population 'less is more', meaning that interventions

that were relatively short and had a behavioural focus in improving sensitive responding of the parent and, where necessary, improving limit setting, led to the greatest increase in attachment security. In addition to this Leiden group, other major research groups who have conducted trials on interventions to increase attachment security include the Mount Hope Centre in Rochester, New York (Toth et al., 2006), the Delaware group (Dozier et al., 2006) and the Washington State group who have developed the Circle Of Security, although this has not yet been subjected to a randomised controlled trial.

There is much less evidence for later developmental periods, including middle childhood and adolescence. The recently published naturalistic NICHD longitudinal study found that children who moved from insecure attachment to secure attachment as they grow up had an associated improvement in their parenting and living circumstances, again suggesting that improving parenting will lead to greater attachment security and better outcomes generally. However this process may be longer and require more support for older and more traumatised children, and relies on a stable placement with high levels of parental sensitivity.

For children who have been removed from abusive families and put into Foster care, again meta analyses suggest that the attachment security to their Foster carers is similar to typically brought up children, suggesting that children do indeed have the capacity to form new trusting attachment relationships despite early abuse. This was directly tested in the study of (Joseph et al., 2014) where intra-individual attachment security was measured, and was almost entirely insecure to abusive birth parents, but the majority were secure to their Foster carers, showing that a more benign parenting environment led to secure attachment patterns. It seems that the children can benefit from more nurturing experiences and gain healthier attachments and ways of expressing their needs. However, this does not erase internal working models based on the trauma they have experienced, which can trigger challenging behaviour when under stress (Hodges et al., 2003; Hodges et al., 2005).

Additionally, amongst looked after children are a number of approaches that aim to improve parenting, and hence may also improve attachment security. Standard parenting programs such as the incredible years have been shown to improve sensitive responding, which is likely to lead to more attachment security. Other parenting programs specifically for Foster carers that are based on evidence-based principles also appear to show an improvement in child attachment security (Briskman et al., 2014).

There is a wide range of other relationship-based therapies available, but none appear to have been subject to a randomised controlled trial. Some are exotic or verging on the bizarre, others make unsubstantiated claims about improving brain function[a].

An attractive notion is that giving a child individual psychotherapy will help them come to terms with an abusive parent and so improve their attachment security in relation to that person, by enabling them to talk about them in a balanced and coherent way, so called 'earned security'. However, to date, these ideas are untested and therefore individual psychotherapy is of uncertain value. Although use of creative and non-directive therapies is popular with this population, there is no evidence for the efficacy of any form of individual therapy done with primary aged children in terms of addressing attachment difficulties.

[a] Eg practises involving re-birthing, lying on top of the child and licking their face or pinching their ribcage, making the child sit still and stare at the wall for long periods of time, being told to leave dried pasta in the child's shoes while they are out at school, punitive consequences such as scrubbing the floor or having to sleep in the shed that are intended to make young people grateful for normal care, lying down and screaming back at a child having a tantrum so they know what it feels like, not to mention the six or so deaths from wrapping up children in blankets and leaving them exposed all night in the USA.

In the absence of trial data, if non-evidence-based interventions are to be chosen, it would seem sensible to choose therapies that are based in empirically supported theory of how secure attachments develop, and on established psychological therapies which address related issues such as self-esteem, emotional regulation, enhancing communication and family functioning, as well as psycho-educational interventions that help to explain the impact of maltreatment and the nature of attachment relationships to parents/carers either individually, or in groups. Much of the work is dyadic – working with the parent and child together – which makes sense given the nature of attachment relationships and the challenges of building a trusting relationship with a therapist.

Work that relates to reducing shame, experiencing empathy, learning to co-regulate emotional and physiological arousal is a promising area for this dyadic and family work.

With respect to the associated problems, it is important to note that standard evidence-based treatments should be tried with this population, just as they should be with children who have not been abused. Thus, with older children therapeutic techniques such as CBT, IPT, EMDR, DBT, CAT, family therapy that have a proven evidence base should be used for problems that they have already shown to be effective for in other populations of children. More obscure and unusual diagnoses and treatments should be avoided where more common and well-evidenced options are available, a point underlined by the APSAC task force.

It is important that there is also understanding of the child's psychological needs and a consistent, empathic and containing environment within school.

Any form of 'therapy' involving physical restraint, coercion, the child lying or sitting on the therapist or any form of aversive stimulation (e.g. "holding therapy") not only has no evidence base, but is associated with harm to children and should be considered malpractice (ref APSAC taskforce: https://depts.washington.edu/hcsats/PDF/AttachmentTaskForceAPSAC.pdf).

There is no evidence of "suppressed rage" in this population, though children with a history of maltreatment may not express their needs directly, or seek or accept comfort as readily. Judiciously used, there is no evidence to suggest that short time-out, should not be used in the context of a warm and loving relationship, though care needs to be taken not to replicate rejection or neglect. It is helpful to consistently use both empathy and consequences to respond to challenging behaviour, both in a home and school setting.

Because it is a relatively small population group whose needs are highly complex, services often span (or fall between) health and social care, and the priority is normally to find and support stable placements for LAC, which should be within a family wherever possible (ref). It is often hard for families and carers to access therapeutic support due to the pressures in the public sector to limit CAMH services to working with diagnosed mental health problems, rather than the sequelae of maltreatment, but specialist therapeutic support is highly valued by participants. Sadly, it remains the case that straightforward, evidence based interventions are often very hard to access for adopters, both because overall therapeutic provision is low, and secondly because even where they are available, they are not offered to children on the edge of care and fostered and adopted children.

2.11.2 Pharmacological treatment

Pharmacological interventions are not the mainstay of interventions for attachment difficulties. It is difficult to conceive of medication that would enhance a child's expression of their distress or which would increase the child's capacity to receive and accept comfort. Arguably, it will be more difficult for a caregiver to respond sensitively and benignly to a child with a difficult temperament; medication might be used to calm an irritable or aroused child. There may be circumstances in which treating another disorder may help a parent to be more sensitive and responsive because the child's behaviour may be more manageable, which in turn may support a secure attachment.

There are medications which ameliorate some of the emotional and behavioural difficulties which are associated with attachment difficulties, such as Attention Deficit Hyperactivity Disorder or depression, but there is no theoretical explanation why this should affect attachment.

Regarding caregiver sensitivity, this could in theory be enhanced by the administration of oxytocin. To date, there have been no studies showing increases in attachment security in children in relation to use of oxytocin.

2.12 The economic cost

Children who are on the edge-of care, looked after, or adopted from care are at high risk of both insecure and disorganised attachment. In England in 2011 a majority of children were in care as a result of abuse and neglect (55%) (Curtis, 2014; Department for Education and Skills, 2005)_ENREF_96, and as many as 80% of children who have experienced maltreatment have a disorganised attachment (Carlson et al., 1989a; Cyr et al., 2010c).

In England gross expenditure on looked after children was estimated to be £2.5 billion in 2013/14. The majority of expenditure was on foster care services (55% of expenditure, around £1.4 billion, caring for 51,340 children and young people), and children's homes (36% of expenditure, around £0.9 billion, caring for 6,360 children and young people) (Harker & Heath, 2014). Estimates of the average social care cost per looked after child range from £33,634 a year for children with no additional support needs to £109,178 for those with complex emotional or behavioural needs. The cost of providing and maintaining the placement accounts for over 90% of the costs of a care episode. As well as reflecting different levels of activity from social care staff, the substantial variations in cost incurred by children with different needs reflect variations in the type and cost of placements they receive. The costs per resident week per child for a local authority care home are £2,995 (2013/14 prices); non-statutory care home (that is, voluntary and private sector care homes) £2,947; and local authority foster care £700 (Curtis, 2014).

In England the average weekly social services cost per child who experienced abuse/neglect is £163 if supported in their families or independently, and £756 if looked after (Curtis, 2014). The social services' costs include the costs of field and centre staff time carrying out social services activities with, or on behalf of, identified children in need and their families; the costs of providing care and accommodation for children looked after (and similar regular, ongoing expenditure that can be treated in the same way); and one-off ad hoc payments and purchases for children in need or their families. Similarly, the costs associated with adoption are high. The average cost per day across all adoption services (including the private and voluntary sector) is £230 (2013/14 prices).

Foster placement instability is a significant problem with large numbers of children, particularly teenage children, experiencing as many as 3 moves in the first year, (Ward & Skuse, 2001). Attachment and other forms of emotional disturbance are one of a number of factors influencing the stability of such placements (Sinclair, 2005). Multiple placements of this sort have significant cost implications. In a recent report Hannon et al. (2010) explored the consequences associated with two care journeys, which represent the best and the worst current system. One journey was designed to reflect the experience of the very top range of 5-10% of children in care who are fortunate enough to have long-term, stable placements and supported transitions. The other scenario reflected the 5–10% of children who have a journey characterised by instability, disruption and abrupt exits. The authors found significant variation in costs: 'Child A' with a stable care journey cost £352,053 over a 14-year period, while 'Child B' with unstable care journey cost in total £393,579 over a 7-year period (a difference in total cost of £41,526). This translates to a substantial difference in annual costs per year (£23,470 for 'Child A' with stable care journey and £56,225 for 'Child B' with journey characterised by instability) once their length of stay in care is taken into account (15 versus 7 years), difference of £32,755 per year.

The authors went on to consider adult outcomes that might be associated with each scenario to estimate their possible costs to the state up to children's age 30. It was assumed that 'Child A' with stable journey leaves care at the age of 18 following a stable placement, with good qualifications. 'Child B' with unstable journey was assumed to leave care at 16.5, with no qualifications, and with mental health problems. 'Child A' may cost the state £20,119 by age 30 if he/she goes on to university and secures a graduate job. 'Child B' may cost the state £111,924 if he/she experiences unemployment, underemployment and mental health problems. Between age 16 and age 30 there is a difference between 'Child A''s and 'Child B''s costs to the public sector of £91,805, or £6,558 per annum. Greater stability and improved mental health can reduce immediate costs to the local authority by reducing social workers' time, use of expensive agency and residential placements, and therapeutic support.

Attachment difficulties are strongly associated with later problems. A review of 69 studies that examined the association between insecure or disorganised attachment and externalising problems found significantly increased risk for both insecure (Cohen's d = 0.31, 95% CI: 0.23 to 0.40), [with larger effects for boys (d = 0.35), clinical samples (d = 0.49), and observation-based outcome assessments (d = 0.58)] and disorganised children (d = 0.34, 95% CI: 0.18 to 0.50), with weaker effects for avoidance (d = 0.12, 95% CI: 0.03 to 0.21) and resistance (d = 0.11, 95% CI: 0.04 to 0.26) (Fearson et al., 2010). Externalising problems of this nature are strongly associated with a range of later problems including substance misuse and criminality (Allen et al., 1996). Conduct disorder, substance dependency and crime impose significant social costs and harm to individuals and their victims, families and carers, and to society at large. The cost of proven offending to the criminal justice system, including the costs of police, courts, offender management teams and custody was estimated to be approximately £8,000 per young offender (in 2008/09 prices) (Office, 2011). Criminal behaviour can persist into adulthood imposing immense costs to society. For example the lifetime costs of crime attributable to conduct disorder in childhood range from £75,000 to £225,000 per case (Health, 2009).

In a recent HTA report (Wrigth et al., unpublished) estimated the expected budget impact of screening strategies and treatment for disorganised patterns of attachment within the context of a Clinical Commissioning Group (CCG). The authors assessed budget impact of screening and treating disorganised patterns of attachment by various target populations (for example, screening general population, middle class children, born into poverty, alternative caregiver, and maltreated). Assuming all children born in a CCG were to be screened (a general population programme) at a certain age after birth the number of screens per year would be equal to the number of births. If the average CCG in the UK covers 264,039 individuals and assuming the general population screening strategy aimed to screen all children born in that CCG at a predefined time from birth, the expected cohort that could be screened in the general population would be 3,237 newborn children with a total cost of identification to the average CCG of £93,873, and subsequent treatment would cost, on average, £219,987 implying that the total cost to screen the general population and change disorganised patterns of attachment would approximate to £313,860 per year (2011/12 prices). The above estimates assume 'Strange Situation' identification procedure at a cost of £29 per case, average treatment cost of £2,265 per case, and expected prevalence of 3%. However, if the target population was maltreated children the cost of identification and subsequent treatment would be £15,223 to the average CCG (assuming that 0.42% of the general population would be maltreated and the prevalence of attachment problems is 48%).

Attachment difficulties and their associated mental health problems during the childhood therefore place a considerable financial burden on health, social services, criminal justice and society as a whole. As such, it is important to identify cost-effective treatments that would help to reduce the burden to service users and society as a whole.

3 Methods used to develop this guideline

3.1 Overview

The development of this guideline followed *The Guidelines Manual* (NICE, 2012). A team of health care professionals, social care professionals, lay representatives and technical experts known as the Guideline Committee (GC), with support from the NCCMH staff, undertook the development of a person-centred, evidence-based guideline. There are seven basic steps in the process of developing a guideline:

1. Define the scope, which lays out exactly what will be included (and excluded) in the guidance.
2. Define review questions that cover all areas specified in the scope.
3. Develop a review protocol for each systematic review, specifying the search strategy and method of evidence synthesis for each review question.
4. Synthesise data retrieved, guided by the review protocols.
5. Produce evidence profiles and summaries using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system (Schünemann et al., 2009).
6. Consider the implications of the research findings for clinical practice and reach consensus decisions on areas where evidence is not found.
7. Answer review questions with evidence-based recommendations for clinical practice.

The clinical practice recommendations made by the GC are therefore derived from the most up-to-date and robust evidence for the clinical and cost effectiveness of the interventions and services covered in the scope. Where evidence was not found or was inconclusive, the GC discussed and attempted to reach consensus on what should be recommended, factoring in any relevant issues. In addition, to ensure a service user and carer focus, the concerns of service users and carers regarding health and social care have been highlighted and addressed by recommendations agreed by the whole GC.

3.2 The scope

Topics are referred by the Secretary of State and the letter of referral defines the remit, which defines the main areas to be covered (see *The Guidelines Manua*l for further information). The NCCMH developed a scope for the guideline based on the remit (see Appendix 1). The purpose of the scope is to:

- provide an overview of what the guideline will include and exclude
- identify the key aspects of care that must be included
- set the boundaries of the development work and provide a clear framework to enable work to stay within the priorities agreed by NICE and the National Collaborating Centre, and the remit from the Department of Health
- inform the development of the review questions and search strategy
- inform professionals and the public about expected content of the guideline
- keep the guideline to a reasonable size to ensure that its development can be carried out within the allocated period.

An initial draft of the scope was sent to registered stakeholders who had agreed to attend a scoping workshop. The workshop was used to:

- obtain feedback on the selected key clinical issues
- identify which population subgroups should be specified (if any)

- seek views on the composition of the GC
- encourage applications for GC membership.

The draft scope was subject to consultation with registered stakeholders over a 4-week period. During the consultation period, the scope was posted on the NICE website. Comments were invited from stakeholder organisations The NCCMH and NICE reviewed the scope in light of comments received, and the revised scope was signed off by NICE.

3.3 The Guideline Committee

During the consultation phase, members of the GC were appointed by an open recruitment process. GC membership consisted of: professionals in psychiatry, clinical psychology, education and social work; academic experts in psychiatry and psychology; and care-leavers, carers and representatives from service user and carer organisations. The guideline development process was supported by staff from the NCCMH, who undertook the clinical and health economic literature searches, reviewed and presented the evidence to the GC, managed the process, and contributed to drafting the guideline.

3.3.1 Guideline Committee meetings

Eleven GC meetings were held between December 2013 and July 2015. During each day-long GC meeting, in a plenary session, review questions and clinical and economic evidence were reviewed and assessed, and recommendations formulated. At each meeting, all GC members declared any potential conflicts of interest (see Appendix B), and care-leaver and carer concerns were routinely discussed as a standing agenda item.

3.3.2 Care-leavers and carers

Individuals with direct experience of services gave an integral care-leaver and service-user focus to the GC and the guideline. The GC included two care-leavers and two carer representatives. They contributed as full GC members to writing the review questions, providing advice on outcomes most relevant to care-leavers and carers, helping to ensure that the evidence addressed their views and preferences, highlighting sensitive issues and terminology relevant to the guideline, and bringing service user research to the attention of the GC. In drafting the guideline, they contributed to writing the guideline's introduction and identified recommendations from the care-leaver and carer perspective.

3.3.3 Special advisors

Special advisors, who had specific expertise in one or more aspects of treatment and management relevant to the guideline, assisted the GC, commenting on specific aspects of the developing guideline and making presentations to the GC. Appendix C lists those who agreed to act as special advisors.

3.3.4 National and international experts

National and international experts in the area under review were identified through the literature search and through the experience of the GC members. These experts were contacted to identify unpublished or soon-to-be published studies, to ensure that up-to-date evidence was included in the development of the guideline. They informed the GC about completed trials at the pre-publication stage, systematic reviews in the process of being published, studies relating to the cost effectiveness of treatment and trial data if the GC could be provided with full access to the complete trial report. Appendix E lists researchers who were contacted.

3.4 Review protocols

Review questions drafted during the scoping phase were discussed by the GC at the first few meetings and amended as necessary. The review questions were used as the starting point for developing review protocols for each systematic review (described in more detail below). Where appropriate, the review questions were refined once the evidence had been searched and, where necessary, sub-questions were generated. The final list of review questions can be found in Appendix F.

For questions about interventions, the PICO (Population, Intervention, Comparison and Outcome) framework was used to structure each question (see Table 2).

Table 2: Features of a well-formulated question on the effectiveness of an intervention – PICO

Population:	Which population of service users are we interested in? How can they be best described? Are there subgroups that need to be considered?
Intervention:	Which intervention, treatment or approach should be used?
Comparison:	What is/are the main alternative/s to compare with the intervention?
Outcome:	What is really important for the service user? Which outcomes should be considered: intermediate or short-term measures; mortality; morbidity and treatment complications; rates of relapse; late morbidity and readmission; return to work, physical and social functioning and other measures such as quality of life; general health status?

Questions relating to diagnosis or case identification do not involve an intervention designed to treat a particular condition, and therefore the PICO framework was not used. Rather, the questions were designed to pick up key issues specifically relevant to clinical utility, for example their accuracy, reliability, safety and acceptability to the service user.

In some situations, the prognosis of a particular condition is of fundamental importance, over and above its general significance in relation to specific interventions. Areas where this is particularly likely to occur relate to assessment of risk, for example in terms of behaviour modification or screening and early intervention. In addition, review questions related to issues of service delivery are occasionally specified in the remit from the Department of Health. In these cases, appropriate review questions were developed to be clear and concise.

For each topic, addressed by one or more review questions, a review protocol was drafted by the technical team using a standardised template (based on PROSPERO). After a protocol was finalised by the GC, registration on the PROSPERO website was performed for those likely to be published in peer-reviewed journals. All protocols are included in Appendix F.

To help facilitate the literature review, a note was made of the best study design type to answer each question. There are 4 main types of review question of relevance to NICE guidelines, which are listed in Table 3. For each type of question, the best primary study design varies, where 'best' is interpreted as 'least likely to give misleading answers to the question'. For questions about the effectiveness of interventions, where RCTs were not available, the review of other types of evidence was pursued only if there was reason to believe that it would help the GC to formulate a recommendation.

However, in all cases, a well-conducted systematic review (of the appropriate type of study) is likely to always yield a better answer than a single study.

Table 3: Best study design to answer each type of question

Type of question	Best primary study design
Effectiveness or other impact of an intervention	Randomised controlled trial (RCT); other studies that may be considered in the absence of RCTs are the following: internally/externally controlled before and after trial, interrupted time-series
Accuracy of information (for example, risk factor, test, prediction rule)	Comparing the information against a valid gold standard in an RCT or inception cohort study
Rates (of disease, service user experience, rare side effects)	Prospective cohort, registry, cross-sectional study
Experience of care	Qualitative research (for example, grounded theory, ethnographic research)

3.5 Clinical review methods

The aim of the clinical literature review was to systematically identify and synthesise relevant evidence from the literature in order to answer the specific review questions developed by the GC. Thus, clinical practice recommendations are evidence-based, where possible, and, if evidence is not available, informal consensus methods are used to try and reach general agreement between GC members (see Section 3.5.7) and the need for future research is specified.

3.5.1 The search process

3.5.1.1 Scoping searches

A broad preliminary search of the literature was undertaken in September 2013 to obtain an overview of the issues likely to be covered by the scope, and to help define key areas. Searches were restricted to clinical guidelines, Health Technology Assessment (HTA) reports, key systematic reviews and RCTs. A list of databases and websites searched can be found in Appendix H.

3.5.1.2 Systematic literature searches

After the scope was finalised, a systematic search strategy was developed to locate as much relevant evidence as possible. The balance between sensitivity (the power to identify all studies on a particular topic) and specificity (the ability to exclude irrelevant studies from the results) was carefully considered, and a decision made to utilise a broad approach to searching to maximise retrieval of evidence to all parts of the guideline. Searches were restricted to certain study designs if specified in the review protocol, and conducted in the following databases:

- Applied Social Sciences Index and Abstracts (ASSIA)
- British Education Index (BEI)
- Cochrane Central Register of Controlled Trials (CENTRAL)
- Cochrane Database of Abstracts of Reviews of Effects (DARE)
- Cochrane Database of Systematic Reviews (CDSR)
- Cumulative Index to Nursing and Allied Health Literature (CINAHL)
- Embase
- Education Resources Information Center (ERIC)

- HTA database (technology assessments)
- International Bibliography of the Social Sciences (IBSS)
- Medical Literature Analysis and Retrieval System Online (MEDLINE)/MEDLINE In-Process
- Psychological Information Database (PsycINFO)
- Social Care Online
- Social Services Abstracts
- Sociological Abstracts.

The search strategies were initially developed for MEDLINE before being translated for use in other databases/interfaces. Strategies were built up through a number of trial searches and discussions of the results of the searches with the review team and GC to ensure that all possible relevant search terms were covered. In order to assure comprehensive coverage, search terms for the topic area were kept purposely broad to help counter dissimilarities in database indexing practices and thesaurus terms, and imprecise reporting of study populations by authors in the titles and abstracts of records. The search terms for each search are set out in full in Appendix H.

3.5.13 Reference management

Citations from each search were downloaded into EndNote reference management software and duplicates removed. Records were then screened against the eligibility criteria of the reviews before being appraised for methodological quality (see below). The unfiltered search results were saved and retained for future potential re-analysis to help keep the process both replicable and transparent.

3.5.14 Search filters

To aid retrieval of relevant and sound studies, filters were used to limit a number of searches to systematic reviews, randomised controlled trials and observational studies. The search filters for systematic reviews and randomised controlled trials are adaptations of filters designed by McMaster University. The observational study filter was developed in-house. Each filter comprises index terms relating to the study type(s) and associated text-words for the methodological description of the design(s).

3.5.15 Date and language restrictions

Systematic database searches were initially conducted in December 2013 up to the most recent searchable date. Search updates were generated on a 6-monthly basis, with the final re-runs carried out in February 2015 ahead of the guideline consultation. After this point, studies were only included if they were judged by the GC to be exceptional (for example, if the evidence was likely to change a recommendation).

Although no language restrictions were applied at the searching stage, foreign language papers were not requested or reviewed, unless they were of particular importance to a review question.

Date restrictions were not applied, except for searches of systematic reviews which were limited to research published from 2000 as older reviews were thought to be less useful.

3.5.16 Other search methods

Other search methods involved: (a) scanning the reference lists of all eligible publications (systematic reviews, stakeholder evidence and included studies) for more published reports and citations of unpublished research; (b) sending lists of studies meeting the inclusion criteria to subject experts (identified through searches and the GC) and asking them to check the lists for completeness, and to provide information of any published or unpublished research for consideration (see Appendix H); (c) checking the tables of contents of key journals for studies that might have been missed by the database and reference list searches; (d) tracking key papers in the Science Citation Index (prospectively) over time for further useful references; (e) conducting searches in ClinicalTrials.gov for unpublished trial reports; (f) contacting included study authors for unpublished or incomplete datasets. Searches conducted for existing NICE guidelines were updated where necessary. Other relevant guidelines were assessed for quality using the AGREE instrument (AGREE Collaboration, 2003) . The evidence base underlying high-quality existing guidelines was utilised and updated as appropriate.

Full details of the search strategies and filters used for the systematic review of clinical evidence are provided in Appendix H.

3.5.17 Study selection and assessment of methodological quality

All primary-level studies included after the first scan of citations were acquired in full and re-evaluated for eligibility at the time they were being entered into the study information database. More specific eligibility criteria were developed for each review question and are described in the relevant clinical evidence chapters. Eligible systematic reviews and primary-level studies were critically appraised for methodological quality (risk of bias) using a checklist (see *The Guidelines Manual* for templates). The eligibility of each study was confirmed by at least one member of the GC.

For some review questions, it was necessary to prioritise the evidence with respect to the UK context =. To make this process explicit, the GC took into account the following factors when assessing the evidence:

- participant factors (for example, gender, age and ethnicity)
- provider factors (for example, model fidelity, the conditions under which the intervention was performed and the availability of experienced staff to undertake the procedure)
- cultural factors (for example, differences in standard care and differences in the welfare system).

3.5.18 It was the responsibility of the GC to decide which prioritisation factors were relevant to each review question in light of the UK context. Evidence from other country settings was still included in the reviews and contributed to the meta-analysis. Therefore their data was not downgraded for indirectness. Rather when the GC generated recommendations for instance on interventions to treat attachment problems, (i.e. Home Visiting programmes) the detail, i.e. on the number of sessions, frequency and duration etc. were mostly extracted from UK studies. Unpublished evidence

Stakeholders, authors and principle investigators were approached for unpublished evidence (see Appendix E). The GC used a number of criteria when deciding whether or not to accept unpublished data. First, the evidence must have been accompanied by a trial report containing sufficient detail to properly assess risk of bias. Second, the evidence must have been submitted with the understanding that data from the study and a summary of the study's characteristics would be published in the full guideline. Therefore, in most circumstances the GC did not accept evidence submitted 'in confidence'. However, the GC

recognised that unpublished evidence submitted by investigators might later be retracted by those investigators if the inclusion of such data would jeopardise publication of their research.

3.5.2 Data extraction

1.2.4.1 Quantitative analysis

Study characteristics, aspects of methodological quality, and outcome data were extracted from all eligible studies, using Review Manager 5.3.5 (Cochrane Collaboration, 2011) and/or electronic data extraction templates (see Appendix J and K).

In most circumstances, for a given outcome (continuous and dichotomous), where more than 50% of the number randomised to any group were missing or incomplete, the study results were excluded from the analysis (except for the outcome 'leaving the study early', in which case, the denominator was the number randomised). Where there were limited data for a particular review, the 50% rule was not applied. In these circumstances the evidence was downgraded (see section 3.5.5).

Where possible, outcome data from an intention-to-treat analysis (ITT) (that is, a 'once-randomised-always-analyse' basis) were used. Where ITT had not been used or there were missing data, the effect size for dichotomous outcomes were recalculated using best-case and worse-case scenarios. Where conclusions varied between scenarios, the evidence was downgraded (see section 3.5.5).

Where some of the studies failed to report standard deviations (for a continuous outcome), and where an estimate of the variance could not be computed from other reported data or obtained from the study author, the following approach was taken based on that suggested by Furukawa et al. (2006). When the number of studies with missing standard deviations was less than one-third and when the total number of studies was at least ten, the pooled standard deviation was imputed (calculated from all the other studies in the same meta-analysis that used the same version of the outcome measure). In this case, the appropriateness of the imputation was made by comparing the standardised mean differences (SMDs) of those trials that had reported standard deviations against the hypothetical SMDs of the same trials based on the imputed standard deviations. If they converged, the meta-analytical results were considered to be reliable.

When the conditions above could not be met, standard deviations were taken from another related systematic review (if available). In this case, the results were considered to be less reliable.

The meta-analysis of survival data, such as time to any mood episode, was based on log hazard ratios and standard errors. Since individual participant data were not available in included studies, hazard ratios and standard errors calculated from a Cox proportional hazards model were extracted. Where necessary, standard errors were calculated from confidence intervals (CIs) or *p* value according to standard formulae; see the Cochrane Reviewers' Handbook 5.1.0 (Higgins & Green, 2011). Data were summarised using the generic inverse variance method using Review Manager.

Consultation with another reviewer or members of the GC was used to overcome difficulties with coding. Data from studies included in existing systematic reviews were extracted independently by one reviewer and cross-checked with the existing dataset. Where possible, two independent reviewers extracted data from new studies. Where double data extraction was not possible, data extracted by one reviewer was checked by the second reviewer. Disagreements were resolved through discussion. Where consensus could not be reached, a third reviewer or GC members resolved the disagreement. Masked assessment (that is, blind

to the journal from which the article comes, the authors, the institution and the magnitude of the effect) was not used since it is unclear that doing so reduces bias (Berlin, 2001; Jadad et al., 1996).

3.5.3 Evidence synthesis

The method used to synthesise evidence depended on the review question and availability and type of evidence (see Appendix F for full details). Briefly, for questions about the psychometric properties of instruments, reliability, validity and clinical utility were synthesised narratively based on accepted criteria. For questions about test accuracy, bivariate test accuracy meta-analysis was conducted where appropriate. For questions about the effectiveness of interventions, standard meta-analysis or network meta-analysis was used where appropriate, otherwise narrative methods were used with clinical advice from the GC. In the absence of high-quality research, an informal consensus process was used (see Section 3.5.7).

3.5.4 Grading the quality of evidence

For questions about the effectiveness of interventions, the GRADE approach was used to grade the quality of evidence for each outcome (Guyatt et al., 2011). For questions about the experience of care and the organisation and delivery of care, methodology checklists (see section 3.5.1) were used to assess the risk of bias, and this information was taken into account when interpreting the evidence. The technical team produced GRADE evidence profiles (see below) using GRADEprofiler (GRADEpro) software (Version 3.6), following advice set out in the GRADE handbook (Schünemann et al., 2009). All staff doing GRADE ratings were trained, and calibration exercises were used to improve reliability (Mustafa et al., 2013).

3.5.4.1 Evidence profiles

A GRADE evidence profile was used to summarise both the quality of the evidence and the results of the evidence synthesis for each 'critical' and 'important' outcome (see Table 4 for an example of an evidence profile). The GRADE approach is based on a sequential assessment of the quality of evidence, followed by judgment about the balance between desirable and undesirable effects, and subsequent decision about the strength of a recommendation.

Within the GRADE approach to grading the quality of evidence, the following is used as a starting point:

- RCTs without important limitations provide high quality evidence
- observational studies without special strengths or important limitations provide low quality evidence.

For each outcome, quality may be reduced depending on five factors: limitations, inconsistency, indirectness, imprecision and publication bias. For the purposes of the guideline, each factor was evaluated using criteria provided in Table 5.

For observational studies without any reasons for down-grading, the quality may be up-graded if there is a large effect, all plausible confounding would reduce the demonstrated effect (or increase the effect if no effect was observed), or there is evidence of a dose-response gradient (details would be provided under the 'other' column).

Each evidence profile includes a summary of findings: number of participants included in each group, an estimate of the magnitude of the effect, and the overall quality of the

evidence for each outcome. Under the GRADE approach, the overall quality for each outcome is categorised into one of four groups (high, moderate, low, very low).

Table 4: Example of a GRADE evidence profile

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other consider-ations**	**Intervention**	**Control group**	**Relative (95% CI)**	**Absolute**		
Outcome 1 (measured with: any valid method; Better indicated by lower values)												
2	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[1]	none	47	43	-	SMD 0.20 lower (0.61 lower to 0.21 higher)	□□□□ MODERATE	CRITICAL
Outcome 2 (measured with: any valid rating scale; Better indicated by lower values)												
4	randomised trials	serious[2]	no serious inconsistency	no serious indirectness	serious[1]	none	109	112	-	SMD 0.42 lower (0.69 to 0.16 lower)	□□□□ LOW	CRITICAL
Outcome 3 (measured with: any valid rating scale; Better indicated by lower values)												
26	randomised trials	no serious risk of bias	serious[3]	no serious indirectness	no serious imprecision	none	521/5597 (9.3%)	798/3339 (23.9%)	RR 0.43 (0.36 to 0.51)	136 fewer per 1000 (from 117 fewer to 153 fewer)	□□□□ MODERATE	CRITICAL
Outcome 4 (measured with: any valid rating scale; Better indicated by lower values)												
5	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	no serious imprecision	none	503	485	-	SMD 0.34 lower (0.67 to 0.01 lower)	□□□□ HIGH	CRITICAL

[1] Optimal information size (for dichotomous outcomes, OIS = 300 events; for continuous outcomes, OIS = 400 participants) not met.
[2] Risk of bias across domains was generally high or unclear.
[3] There is evidence of moderate heterogeneity of study effect sizes.

Table 5: Factors that decrease quality of evidence

Factor	Description	Criteria
Limitations	Methodological quality/ risk of bias.	Serious risks across most studies (that reported a particular outcome). The evaluation of risk of bias was made for each study using NICE methodology checklists (see Section 3.5.1).
Inconsistency	Unexplained heterogeneity of results.	Moderate or greater heterogeneity (see Appendix X for further information about how this was evaluated)
Indirectness	How closely the outcome measures, interventions and participants match those of interest.	If the comparison was indirect, or if the question being addressed by the GC was substantially different from the available evidence regarding the population, intervention, comparator, or an outcome.
Imprecision	Results are imprecise when studies include relatively few patients and few events and thus have wide confidence intervals around the estimate of the effect.	If either of the following two situations were met: • the optimal information size (for dichotomous outcomes, OIS = 300 events; for continuous outcomes, OIS = 400 participants) was not achieved • the 95% confidence interval around the pooled or best estimate of effect included both 1) no effect and 2) appreciable benefit or appreciable harm
Publication bias	Systematic underestimate or an overestimate of the underlying beneficial or harmful effect due to the selective publication of studies.	Evidence of selective publication. This may be detected during the search for evidence, or through statistical analysis of the available evidence.

3.5.15 Presenting evidence to the Guideline Committee

Study characteristics tables and, where appropriate, forest plots generated with Review Manager Version 5.3.5 and GRADE summary of findings tables (see below) were presented to the GC.

Where meta-analysis was not appropriate and/or possible, the reported results from each primary-level study were reported in the study characteristics table and presented to the GC. The range of effect estimates were included in the GRADE profile, and where appropriate, described narratively.

3.5.581 Summary of findings tables

Summary of findings tables generated from GRADEpro were used to summarise the evidence for each outcome and the quality of that evidence (Table 6). The tables provide illustrative comparative risks, especially useful when the baseline risk varies for different groups within the population.

Table 6: Example of a GRADE summary of findings table

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)
	Assumed risk	**Corresponding risk**			
	Any control group	Intervention group			
Outcome 1 any valid rating scale		The mean outcome in the intervention group was **0.20 standard deviations lower** (0.61 lower to 0.21 higher)		90 (2 studies)	⊕⊕⊕⊖ moderate[1]
Outcome 2 any valid rating scale		The mean outcome in the intervention group was **0.42 standard deviations lower** (0.69 to 0.16 lower)		221 (4 studies)	⊕⊕⊖⊖ low[1,2]
Outcome 3 dichotomous data	**239 per 1000**	**103 per 1000** (86 to 122)	**RR 0.43** (0.36 to 0.51)	8936 (26 studies)	⊕⊕⊕⊖ moderate[3]
Outcome 4 any valid rating scale		The mean outcome in the intervention group was **0.34 standard deviations lower** (0.67 to 0.01 lower)		988 (5 studies)	⊕⊕⊕⊕ high

*The basis for the assumed risk (e.g. the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

Note. CI = Confidence interval.
[1] Optimal information size (for dichotomous outcomes, OIS = 300 events; for continuous outcomes, OIS = 400 participants) not met.
[2] Risk of bias across domains was generally high or unclear.
[3] There is evidence of moderate heterogeneity of study effect sizes.

3.516 Extrapolation

When answering review questions, if there is no direct evidence from a primary dataset,[2] based on the initial search for evidence, it may be appropriate to extrapolate from another data set. In this situation, the following principles were used to determine when to extrapolate:

- a primary dataset is absent, of low quality or is judged to be not relevant to the review question under consideration, and
- a review question is deemed by the GC to be important, such that in the absence of direct evidence, other data sources should be considered, and
- non-primary data source(s) is in the view of the GC available, which may inform the review question.

When the decision to extrapolate was made, the following principles were used to inform the choice of the non-primary dataset:

- the populations (usually in relation to the specified diagnosis or problem which characterises the population) under consideration share some common characteristic but differ in other ways, such as age, gender or in the nature of the disorder (for example, a common behavioural problem; acute versus chronic presentations of the same disorder) , and
- the interventions under consideration in the view of the GC have one or more of the following characteristics:
  - share a common mode of action (for example, the pharmacodynamics of drug; a common psychological model of change – operant conditioning)
  - be feasible to deliver in both populations (for example, in terms of the required skills or the demands of the health care system)
  - share common side effects/harms in both populations, and
- the context or comparator involved in the evaluation of the different datasets shares some common elements which support extrapolation, and
- the outcomes involved in the evaluation of the different datasets shares some common elements which support extrapolation (for example, improved mood or a reduction in challenging behaviour).

When the choice of the non-primary dataset was made, the following principles were used to guide the application of extrapolation:

- the GC should first consider the need for extrapolation through a review of the relevant primary dataset and be guided in these decisions by the principles for the use of extrapolation
- in all areas of extrapolation datasets should be assessed against the principles for determining the choice of datasets. In general the criteria in the four principles set out above for determining the choice should be met
- in deciding on the use of extrapolation, the GC will have to determine if the extrapolation can be held to be reasonable, including ensuring that:
  - the reasoning behind the decision can be justified by the clinical need for a recommendation to be made
  - the absence of other more direct evidence, and by the relevance of the potential dataset to the review question can be established
  - the reasoning and the method adopted is clearly set out in the relevant section of the guideline.

[2] A primary data set is defined as a data set which contains evidence on the population and intervention under review

3.5.17 Method used to answer a review question in the absence of appropriately designed, high-quality research

In the absence of appropriately designed, high-quality research (including indirect evidence where it would be appropriate to use extrapolation), an informal consensus process was adopted.

For some outcomes, the process involved a member of the GC or review team drafting a statement about what is known about the issue based on expert opinion from existing narrative reviews. The statement was circulated to the GC and used as the basis of a group discussion.

For other outcomes, the process involved a group discussion of what is known about the issues. The views of GC were synthesised narratively by a member of the review team, and circulated after the meeting. Feedback was used to revise the text, which was then included in the appropriate evidence review chapter.

3.6 Health economics methods

The aim of the health economics was to contribute to the guideline's development by providing evidence on the cost effectiveness of interventions for the promotion of attachment in children and young people who are adopted from care, in care or on the edge of care covered in the guideline. This was achieved by:

- systematic literature review of existing economic evidence
- decision-analytic economic modelling.

Systematic reviews of economic literature were conducted in all areas covered in the guideline. Economic modelling was undertaken in areas with likely major resource implications, where the current extent of uncertainty over cost effectiveness was significant and economic analysis was expected to reduce this uncertainty, in accordance with *The Guidelines Manual* (NICE, 2014). Prioritisation of areas for economic modelling was a joint decision between the Health Economist and the GC. The rationale for prioritising review questions for economic modelling was set out in an economic plan agreed between NICE, the GC, the Health Economist and the other members of the technical team. The following economic question was selected as the key issue that was addressed by economic modelling:

- psychosocial and psychological interventions for the promotion of attachment in children and young people on the edge of care

In addition, literature on the health-related quality of life of children and young people with attachment difficulties was systematically searched to identify studies reporting appropriate utility scores that could be utilised in a cost-utility analysis.

The rest of this section describes the methods adopted in the systematic literature review of economic studies. Methods employed in economic modelling are described in the relevant economic sections of the evidence chapters.

3.6.1 Search strategy for economic evidence

3.6.1.1 Scoping searches

A broad preliminary search of the literature was undertaken in September 2013 to obtain an overview of the issues likely to be covered by the scope, and help define key areas. Searches were restricted to economic studies and HTA reports, and conducted in the following databases:

- Embase
- MEDLINE/MEDLINE In-Process
- HTA database (technology assessments)

- NHS Economic Evaluation Database (NHS EED).

Any relevant economic evidence arising from the clinical scoping searches was also made available to the health economist during the same period.

3.6.142 Systematic literature searches

After the scope was finalised, a systematic search strategy was developed to locate all the relevant evidence. The balance between sensitivity (the power to identify all studies on a particular topic) and specificity (the ability to exclude irrelevant studies from the results) was carefully considered, and a decision was made to utilise a broad approach to searching to maximise retrieval of evidence to all parts of the guideline. Searches were restricted to economic studies and health technology assessment reports, and conducted in the following databases:

- American Economic Association's electronic bibliography (EconLIT)
- Excerpta Medica Database (Embase)
- HTA database (technology assessments)
- MEDLINE/MEDLINE In-Process
- NHS Economic Evaluation Database (EED)
- Psychological Information Database (PsycINFO).

Any relevant economic evidence arising from the clinical searches was also made available to the health economist during the same period.

The search strategies were initially developed for MEDLINE before being translated for use in other databases/interfaces. Strategies were built up through a number of trial searches, and discussions of the results of the searches with the review team and GC to ensure that all possible relevant search terms were covered. In order to assure comprehensive coverage, search terms for the guideline topic were kept purposely broad to help counter dissimilarities in database indexing practices and thesaurus terms, and imprecise reporting of study populations by authors in the titles and abstracts of records.

For standard mainstream bibliographic databases (Embase, MEDLINE and PsycINFO) search terms for the guideline topic were combined with a search filter for health economic studies. For searches generated in topic-specific databases (HTA, NHS EED) search terms for the guideline topic were used without a filter. The sensitivity of this approach was aimed at minimising the risk of overlooking relevant publications, due to potential weaknesses resulting from more focused search strategies. The search terms are set out in full in Appendix I.

3.6.123 Reference Management

Citations from each search were downloaded into End Note reference management software and duplicates removed. Records were then screened against the inclusion criteria of the reviews before being quality appraised. The unfiltered search results were saved and retained for future potential re-analysis to help keep the process both replicable and transparent.

3.6.174 Search filters

The search filter for health economics is an adaptation of a pre-tested strategy designed by the Centre for Reviews and Dissemination (2007). The search filter is designed to retrieve records of economic evidence (including full and partial economic evaluations) from the vast amount of literature indexed to major medical databases such as MEDLINE. The filter, which comprises a combination of controlled vocabulary and free-text retrieval methods, maximises sensitivity (or recall) to ensure that as many potentially relevant records as possible are retrieved from a search. A full description of the filter is provided in Appendix I.

3.6.115 Date and language restrictions

Systematic database searches were initially conducted in December 2013 up to the most recent searchable date. Search updates were generated on a 6-monthly basis, with the final re-runs carried out in February 2015. After this point, studies were included only if they were judged by the GC to be exceptional (for example, the evidence was likely to change a recommendation).

Although no language restrictions were applied at the searching stage, foreign language papers were not requested or reviewed, unless they were of particular importance to an area under review. All the searches were restricted to research published from 1999 onwards in order to obtain data relevant to current healthcare settings and costs.

3.6.116 Other search methods

Other search methods involved scanning the reference lists of all eligible publications (systematic reviews, stakeholder evidence and included studies from the economic and clinical reviews) to identify further studies for consideration.

Full details of the search strategies and filter used for the systematic review of health economic evidence are provided in Appendix I.

3.6.2 Inclusion criteria for economic studies

The following inclusion criteria were applied, to select studies identified by the economic searches for further consideration:

1. Only studies from countries in the Organisation for Economic Co-operation and Development were included, because the aim of the review is to identify economic information transferable to the UK context.
2. Selection criteria based on types of clinical conditions and service users as well as interventions assessed were identical to the clinical literature review.
3. Studies were included provided that sufficient details regarding methods and results were available to enable the methodological quality of the study to be assessed, and provided that the study's data and results were extractable. Poster presentations and conference abstracts were excluded.
4. Full economic evaluations that compared 2 or more relevant options and considered both costs and consequences as well as costing analyses that compared only costs between 2 or more interventions were included in the review.
5. Economic studies were included if they used clinical effectiveness data from an RCT, a prospective cohort study, or a systematic review and meta-analysis of clinical studies. Studies that had a mirror-image or other retrospective design were also included in the review.
6. Studies were included only if the examined interventions were clearly described. This involved the types of health professionals involved as well as the frequency and duration of treatment.
7. Studies that adopted a very narrow perspective, ignoring major categories of costs to the NHS, were excluded. Such studies were considered non-informative to the guideline development process.

3.6.3 Applicability and quality criteria for economic studies

All economic papers eligible for inclusion were appraised for their applicability and quality using the methodology checklist for economic evaluations recommended by NICE (2012). The methodology checklist for economic evaluations was also applied to the model-based economic analyses undertaken specifically for this guideline. All studies that fully or partially met the applicability and quality criteria described in the methodology checklist were considered during the guideline development process, along with the results of the economic modelling conducted

specifically for this guideline. The completed methodology checklists for all economic evaluations considered in the guideline are provided in Appendix Q.

3.6.4 Presentation of economic evidence

The economic evidence considered in the guideline is provided in the respective evidence chapters, following presentation of the relevant clinical evidence. The references to included studies and the respective evidence tables with the study characteristics and results are provided in Appendix R. Methods and results of economic modelling undertaken alongside the guideline development process are presented in the relevant evidence chapters. Characteristics and results of all economic studies considered during the guideline development process (including modelling studies conducted for this guideline) are summarised in economic evidence profiles accompanying respective GRADE tables.

3.6.5 Results of the systematic search of economic literature

The titles of all studies identified by the systematic search of the literature were screened for their relevance to the topic (that is, economic issues and information on health-related quality of life). References that were clearly not relevant were excluded first. The abstracts of all potentially relevant studies (29 references) were then assessed against the inclusion criteria for economic evaluations by the health economist. Full texts of the studies potentially meeting the inclusion criteria (including those for which eligibility was not clear from the abstract) were obtained. Studies that did not meet the inclusion criteria, were duplicates, were secondary publications of one study, or had been updated in more recent publications were subsequently excluded. Economic evaluations eligible for inclusion (3 studies in 4 publications) were then appraised for their applicability and quality using the methodology checklist for economic evaluations. Finally, those studies that fully or partially met the applicability and quality criteria were considered at formulation of the guideline recommendations. The flow chart of the systematic search of economic literature can be found in Appendix P, and exclusion list in Appendix M.

3.7 From evidence to recommendations

Once the clinical and health economic evidence was summarised, the GC drafted the recommendations. In making recommendations, the GC took into account the trade-off between the benefits and harms of the intervention/instrument, as well as other important factors, such as economic considerations, values of the GC and society, the requirements to prevent discrimination and to promote equality[3], and the GC's awareness of practical issues (Eccles et al., 1998; NICE, 2012).

Finally, to show clearly how the GC moved from the evidence to the recommendations, each chapter has a section called 'from evidence to recommendations'. Underpinning this section is the concept of the 'strength' of a recommendation (Schünemann et al., 2003). This takes into account the quality of the evidence but is conceptually different. Some recommendations are 'strong' in that the GC believes that the vast majority of healthcare professionals and service users would choose a particular intervention if they considered the evidence in the same way that the GC has. This is generally the case if the benefits clearly outweigh the harms for most people and the intervention is likely to be cost effective. However, there is often a closer balance between benefits and harms, and some service users would not choose an intervention whereas others would. This may happen, for example, if some service users are particularly averse to some side effect and others are not. In these circumstances the recommendation is generally weaker, although it may be possible to make stronger recommendations about specific groups of

[3]See NICE's equality scheme: www.nice.org.uk/aboutnice/howwework/NICEEqualityScheme.jsp

service users. The strength of each recommendation is reflected in the wording of the recommendation, rather than by using ratings, labels or symbols.

Where the GC identified areas in which there are uncertainties or where robust evidence was lacking, they developed research recommendations. Those that were identified as 'high priority' were developed further in the NICE version of the guideline, and presented in Appendix G.

3.8 Stakeholder contributions

Professionals, service users, and companies have contributed to and commented on the guideline at key stages in its development. Stakeholders for this guideline include:

- service user and carer stakeholders: national service user and carer organisations that represent the interests of people whose care will be covered by the guideline
- local service user and carer organisations: but only if there is no relevant national organisation
- professional stakeholders' national organisations: that represent the healthcare professionals who provide the services described in the guideline
- commercial stakeholders: companies that manufacture drugs or devices used in treatment of the condition covered by the guideline and whose interests may be significantly affected by the guideline
- providers and commissioners of health services in England
- statutory organisations: including the Department of Health, the Care Quality Commission and the National Patient Safety Agency
- research organisations: that have carried out nationally recognised research in the area.

NICE clinical guidelines are produced for the NHS in England, so a 'national' organisation is defined as one that represents England, or has a commercial interest in England.

Stakeholders have been involved in the guideline's development at the following points:

- commenting on the initial scope of the guideline and attending a scoping workshop held by NICE
- contributing possible review questions and lists of evidence to the GC
- commenting on the draft of the guideline.

3.9 Validation of the guideline

Registered stakeholders had an opportunity to comment on the draft guideline, which was posted on the NICE website during the consultation period. Following the consultation, all comments from stakeholders and experts (see Appendix D) were responded to, and the guideline updated as appropriate. NICE also reviewed the guideline and checked that stakeholders' comments had been addressed.

Following the consultation period, the GC finalised the recommendations and the NCCMH produced the final documents. These were then submitted to NICE for a quality assurance check. Any errors were corrected by the NCCMH, then the guideline was formally approved by NICE and issued as guidance to the NHS in England.

4 Biological factors associated with the development of attachment difficulties in children and young people

4.1 Introduction

Although considerable debate surrounding the possibility that infant attachment insecurity may reflect the child's temperament, rather than the quality of care, extensive research has generally not support this idea. Findings have been extremely inconsistent, and few now consider attachment insecurity to merely reflect temperament (see Bakermans- Kranenburg & Van Ijzendoorn, 2012). Furthermore, studies that have investigated the possibility that early childhood attachment may be influenced by the child's genes have generally not found this to be the case; attachment variations in early childhood appear to be related primarily to the environment (see Chapter 5), and to variation in parenting behaviours.

4.2 Review question: what familial biological and environmental factors are associated with the development of attachment difficulties in children and young people?

The review protocol summary, including the review question and the eligibility criteria used for this section of the guideline, can be found in Table 7. A complete list of review questions can be found in Appendix F further information about the search strategy can be found in Appendix H; the full review protocols can be found in Appendix F.

This review focuses on the biological or genetic risk factors associated with attachment difficulties. It was restricted to include cohort or cross-sectional studies. The review of environmental factors can be found in Chapter 5.

Table 7: Clinical review protocol summary for the review of what familial biological and environmental factors are associated with the development of attachment difficulties in children and young people?

Topic	Biological factors associated with the development of attachment difficulties.
Population	Children and young people (aged 0–18 years) with insecure/disorganised attachment or attachment disorders. Strata: Pre-school (≤4 years), primary school (>4 to 11 years), secondary school (>11 to 18 years)
Intervention	Example biological (gene expression) risk factors investigated • 7-repeat allele on the dopamine D4 receptor (DRD4) gene • -521 C/T promoter polymorphisms • Serotonin transporter gene (5-HTTLPR, ss/sl vs. II genotype)
Critical outcomes	Association between attachment difficulties and gene of interest. Include data that has been adjusted for: • multiple regression co-efficient β (continuous variables).

Topic	Biological factors associated with the development of attachment difficulties.
	• adjusted OR, RR, HR (dichotomous variables) • adjusted Poisson regression • adjusted Cox regression (RR) • ANCOVA (type of multiple regression) Single risk factors (unadjusted) – use if no adjusted data. • correlation coefficient, r2 (continuous variables) • regression coefficient (slope) β (continuous variables) • chi-squared test $\chi 2$ (categorical variables)
Study design	Observational non-RCT studies (prospective cohort studies, case-control, cross-sectional)
Note. This protocol reflects the methods used to search for an association between gene expression and attachment difficulties. The review on environmental risk factors is summarised elsewhere.	

4.2.1 Clinical evidence: what familial biological factors are associated with the development of attachment difficulties in children and young people?

Twenty-eight cross-sectional and cohort studies (n=13759) met the eligibility criteria for this review: Bakermans-Kranenburg 2012 (Bakermans-Kranenburg et al., 2012), Bakermans-Kranenburg 2004 (Bakermans-Kranenburg et al., 2004) Barry 2008 (Barry et al., 2008), Bokhorst 2003 (Bokhorst et al., 2003b), Caspers 2009 (Caspers et al., 2009), Constantino 2006 (Constantinou et al., 2006), Cicchetti 2011 (Cicchetti et al., 2011), Drury 2012 (Drury et al., 2012), Fearon 2014 (Fearon et al., 2014) Finkel 1998 (Finkel et al., 1998), Frigerio 2009 (Frigerio et al., 2009), Gervai 2005 (Gervai et al., 2005), Kochanska 2009 (Kochanska et al., 2009), Lakatos 2000 (Lakatos et al., 2000), Lakatos 2002 (Lakatos et al., 2002), Lakatos 2003 (Lakatos et al., 2003), Luijk 2011 (Luijk et al., 2011b), Luijk 2011b (Luijk et al., 2011a), Minnis 2007 (Minnis et al., 2007), O'Connor 2001 (O'Connor & Croft, 2001), Pauli-Pott 2009 (Pauli-Pott et al., 2009), Raby 2012 (Raby et al., 2012), Raby 2013 (Raby et al., 2013) Starr 2013 (Starr et al., 2013), Spangler 2009 (Spangler et al., 2009), Ward 1988(Ward et al., 1988), Van Ijzendoorn 2000 (van Ijzendoorn et al., 2000) , Van Ijzendoorn 2006 (Van Ijzendoorn & Bakermans-Kranenburg, 2006).

Of the 28 eligible studies, 23 (N = 4044) provided data that could be meta-analysed, the remaining 5 studies are presented as a narrative in Table 9. All of the studies measured attachment difficulties, however not all of them were in a high-risk population (i.e. children on the edge of care who had been maltreated or experienced a high number of placements). Therefore, studies with a low-risk population may have lacked power to detect an association between gene expression and attachment difficulties. A summary of the studies included in this review can be found in Table 8.

Studies reporting an association of any gene variant with attachment difficulties were included. However, most studies reported data on the 7-repeat allele on the Dopamine D4 receptor (*DRD4*) gene, -521 C/T promoter polymorphisms upstream of *DRD4*, and the Serotonin transporter gene (*5-HTTLPR, ss/sl vs. II* genotype). *DRD4* plays a role in cognitive and emotional processes and variations in the presence of the 7-repeat allele are associated with lower dopamine efficiency. *5-TTHLRP* is associated with brain development, mood and emotional regulation. The long variant (ll) polymorphism has 2-3 times more activity than the short variant (ss). Little evidence was found on polymorphisms for the gene encoding enzyme Catechol-O-methyltransferase (*COMT*) and gamma-aminobutyric acid (*GABA*). *COMT* is associated with the response to pain and psychological stress, whilst *GABA* plays a role in neurotransmission and in the stress response. Some data was available on the

glucocorticoid receptor (*GR*) mineral corticoid receptor (*MR*) and oxytocin (*OXY*), however raw data was not available so it was presented in a narrative form, along with other studies that provided results that could not be meta-analysed. For a summary of these results, see Table 8.

Eight studies provided data on the degree of concordance in attachment and gene expression between siblings. Gene expression for monozygotic twins is approximately 100% similar, whilst for dizygotic twins gene expression is only 50% matched. For this reason you would expect if attachment is related to genes, then monozygotic twins would have the same degree of attachment or approximately 100% agreement in those who are secure versus insecure or disorganised. Similarly, you would expect dizygotic twins to show a lower degree of concordance in their attachment status because they only share 50% of their genetic make-up. This is the same for biological siblings who are not monozygotic twins. Four of these studies could be meta-analysed, the remainder are presented in a summary table, see Table 10.

Summary of findings for results that could be meta-analysed can be found in Table 11 and Table 12. The forest plots can be found in Appendix O, full GRADE evidence profiles can be found in Appendix N. See also the study selection flow chart in Appendix P, excluded studies in Appendix M.

Table 8: Study information table for trials included in the meta-analysis of what familial biological factors are associated with the development of attachment difficulties in children and young people?

	Genetic
Total no. of studies (N)	28 studies
Study ID	1. Lakatos 2000 2. Lakatos 2002 3. Lakatos 2003 4. Bakermans-Kranenburg 2004 5. Van Ijzendoorn 2006 6. Bokhorst 2003 7. Caspers 2009 8. Constantino 2006 9. Finkel 1998 10. O'Connor 2001 11. Gervai 2005 12. Raby 2012 13. Spangler 2009 14. Ward 1988 15. Van Ijzendoorn 2000 16. Cicchetti 2011 17. Luijk 2011 18. Frigerio 2009 19. Drury 2012 20. Luijk 2011b 21. Kochanska 2009 22. Barry 2008 23. Bakermans-Kranenburg 2012 24. Pauli-Pott 2009 25. Raby 2013 26. Starr 2013 27. Fearon 2014

	Genetic
	28. Minnis 2007
Country	1. Hungary 2. Hungary 3. Hungary 4. Netherlands 5. Netherlands 6. Netherlands 7. USA 8. USA 9. USA 10. UK 11. Hungary 12. USA 13. Germany 14. USA 15. Canada 16. USA 17. Netherlands 18. UK 19. USA 20. Netherlands 21. USA 22. USA 23. Netherlands 24. Germany 25. USA 26. USA 27. UK 28. UK
Type of publication	1. Cohort study 2. Cohort study 3. Cohort study

	Genetic
	4. Cohort study 5. Cohort study 6. Cohort study 7. Cohort study 8. Cohort study 9. Cohort study 10. Cohort study 11. Cohort study 12. Cohort study 13. Cohort study 14. Cohort study 15. Cohort study 16. Cohort study 17. Cohort study 18. Cohort study 19. RCT 20. Cohort study 21. Cohort study 22. Cohort study 23. Cohort study 24. Cohort study 25. Cohort study 26. Cohort study 27. Cross-sectional 28. Cross-sectional
Number of participants	1. 90 2. 90 3. 90 4. 56 5. 63 6. 157 7. 126 sibling pairs 8. 47 twins

	Genetic
	9. 60 twins 10. 110 twins 11. 95 and their mothers 12. 154 and their mothers 13. 106 14. 130, 65 siblings. 15. 138 sibling pairs. 16. 153 17. 302 18. 100 19. 112 20. 547 + 522 =1069 21. 89 22. 88 23. 37 24. 69 25. 143 26. 354 27. 551 twin pairs 28. 9180
Diagnosis	1. Strange Situation Procedure 2. Strange Situation Procedure 3. Strange Situation Procedure 4. Attachment Q sort 5. Adult Attachment Interview and Strange Situation Procedure 6. Strange Situation Procedure 7. Adult attachment interview 8. Adult Attachment Interview 9. Strange Situation Procedure 10. Strange Situation Procedure 11. Strange Situation Procedure 12. Strange Situation Procedure and Mother's Responsiveness based on Ainsworth's scale of maternal sensitivity and cooperation

	Genetic
	13. Strange Situation Procedure 14. Strange Situation Procedure 15. Strange Situation Procedure 16. Strange Situation Procedure 17. Strange Situation Procedure and Mother's Responsiveness based on Ainsworth's scale of maternal sensitivity and cooperation 18. Strange Situation Procedure 19. The Disturbances of Attachment Interview 20. Strange Situation Procedure 21. Strange Situation Procedure 22. Strange Situation Procedure 23. Strange Situation Procedure 24. Strange Situation Procedure 25. Strange Situation Procedure 26. The Bartholomew Relationship Questionnaire (Bartholomew and Horowitz 1991) 27. Child Attachment Interview 28. Relationship Problems Questionnaire
Population	1. Hungarian infants, low social risk (middle class with healthy, full-term, first born infants) 2. Hungarian infants, low social risk (middle class with healthy, full-term, first born infants) 3. Hungarian infants, low social risk (middle class with healthy, full-term, first born infants) 4. Middle class parents. Focused on the relationship between the father and infant (vs mother and infant in Bokhorst 2003). 5. Mothers who had experienced a significant death. 6. Middle class and had twins 7. Adopted children with a biological parent having a documented psychiatric problem (for example, alcohol problems, antisocial behaviour, depression). Adoptees were adopted on average 2 months of age 8. MZ female twins reared together. One or more twins at Conduct Disorder. Randomly ascertained from participants in Missouri Adolescent Female Twin Study. 9. Randomly selected from a database. Same sex-twins that reached 18 or 24 months were invited to participate. 10. Families with same-sex twins were recruited through hospital records in metropolitan and rural England. 11. Hungarian families participating in Budapest Infant-Parent Study.

	Genetic
	12. Mothers were below the poverty line and 63% were single. 13. Healthy German low-risk infants, representing a wide range of SES infants. 14. 65 families drawn from larger group of woman and firstborns who also had a second child 2 years old. 15. 83 mothers recruited through city-hall records in Netherlands. A sibling was born within 5 years (average 37 months) 16. Children who have been maltreated and involved in an RCT so there are intervention and control groups and a non-maltreated control group. 17. Generation R Study data base from the Netherlands. Homogenous data set selected, only Dutch nationals. 18. Healthy middle class mothers from Italy. Majority were middle class and married. 19. Bucharest Early Intervention Study. RCT of foster care as an alternative to institutional care in Romania. 20. Two cohorts. Generation R study and Study of Early Child Care and Youth Development. The former from Netherlands following children from fetal life to young adulthood. The latter followed children from the USA from birth to 17.5 years of age. 21. Responded to ads. Presented a broad range of education and income 22. Families with normally developing infants volunteered for longitudinal study. 23. Ukrainian children without HIV (HIV excluded) reared by family or institutions. Those had been in institution for 12-64 months. 24. Healthy firstborn infants, with a homogenous sample in respect to health and family characteristics 25. as above 26. Participants were oversampled for maternal depression assessed during pregnancy, postpartum, and 6 months and 5 years after birth 27. Recruited from larger Twin Early Development study 28. Recruited from larger Twin Early Development study
Control	1. No controls 2. No controls 3. No controls 4. MZ versus DZ twins 5. No controls 6. MZ versus DZ twins 7. Adopted control with no parental history of psychiatric problems. Or non-adopted sibling.

	Genetic
	8. MZ versus DZ twins 9. MZ versus DZ twins 10. MZ versus DZ twins 11. No controls 12. No controls 13. No controls 14. No controls. 15. No controls 16. Non-maltreated controls 17. No controls 18. No controls 19. Institutional care 20. No controls 21. No controls 22. No controls 23. No controls 24. No controls 25. No controls 26. No controls 27. MZ versus DZ twins 28. MZ versus DZ twins
Outcome	1. Disorganised attachment 2. Disorganised attachment 3. Disorganised attachment 4. Secure attachment 5. Disorganised attachment 6. Attachment concordance. Disorganised attachment, avoidant, secure, resistant 7. Organised and disorganised attachment (D = dismissing, F=autonomous, E= preoccupied, CC=cannot be classified, U=unresolved/disorganised) 8. Attachment concordance. Secure and Insecure. 9. Attachment concordance. Secure and insecure. 10. Attachment concordance. Secure, insecure, disorganised. 11. Disorganised and secure attachment

	Genetic
	12. Secure attachment and maternal responsiveness 13. Attachment security and disorganisation 14. Secure and insecure attachment 15. Attachment security, insecure and disorganisation 16. Attachment security, insecure and disorganisation 17. Attachment security 18. Attachment security, insecure and disorganisation 19. Indiscriminate behaviour 20. Attachment security, insecure and disorganisation 21. Attachment security, insecure and disorganisation + self-regulation 22. Attachment security, insecure and disorganisation + maternal responsiveness 23. Attachment security, insecure and disorganisation 24. Attachment security, insecure (avoidant and resistant) and disorganisation 25. Attachment security, insecure and disorganisation 26. Attachment security, insecure and disorganisation 27. Attachment security, insecure 28. Attachment security, insecure
Measure of outcome	1. N, p value 2. N, p value 3. N, p value 4. Chi squared, p value. – captured as descriptive. 5. Chi squared, r, p value 6. Absolute numbers. 7. Absolute numbers, Chi squared – captured as descriptive. 8. Absolute numbers 9. Absolute numbers. 10. Absolute numbers. 11. Absolute numbers and p value. 12. Regression, r value. No exact p value or numbers in each group so results captured in table only. 13. N and p value. 14. % presented in table only. 15. % presented in table only. 16. N and p values

	Genetic
	17. Regression and 95% CI, p value. 18. N and p values 19. Graphical presentation 20. Mean and SD across different allele expression. 21. Regression analysis. No raw numbers available. 22. N and p values 23. Divided into groups of institution vs. family reared. % provided. 24. Absolute numbers 25. Linear regression (bivariate – unadjusted) 26. Linear regression (bivariate – unadjusted) 27. Modelled data 28. % presented in table only.
Adjusted outcome	1. No 2. No 3. No 4. No 5. Yes, multiple hierarchical regression adjusting for other main effects 6. Yes, modelled the data to adjust for other variables, that is, shared and unique environment. 7. No 8. No 9. No 10. No 11. No 12. No 13. No 14. No 15. No 16. No 17. Yes, results were adjusted for covariates. Unclear which ones. 18. No 19. No 20. Conducted various adjusted analysis. However, results presented are unadjusted. 21. Conducted step wise regression.

	Genetic
	22. No 23. Adjusted various results for care factors and IQ. 24. No 25. No 26. No 27. No 28. No.
Age	1. 12 to 75 months 2. 12 to 75 months 3. 12 to 75 months 4. 12 to 75 months 5. 14 to 15 months 6. 12 to 14 months 7. 38.3 ± 7.7 years and 38.4 ± 8.8 years 8. 13-26 years 9. 19 and 24 months. 10. 42 to 45 months 11. 12 months 12. 6, 12 and 18 months 13. 12 months 14. 12 months assessed 15. 12 -13 months assessed. 16. Mean 13.3 months 17. 14.7 ± 0.9 months 18. 12-18 months 19. 6 – 30 months 20. SSP at 15 months of age 21. Time 1: 7 months; Time 5: 52 months 22. 7 months 23. 50 months 24. 18 months 25. 12-18 months up to 19-26 years 26. 15 years

	Genetic
	27. 13.9 to 16.4 years 28. Mean 7.9 years
Sex	1. Mixed 2. Mixed 3. Mixed 4. Mixed 5. 46% girls 6. Same-sex twins and different gender. 7. Unclear 8. 100% female 9. Unclear 10. 58% female 11. 43% girls 12. 52% girls 13. 50% girls. 14. 43% girls 15. Unclear 16. 53.4% girls 17. 48.8% girls 18. 45% girls 19. 51% girls 20. 49.5% girls 21. 50% girls 22. 50% girls 23. 54% girls 24. 50.7% girls 25. 52% girls 26. 61.3% girls 27. 55% girls 28. 51.2% girls
Ethnicity	1. Various 2. Various 3. Various

	Genetic
	4. Leiden and London 5. Unclear 6. Leiden and London 7. Unclear 8. Unclear 9. Unclear 10. Unclear 11. 100% White 12. 67% White 13. 100% White 14. Unclear 15. Unclear 16. 42% maternal minority 17. Dutch 18. Italian 19. Romanian 20. Unclear 21. 91% White 22. 90% White 23. Ukrainian 24. European origin 25. 67% White 26. 100% White 27. 83% White 28. 87.5 to 93.9% White
Risk Factors investigated	1. DRD4 III exon 48 repeat polymorphism. That is the number of 48-bp repeats by PCR 2. DRD4 polymorphism and -521 C/T promoter polymorphism 3. Serotonin transporter promoter 5-HTTLPR 4. Genetic versus environmental contribution to attachment 5. DRD4 polymorphism and -521 C/T promoter polymorphism 6. Genetic versus environmental contribution to attachment 7. Biological parents with alcoholic or antisocial behaviours. 8. Genetic similarity for attachment classification.

	Genetic
	9. Genetic similarity for attachment classification. 10. Genetic similarity for attachment classification. 11. DRD4-7 repeat allele and 521 C/T allele transmission between mother and child. 12. Serotonin transporter promoter 5-HTTLPR at 6months predicting outcome of secure attachment at 12 or 18 months of age. 13. DRD4 7 repeat allele, 521 C/T, 5-HTTLPR 14. Sibling similarity for attachment classification 15. Sibling similarity for attachment classification. 16. DRD4 7 repeat allele, 521 C/T, 5-HTTLPR 17. Mineral cortical receptor gene and alleles. 18. 5-HTT, COMT, GABRA6, DRD4, DRD4/-521 19. 5-HTTLPR and BDNF 20. DRD4, DRD2, COMT, 5-HTT, OXTR 21. 5-HTTLPR 22. 5-HTTLPR 23. 5-HTTLPR 24. 5-HTTLPR (ss/sl/ll) 25. OXTR, DRD4, 5-HTTLPR 26. 5-HTTLPR s-allele 27. Genetic versus environmental contribution 28. Genetic similarity for attachment classification
Additional population risk factors	1. None. Low risk population 2. None. Low risk population 3. None. Low risk population 4. None. Mostly middle class and educated. 5. Mothers were recruited because of a loss experience. No other risk factors identified. 6. None. Mostly middle class and educated. 7. Unclear. 8. Unclear 9. Unclear. 10. Unclear 11. Unclear. 12. Below poverty line.

	Genetic
	13. None. 14. Unclear 15. Unclear. 16. Maltreatment. 17. 54.2% drank during pregnancy. 18. None. 19. Foster care vs. institutional care. 20. No additional risk factors 21. No additional risk factors 22. No additional risk factors 23. Adjusted for IQ and institutional care. 24. No 25. No 26. Depression 27. Low risk 28. Low risk
Notes	1. Absolute numbers of those with gene in different categories of attachment. 2. Absolute numbers of those with gene in different categories of attachment. 3. Absolute numbers of those with gene in different categories of attachment. 4. No data could be used to add to meta-analysis so text was captured only 5. Had to assume equal numbers in group with and without -521 T allele and DRD4+unresolved loss. Converted p value to SMD. 6. No data could be used to add to meta-analysis so text was captured only. 7. Some data could be extracted as absolute numbers, chi squared data as a narrative. 8. Absolute numbers in RevMan. 9. Absolute numbers in RevMan 10. Absolute numbers in RevMan 11. Absolute numbers of those with gene in different categories of attachment. 12. No exact p values provided and couldn't calculate SE of SMD so data captured in text only 13. Absolute numbers entered. Total is the total number with disorganised or secure attachment. However, additional findings are D in infancy was increased by the presence of the s/s 5-HTTLPR genotype but only for infants, whom their mothers exhibited low responsiveness 14. % presented in table only. Couldn't be meta-analysed

	Genetic
	15. % presented in table only. Couldn't be meta-analysed 16. Absolute numbers of those with gene in different categories of attachment 17. .Regression analysis was provided, no numbers so data could only be extracted as text in table. 18. Absolute numbers of those with gene in different categories of attachment. 19. Graphical data only, presented results in table. 20. Presented means and SD for individual allele combinations. Presented results in table instead. 21. Presented results in text with little data to extract since no raw numbers. Presented results in table. 22. Absolute numbers of those with gene in different categories of attachment. 23. Looked at interaction between rearing environment and attachment and genetic status. Presented results in table. Also presented means. 24. Narrative only 25. Narrative only 26. Narrative only 27. % presented in table only. 28. % presented in table only.

Table 9: Studies that measured the association between genes and attachment in children but could not be meta-analysed

Study	Sample	Measures of attachment	Positive results	Negative Results	Conclusion
Bakermans-Kranenburg 2012	Ukrainian children reared in home or institution. N=37	Attachment security assessed using Strange Situation Procedure (SSP)	Children with 5-HTTLRP ss or sl genotype had higher levels of disorganised attachment if they were raised in the institution vs. home. While those with ll expression had lower scores of disorganised attachment even when reared in an institution.		5-HTTLPR ll genotype was associated with lower disorganised attachment even when reared in an institution.
Bakermans-Kranenburg 2004	Recruited MZ and DZ twin pairs and their parents through the Netherlands Twin Registry. Most families were middle class. N=56	Attachment Q sort. Mother assessed father–child attachment. (The marital quality may bias the mother's judgement of attachment).		Modelled the data to look for the best fit. The best fit for secure attachment showed 0% genetic contribution, 59% shared environmental influence and 41% unique environment and measurement error	Data shows no genetic association with paternal attachment towards infant.
Drury 2012	Romanian children randomised to either Foster Care or care as usual in institution N=112	Disturbances of Attachment Interview (un-validated)	Indiscriminate friendliness was lower in children in an Institution compared with those in Foster Care but only in children with at least 1 short 5-HTTLPR allele.	No effect was found on BDNF (Brain derived neurotic factor) gene.	An effect of early institutional care on indiscriminate friendliness was detected but only in children with at least 1 short 5-HTTLPR allele. Used a non-validated tool to measure attachment.
Kochanska 2009	Participants responded to ads in local community	Attachment security assessed using Strange Situation Procedure (SSP)	Found an interaction between 5-HTTLPR allele and attachment security in the prediction of child's self-regulation.	There was no effect of security for 5-HTTLPR ll homozygotes.	Suggest secure attachment may serve as a predictive factor for children whose genotypes

Study	Sample	Measures of attachment	Positive results	Negative Results	Conclusion
	venues. Low risk population. N=89	Self-regulation. Battery of tasks to assess the child's capacity to suppress a dominant response and instead perform a sub-dominant response			may put them at risk of self-control deficiencies.
Luijk 2011	Age of 14 months and their mothers for 502 infants. Subjects recruited from Generation R Study from Netherlands. N=302	Attachment security assessed using Strange Situation Procedure (SSP) Sensitive-responsive assessed using Ainsworth scale for sensitivity (Ainsworth 1974)	To predict attachment security: Infants carrying the minor mineralocorticoid receptor (MR) allele were more secure during their SSP test if their mother's caregiving was sensitive-responsive (Sensitive x MR predicts attachment security, p<0.001).	No genetic main effect of MR gene (mineral corticoid receptor, involved in stress activity) or GR (glucocorticoid receptor gene) on secure attachment.	No main effect of MR or GR on secure attachment, but there appears to be interaction with sensitivity. Infants with the G alleles of the MR gene may be faster and better processors of information related to maternal responsiveness in stressful circumstances.
Luijk 2011b	Two cohorts. 1) Generation R Study, investigating development from fetal life into young adulthood in Rotterdam. 2) Study of Early Child Care and Youth Development (SECCYD), in	Attachment security assessed using Strange Situation Procedure (SSP)	One significant effect for disorganisation with the COMT gene. Infants with the Val/Met alleles (heterozygous) received significantly higher disorganisation ratings (p<0.001).	None of the following genes tested predicted SSP security ratings: DRD4, 5HTTLPR, 2 oxytocin receptor genes	Suggest heterozygotes for the COMT gene may be more susceptible to environmental influences or to a dysregulation of emotional arousal. One main effect – the COMT gene was significant for disorganisation in both samples at the uncorrected 5% level, but would not have survived corrections for multiple hypothesis testing.

Study	Sample	Measures of attachment	Positive results	Negative Results	Conclusion
	USA following children from birth to 17.5 years of age N=1069				
Pauli-Pott 2009	Healthy first born infants (43 girls and 58 boys) and their primary caregivers. . N=101	Ainsworth's SSP was conducted when the infants were 18 months.		No significant correlation between 5-HTTLPR genotype (s/s vs. s/l, l/l), and secure attachment	Secure attachment is not associated with 5-HTTLPR genotype (s/s vs. s/l, l/l),
Raby 2012	Longitudinal study of infants at12 and 18-months of age (154 participants and their mothers) N=115	The Ainsworth Strange Situation procedure. Observations of 2 30-minute feeding situations and a 20-minute play situation. Mothers' responsiveness was rated on Ainsworth's global scales of maternal sensitivity and cooperation	Each s allele of the 5-HTTLPR increased 2-fold the probability of the carrier being categorised in the high-distress category at 12-months of age. The same effect was present at 18-months but only for infants categorised as insecurely-attached.	Variation in the 5-HTTLPR gene did not predict attachment security at 12-months and 18-months of age.	5-HTTLPR does not appear to be linked to attachment. However, there appeared to be a correlation between those securely attached and 5-HTTLPR (0.76 (0.34), $p<0.05$)
Raby 2013	Prospective, cohort study of infants at 12 and 18-months of age (154 participants) and again at 19 and	The Ainsworth Strange Situation procedure. Observations of 2 30-minute feeding situations and a 20-minute play		Infant attachment security was not associated with OXTR, DRD4, 5-HTTLPR	Infant attachment security and genetic variation could be considered independent factors.

Study	Sample	Measures of attachment	Positive results	Negative Results	Conclusion
	26 years of age N=143	situation. Adult Attachment Interview (AAI) when participants were 19 and 26 years old DRD4, OXTR, 5-HTTLPR			
Starr 2012	White adolescents, 15 years of age were recruited to participate in follow-up study.Participants were selected because of a heightened risk for depression, n=354	Secure Relational Style to measure attachment (Bartholomew and Horowitz 1991)		No relationship between secure attachment and 5-HTTLPR (s-allele presence)	5-HTTLPR is not directly associated with any study variables including secure attachment or depression.

Table 10: Degree of concordance in attachment between monozygotic (MZ, ~100% genetic similarity) and dizygotic (DZ, ~50% genetic similarity) twins or biologically related siblings

Population	Concordance in attachment (sharing same classification)
Meta-analysed results	
DZ twins (Bokhorst 2003)	60% (secure versus non-secure)
MZ twins (Bokhorst 2003)	56% (secure versus non-secure)
DZ twins (O'Connor & Croft 2001)	64% secure versus insecure)
MZ twins (O'Connor & Croft 2001)	70% secure versus insecure)

Population	Concordance in attachment (sharing same classification)
DZ twins (Constantino. 2006)	92% (secure + insecure)
MZ twins (Constantino. 2006)	70% (secure + insecure)
MZ twins (Fearon 2014)	44% (secure versus insecure)
DZ twins (Fearon 2014)	34% (secure versus insecure)
Non meta-analysed results	
DZ twins (Finkel 1998)	38% (secure versus insecure)
MZ twins (Finkel 1998)	68% (secure versus insecure)
DZ twins (Finkel 2000)	44.4% (secure versus insecure)
MZ twins (Finkel et al 2000)	62.6% (secure versus insecure)
Model of fit genetic vs. environ (Minnis 2007) MZ+DZ twins (M vs F) (Minnis 2007)	M 63.5% (inhibited + disinhibited) genetic versus 36.5% environmental F 35.2% (inhibited + disinhibited) versus 64.8% environmental
Biologically related siblings (Van Ijzendoorn 2000)	62% (secure versus non-secure + disorganised)
Biologically related siblings (Ward 1988)	57% (secure versus insecure)

Table 11: GRADE summary: Expression of genes associated with children's attachment

Genes for attachment difficulties					
Outcomes	**No of Participants (studies) Follow up**	**Quality of the evidence (GRADE)**	**Relative effect (95% CI)**	**Anticipated absolute effects**	
				Risk with Control	**Risk difference with Genes (95% CI)**
Disorganised attachment – DRD4 + maternal unresolved loss	63 (1 study)	⨁⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, imprecision, large effect	OR 2.97 (1.19 to 7.42)	See comment	-
Disorganised + DRD4-7 repeat allele	454 (4 studies)	⨁⊖⊖⊖ VERY LOW4,5,6,7 due to risk of bias, inconsistency, indirectness, imprecision	OR 1.13 (0.71 to 1.81)	318 per 1000	27 more per 1000 (from 69 fewer to 140 more)
Disorganised + DRD4/-521 cc	207 (2 studies)	⨁⊖⊖⊖ VERY LOW7,8,9 due to risk of bias, indirectness,	OR 0.46 (0.17 to 1.26)	249 per 1000	116 fewer per 1000 (from 195 fewer to 46 more)

Genes for attachment difficulties					
		imprecision			
Disorganised + DRD4/5HTTLPR ll	245 (2 studies)	⊕⊖⊖⊖ VERY LOW2,4,6 due to risk of bias, indirectness, imprecision	OR 1.75 (0.9 to 3.4)	281 per 1000	125 more per 1000 (from 21 fewer to 290 more)
Disorganised + 5-HTTLPR ll	397 (4 studies)	⊕⊖⊖⊖ VERY LOW4,5,6,7 due to risk of bias, inconsistency, indirectness, imprecision	OR 0.97 (0.59 to 1.59)	340 per 1000	7 fewer per 1000 (from 107 fewer to 110 more)
Disorganised attachment + 521 CT/TT	191 (2 studies)	⊕⊖⊖⊖ VERY LOW7,9,10 due to risk of bias, indirectness, imprecision	OR 0.67 (0.31 to 1.44)	Moderate	
				761 per 1000	80 fewer per 1000 (from 264 fewer to 60 more)
Disorganised attachment + -521 cc	191 (2 studies)	⊕⊖⊖⊖ VERY LOW7,9,10 due to risk of bias, indirectness, imprecision	OR 1.49 (0.69 to 3.2)	240 per 1000	80 more per 1000 (from 61 fewer to 263 more)
Disorganised attachment + 521 + COMT gg	114 (1 study)	⊕⊖⊖⊖ VERY LOW2,11 due to risk of bias, imprecision	OR 2.28 (0.85 to 6.11)	247 per 1000	181 more per 1000 (from 29 fewer to 420 more)
Disorganised attachment + 521 + GABA	110 (1 study)	⊕⊖⊖⊖ VERY LOW7,11 due to risk of bias, imprecision	OR 0.55 (0.12 to 2.63)	176 per 1000	71 fewer per 1000 (from 151 fewer to 184 more)
Secure attachment + DRD4 7 repeat allele	201 (2 studies)	⊕⊖⊖⊖ VERY LOW4,5,7,9 due to risk of bias, inconsistency, indirectness, imprecision	OR 1 (0.54 to 1.86)	305 per 1000	0 fewer per 1000 (from 113 fewer to 144 more)
Secure attachment + DRD4/-521 cc	102 (1 study)	⊕⊖⊖⊖ VERY LOW7,9 due to risk of bias, indirectness, imprecision	OR 0.9 (0.36 to 2.22)	255 per 1000	19 fewer per 1000 (from 145 fewer to 177 more)
Secure attachment + 5HTTLPR ll	292 (3 studies)	⊕⊖⊖⊖ VERY LOW5,7,9,12 due to risk of bias, inconsistency, indirectness, imprecision	OR 1.24 (0.76 to 2.02)	309 per 1000	48 more per 1000 (from 55 fewer to 166 more)

Genes for attachment difficulties					
Secure attachment + 5-HTTLPR ss/sl	199 (2 studies)	⊕⊖⊖⊖ VERY LOW7,9,12,13 due to risk of bias, inconsistency, indirectness, imprecision	OR 0.78 (0.44 to 1.41)	703 per 1000	54 fewer per 1000 (from 193 fewer to 66 more)
Secure attachment + 5-HTTLPR ss	69 (1 study)	⊕⊖⊖⊖ VERY LOW7,9,14 due to risk of bias, imprecision	OR 0.88 (0.3 to 2.59)	276 per 1000	25 fewer per 1000 (from 173 fewer to 221 more)
Secure attachment – 521 cc	103 (1 study)	⊕⊖⊖⊖ VERY LOW7,9,10 due to risk of bias, indirectness, imprecision	OR 1.47 (0.52 to 4.15)	188 per 1000	66 more per 1000 (from 80 fewer to 302 more)
Secure attachment – 521 TT	103 (1 study)	⊕⊖⊖⊖ VERY LOW7,9,10 due to risk of bias, indirectness, imprecision	OR 1.04 (0.38 to 2.84)	Moderate 219 per 1000	7 more per 1000 (from 123 fewer to 224 more)
Secure attachment – GABRA6 cc	111 (1 study)	⊕⊖⊖⊖ VERY LOW7,9,11 due to risk of bias, indirectness, imprecision	OR 1.29 (0.46 to 3.63)	143 per 1000	34 more per 1000 (from 72 fewer to 234 more)
Secure attachment – COMTgg	115 (1 study)	⊕⊖⊖⊖ VERY LOW7,9,11 due to risk of bias, indirectness, imprecision	OR 1.04 (0.46 to 2.33)	283 per 1000	8 more per 1000 (from 129 fewer to 196 more)

*The basis for the assumed risk (e.g. the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

CI: Confidence interval; OR: Odds ratio;

1 Controlled only for maternal frightening behaviour.
2 95% CI crossed 1 MID
3 Large effect OR >2
4 Did not adjust for potential confounders. Only Frigerio attempted to adjust for other gene effects, but the raw data is not adjusted.
5 Heterogeneity, I squared >55%
6 Cichetti was the only study in an at risk population.
7 95% CI crosses 2 MIDs
8 Did not adjust for potential confounders. Frigerio attempted to adjust for other gene effects, but the raw data is not adjusted.
9 Not in an at risk population.

Genes for attachment difficulties
10 Did not adjust for potential confounders. 11 Frigerio attempted to adjust for other gene effects, but the raw data is not adjusted. 12 Only Barry was a cohort study but they provided only cross-sectional data. Only Frigerio adjusted for potential confounders but the raw data was not adjusted. 13 Heterogeneity, I squared >80% 14 Adjusted for confounders but the raw data is not adjusted.

Table 12: GRADE summary: degree of concordance for attachment in twin studies, reflecting genetic contribution

Concordance for attachment difficulties					
2 Outcomes	3 No of Participants (studies) Follow up	4 Quality of the evidence (GRADE)	5 Relative effect (95% CI)	6 Anticipated absolute effects	
				7 Risk with Control	8 Risk difference with Concordance (95% CI)
Concordance	844 (4 studies)	⨁⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, indirectness, imprecision	OR 1.3 (0.98 to 1.72)	452 per 1000	65 more per 1000 (from 5 fewer to 135 more)
*The basis for the assumed risk (e.g. the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI). CI: Confidence interval; OR: Odds ratio;					
1 OConnor adjusted confounders but the raw data is not adjusted. The remaining studies did not adjust for potential confounders. 2 Not in an at risk population 3 95% CI crossed the line of no effect and 2 MIDs					

4.2.9 Economic evidence

No economic evidence on biological factors associated with the development of attachment difficulties in children and young people was identified by the systematic search of the economic literature undertaken for this guideline. Details on the methods used for the systematic search of the economic literature are described in Chapter 3.

4.2.10 Clinical evidence statements

4.2.10.1 Gene expression and association with attachment status

DRD4-7 repeat allele

- Very low quality evidence from 4 studies (n=454) showed that *DRD4 7*-repeat allele is not associated with disorganised attachment but there was considerable imprecision.
- Very low quality evidence from 2 studies (n= 201) showed DRD4 7-repeat is not associated with secure attachment but there was considerable imprecision.
- Low quality evidence from 1 study (n=143) showed *DRD4* expression is not associated with secure attachment.
- Very low quality evidence from 1 study (n=63) showed an increased risk for disorganisation in children with DRD4 7-repeat allele who were exposed to maternal unresolved loss or trauma compared with children without these combined risks.

DRD4/-521 cc

- Very low quality evidence from 2 studies (n=207) showed that *DRD4/-521 cc* expression is associated with secure attachment but there was some imprecision.
- Very low quality evidence from 1 study (n=102) showed that *DRD4/-521 cc* expression is not associated with secure attachment but there was considerable imprecision.

DRD4/5HTTLRP ll

- Very low quality evidence from 2 studies (n=245) showed that *DRD4/5HTTLRP ll* expression is associated with disorganised attachment but there was some imprecision.

5-HTTLPR

- Low quality evidence from 1 study (n=115) showed 5-HTTLPR expression is not associated with secure attachment.
- Low quality evidence from 1 study (n=143) showed 5-HTTLPR expression is not associated with secure attachment.
- Low quality evidence from 1 study (n=354) showed 5-HTTLPR expression is not associated with secure attachment.

5-HTTLPR ll

- Very low quality evidence from 4 studies (n=397) showed that *5-HTTLPR ll* expression is not associated with disorganised attachment, but the results are inconclusive because of considerable imprecision.

- Very low quality evidence from 3 studies (n=292) showed that *5-HTTLPR ll* expression is associated with secure attachment, but there was some imprecision.
- Very low quality evidence from 1 study (n=37) showed in a high risk population, *5-HTTLPR ll* expression is not associated with disorganised attachment.
- Low quality evidence from 1 study (n=89) showed *5-HTTLPR ll* expression is not associated with secure attachment.
- Low quality evidence from 1 study (n=101) showed *5-HTTLPR ll* expression is not associated with secure attachment.

5-HTTLPR ss/sl

- Very low quality evidence from 2 studies (n=199) showed that *5-HTTLPR ss/sl* expression is associated with insecure attachment, but the results are inconclusive because of considerable imprecision.
- Very low quality evidence from 1 study (n=37) showed that *5-HTTLRP ss* or *sl* is associated with disorganised attachment, in both high and low risk populations.
- Low quality evidence from 1 study (n=101) showed *5-HTTLPR sl* expression is not associated with secure attachment.

5-HTTLPR ss

- Very low quality evidence from 1 study (n=69) showed that *5-HTTLPR ss* expression is associated with insecure attachment but the results are inconclusive because of considerable imprecision.
- Very low quality evidence from 1 study (n= 112) showed 1 short *5-HTTLPR* allele is associated with indiscriminate friendliness in a high risk population (i.e institutional care).
- Low quality evidence from 1 study (n=101) showed *5-HTTLPR ss* expression is not associated with secure attachment.

-521 cc

- Very low quality evidence from 2 studies (n=191) showed *–521 cc* expression is associated with disorganised attachment but the results are inconclusive because of considerable imprecision.
- Very low quality evidence from 1 study (n=94) showed *–521 cc* expression is associated with secure attachment but the results are inconclusive because of considerable imprecision.

-521 ct/tt

- Very low quality evidence from 2 studies (n=191) showed *-521 ct/tt* expression is associated with secure attachment but the results are inconclusive because of considerable imprecision.

-521 tt

- Very low quality evidence from 1 study (n=104) showed *-521 tt* expression is not associated with attachment but the results are inconclusive because of considerable imprecision.

COMT gg

- Very low quality evidence from 1 study (n= 114) showed *COMT gg* expression is associated with disorganised attachment but the results are inconclusive because of some imprecision.
- Very low quality evidence from 1 study (n=114) showed *COMT gg* expression is not associated with secure attachment but the results are inconclusive because of considerable imprecision
- Very low quality evidence from 1 study (n=1069) showed COMT Val/Met gene expression may be associated with higher disorganisation.
- .

GABRA cc

- Very low quality evidence from 1 study (n=110) showed GABRA cc expression is associated with secure attachment but the results are inconclusive because of considerable imprecision.
- Very low quality evidence from 1 study (n=111) showed GABRA cc expression is associated with secure attachment but the results are inconclusive because of considerable imprecision

Mineralocorticoid receptor (MR) and glucocorticoid receptor (GR)

- Very low quality evidence from 1 study showed (n=302) that *MR* and *GR* are not associated with secure attachment, but there appears to be interaction with sensitivity.

Oxytocin

- Low quality evidence from 1 study (n=143) showed *oxytocin* expression is not associated with secure attachment.

Gene versus environment concordance with attachment

- One twin study showed (n=56) that gene expression is not associated with attachment, rather the main contributors are the shared environment and unique environment.

Concordance between genetic background and secure attachment. Comparing dizygotic twins with monozygotic twins.

- Very low quality evidence that was meta-analysed from 4 studies (n=844) showed greater concordance between monozygotic twins and attachment rating compared with dizygotic twins. These results suggest a genetic link between gene expression and secure attachment, however there was some imprecision.
- Very low quality evidence from 1 study (n=60) showed that monozygotic twins may have greater concordance with attachment rating than dizygotic twins.
- Very low quality evidence from 1 study (n=207) showed that monozygotic twins may have greater concordance with attachment rating than dizygotic twins.
- Low quality evidence from 1 study (n=9180) showed no clear association between genetic background and attachment rating (inhibited and disinhibited) compared with environment.
- Low quality evidence from 1 study (n=138) showed no clear association between siblings (not twins) and attachment rating (secure, insecure and disorganised).

- Low quality evidence from 1 study (n=130) showed no clear association between siblings (not twins) and attachment rating (secure, insecure and disorganised).

4.2.11 Economic evidence statements

No economic evidence on biological factors associated with the development of attachment difficulties in children and young people is available.

4.3 Recommendations and link to evidence

Recommendation	1. Do not offer genetic screening (including measuring specific gene polymorphisms) in children and young people to predict or identify attachment difficulties.
Relative values of different outcomes	The GC discussed the importance and relevance of various outcomes for identifying genes associated with attachment difficulties. For this review secure attachment and attachment difficulties – insecure and disorganised – are of greatest concern. The GC agreed that in terms of decision making disorganised attachment is the most important outcome since it best reflects the long-term outcomes of the child. Placement instability was also considered a critical outcome for this review. No other outcomes were considered relevant for this review.
Trade-off between clinical benefits and harms	DRD4 7-repeat allele did not appear to be associated with secure or disorganised attachment. The heterogeneity in the results made it difficult to come to a definitive conclusion. Interestingly, maternal unresolved loss or trauma is associated with disorganised attachment, but only in the presence of the DRD4 7-repeat allele. Suggesting that the DRD4 gene may play a moderating role. When DRD4 is co-expressed with -521 cc, there was some evidence to show it is associated with secure attachment but the results were not replicated in another study, and there was uncertainty in the results. Similar results were found when DRD4 is co-expressed with 5-HTTLRP ll but again there was some imprecision in the results. If 5-HTTLRP is expressed in children, there was no evidence to show it is associated with secure attachment. However, if 5-HTTLRP is expressed with the 2 long alleles, ll, it may be associated with secure attachment, but the results are inconclusive. If 5-HTTLRP is expressed with 1 or 2 short long alleles, ss or sl, it may be associated with insecure attachment and disorganised attachment but not secure attachment. Homozygous expression of the short alleles, ss, suggests it may be associated with insecure attachment or indiscriminate friendliness but there is considerable imprecision with the results. It does not appear to be associated with secure attachment. -521 cc expression may be associated with secure and disorganised attachment. These findings contradict each other, but there was considerable imprecision in the findings so the results are unclear. -521 cc/ct expression appears to be associated with secure attachment but -521 tt does not, but again the results are inconclusive due to imprecision. COMT gg appeared to show an association with disorganised attachment

	but not with secure attachment. GABRA6 cc also appeared to show an association with secure attachment but again the results are inconclusive. Mineralocorticoid receptor (MR) and glucocorticoid receptor (GR) are not associated with secure attachment, nor is oxytocin expression. Looking at the overall genetic versus environmental contribution to secure attachment, twin studies provide a useful insight because if there is a strong association between gene expression and secure attachment, a greater concordance in attachment ratings between monozygotic twins (who share approximately 100% of their genes) would be found when compared with dizygotic twins (who share 50% of their genes). A small meta-analysis showed greater concordance in monozygotic twins versus dizygotic twins, suggesting a genetic association with attachment. However, the results are inconclusive since other studies that could not be meta-analysed showed no clear association between genetic background and attachment rating. No results were found for attachment disorder or placement instability.
Trade-off between net health benefits and resource use	The GC considered that recognition of genetic factors that would allow prediction of attachment difficulties has considerable resource use implications. Genetic screening could potentially lead to the prevention of attachment difficulties in children and young people if appropriate preventative interventions are delivered to susceptible individuals. The GC considered costs associated with attachment difficulties including poorer mental health, behavioural problems, and placement into care costs. Also, children with attachment difficulties have poorer employment and education outcomes, and higher involvement with the criminal justice sector. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice sector costs, and society as a whole. The GC also noted that timely identification and assessment would have consequences on parents' mental and emotional wellbeing too (for example development of depression and anxiety); these are likely to be substantial. However, the GC considered that the costs of universal genetic screening are likely to be substantial and given the lack of convincing clinical data such screening is unlikely to be cost effective.
Quality of evidence	The quality of the evidence ranged from very low to low. Therefore, no high quality evidence was found to support a recommendation for genetic screening to be used to predict or identify children with attachment difficulties. The outcomes that could be meta-analysed were downgraded in quality because there was imprecision in most outcomes, mostly likely due to a low number of events (<300) or a low number of participants (<400). Numerous outcomes were also downgraded because of heterogeneity between the results. Numerous studies failed to adjust for potential confounders that may have explained any association between gene expression and attachment difficulties. Furthermore, many studies included a low-risk population, and although this demonstrates the likelihood of detecting attachment difficulties in the general population, the lack of power would have made it difficult to detect any association between gene expression and attachment problems. The GC discussed how unethical genetic screening could be if misused. It could lead to assuming certain future outcomes in children and lead to mismanagement. For example, if a child is considered more resilient

	because of their gene expression, they may be kept in an environment where they are at risk of on-going neglect and maltreatment. Families may also not receive preventative interventions aimed at enhancing attachment on the assumption that the child will not develop attachment difficulties. Although some studies found a possible link between gene expression and attachment (that is, 5-HTTLPR ss/sl/ll, -521 ct/tt, DRD4 7-repeat allele, COMT gg, GABRA cc, monozygotic twins versus dizygotic), the evidence was mostly low quality and at times inconsistent between studies. The GC felt that unless the results are convincingly clear, and economic modelling shows that it is cost-effective, it is best to not recommend an assessment of gene expression.
Other considerations	To date, there is little information on why some children exposed to a threatening environment end up with attachment difficulties, while others do not. This is a complex situation, but at the moment genetic screening is not appropriate for predicting attachment-related outcomes in children.

5 Environmental factors associated with the development of attachment difficulties in children and young people

5.1 Introduction

There is consistent evidence (De Wolff & van Ijzendoorn, 1997b) that the primary causes of variation in secure versus insecure attachment are related to the quality of care provided by consistent carers, and particularly the extent to which the carer is sensitive and responsive to the child's attachment cues, as originally delineated by Ainsworth et al. (1978). Furthermore, disorganised attachment has been consistently related to caregiving that is frightening, shows signs of carer dissociation, or is otherwise extremely insensitive (for example, marked disturbances in emotional communication). Disorganised attachment is also observed at highly elevated rates amongst young children who have been maltreated. A prevailing view is that risk factors for insecure or disorganised attachment can be organised into those operating at several different levels – those within the child, the carer, the family system, the broader social network around the family and the wider social context. These risk factors are generally assumed to have their effects on attachment through the impact they have on the sensitivity of care provided to the child by the carer (Belsky & Fearon, 2008).

While the primary aim of this review was to ascertain which environmental risk factors are associated with the development of attachment difficulties in children and young people, the GC also considered these risk factors in the wider context of assessment.

5.2 Review question: What environmental factors are associated with the development of attachment difficulties in children and young people?

The review protocol summary, including the review question and the eligibility criteria used for this section of the guideline, can be found in Table 13. A complete list of review questions can be found in Appendix F; further information about the search strategy can be found in Appendix H; the full review protocols can be found in Appendix F.

Due to the complexity and wealth of literature that exists, the review strategy involved 3 stages. The first was for the GC to generate an exhaustive list of all the risk factors they considered relevant for this review. The second was to systematically search for good quality systematic reviews that reported on these risk factors and had conducted a meta-analysis. These reviews could include all study designs, including prospective, retrospective and cross-sectional studies.

The third stage was restricted to prospective cohort studies that clearly defined the environmental factor under question and assessed associated attachment difficulties using a well-validated tool. Prospective studies are considered the optimal study design to show how environmental factors measured at 1 point in time are more or less likely to result in attachment difficulties in the future. Only studies that used multivariate models to look for independent associated factors were included since they control for other variables (or confounders) that may also be associated with the outcome. Thus, studies that presented a univariate analyses (unadjusted results) were excluded from the review.

The GC decided to consider the evidence from systematic reviews and prospective cohort studies together.

Table 13: Clinical review protocol summary for the review of what environmental factors are associated with the development of attachment difficulties in children and young people?

Component	Description
Review question(s)	What environmental factors are associated with the development of attachment difficulties in children and young people?
Population	Children and young people (aged 0–18 years) **Setting** Children living in the home with their parents/caregivers (Environmental factors relating to children in care were addressed in the process and arrangement risk factor review)
Risk factor	Risk factors included: • children who have been or are at risk of being maltreated • parents in prison • adolescent mothers • frightening or fearful behaviour by the caregiver • marital discord • parents with unresolved and early loss or trauma/ attachment difficulties • parents who have mental health (that is, depression/substance misuse) problems • families at social disadvantage (for example, living in poverty) • parents who have been in care themselves • parents who had been maltreated
Comparison	For controlled cohort studies – children not exposed to the relevant risk factor
Critical outcomes	**Included** • Attachment disorders (for example, RAD) • Attachment difficulties **Excluded** • Studies that did not include attachment difficulties or disorders as an outcome (for example, only measured maternal sensitivity) • Using non-validated tools to measure attachment. **Outcome** • Association between the risk factor and subsequent attachment disorder/ difficulty. • Results needed to be adjusted for potential confounders. • Statistical analysis for assessing the association between risk factors and outcome, after adjusting for confounders may include: Multiple regression co-efficient β (continuous variables) • ANCOVA (type of multiple regression) • adjusted OR, RR, HR (dichotomous variables) • correlation coefficient, r2 (continuous variables) • chi-squared test $\chi 2$ (categorical variables)

Component	Description
	Excluded analyses Univariate analyses (unadjusted results)
Study design	• Systematic reviews • Prospective cohort studies that conducted a multivariate analysis

5.2.11 Clinical evidence for environmental factors associated with the development of attachment difficulties in children and young people

5.2.13.1 Studies considered

For this review 6 relevant systematic reviews were identified: Atkinson 2000 (Atkinson et al., 2000), Cyr 2010 (Cyr et al., 2010b), Martins 2000 (Martins & Gaffan, 2000), Madigan 2006 (Madigan et al., 2006a), van Ijzendoorn 1995 (van Ijzendoorn, 1995), van Ijzendoorn 1999 (van IJzendoorn et al., 1999b). An overview of these systematic reviews can be found in Table 14.

Fourteen prospective cohort studies met the eligibility criteria for this review: Bosquet Enlow 2014 (Bosquet Enlow et al., 2014), Brown 2010 (Brown et al., 2010), Campbell (Campbell et al., 2004), Candelaria 2011 (Candelaria et al., 2011), Cummings 2013 (Cummings et al., 2013), Frosch 2000 (Frosch et al., 2000), Goldberg 2003 (Goldberg et al., 2003), Grienenberger 2005 (Grienenberger et al., 2005), Madigan 2006b (Madigan et al., 2006b) McMahon 2006 (McMahon et al., 2006) Murray 1992 (Murray, 1992), Seifer 1996 (Seifer et al., 1996), Shah 2011 (Shah et al., 2011) Teti 1995 (Teti et al., 1995). An overview of these studies can be found in Table 15, and their methodological quality is reported in Table 16.

For ease of presentation, risk factors were categorised using the following domains: (a) children who have been maltreated, (b) parents at a social disadvantage (this factor was further divided by (i) low income (ii) low education (iii) ethnic minority (iv) single mothers (v) adolescent mothers), (c) parents with mental health problems (this factor was further divided by (i) depression (ii) PTSD), (d) marital discord (e) parents with unresolved trauma or loss (g) frightening or fearful behaviour by the caregiver (h) parents who have attachment difficulties or who have been in care (i) parents who have been maltreated (j) parents in prison.

Caregiver sensitivity was not reviewed as an independent factor in itself, as the causal link had already been acknowledged by the GC with previous systematic reviews showing a strong link between attachment and parental sensitivity (De Wolff & van Ijzendoorn, 1997a). However, many of the risk factors reviewed are generally assumed to have their effects on attachment through the impact they have on the sensitivity of care provided to the child by the carer (Belsky & Fearon, 2008). Therefore, where caregiver sensitivity was included in multivariate analyses assessing the relationship between a risk factor and attachment difficulties, the results were considered in the context of caregiver sensitivity as a possible mediating variable. For ease of interpreting the data, where caregiver sensitivity was included as a covariate in a multivariate model, the effect size for the association both with and without caregiver sensitivity in included the model are presented together

For ease of presentation, the evidence is organised by risk factor and further categorised according to the source of evidence (i.e., systematic review or prospective cohort study). Of the eligible prospective cohort studies, none included data that could be meta-analysed. As such a narrative summary was provided for the GC.

Further information about the quality assessment, and excluded studies can be found in Appendices J and M, respectively.

Table 14: Study information table for systematic reviews included in the review

	Maltreatment	Social disadvantage	Mental health problems	Marital discord	Unresolved loss	Frightening/ fearful behaviour
Study ID	Cyr 2010	Cyr 2010	(1) Atkinson 2000 (2) Martins 2000 (3) van Ijzendoorn 1999	(1) Atkinson 2000 (2) van Ijzendoorn 1999	(1) Madigan 2006 (2) van Ijzendoorn 1995	(1) Madigan 2006 (2) van Ijzendoorn 1999
Review question/ Aim	To examine the differential impact of maltreatment on attachment security and disorganisation	To examine the differential impact of various socioeconomic risks on attachment security and disorganisation	(1) To address the association between attachment security and 3 mental health correlates: social-marital support, stress and depression (2) Examine the effects of early maternal depression on patterns of infant-mother attachment (3) To examine the precursors, concomitants, and sequelae of disorganised attachment in early childhood	(1) To address the association between attachment security and 3 mental health correlates: social-marital support, stress and depression (2) To examine the precursors, concomitants, and sequelae of disorganised attachment in early childhood	(1) To examine the association between unresolved states of mind, anomalous parental behaviour and disorganised infant attachment (2) To examine the association between parents' attachment representations and infant attachment or parental responsiveness to the child's attachment signals	1) To examine the association between unresolved states of mind, anomalous parental behaviour and disorganised infant attachment (2) To examine the precursors, concomitants, and sequelae of disorganised attachment in early childhood
Method used to synthesise evidence	Meta-analysis	Meta-analysis	(1-3) Meta-analysis	(1-2) Meta-analysis	(1-2) Meta-analysis	(1-2) Meta-analysis
Design of included studies	NR	NR	(1-3) Any	(1-2) Any	(1-2) Any	(1-2) Any

	Maltreatment	Social disadvantage	Mental health problems	Marital discord	Unresolved loss	Frightening/ fearful behaviour
Dates searched	NR	NR	(1) From 1970 (2-3) NR	(1) From 1970 (2) NR	(1-2) NR	(1-2) NR
Electronic databases	PsycINFO; Dissertation Abstracts; Medline	PsycINFO; Dissertation Abstracts; Medline	(1) Psychological Abstracts, MedLine, and Dissertation Abstracts International databases (2) PsycLit and the ISI Social Science Citation Index (3) Psychological Abstracts and the Social Sciences Citation Index	(1) Psychological Abstracts, MedLine, and Dissertation Abstracts International databases (2) Psychological Abstracts and the Social Sciences Citation Index	(1) PsycINFO; Dissertation Abstracts; Medline (2) PsycLit	(1) PsycINFO; Dissertation Abstracts; Medline (2) Psychological Abstracts and the Social Sciences Citation Index
No. of included studies (N[1])	55[2] (4729)	55[2] (4729)	(1) 15 (NR) (2) 7 (NR) (3) 80 (6,283)	(1) 15 (NR) (2) 80 (6,283)	(1) 12 (851) (2) 22 (NR)	(1) 12 (851) (2) 80 (6,283)
Participant characteristics	Maltreated children	Children living in socioeconomically disadvantaged families	(1-3) Parent–child dyads	(1-2) Parent–child dyads	(1-2) Parent–child dyads	(1-2) Parent–child dyads
Comparison	Low risk studies	Low risk studies	(1, 3) NR (2) Non-depressed mothers	(1-2) NR	(1-2) NR	(1-2) NR
Outcome	Attachment insecurity or disorganisation	Attachment insecurity or disorganisation	(1) Attachment security (2) Attachment category (3) Disorganised	(1) Attachment security (2) Disorganised attachment	(1) Disorganised attachment (2) Quality of infant-	(1) Disorganised attachment (2) Disorganised

	Maltreatment	Social disadvantage	Mental health problems	Marital discord	Unresolved loss	Frightening/ fearful behaviour
			attachment		parent attachments	attachment
Overall review quality	Very low	Very low	(1-3) Very low	(1-2) Very low	(1-2) Very low	(1-2) Very low

Table 15. Study information table for prospective cohort studies included in the review

	Parents with mental health problems	Parents with unresolved and early loss or trauma	Marital discord
Total no. of studies (N)	8 (1951)	4 (398)	2 (125)
Study ID	(1) Bosquet Enlow 2014 (2) Campbell 2004 (3) Candelaria 2011 (4) Cummings 2011 (5) McMahon 2006 (6) Murray 1992 (7) Seifer 1996 (8) Teti 1995	(1) Goldberg 2003 (2) Grienenberger 2005 (3) Madigan 2006 (4) Shah 2011	(1) Brown 2010 (2) Frosch 2000
Country	(1 to 4, 7 to 8) USA (5) Australia (6) UK	(1) Canada (2, 4) USA (3) Canada	(1-2) USA
Specific risk factor	(1) Elevated maternal PTSD symptoms (2) Maternal depressive symptoms (3) Psychosocial (maternal depression, stress and self-efficacy) risk (4) Maternal and paternal depression (5 To 6) Postnatal depression (7) Maternal psychopathology (results for major depression)	(1) Unresolved status (2) Maternal reflective functioning (3) Unresolved States of Mind (4) Maternal grief resolution following preterm birth	(1) Observed and supportive co-parenting (2) Observed inter-parental hostility

	Parents with mental health problems	Parents with unresolved and early loss or trauma	Marital discord
	(8) Maternal depression		
Risk factor status (additional)	(1) Low-income ethnic/ racial minority (2) Reflected the demographic diversity (economic, educational, and ethnic) of the catchment area (3) High risk African-American premature infant-mother dyads (4) Low risk (5) Infant settling and feeding difficulties (6 To 8) Low risk (other than depression status)	(1-2) Low risk (3) Adolescent mothers (4) Preterm, high risk infants	(1-2) Low risk
Infant/child age (mean months)	(1) 27 (2) 28 (3) 8 (4) NR (5) 4 (6) 18 (7) NR (8) 7	(1) NR (2) 10-14 (3) NR (4) less than 36 weeks	(1) 3.5-month (2) 3.1 years (at 3 year follow-up)
Infant sex (% Female)	(1) 44 (2) 49 (3) 52 (4) 51 (5) 47 (6) 51 (7) 51 (8) 42	(1) 47 (2) NR (3) 55 (4) 49	(1) 51 (2) 45
Parental ethnicity (% White)	(1) 35.6 (2) NR (3) NR	(1) NR (2) 94 (3) 81	(1) 82 (2) 92

	Parents with mental health problems	Parents with unresolved and early loss or trauma	Marital discord
	(4) 72.8 (5) 93 (6) NR (7) 90 (8) 95	(4) 70	
Type of publication	(1) Prospective cohort (6 months) (2) Prospective cohort (1-36 months) (3) Prospective cohort (8-12 months) (4) Prospective cohort (~ years) (5) Prospective cohort (3-11 months) (6) Prospective cohort (15 months) (7) Prospective cohort (7-11 months) (8) Prospective cohort (13 months)	(1) Prospective cohort (AII administered prenatally and SSP at 12 months) [2] (2) Prospective cohort (AII administered at 10 months and the SSP at 14 moths) [3] (3) Prospective cohort (AII administered at 6 moths and SSP at 12 months) (4) Prospective cohort (RPBI administered at 9 months and the SSP at 16 months)	(1) Prospective cohort (12 months - 3.5 months) (2) Prospective cohort (3yrs-6m)
Time between measurements (months)	(1) 6 (2) 1-36 (3) 8-12 (4) Years (5) 3-11 (6) 15 (7) 7-11 (8) 13	(1) +12 moths (2) 4 months (3) 6 months (4) 7 months	(1) 8.5 (2) 30
Number of participants	(1) 45 (2) 1077 (3) 112 (4) 320	(1) 197 (2) 45 (3) 82 (4) 74	(1) 68 (families) (2) 57 (families)

	Parents with mental health problems	Parents with unresolved and early loss or trauma	Marital discord
	(5) 111 (6) 113 (7) 123 (8) 50		
Control	(1) Non-elevated PTSD symptoms (n=33) (2-4, 5, 7 to 8) No control (6) Not depressed	(1-4) No control	(1-2) No control
Measure of risk factor	(1) PTSD Checklist – Civilian Version (2) Centre for Epidemiological Studies Depression Scale (3) Census Bureau's measurement of poverty threshold; Maternal Self-Efficacy Scale; Parenting Stress Index–Short Form; Beck Depression Inventory (4) Centre for Epidemiological Studies Depression Scale; Coping with Children's Negative Emotions Scale (5) DSM-IV, CIDI, Centre for Epidemiological Studies Depression Scale (6) Edinburgh Postnatal Depression Scale and Standardised Psychiatric Interview (7) Clinical Interview for DSM-III-R (8) Beck's Depression Inventory	(1) Adult Attachment Interview (2) The Parent Development Interview; Addendum to the Reflective Functioning Scoring Manual (3) Adult Attachment Interview (4) Reaction to Preterm Birth Interview	(1) Family interaction episodes coded using a subset of scales developed by Cowan and Cowan (1996) (2) Marital behaviour coded using 7-point scales adapted from earlier work on dyadic interaction
Timing of risk factor measure (months)	(1) 6 (2) 1-13	(1) Prenatal (third trimester) (2) 10	(1) 3.5 (2) 6

	Parents with mental health problems	Parents with unresolved and early loss or trauma	Marital discord
	(3) 0- 4 (4) kindergarten (5) 4-12 (6) 2-3 (7) 4-8 (8) Unclear	(3) 6 (4) Discharge from hospital	
Outcome	(1) Attachment insecurity; attachment disorganisation (2 to 8) Attachment insecurity	(1, 3) Attachment disorganisation (2, 4) Attachment status	(1-2) Attachment security
Outcome measure	(1-2) SSP (3) Q-sort (4) MacArthur Story Stem Battery (5-8) SSP	(1-4) SSP	(1) SSP (2) Attachment Q-sort
Timing of outcome measure (months)	(1) 13 (2) 36 (3) 12 (4) Second grade (5) 15 (6) 18 (7) 15 (8) 13 months after first assessment	(1) 12 (2) 14 (3) 6 (4) 16	(1) 12 months (mother), 13 months (father) (2) 26 months
Analysis of outcome (for example, p value, regression analysis)	(1) Logistic regression: β/OR (2) Hierarchical multiple regression analyses: β (3) Structural equation modelling (mediation pathway) (4) Structural equation modelling (mediation pathway) (5) Logistic regression (Wald X2)	(1) MANCOVA: β (2) Linear regression: partial r (3) Hierarchical regression analysis: r2/ β (4) Hierarchical logistic regression model	(1) hierachical linear regression: β (2) hierarchical regression analysis

	Parents with mental health problems	Parents with unresolved and early loss or trauma	Marital discord
	(6) Hierarchical logistic regression model (7) R2 (8) Wald X2		
Covariates	(1) Maternal parity. Infant trauma exposure history and maternal depressive symptoms also considered (2) Income to needs, maternal education, partner status, child gender, maternal sensitivity (3) Intervention status, infant gender, maternal age, parity (4) Family income, child gender (5) Maternal education and non-English speaking background (6) Marital friction, infant gender (7) Anxiety disorder, any illness, multiple risk (8) Maternal education, family income, mothers' marital status	(1-2) Atypical Maternal Behaviour (AMBIANCE) (3) Disrupted maternal behaviour (AMBIANCE) (4) Neonatal health risks, family socio-economic risks, maternal vocabulary, maternal depression at 9 months	(1) Parental sensitivity, Child gender (2) Concurrent assessment

Table 16: Risk of bias for included studies in the prospective cohort study review

Study ID	Risk of bias					
	Generalisability	Loss to follow up	Quality of risk factor assessment	Quality of outcome assessment	Adjusting for confounders	Appropriate statistical analysis
Bosquet-Enlow 2014	Unclear	Low	Low	Low	Low	Low
Brown 2010	Low	Unclear	Low	Low	Unclear	Low

Study ID	Risk of bias					
	Generalisability	Loss to follow up	Quality of risk factor assessment	Quality of outcome assessment	Adjusting for confounders	Appropriate statistical analysis
Campbell 2004	Low	High	Low	Low	Low	Low
Candelaria 2011	Unclear	Low	Low	Low	Low	Low
Cummings 2013	Low	Low	Low	Low	Low	Low
Frosch 2000	Low	Low	Low	Low	Unclear	Low
Goldberg 2003	Low	Low	Low	Low	Unclear	Low
Grienenberger 2005	Unclear	Unclear	Low	Low	High	Low
Madigan 2006	Unclear	Low	Low	Low	Low	Low
McMahon 2006	Low	Low	Low	Low	Low	Low
Murray 1992	Low	Low	Low	Low	Low	Low
Seifer 1996	Low	Unclear	Low	Low	Low	Low
Shah 2011	High	Low	Low	Low	Low	Low
Teti 1995	Low	Unclear	Low	Low	Low	Low

5.2.1.4 Children who have been or are at risk of maltreated

One systematic review was used as the primary (and only) source of evidence for the association between maltreatment and attachment difficulties: Cyr 2010. Refer to the review for a full list of included and excluded studies. Further information about the included review can be found in Appendix J.

Included studies were those that reported on maltreated children and were published in peer reviewed journals, dissertations or book chapters between 1981 and 2006. Children were either physically abused, sexually abused, neglected, emotionally maltreated, or had experienced multiple forms of maltreatment. The most widely accepted definitions of types of maltreatment are described in (Cicchetti & Valentino, 2006). Based on these descriptions, Cyr 2010 defined (a) sexual abuse as sexual contact or attempted sexual contact between a caregiver or another responsible adult and a child, (b) physical abuse as injuries inflicted by an adult on a child by non-accidental means, (c) neglect as the failure to provide minimum standards of physical care, and (d) emotional maltreatment as the persistent and extreme refusal to consider a child's basic emotional needs (for example, belittling, intimidating, severe indifference).

The review included 10 studies (N = 456) which reported on the association between maltreatment and attachment insecurity. A meta-analysis was conducted and showed a strong association between maltreatment and attachment insecurity with a combined effect size of Cohen's d = 2.10 (CI = 1.82-2.37).

The review included 7 studies (N = 392) which reported on the association between maltreatment and attachment disorganisation. A meta-analysis was conducted and showed a strong association between maltreatment and attachment disorganisation with a combined effect size of Cohen's d = 2.19 (CI = 1.53–2.85).

5.2.1.5 Parents at a social disadvantage

One systematic review was used as the primary source of evidence for parents at a social disadvantage: Cyr 2010. Refer to the review for a full list of included and excluded studies.

The review included 59 studies (N = 4336 of children from families at a social disadvantage -that were differentiated by: low income, single mothers, low education, adolescent mothers, ethnic minority status and substance abuse.

The association between children of parents at a social disadvantage and attachment difficulties was investigated by comparing all studies of children with at least one of the identified factors with a set of children from low-risk backgrounds.

The review included 59 studies (N = 4336) which reported on the association between children of parents at a social disadvantage and attachment insecurity. A meta-analysis was conducted and showed an association with a combined effect size of Cohen's d = 0.48 in a heterogeneous set of outcomes (CI = 0.32-0.63).

The review included 34 studies (N = 2886) which reported on the association between children of parents at a social disadvantage and attachment disorganisation. A meta-analysis was conducted and showed an association with a combined effect size of Cohen's d = 0.48 in a heterogeneous set of outcomes (CI = 0.21-0.76).

All studies which included children of parents at a social disadvantage were then further broken down according to different risk indicators: low income, adolescent mothers, ethnic minority group, education, single parenthood). These subsets of studies were then compared on the basis of these different risk indicators.

Income, maternal age at child birth, educational level, and single parenthood did not significantly moderate the combined effect size for attachment insecurity or for disorganised attachment. Ethnicity and number of risk factors did not moderate the effect size for attachment insecurity, but they were significant moderators for disorganised attachment.

5.2.1.6 Parents with mental health problems

Three systematic reviews and 8 prospective cohort studies were identified that examined the association between parents with mental health problems and attachment difficulties. The factor 'parents with mental health problems' was further categorised by: (a) parents with general psychosocial problems; (b) parents with depression; and (c) parents with PTSD.

5.2.1.6.1 Parents with general psychosocial problems

No systematic reviews were identified.

One prospective cohort study met the eligibility criteria for this review: Candelaria 2011 (N = 112). The authors examined the association between general psychosocial risk (maternal depression, stress and self-efficacy) and later maternal attachment insecurity in a group of low-income, urban, African American preterm infants-mother dyads. There was no statistically significant association between psychosocial risk and maternal attachment security in the multivariate analysis. However, maternal sensitivity was found to be a mediating factor in the analysis; the association was statistically significant when maternal sensitivity was not included in the model. A summary of the results can be found in Table 17.

5.2.1.6.2 Parents with depression

Three systematic reviews met the eligibility criteria for this risk factor: Martins 2000, Atkinson 2000, Van Ijzendoorn 1999. Refer to the review for a full list of included and excluded studies. Martins (2000) analysed 6 studies (N = 373), and after removing 1 outlier, found maternal depression was associated with slightly increased avoidant or disorganised attachment (with more homogeneity for disorganised attachment). A more inclusive meta-analysis (Atkinson 2000) included 15 studies (N = 953) and found a weak significant association maternal depression and insecure attachment (r = 0.18). Van Ijzendoorn (1999) included many of the same studies, however examined the association between maternal depression and disorganised attachment in 16 studies (N = 1053) and found no significant association (r = 0.06). Both meta-analyses reported more robust findings when they included clinically depressed samples (rather than community samples) where there was an increased risk of disorganised and insecure attachment.

Six prospective cohort studies (N = 1794) met the eligibility criteria for this risk factor: Campbell 2004, Cummings 2013, McMahon 2006, Murray 199, Seifer 1996, Teti 1995. 3 studies with 1240 infants and children (Campbell 2004; Teti 1995; Murray 1992) found a significant association between maternal depression and attachment insecurity. However 2 studies with 234 infants (McMahon 2006, Seifer 1996) and children did not find a significant association McMahon (2006) found the relationship is moderated by maternal attachment state of mind (that is, when attachment state of mind is not included in the model, chronic depression is significantly associated with attachment insecurity, adjusting for socio-demographic variables), Seifer 1(996) found that the simple correlation for depression status is significant, but not in the hierarchical regression (controlling for anxiety and risk status). 1 study examined both mother-infant and father-infant attachment insecurity (Cummings 2013) and found a significant association between depression and infant-father attachment, however not infant-mother attachment. 1 study also examined parents with depression as a potential risk factor for attachment disorganisation (McMahon 2006) but did not find a significant association. A summary of the findings can be found in Table 17.

5.2.1.6.3 Anxiety disorders (post-traumatic stress disorder)

No systematic reviews were identified that examined parents with anxiety disorders as a risk factor for attachment difficulties.

One prospective cohort study met the eligibility criteria for this review: Bosquet-Enlow 2014. The authors found a statistically significant association between maternal PTSD and disorganised attachment but not insecure attachment. A summary of findings can be found in Table 17.

5.2.1.6.4 Substance misuse

Substance misuse was reviewed by Cyr 2010 as 1 of their categories for 'socio-economic high risk studies'. Cyr 2010 included studies where the population included children who were prenatally exposed to alcohol or drugs, and children with a parent currently using alcohol or drugs.

For the outcome insecure attachment, a meta-analysis of 10 studies (N = 1254) showed that substance misuse (drug and/or alcohol) is associated with attachment insecurity (Cohen's d = 0.42, p<.05). For the outcome disorganised attachment, a meta-analysis of 9 studies (N = 1234) showed that substance misuse (drug and/or alcohol) is associated with attachment disorganisation (Cohen's d = 0.79, p<.001).

5.2.1.7 Marital discord

Marital discord was defined by studies that used observed measures of marital conflict. For example, studies assess the amount of conflict couples show during a task and their ability to resolve conflict.

One systematic review was identified that met the eligibility criteria for this risk factor: van Ijzendoorn 1999. The review included 4 studies (N = 364) but did not find a significant association between marital discord and disorganised attachment, the combined effect size was r = .05.

Two prospective cohort studies met the eligibility criteria for this review: Frosch 2000, Brown 2010. Frosch (2000) showed that inter-parental hostility during family play at 6 months predicted less secure pre-schooler-mother attachment at 3 years, above and beyond concurrent assessment. Brown (2010) showed that observed and reported supportive co-parenting is associated with greater attachment security in the infant–father, but not the infant–mother, attachment relationship, and this effect remained after accounting for paternal sensitivity. However, child gender moderated some of the association; supportive co-parenting was positively related to infant attachment security in boys, but not in girls. A summary of findings can be found in Table 18.

5.2.1.8 Parents with unresolved and early loss or trauma

Parents with unresolved trauma or loss were defined as those who are struggling with unresolved loss of an attachment figure or with another traumatic experience in childhood such as abuse. This is usually assessed using the Adult Attachment Interview. Studies were also included if they used another validated measure of unresolved trauma or loss.

Two systematic reviews met the eligibility criteria for this review: van Ijzendoorn 1995, Madigan 2006a. van Ijzendoorn (1995) found across 10 studies (N = 548) that parental unresolved loss or trauma is significantly associated with infant disorganised attachment (r = 0.31). Madigan (2006) included studies that reported on the association between unresolved loss, anomalous parental behaviour and disorganised attachment. They showed a moderate effect size between parental unresolved states of mind and infant disorganised attachment (r = 0.21, p < .01) from 6 studies (N = 495).

Four prospective cohort studies were identified for this review: Goldberg 2003, Grienberger 2005, Madigan 2006b, Shah 2011.

Goldberg 2003 showed a significant association between maternal unresolved status and infant disorganised attachment (atypical maternal behaviour, although a mediator, did not reduce the association). The authors said their failure to find evidence of such mediation could be attributed to the small numbers of cases of unresolved mothers and disorganised dyads in their low-risk community sample. In contrast, Grienberger 2005 and Madigan 2006 found maternal unresolved status and atypical maternal behaviour were both associated with disorganised attachment, however, the maternal unresolved status was no longer significant after adjusting for atypical maternal behaviour, thus suggesting atypical maternal behaviour was a stronger driver for disorganised attachment in children.

Shah 2011 found that unresolved maternal grief after preterm birth is associated with infant-attachment insecurity. A summary of findings can be found in Table 19.

5.2.1.9 Frightening or fearful behaviour by the caregiver

The term 'frightened, threatening and dissociative' behaviour was term coined by Main and Hesse (1990), who proposed it is a determinant of disorganised attachment and is measured using the Atypical Maternal Behaviour Instrument for Assessment and Classification (AMBIANCE) scale.

Two systematic reviews were identified for the review: van Ijzendoorn 1999 and Madigan 2006. Madigan (2006) investigated 'anomalous parental behaviour' and attachment disorganisation in 9 studies (n=644) and found a significant association, $r = .24$, $p<.01$. Van Ijzendoorn 1999 included 2 observational studies and found an association between frightening maternal behaviour and disorganised attachment.

5.2.1.10 Parents with a negative attachment style or who have been in care themselves

No relevant systematic reviews or prospective cohort studies were identified.

5.2.1.11 Parents who have been maltreated

No relevant systematic reviews or prospective cohort studies were identified.

5.2.1.12 Parents in prison

No relevant systematic reviews or prospective cohort studies were identified.

Table 17: Summary findings for studies that measured the association between parents with mental health problems and attachment status

Study	N	Risk factor (measure)	Attachment outcome (figure)	Controlled for	**Association (Adjusted)**	**Association (without covariate)**
Bosquet-Enlow 2014 LOW QUALITY	45	PTSD symptoms	Attachment insecurity (maternal)	Maternal parity	β =1.56, p = .12	β = 1.56, p = .04 (without covariates)
			Attachment disorganisation (maternal)	Maternal parity	β = 3.10, p = .02	β = 2.58, p= .005 (without covariates)
Campbell 2004 MODERATE QUALITY	1077	Depression (CED-S)	Attachment status (maternal)	Income to needs, maternal education, partner status, child gender, maternal sensitivity	X2 = 22.38, p<.01	X2= 66.41, p<.0001 (without covariates)
Candelaria 2011 LOW QUALITY	112	Psychopathology (CBMPS; PSI; BDI)	Attachment insecurity (maternal)	Intervention status, infant gender, maternal age, parity	β = .11 p=.18	β = -.18, p=0.04 (without maternal sensitivity)
Cummings 2013 MODERATE QUALITY	320	Depression (CES-D)	Attachment insecurity (maternal)	Family income, child gender	β = ns	
			Attachment insecurity (paternal)	Family income, child gender	β = .20, p <.05	p <.05 (without covariates)
McMahon 2006 MODERATE QUALITY	111	Brief depression (CIDI and CES-D)	Attachment insecurity (maternal)	Maternal education and non-Education speaking background	β = 3.26, p=.06	X2= ns (p>.025) (without maternal sensitivity)
		Chronic depression (CIDI and CES-D)	Attachment insecurity (maternal)	Maternal education and non-Education speaking background	β = 2.62, p=.16	X2= 5.11, p<.01 (without covariates)
		Any depression (CIDI and CES-D)	Attachment disorganisation (maternal)	Maternal education and non-Education speaking background	β = ns	β = ns (without covariates)
Teti 1995LOW QUALITY	50	Depression group (BDI)	Attachment insecurity (maternal)	Maternal education, family income, mothers' marital status	X2= 12.83, p<.001	p<.001 (without covariates)

Study	N	Risk factor (measure)	Attachment outcome (figure)	Controlled for	**Association (Adjusted)**	**Association (without covariate)**
Murray 1992 MODERATE QUALITY	113	Depression group (Postnatal depression-Psychiatric interview)	Attachment insecurity (maternal)	Marital friction, infant gender	p<.05	X2 = 15.4, df= 3, p< 0.002 (without covariates)
Seifer 1996 LOW QUALITY	123	Depression group (DSM-III-R)	Attachment insecurity (maternal)	Anxiety disorder, any illness, multiple risk	R2= ns	p <.05 (without covariates)
Note. NS= Not significant CED-S=, CBMPT, PSA, BDI						

Table 18: Summary findings for studies that measured the association between marital discord and attachment

Study	**N**	**Risk factor (Measure)**	**Attachment outcome (figure)**	**Controlled for**	**Adjusted result**	**Unadjusted result**
Brown 2010 LOW QUALITY	68	Observed supportive co-parenting	Attachment insecurity (maternal)	Parental sensitivity, child gender	ns	ns
	68	Observed supportive co-parenting	Attachment insecurity (paternal)	Parental sensitivity	β = .26, p < .05	p<.05
				Child gender	B= NS	
Forsch 2000 LOW QUALITY	57	Observed Inter-parental hostility	Attachment insecurity (maternal)	Concurrent assessment	F=4.31, p<.05	p<.05
Note. ns= Not significant						

Table 19. Summary findings for studies that measured the association between unresolved status and attachment status

Study	N	Measures	Outcome	Controlled for	Adjusted result	Unadjusted result
Goldberg 3002 LOW QUALITY	197	Unresolved maternal attachment	Attachment disorganisation (maternal)	Atypical maternal behaviour	β = 0.14, p <.04	β = .19, p<.01
Grienenberger 2005 LOW QUALITY	45	Maternal reflective functioning	Attachment (maternal)	Atypical maternal behaviour	Partial r =- 0.217, p=0.087	r = -.345, p=.009
Madigan 2006 LOWQUALITY	82	Unresolved status	Attachment disorganisation (maternal)	Atypical maternal behaviour	β =.19, p<.06	r =.31, p<.01
Shah 2011 LOWQUALITY	74	Unresolved grief	Attachment insecurity (maternal)	Neonatal health risks, family socio-economic risks, maternal vocabulary, maternal depression	ORadj = 2.94, p= 0.46	RR = 1.59, p< .01
Note. ns= Not significant						

5.2.9 Economic evidence

No economic evidence on the identification of environmental risk factors associated with the development of attachment difficulties in children and young people was identified by the systematic search of the economic literature undertaken for this guideline. Details on the methods used for the systematic search of the economic literature are described in Chapter 3.

5.2.10 Clinical evidence statements

5.2.10.1 Children who have been maltreated

- Very low quality evidence from a systematic review of 10 studies (N = 456) showed that maltreatment is strongly associated with insecure attachment in a set of high risk maltreating studies.
- Very low quality evidence from a systematic review of 7 studies (N = 392) showed that maltreatment is strongly associated with disorganised attachment in a set of high risk maltreating studies.

5.2.10.2 Parents at a social disadvantage

- Very low quality evidence from a systematic review of 59 studies (N = 4336) showed that children of parents at a social disadvantage (including low income, single mothers, low education, adolescent mothers, ethnic minority status) are associated with insecure attachment.
- Very low quality evidence from a systematic review of 34 studies (N = 2886) showed that children of parents at a social disadvantage (including low income, single mothers, low education, adolescent mothers, ethnic minority status) are associated with attachment disorganisation. The evidence also suggests a cumulative effect, where multiple factors increase the association with disorganised attachment.

5.2.10.3 Mental health problems in parents

5.2.10.3.1 General psychopathology

- Low quality evidence from a single study (N = 112) showed that psychosocial (maternal depression, stress and self-efficacy) factors are not significantly associated with maternal attachment security in a high risk African-American premature infant population. However the effect is mediated by maternal sensitivity.

5.2.10.3.2 Depression

- Very low quality evidence from a single systematic review (K = 15 N = 953) showed that maternal depression is weakly associated with insecure attachment. A less inclusive systematic review (K = 6, N = 373) suggests there is a weak association with insecure-avoidant attachment.
- Low to moderate quality evidence from 6 prospective cohort studies (N = 1794) showed that maternal depression is associated with a slightly increased risk of attachment insecurity; in 3 studies (N = 1240) the association was statistically significant and in 2 studies (N = 234) the association was moderated by maternal attachment state of mind. 1 study (N = 320) suggested an association between parental depression and infant-father but not infant-mother attachment security.

- Very low quality evidence from a systematic review (K = 6, N = 373) showed maternal depression was weakly associated with disorganised attachment. Very low quality evidence from another review (K = 16, N = 1053) showed a weak but significant association between maternal depression and disorganised attachment.
- Good quality evidence from a single study (N = 111) showed maternal depression and disorganised attachment were not significantly associated.

5.2.10.33 Post-traumatic stress disorder

- Low quality evidence from a single study (N = 45) showed maternal PTSD is significantly associated with disorganised, but not insecure, mother-infant attachment.

5.2.10.34 Substance misuse

- Very low quality evidence from a systematic review (K = 10, N = 1254) showed a moderate association between maternal substance misuse and insecure attachment.
- Very low quality evidence from a systematic review (K = 9, N = 1234) showed a strong association between maternal substance misuse and disorganised attachment.

5.2.10.4 Marital discord

- Low quality evidence from 2 studies (N = 125) showed observed marital discord is associated with insecure attachment. However in 1 study (N = 68) this association is only for infant-father and not infant-mother attachment.
- Very low quality evidence from a meta-analysis (K = 4, N = 364) was inconclusive as to whether marital discord is associated with risk of disorganised attachment.

5.2.10.5 Parents with unresolved and early loss or trauma

- Low quality evidence from a single study (N = 74) showed that unresolved maternal grief after preterm birth is associated with infant-attachment insecurity.
- Low quality evidence from 1 systematic review (K = 10, N = 548) showed that parental unresolved loss or trauma is significantly associated with infant disorganised attachment.
- Low quality evidence from a systematic review (K = 12, N = 851) showed a moderate association between unresolved states of mind and infant disorganised attachment.
- Low quality evidence from 1 study (N = 197) in a low risk population found unresolved loss or grief of the parents is associated with disorganised attachment.
- Low quality evidence from 1 study (N = 82) showed an association between maternal unresolved grief and attachment disorganisation but this was not significant when atypical maternal behaviour was included in a regression analysis.

5.2.10.6 Frightening or fearful behaviour

- Very low quality evidence from a systematic review that investigated anomalous parental behaviour and disorganised attachment (k = 9 studies, N = 644 participants) showed frightening behaviour from the parent is associated with disorganised attachment.

5.2.11 Economic evidence statements

No economic evidence on the identification of environmental risk factors associated with the development of attachment difficulties in children and young people is available.

5.3 Recommendations and link to evidence

Recommendations	
	2. Health and social care provider organisations should train key workers, social care workers, personal advisers and post-adoption support social workers in the care system, as well as workers involved with children and young people on the edge of care, in: • recognising and assessing attachment difficulties and parenting quality, including parental sensitivity • recognising and assessing multiple socioeconomic factors (for example, low income, single or adolescent parents) that together are associated with an increased risk of attachment difficulties • recognising and assessing other difficulties, including coexisting mental health problems in the parents and the consequences of maltreatment • knowing when and how to refer for evidenced-based interventions for attachment difficulties. 3. Health and social care professionals should offer a child or young person who may have attachment difficulties, and their parents or carers, a comprehensive assessment before any intervention, covering: • personal factors, including their attachment pattern and relationships • factors associated with the child or young person's placement, such as history of placement changes, access to respite and trusted relationships within the care system or school • the child or young person's educational experience and attainment • parental sensitivity • parental factors, including conflict between parents (such as domestic violence and abuse) and parental drug and alcohol misuse or mental health problems • the child or young person's experience of maltreatment or trauma • the child or young person's physical health • coexisting mental health problems and neurodevelopmental conditions commonly associated with attachment difficulties, including antisocial behaviour

	and conduct disorders, attention deficit hyperactivity disorder, autism, anxiety disorders (especially post-traumatic stress disorder) and depression. 4. Offer children and young people who have or may have attachment difficulties, and who also have a mental health problem or neurodevelopmental condition, interventions as recommended in the relevant NICE guideline (for example, antisocial behaviour and conduct disorders in children and young people, attention deficit hyperactivity disorder, autism, post-traumatic stress disorder, social anxiety disorder, depression in children and young people and alcohol-use disorders). 5. If, following assessment of attachment difficulties, an intervention is required, refer the child or young person, and their parents or carers, to a service that: • has specialist expertise in attachment difficulties in children and young people and their parents or carers • is integrated with other services, including CAMHS, education and social care • actively involves children and young people with attachment difficulties in staff training programmes.
Relative values of different outcomes	The GC agreed that the critical outcomes for this review were attachment difficulties (both insecure and disorganised) and attachment disorders, as measured by a validated tool. The GC decided that disorganised attachment was of greatest concern as it best reflects poor long-term outcomes of children. No other outcomes were considered for this review.
Trade-off between clinical benefits and harms	The GC noted the extensive literature published in the field of environmental risk factors and decided that the best approach would be to summarise the existing literature based on findings from good quality systematic reviews (which include a mixture of study designs), and supplement this with a more select review of higher standard quality evidence from prospective cohort studies that adjusted for confounding factors using multivariate analyses. The GC therefore drew on evidence from both systematic reviews and prospective cohort studies in order to develop the recommendations. There was evidence (from a systematic review of 10 studies and 456 participants) that showed a strong association between children who had been maltreated and attachment difficulties (both insecure and disorganised). The GC noted that studies included sexual abuse, physical abuse, neglect and emotional maltreatment under the definition of maltreatment. Based on this evidence, the GC wished to recommend that those working with young people on the edge of care should have training on the consequences of maltreatment (and its relation to attachment). In addition, the GC highlighted the importance of covering a child or young person's

	experience of maltreatment as part of a comprehensive assessment of a child or young person who may have attachment difficulties. Children at increased social disadvantage (such as those from black and minority ethnic groups) were given special consideration by the GC. For this group, evidence was identified that showed an association between socioeconomic factors (which included low income, single mothers, low education, adolescent mothers, and ethnic minority status) and attachment difficulties (both insecure and disorganised). This evidence came from a systematic review of 59 studies with 4336 participants. The GC noted that individually each socioeconomic factor did not have a strong association, however there was a cumulative effect whereby multiple socioeconomic factors (clustered together) increased the risk of disorganised attachment. Based on this evidence the GC wanted to highlight this cumulative effect, and wished to recommend that those involved in the care of children and young people on the edge of care are able to recognise the impact of these multiple factors on attachment difficulties. Children of parents with mental health problems or substance misuse were also given special consideration by the GC. Some evidence was identified that showed an association between children of parents with mental health problems and attachment insecurity. Most of the evidence came from studies showing an association between maternal depression and attachment difficulties, and one study showing the association between maternal PTSD and attachment difficulties, however the GC felt that this evidence could be generalised to other forms of mental disorders and also to fathers. The GC wished to recommend that parental mental health and substance misuse were considered and covered during a comprehensive assessment of a child or young person who may have attachment difficulties. Evidence relating to the outcomes of children who were placed in care because of parents with substance abuse problems (see paper by Cheng 2010 in the review on process and arrangement risk factors) showed that they are more likely to end up adopted compared with the children in care whose parents had no reported problems. The same data showed a non-significant trend for the same children to be less likely to return to their biological parents. The authors attributed this to the time it takes to achieve a satisfactory outcome from treatment, thus increasing the likelihood of their need for adoption. Interestingly, the same data set showed no association between parents with mental health problems and the likelihood of the child being adopted or returning to their parents. There was some evidence that marital discord showed an association with insecure attachment, however the GC noted that this evidence was limited. The GC discussed and considered the importance of conflict between parents (including domestic violence and abuse) in relation to attachment, and felt that it was an important factor to consider as part of a comprehensive assessment for children or young people who may have attachment difficulties.

	There was some evidence that showed a moderate association between parents with unresolved loss or trauma and parents with fearful or frightening behaviour. There was no evidence identified for parents who had been maltreated, parents with attachment problems and parents in prison. The GC considered the evidence, and together with their clinical judgement, decided that a general assessment of personal factors associated with the parents or carers including their attachment pattern and relationships should be considered as part of a comprehensive assessment of children and young people who may have attachment difficulties. In addition, the GC also felt that a consideration of trauma (for both the parent and the child) was important to include in a comprehensive assessment. In making recommendations, the GC recognised the possibility of harm arising from unnecessary concern or actions, such as increased monitoring that might negatively impact on the child or family. The GC noted the importance of identifying people in need of help i.e. those who have a number of risk factors, and that these families and their children may need more help than others in this context (the GC were also mindful that families are not stigmatised (i.e. it is not assumed that children whose parents have a low socioeconomic status have attachment difficulties by default), rather, that the purpose of identifying these groups is to ensure that families who need help are given access to services they need.
Trade-off between net health benefits and resource use	The GC noted that identification of environmental circumstances and risk factors associated with the development of attachment difficulties in children and young people has important resource implications. Recognition of risk factors is likely to lead to potential cost savings if it allows better prediction (and thus more timely and effective management) and potentially prevention of attachment difficulties (and costly placement of children and young people into care). The GC also considered long-term costs associated with attachment difficulties including poorer mental health, behavioural problems, and placement into care costs. Also, children with attachment difficulties have poorer employment and education outcomes, and higher involvement with the criminal justice sector. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice sector costs, and society as a whole.
Quality of evidence	The studies used for this review included prospective cohort studies where children were observed over time to ascertain which factors were associated with attachment difficulties. Only studies that adjusted for covariates were included in the review. The quality of the outcomes ranged from very low to moderate quality, including the paper by Cheng 2010 from the process and arrangement review. The statistical analysis performed in each study often varied (OR, RR, HR, beta-co-efficient, chi-square, zero-order gamma) in addition to the number and type of adjustments, so the data could not be meta-analysed. For this reason, GRADE software was not used to assess the quality of the evidence, instead we used the criteria explained below. Since the studies were observational (prospective cohort), the quality of the studies/evidence started at very low and were up-

	graded to low, moderate or high quality each time if they included 1 of the following: • for continuous outcomes the sample size was ≥400 and for dichotomous outcomes the sample size was ≥300 events. • they adjusted the outcome for confounders • no risk of bias or indirectness based on the following 5 criteria: the generalisability of the population, the degree of missing data, if the outcome was measured using a valid or reliable tool, if the risk factor was measured adequately, and appropriate statistics were used. The quality of systematic reviews was judged using the following checklist: the review question is relevant, it includes relevant study designs, the literature search is sufficiently rigorous, study quality is assessed and reported and an adequate description of the methodology is included. Based on this criteria, the systematic reviews used in this review were all rated very low quality.
Other considerations	Throughout the guideline the GC acknowledged that maternal sensitivity/responsiveness is causally related to attachment. Systematic reviews have shown a strong link between attachment and maternal sensitivity (which can be measured using validated scales such as the Ainsworth sensitivity scale). Based on this evidence, the GC did not feel it necessary to consider the extensive range of literature in this field. However, due to its strong link with attachment difficulties, the GC decided that when parental sensitivity was included in multivariate/ regression models, the results would be presented with both sensitivity included and excluded in the model (due to the fact that sensitivity will often explain a significant amount of the variance). Since sensitivity was shown to be a strong moderator and pre-disposing factor for attachment difficulties, the GC noted the importance of ensuring that those working with children and young people on the edge of care are trained to recognise and assess parenting quality, including parental sensitivity. In addition, the GC wished to recommend that parental sensitivity is covered as part of a comprehensive assessment for a child or young person who may have attachment difficulties and before any intervention (see reviews on predicting and identification of attachment difficulties for what assessment tools should be used). The GC did not feel that there was strong enough evidence to single out any one of the socioeconomic factors as independently associated with attachment difficulties. The GC were also mindful about the possible stigma associated with factors such as ethnic minority status or adolescent mothers, and therefore preferred to use the general term 'socio-economic factors'. However, the GC felt there was sufficient evidence to highlight the cumulative effect of various socioeconomic factors clustered together. The GC also drew on their expert knowledge, and evidence from other reviews (including identification tools, process and arrangement factors), to consider other important factors to include in the overall assessment. These included personal factors (attachment pattern and relationships), placement factors, educational factors, and physical and mental health problems. When developing the recommendation on assessment (recommendation 3), the GC also saw the need to highlight that

	health and social care staff working with children and young people in any setting should be trained in the recognition and assessment of attachment difficulties. Children with disabilities (including learning disabilities) were highlighted as a group that need special consideration. No evidence was formally reviewed for the association between learning and developmental disabilities and attachment difficulties. However, because mental health problems that commonly coexist with attachment difficulties might also be identified during an assessment, the GC made a separate recommendation that problems such as antisocial behaviour and conduct disorder, autism, ADHD, PTSD, social anxiety disorder, depression and alcohol misuse should be treated according to NICE guidelines. The review on process and arrangement risk factors identified the impact of some mental health problems can have on a child's experience in care. Refer to that chapter for more information. In addition the GC highlighted that children with physical disabilities were a group that needed special consideration. Although no evidence was identified in the review, the GC wished to recommend that physical health (including physical disabilities) was considered during a comprehensive assessment of children and young people who may have attachment difficulties. Moreover, a number of results were on the impact of disabilities on a child's experience in care were identified in the review on process and arrangement risk factors. See the chapter for further information. Because the results from the review on process and arrangement factors associated with attachment difficulties for children in care also fed into these recommendations, the recommendations include risk factors associated with not only parents but also the child's carers. The GC wanted to make it clear who should take responsibility for providing an intervention and offer services to the family if an intervention is required. The GC also discussed the importance of health and social care providers training to key workers on how to recognise and assess attachment difficulties and associated risk factors. They also raised the point of ensuring children and young people with attachment difficulties are involved with staff training programmes. It is important that their input and experience is valued and taken into consideration. Finally, the GC agreed that a research recommendation should be made to develop reliable and valid screening assessment tools.

5.3.11 Research recommendation

1. Develop reliable and valid screening assessment tools for attachment and sensitivity that can be made available and used in routine health and social care.

6 Process and arrangement features for taking children and young people into local authority care associated with an increased or decreased risk of developing or worsening attachment difficulties

6.1 Introduction

Many children who have been adopted from care have had lengthy experiences of abuse and neglect before being removed from their birth parents. They are vulnerable to experiencing the cognitive and psychosocial consequences of their early adverse experiences, and this vulnerability can be exacerbated by a number of risk factors endemic in the care system and the lengthy process of decision-making that precedes an adoption order.

An accumulating body of evidence suggests that the younger children are when placed with their adoptive carers, the more likely they are to develop secure attachments, and the less likely they are to display the consequences of abuse and neglect (see (Howe et al., 2001a; Rushton, 2007; van den Dries et al., 2009). Where children cannot remain safely with their birth parents it is therefore important that professionals make timely decisions and take proactive action to reduce delays. Yet delays are evident at every stage of the adoption process, from decisions by professionals to refer a case to children's social care, to decisions by social workers to instigate court proceedings, to decisions by family justice professionals concerning whether an adoption order should be made (Ward et al., 2012a). While findings from a number of studies show that children placed with adoptive parents before their first birthdays do better than those placed at an older age, the most recent national statistics indicate that on average adopted children are 13 months old when they are permanently separated from birth parents, and that they then spend 20 months in temporary and sometimes unstable foster care before being placed with their adoptive families just before they are 3 (see Department for Education, 2014). Such delays jeopardise children's life chances (Brown & Ward, 2014). The meta-analysis of van den Dries et al. (2009), of assessments of attachment in adopted children, found that children who were adopted before 12 months of age were as securely attached as their non-adopted peers, whereas children adopted after their first birthdays showed less attachment security than non-adopted children. Similarly, Howe et al. (2001a) found that the younger the children were at placement, the greater their feelings of belonging and being loved by adoptive parents, and the greater their satisfaction with the placement. However 'placement after the age of 2, particularly if coupled with being female, presents an increased risk of children experiencing their adoption more negatively'.

Many children who have been adopted from care have experienced the double jeopardy of becoming attached first to their birth parents who cannot meet their needs, and then to foster carers who eventually relinquish them (Ward et al., 2012a). Moreover there is an intricate relationship between delayed decisions and actions and instability of placements, so that the longer children wait in care for a permanent adoptive home to be found, the greater the chances that they will move from 1 temporary foster placement to another, thereby reinforcing continuing experiences of separation and loss (Ward et al., 2006).

Finally, resource issues within the system exacerbate some of the risk factors noted above. Extensive use of agency staff and the constant turnover of social workers is associated with delayed decisions and reactive rather than proactive case management in some local authorities (Farmer & Lutman, 2012). Delays in recruiting and approving adoptive carers have also meant that large numbers of children wait in the care system for an adoptive family that is never found: only 20% of adoptions are for children aged 5 or older (Department for Education, 2014). Even when older children are found adoptive homes, the older they are at entry to care, the longer the delay in placing them with an adoptive family – those who come into care aged 7 or older wait on average a year longer than those who come into care before their 1st birthday.

6.2 Review question: What process and arrangement features for taking children and young people into local authority care are associated with an increased or decreased risk of developing or worsening attachment difficulties?

The review included both prospective and retrospective cohort studies that used multivariate regression models to look for independent risk factors. Cross-sectional studies were included if no cohort studies were available. RCTs were included if they provided a multiple regression analysis looking at predictors of any relevant outcomes. Retrospective cohort studies that used databases were included because recall bias (that is, the participants' bias in remembering past events) was not a concern because process and arrangement factors would have been collected in real-time. However, there may be concerns about how well (or complete) the data was recorded by those who administered the system, for example data may be missing if a family moved from state to state. Variables that are easily collected (such as age and gender) or are used to monitor reimbursement for foster cares (such as duration of placement) may be more reliable. Studies that failed to adjust for confounders (univariate analysis) were excluded from this review.

The review protocol summary, including the review question and the eligibility criteria used for this section of the guideline, can be found in Table 20 . A complete list of review questions can be found in Appendix F; further information about the search strategy can be found in Appendix H; the full review protocols can be found in Appendix F.

Table 20: Clinical review protocol summary for the review of: What process and arrangement features for taking children and young people into local authority care are associated with an increased or decreased risk of developing or worsening attachment difficulties?

Component	Description
Review question(s)	What features of arrangements made for children and young people in each looked-after setting (residential, fostering, kinship care, adoption), secure and education setting are associated with an increase or decrease in the risk of developing or worsening attachment difficulties? What process features for taking children and young people into local authority care are associated with an increased or decreased risk of developing or worsening attachment difficulties?
Population	Children and young people (aged 0–18 years) with attachment difficulties. Including those who as a result of attachment difficulties: • warrant health care intervention • have functional impairment **Settings** 1. adopted, including those adopted from abroad 2. looked after children in the care system 3. On the edge of care **Strata:** Pre-school (≤4 years), primary school (>4 to 11 years), secondary school (>11 to 18 years)
Intervention(s)	Children exposed to risk factor
Comparison	Children not exposed to risk factor
Critical outcomes	Association between risk factor and attachment difficulties or placement stability.
Study design	• Individual patient data meta-analysis • Systematic reviews • Observational non-RCT studies (prospective, retrospective or cross-sectional studies)
Note. RCTs were included if they provided a multiple regression analysis looking at predictors of any relevant outcomes	

6.2.51 Clinical evidence

6.2.161 Studies considered

61 studies met the eligibility criteria for this review: Akin 2011 (Akin, 2011), Altenhofen 2013 (Altenhofen et al., 2013), Barth 2008 (Barth et al., 2008), Bausch 2006, Becker 2007 (Becker et al., 2007), Beijersbergen 2012 (Beijersbergen et al., 2012), Brooks 2002 (Brooks et al., 2002), Brownell 2011 (Brownell et al., 2011), Casanueva 2014 (Casanueva et al., 2014), Chamberlain 2006 (Chamberlain et al., 2006), Cheng 2010 (Cheng, 2010), Cohen 2011 (Cohen & Farnia, 2011), Cole 2005 (Cole, 2005a), Cole 2007 (Cole, 2005b), Connell 2006 (Connell et al., 2006), Connell 2006b (Connell et al., 2006b), Courtney 1995 (Courtney, 1995), Courtney 1996 (Courtney & Barth, 1996), Courtney 1996b (Courtney & Wong, 1996b), Dance 2005 (Dance & Rushton, 2005), Dance 2002 (Dance et al., 2002), Dance 2007 (Dance et al., 2007),Davis 1996 (Davis et al., 1996), De Schipper 2012 (De Schipper et al., 2012), Denby 1999 (Denby et al., 1999), Farmer 2013 (Farmer et al., 2005), Fernandez 2013 (Fernandez & Lee, 2013), Fisher 2005 (Fisher et al., 2005), Frame 2002 (Frame, 2002),

Gabler 2014 (Gabler et al., 2014), Harder 2012 (Brecht et al., 2012), Havlicek 2010 (Havlicek, 2010), Horwitz 2011 (Horwitz et al., 2011), Holtan 2013 (Holtan et al., 2013), Hurlburt 2010 (Hurlburt et al., 2010), Hunter 1990 (Hunter et al., 1990), Iglehart 1994 (Iglehart, 1994), James 2004 (James, 2004), Johnson 2005 (Johnson & Wagner, 2005), Jonson-Reid 2003 (Jonson-Reid, 2003), Koh 2008 (Koh & Testa, 2008), Koh 2014 (Koh et al., 2014), Lee 2012 (Lee et al., 2012), Leathers 2010 (Leathers et al., 2010), Leathers 2005 (Leathers, 2005), Lehmann 2013 (Lehmann et al., 2013) , McDonald 2007 (McDonald et al., 2007), O'Connor 2000 (O'Connor & Rutter, 2000), Palmer 1996 (Palmer, 1996), Pardeck 1984 (Pardeck, 1984), Park 2009 (Park & Ryan, 2009), Ponciano 2010 (Ponciano, 2010), Romàn 2012 (Roman et al., 2012), Sallnas 2004 (Sallnas et al., 2004), Smith 2001 (Smith et al., 2001), Smith 2003 (Smith, 2003), Testa 2001 (Testa, 2001), Vogel 1999 (Vogel, 1999), Wells 1999 (Wells & Guo, 1999), Wells 2012 (Wells & Correia, 2012), Zullo 2002 (Zullo, 2002). A summary of the included studies can be found in Table 21.

Thirty-two of the studies were retrospective cohort studies,17 were prospective cohort studies, and 11 were cross-sectional studies. Most of the studies reported factors associated with placement disruption, likelihood of being adopted, re-entering care, entering care, being reunified with birth parents. Fewer studies were identified that identified factors associated with secure attachment between the carer and the foster or adopted child. Summary of findings can be found in Table 22 to Table 125

Of the eligible studies, none included evidence that could be meta-analysed. As such a narrative summary was provided for the GC. The results of the studies included in this review can be found in Appendix J. See also the study selection flow chart in Appendix P, and exclusion list in Appendix M.

Table 21: Study information table for trials included in the meta-analysis of: What process and arrangement features for taking children and young people into local authority care are associated with an increased or decreased risk of developing or worsening attachment difficulties?

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
Akin 2011	USA	In foster care	3351	0 to 18 years	Adoption, reunification	Retrospective cohort (data base	30-42 months	Siblings together, foster care versus kinship care, placement stability, placement type, age in placement		
Altenhofen 2013	USA	49% were adoptive, 23% kinship, 14% biological, 14% foster. Infants had been placed under court ordered care	104	3 years (36–47 months) .	Attachment security; AQS	Prospective cohort	1 to 36 months after placement	Maternal sensitivity	Infancy/Early childhood version of Emotional Availability Scale	
Barth 2008	USA	Adoptive and non-adoptive parents	232	5-12 years	Re-entry into foster care	Prospective cohort	36 months	Age, prior welfare involvement, duration in out-of-care home		
Baush 2006	USA	Adoptive and non-adoptive	232	NA	Willingness to adopt	Cross-sectional	Same time	Age, employment		

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
		parents			foster children			status, infertility, pronatalist belief		
Becker 2007	USA	Children served by the child welfare system in Florida	7807	0-18 years	Successful exit from care	Retrospective cohort (data base)	12 months	Therapeutic foster care versus none; age at entry		
Beijersbergen 2012	Netherlands	Early adopted adolescents. They were adopted before the age of 6 months from Sri Lanka and Columbia to the Netherlands mostly by middle class families.	104	12 months to 14 years	security at 12 months and 14 years	Prospective cohort	Same time	Maternal sensitive support	Ainsworth Sensitivity scale at 12 months and Family Interaction Task at 14 years	
Brooks 2002	USA	Adopted children	616	<1 to 18 years	Willingness to adopt children	Cross-sectional	Same time	Age, siblings together in care		
Brownell 2011	Canada	Low risk born in Manitoba	15281	1.5 to 4 years	Child-entering care	Prospective cohort	1.5- 4 years	prolonged postpartum		

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
								separation, no prenatal care before 6th month		
Casanueva 2014	USA	Children were placed into care due to maltreatment – abuse or neglect	1196	Infants (12 months or younger) at time of investigation and followed until 5-7 years old	Placement stability	Retrospective cohort (data base	15 months	Changes in placement	Caseworker and caregiver interviews	88% Compliance long-term
Chamberlain 2006	USA	Children entering foster care for the first time and those who had multiple previous placements and were being moved from 1 foster	246	5-12 years	Placement disruption	Prospective cohort	1 year	foster care versus kinship care, age		

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
		care to another								
Cheng 2010	USA	Long-term foster care (min 3 years)	411	children = unclear age	Entry into adoption, reunification	Retrospective cohort (data base)	3 years	Placement duration, need of housing services, need of financial assistance, needed services unobtained, caseworker engagement with family, age		
Cohen 2011	Canada	Children adopted from China compared with non-adopted Canadian girls of similar age, family and background	30	13.6 months (3.6)	Attachment: secure, disorganised and ambivalent	Cross sectional data	Same time	Mother's education	SSP	only adjusted for 1 other confounder
Cole 2005	USA	Caregivers and their children. Children without	46	12.57 (1.61) months	Secure attachment	Cross sectional	Same time	Financial gain, desire to adopt, replace grown up children, social	Strange situation procedure	

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
		severe developmental, neurological or developmental problems at the time.						responsibility		
Cole 2007	USA	Infants placed in foster home. Infant placed within the first 3months of child's life and who had been In their care continuously for 6 months prior to participating in study	46	10-15 months	Secure attachment	Cross sectional data	Same time	Caregivers sensitivity, caregiver's childhood trauma, total environment (learning materials, variety and organisation)	SSP	
Connell 2006	USA	Foster care children in Rhode Island	5901	0-20 years	change in placement	Retrospective cohort (data base)	4 years	Kinship care versus. foster care, age		
Connell 2006b	USA	Foster care children in Rhode Island	2896	0-20 years	Reunification	Retrospective cohort (data base)	4 years	Kinship care versus. foster care, number of placements, age		

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
Connell 2006b	USA	Foster care children in Rhode Island	508	0-20 years	Adopted or termination of parental rights	Retrospective cohort (data base)	4 years	Kinship care versus. foster care, number of placements, age		
Courtney 1995	USA	Children who were discharged from a first episode in the foster care system in 1998 and were monitored over 3 years	6783	0-16 years	Foster care re-entry	Retrospective cohort (data base)	3 years	Duration in care, number of placements, family on benefits, age		
Courtney 1996a	USA	1) were at least 17 years of age at exit, and (2) at least 18 months in care before final discharge	2653	>17 years	odds of returning home or being adopted versus unsuccessful discharge	Retrospective cohort (data base)	4 years	Foster care versus kinship care, weeks in care		
Courtney 1996b	USA	All children who entered first placement	8625	0-16 years	return to family or guardian	Retrospective cohort (data base)	4 years	Placement setting, pre-placement prevention services, aid for parents,		

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
								age		
Courtney 1996b	USA	All children who entered a first placement	8625	0-16 years	Adopted	Retrospective cohort (data base)	4 years	Placement setting, pre-placement prevention services, aid for parents, age		
Dance 2002	UK	Children placed for permanence, that is, with a plan for either adoption or long-term fosters. Focused on those with the intention for adoption.	99	6.9 years (1.59) (5 to 11 years)	Poor placement progress	Longitudinal study over 9 months (3 months after placement to 1 year)	Same time	False affection and low sensitivity	Sensitivity was measured from parental interviews, does not sound validated	Only adjusted for 1 other factor. Poor measure of sensitivity.
Dance 2005	UK	Children spent almost 4 years in temporary care before permanent placement Average 76 months since adopted. 66	99	6.9 years (1.59) (5 to 11 years)	Adoption disruption	Longitudinal. Followed up 76 months after placement	76 months follow-up	Lack of attachment to mother	Parental assessment of child's attachment to them. Via interview	Unclear if validated measure for child's attachment. Also adjusted for history of preferential rejection

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
		children had experienced some form of abuse.								
Dance 2007	UK	Children late placed from care into unrelated families with the intention of permanence, following adverse circumstances in early childhood.	63	5-11 years	Poor placement	Prospective cohort	12 months	Maternal sensitivity	Behaviour, tone and answers in an interview	
Davis 1996	USA	Included children who entered foster care were 12 years old or younger, and removed from their parents for more than 72 hours.	548	5-12 years	Family reunification	Retrospective cohort (data base)	18 months	Visitation by mother is less than that recommended during reunification phase		
De Schipper	USA	Foster care sample.	59	57 months	Security rating	Cross-sectional	Same time	Parental sensitivity x	Strange situation procedure	There were no effects

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
2012		Almost all experienced 1 out of home placement, from 0 to 5. Foster children had lived with their current foster family for 3-76 months. The sample was selected for long term (3 or more) non-kinship placement.		(16.4)				child shyness,		of age, time in placement and age at out of home placement on attachment quality and secure rating
Denby 1999	USA	Foster parents in 8 urban counties in large Midwestern state	539	18 – 65+ years	Fostering satisfaction	Cross-sectional	none	Qualitative data		Included predictors associated with foster carers that have been captured
Farmer 2013	England	episode of care during the first 6 months of 1988 are	180	0-14 years	Return stability	Prospective cohort	1 year	Service needs of parents: adequate support upon return;		

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
		included in the analysis						exceptional support from caregivers		
Fernandez 2013	England	Children in care	168	0-12 years	Reunification	Retrospective cohort (data base)	18 months	Siblings together, age		
Fisher 2005	USA	Foster care	90	3-6 years	Failed placement	RCT	6-9 months with 24 month follow-up	Number of placements, time in foster care prior to study and during study		
Frame 2002	USA	Children in care who had been neglected	1357 /630	0-2.5 years	Family reunification/ Re-entry into foster care	Retrospective cohort (data base)	3-4 years	Kinship versus foster, age, duration in care		Siblings outcome was just whether they were also in care, not necessarily together
Gabler 2014	Germany	Foster children. Data collected initially after placement and 6 months later.	48	30.6 months (17.69)	Attachment	Prospective cohort	6 months	Parenting stress, supportive presence	Attachment Q-set	

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
		Living for 2.5 months in foster families.								
Harder 2012	Netherlands	Adolescents in secure residential care.	135	16 years (11.6 to 20)	Adolescent-teacher – Relationship perceived by adolescents and staff. Adolescent – care worker relationship	Prospective cohort	8 weeks (at admission and 8 weeks later)	Adolescent measure of skills of teacher or care workers (including giving positive feedback, commitment, clarity, being respectful)	The Psychological Availability and Reliance on Adult questionnaire (PARA, Schuengel 2003). .	Unclear how this tool is used to measure attachment
Havlicek 2010	USA	Foster care	474	0-17 years	Foster care versus kinship care	Retrospective cohort (data base)	0-17.5	Graduate education or higher of caregiver		
Holtan 2013	USA	Children from home for abuse or neglect or other maltreatment and subsequently placed in kinship care	71 studies	0-18 years	Attachment, placement stability	Cross-sectional or longitudinal	1 year	Kinship care versus. foster care, age		Other factors associated with caregivers that have shown NS impact on placement stability: foster parents

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
										having their own children, single versus married/cohabiting, education (<12 versus >12 years),
Horwitz 2011	USA	Children in care, referred because of potential maltreatment	2824	0-14 years	Predicting out of home placements	Prospective cohort	3 years	Child welfare services, age		
Hunter 1990	USA	Children who entered care because of sexual abuse	100	6-17 years	Number of placement	Prospective cohort	2 years	Support from mother		
Hurlburt 2010	USA	Foster parents of children experiencing a recent foster placement, and taking part in the KEEP program. Included	292 foster childr en	5-12 years	Placement disruption	Prospective cohort	1 years	Kinship care versus. foster care, age		Additional analysis of Chamberlain. no predictors measured from the carers

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
		children at least 1 observation was available in the first 3 intervention weeks.								
Iglehart 1994	USA	Adolescents in out-of-home placement	1642	16 years +	Odds of going into relatives home (kinship care) versus non-relative (foster care)	Retrospective cohort (data base)	4 months	number of placements		Hispanic Females less likely to go into kinship care versus white males, age. no predictors measured from the carers
James 2004	USA	Children in placement for at least 5 months	1084	0-16 years	Behaviour related placement change	Retrospective cohort (data base)	18 months	Days in kinship care, no of routine placement changes, No. planned moves to kin or siblings, visits to biological parents,		Descriptive of reasons for placement change associated with foster parents

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
								proximity to parents,		
Johnson 2005	USA	Children entering foster care	1412	<4-19 years	Obtaining permanency, including family reunification and other foster care permanency outcome	Retrospective cohort (data base)	15 months	Foster care +. Kinship care versus other care, age		
Jonson-Reid 2003	USA	Children entered foster care and existed care close to end of study period	2172	<5 to 16 years	Re-entry into foster care	Retrospective cohort (data base)	4.5 years	Number of placements, length of care, type of care, age		Services were not well defined. No predictors measured from the carers.
Koh 2008	USA	Kinship and foster care	3000	0-13 years	Placement stability, placement disruption	Retrospective cohort (data base)	3 Years	Foster care versus Kinship		Used HR adjusted values for matched an unmatched. Matched samples were matched for abuse and neglect, age, county

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
										care.
Koh 2014	USA	Selected because of number of moves versus stable group selected	184	0-12+ years	Likelihood of multiple place moves	Retrospective cohort (data base)	18 months	Time in relative foster homes, caregiver willingness to commit to permanence, spent time with sibling in care,		Already captured carers data. only children who had multiple moves included in analysis
Leathers 2005	USA	Children in foster care	203	12-13 years	Disruption, Reunification , Entry into adoption	Cross-sectional		Siblings together, duration in foster care, foster care integration, visits with parents, attachment to mother,		
Lee 2012	USA	Children experienced child abuse and neglect and control group who had returned to family	397	5-16 years	Risk of re-entry, Reunification	Retrospective cohort (data base)	2 years	Number of placements, longest placement with kin, duration of foster care, age		
Lehmann	Norway	Children in	54	8.9±2.0	RAD	Cross-sectional	Same time	Age at first		

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
2013		foster care. 68% had at least 1 prior placement						placement, number of placements		
McDonald 2007	USA	Children who entered foster care	2455 1	NA	Adoption Reunification	Retrospective cohort	3 years	Age at referral, number of prior placements		
O'Connor 2000	UK	Children adopted from Romania	165 + 52 adop tees from UK	4-6 years	Attachment	Prospective cohort	6 years	Duration of deprivation	Interview using a non-validated tool	
Palmer 1996	Canada	Children in need of protection. Admitted in care in previous 18 months	184	4+ years	Predicting number of placements in 18 months follow-up	Prospective cohort	18 months	Preparing child for placement by parents		
Pardeck 1984	USA	Children in foster care	4288	Unclear – children	Multiple placements	Retrospective cohort (data base)	Unclear	Characteristics of birth family, Caseworker characteristics, turnover, educational level, years of experience		Only controlled for time in care
Park 2009	USA	Children who	5978	3-18	Permanence	Retrospective	4- 8 years	length of time		

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
		were placed in out-of-home care for the first time		years	(reunification, adoption or subsidised guardianship)	cohort (data base)		in care, placement stability, siblings in care,		
Ponciano 2010	USA	Foster child and foster mother. 65% of the children were placed at 1 year or younger	76	9 and 39 months of age	Attachment	Cross-sectional	same time	Maternal sensitivity. Less experienced foster mother	Attachment Q set	only adjusted for 1 other confounder
Romàn 2012	Spain	40 internationally adopted children after an average of 40 months since their adoption. Children were compared to 58 children living with their birth families and to 50 children living in Spanish	158	4 to 7 years of age	Attachment	Cross-sectional	Same time	Age at adoption, duration in adoption	Story Stem Assessment Profile	

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
		Institutions. No child adopted <12mo age.								
Sallnas 2004	Sweden	Cohort of youths who started placement in Sweden	776	13-16 years	Placement breakdown	Retrospective cohort (data base)	up to 5 years	Breakdown of earlier placement, distance from home, assessed by specialist, court order placement		
Smith 2001	USA	Youth who were consecutively referred to child welfare	90	2-12 years	Disruption	Prospective cohort	6 to 9 months	number of placements		
Smith 2003	USA	Children who became eligible for adoption because parent's rights were terminated. They are currently in care	1995	0-17 years	Exiting care	Retrospective cohort (data base)	1 year	Placement duration and placement setting		Increase age, less likely to exit foster care, children in kinship care (versus adoption) were less likely to exit care. no predictors

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
										measured from the carers
Testa 2001	USA	Foster care and kinship care	1910	Mean 4-5 years	Care adoption, placement stability	Retrospective cohort (data base)	Up to 8 years	Foster care versus Kinship		Matched data for length of stay in care, no other variables. No predictors measured from the carers
Vogel 1999	USA	Children in foster care, caretaker, group home, institution	95	1-17 years	Placement disruption	Retrospective cohort (data base)	4 years	Received services		
Wells 1999	USA	Foster care and kinship care	2312	0-15 years	Reunification, risk of re-entry	Retrospective cohort (data base)	3 years	Foster care versus Kinship		Unadjusted data used in Cochrane. no predictors measured from the carers
Wells 2006	USA	In foster care	1560	0-16	Reunification	Prospective	12 months	setting of		

Study ID	Country	Population level of risk	N	Age	Outcome	Study design	Timing of risk factor measure (months)	Risk factor reported in review	Tool used to measure attachment or sensitivity outcome	Note
		1 before welfare reform; 2 after welfare reform; 3		years		cohort		placement, age,		
Wells 2012	USA	entered foster care between 2001 and 2007	398	0-12+	Re-entry into foster care	Retrospective cohort (data base)	6 years	age in care, parenting skills a problem, type of care, length of care. Consider extracting on parents risk factors,		
Zullo 2002	USA	Cohort of children that experienced a first time out-of-home placement	1397	Unclear – children	Permanent placement	Retrospective cohort (data base)	4 years	Child age, private agency, paid relative/unpaid relative		

6.2.1.2 Factors associated with secure attachment for children in care

Table 22: Risk factor: maternal (carer) sensitivity. Outcome: secure attachment with carer

Study	N	Risk factor	Population Age	Controlled for	Outcome
Beijersbergen 2012 MODERATE QUALITY	104	Maternal sensitivity at 12 months	Adopted 12 months	Birth children, enrolled in intervention, maternal sensitivity 14 years	↑ (secure at 12 months) * Wald = 5.32
		Maternal sensitivity at 14 years	14 years		↑ (secure at 14 years) * Wald = 4.14
		Maternal sensitivity at 12 months			↑ (secure at 14 years) * Wald = 3.71
Altenhofen 2013 LOW QUALITY	104	Emotional sensitivity (carer)	Foster children 3 years	Gender, child responsiveness, child involvement	β=-0.11 NS
De Schipper 2012 MODERATE QUALITY	59	Parental sensitivity x shyness	Foster children	Single variables parental sensitivity, shyness	β=0.82* (children more shy who had more sensitive foster parents had greater attachment)
Cole 2007 MODERATE QUALITY	46	Sensitivity (involvement, responsiveness, acceptance)	Foster children 10-15 months	Carer's childhood trauma, caregiving environment, stress, support	β=-0.511* (unexpected, sub-scale showed it was due to involvement)
Ponciano 2010 MODERATE QUALITY	76	Maternal sensitivity	Foster children	Less experienced Foster mother	β =0.55*

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 23: Risk factor: less experienced foster care. Outcome: secure attachment with foster carer

Study	N	Risk factor	Population Age	Controlled for	Outcome
Ponciano 2010 MODERATE QUALITY	76	Less experienced foster care	Foster children 6.9 years	Carer's sensitivity	B=0.26* Foster children placed with less experienced more likely to develop secure attachment

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 24: Risk factor: adoptive parent's education. Outcome: secure attachment

Study	N	Risk factor	Population Age	Controlled for	Outcome
Cohen 2011 MODERATE QUALITY	61	Adoptive parents education	Internationally adopted 15 months	Maternal age	NS (secure attachment)

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 25: Risk factor: teacher or care-workers' skill. Outcome: quality of adolescent-other relationship

Study	N	Risk factor	Population Age	Controlled for	Outcome
Harder et al 2012 LOW QUALITY	135	Skill of teachers	Secure residential care 16 years	Length of stay, internalising behaviour,	β = 0.59*
		Skill of		Motivation for treatment,	β = 0.60*

Study	N	Risk factor	Population Age	Controlled for	Outcome
		care-workers			

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 26: Risk factor: carer's mental state. Outcome: secure attachment with foster carer

Study	N	Risk factor	Population Age	Controlled for	Outcome
Cole 2007 MODERATE QUALITY	46	Stress	Foster children 10-15 months	Carer's childhood trauma, caregiving environment, sensitivity, support	β=-0.051
		Support (need for support and needs met)			β=-0.044
Gabler 2014 MODERATE QUALITY	48	Foster parent stress at time 1	Foster children 26-88 months	Age of foster parents, foster children's gender, attachment security at Time 1, supportive presence	β=-0.23* (less stressed at time 1 more attachment security 6 months later)
		Supportive presence at time 1	Foster children 26-88 months	Age of foster parents, foster children's gender, attachment security at Time 1, parent stress at Time 1	β =0.31*

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 27: Risk factor: Carer's childhood trauma. Outcome: secure attachment with foster carer

Study	N	Risk factor	Population Age	Controlled for	Outcome
Cole 2007 MODERATE	46	Carer's childhood trauma (emotional,	Foster children 10-15 months	Carer's sensitivity, caregiving environment, stress, support	β =-0.063*

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
QUALITY		physical, sexual, neglect)			

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 28: Risk factor: age or duration in adoption. Outcome: secure attachment

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
Roman 2012 MODERATE QUALITY	158	Age at adoption	Internationally adopted children 6.5 months	Duration in adoption	β = 0.041*
		Duration in adoption		Age at adoption	β = 0.038*

Table 29: Risk factor: learning materials for child in foster care. Outcome: secure attachment

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
Cole 2007 MODERATE QUALITY	46	Learning materials for child (environment)	Foster children 10-15 months	Carer's childhood trauma, sensitivity, organisation, variety, stress, support	β =0.980*

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 30: Risk factor: duration of deprivation. Outcome: attachment

Study	N	Population Age	Controlled for	Outcome
O'Connor 2000 MODERATE QUALITY	217	Romanian children adopted by UK families Age 6 years	Peer relationship disturbance	r=0.24* ↑attachment disturbance (duration 6m to 42 m)

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 31: Risk factor: age at first placement. Outcome: RAD

Study	N	Population Age	Controlled for	Outcome
Lehmann 2013 MODERATE QUALITY	219	In care 8,9 ± 2.0 years	Age, number of placements, serious neglect, violence exposure	OR 1.00 (0.87 to 1.15) NS

Table 32: Risk factor: number of placements. Outcome: RAD

Study	N	Population Age	Controlled for	Outcome
Lehmann 2013 MODERATE QUALITY	219	In care 8,9 ± 2.0 years	Age, age at first placement, serious neglect, violence exposure	OR 1.56 (1.06 to2.29)*

**p<0.05 pink=negative association*

6.2.1.3 Factor: Siblings being placed together in care

Table 33: Risk factor: siblings together. Outcome: enter adoption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Akin 2011 HIGH QUALITY	3351	Siblings together	Foster care 0-18 years	Age, race, reason for removal, placement stability, MH problem, initial placement type, disability.	HR 1.90*
Leathers 2005 MODERATE QUALITY	195	Inconsistent placement with siblings	In care	Ethnicity, years in foster care, foster care integration, sibling placement patterns, placed alone	OR 0.87 NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 34: Risk factor: siblings together. Outcome: reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Akin 2011 MODERATE QUALITY	3351	Siblings together	Foster care 0-18 years	Age, race, reason for removal, placement stability, MH problem, initial placement type, disability.	HR 1.46*
Fernandez 2013 LOW QUALITY	168	Siblings together	In care 0-12 years	Childs age, mother's age, mother's education, parental health, family strengths and needs (NCFAS-R)	OR 1.26 NS
Leathers 2005 LOW QUALITY	167	Inconsistent placement with siblings	In care	Ethnicity, years in foster care, foster care integration, sibling placement patterns, placed alone	OR 0.90 NS
Park 2009 MODERATE QUALITY	5978	Siblings together	In care 3-18 years	Age, ethnicity, gender, reason for care, placement stability, setting, ran away, mental health problem	HR 1.19* (reunification, adoption or guardianship)

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 35: Risk factor: siblings together. Outcome: number of placements

Study	N	Risk factor	Population Age	Controlled for	Outcome
Holtan 2013 MODERATE QUALITY	136	Siblings together	In care 3-14 years	Gender, age, length of stay in foster care, number of placements, behaviour, foster parent with children, visits to biological parents, geographical location, placement type, marital status, education of caregivers	OR 0.37 NS (0.09 – 1.5)
Koh 2014 MODERATE QUALITY	184	Siblings together	In care 3-18 years	Proportion of time spent in relative foster homes, caregiver willing to commit to permanence, DSM diagnosis	OR 1.84 NS
Leathers 2005 MODERATE QUALITY	167	Placed alone	In care 12-13 years	Ethnicity, years in foster care, foster care integration, sibling placement patterns, placed alone	OR 2.07 NS (alone versus with siblings)

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 36: Risk factor: Siblings together. Outcome: risk of re-entry into care

Study	N	Risk factor	Population Age	Controlled for	Outcome
Frame 2002 HIGH QUALITY	1357	Siblings together	In care 3-14 years	Gender, age, length of stay in foster care, number of placements, behaviour, foster parent with children, visits to biological parents, geographical location, placement type, marital status, education of caregivers	OR 0.37 NS (0.09 – 1.5)

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 37: Risk factor: siblings together and history of drug exposure. Outcome: willingness to adopt

Study	N	Risk factor	Population	Controlled for	Outcome

			Age		
Brooks 2002	616	Drug exposed + siblings in care	Adoptive parents 0-18 years	Ethnicity, age at placement, special needs	OR 2.698*

**p<0.05 to <0.001, green= positive association,*

6.2.1.4 Factor: Age at placement in care (foster care or adoption)

Table 38: Risk factor: age or duration in adoption. Outcome: placement disruption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Dance 2005 LOW QUALITY	99	Age (older) at adoption	Adopted children 6.5 years	Time in care, behavioural problems, attachment to adopted mother, preferential rejection	OR 1.07 (1.02 to 1.12)*
		Time in care (foster care prior)		Age at placement, behavioural problems, attachment to adopted mother, preferential rejection	OR 1.04 (1.00 to 1.07)*

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 39: Risk factor: older age at placement. Outcome: permanent placement

Study	N	Population Age	Factor	Controlled for	Outcome
Zullo 2002 HIGH QUALITY	1397	Foster care Unclear	Private agency versus public foster	Gender, race, age, other types of care, subsidy, parent perpetrator, parent unavailable	RR 1.10* Up to 16 years
Becker 2007	7807	Foster care 0-18 years	Successful exit	Gender, race, district (location, medicaid eligibility, substance use, mental	0-5 versus 13-18 NS

Study	N	Population Age	Factor	Controlled for	Outcome
HIGH QUALITY				disorder, developmental disability, therapeutic foster care, psychiatric evaluation	6-12 versus 13-18 OR 1.21 (1.03 – 1.42)*
Johnson 2005 MODERATE QUALITY	1412	Foster care <4-19 years	Permanency in 15 months of case opening	Initial placement, race, pilot case	5-9 versus <4 years OR 0.934 NS
					10-14 versus <4 years OR 0.951 NS
					15-19 versus <4 years OR 1.555 (1.145- 2.112) *
Iglehart 1994 HIGH QUALITY	812	In care 16+	Going into relatives home	Age, mental health problem, ethnicity, gender	OR 0.78*

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 40: Risk factor: older age at placement. Outcome: reunification

Study	N	Population Age	Factor	Controlled for	Outcome
Akin 2011 MODERATE QUALITY	3351	In care 2-17 years	Age at entry	Gender, race, disability, mental health, reason for removal, prior removal history, placement type, sibling placement, stability, runaways, time	HR 1.61 to 2.60* Increasing age ↑ Likelihood
Connell 2006 HIGH QUALITY	508	In care 0-21 years	Reunification (with family, relative or guardian)	Gender, ethnicity, child health, prior removals, reason for removal, setting	RR 1.16 to 1.02* Up to 15 years. Increasing age ↑ Likelihood versus 0-1
Courtney	8625	In care	Reunification (with family	Gender, ethnicity, health, poverty, parents	RR 1.39 to 1.26*

Study	N	Population Age	Factor	Controlled for	Outcome
1996b MODERATE QUALITY		0-16 years	or guardian)	home, removal reason, regions, placement setting	Versus <1 years
Fernandez 2013 LOW QUALITY	168	In care 0-12 years	Reunification	Mothers age, mother's education, primary reason in care, siblings in placements, assessment of reunification	OR 1.22* Increasing age ↑ Likelihood
Cheng 2010 MODERATE QUALITY	749	Foster care	Reunification	Caseworker characteristics, maltreatment type, gender, ethnicity, chronic problems, duration	NS
Wells 1999 MODERATE QUALITY	2616	In care	Reunification	Cohort, gender, ethnicity, health status, number of parents, reason for care, placement type	RR 0.99 NS
Wells 2006 MODERATE QUALITY	1560	In care	Reunification	Gender, ethnicity, age at entry, health, reason for placement, mother MH problems, misuse, working hours, income	HR 0.8 to 1.1 NS
Frame 2002 MODERATE QUALITY	1357	In care 0-2.5 years	Reunification	Race, gender, siblings in care, removal from, health, source of referral, type of care, duration in care	HR 0.510* Less likely to be reunited than newborns

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 41: Risk factor: older age at placement Outcome: placement disruption

Study	N	Population Age	Factor	Controlled for	Outcome
Chamberlain 2006 LOW QUALITY	246	In care 5-12 years	Age at entry	Number of kids, non-kin care, gender, ethnicity of foster parent	β =-0.10 NS

Study	N	Population Age	Factor	Controlled for	Outcome
James 2004 MODERATE QUALITY	136	In care 4-13 years	Age at entry	Gender, ethnicity, maltreatment, behaviour problems, number of places, days in care, routine moves, planned moves, disruptive moves	RR 1.13*
Hurlburt 2010 (from Chamberlain) Moderate quality	292	Foster care versus kinship 5-12 years	Age	Number of children in home, age, gender, child race, parent daily report score, child behavioural problems	OR 1.07 NS
Holtan 2013 MODERATE QUALITY	136	In care 8.9 years	Age at first placement	Gender length of stay in foster care, number of placements, behaviour, foster parent with children, with biological sibling, visits to biological parents, geographical location, marital status, education of caregivers, type of placement	OR 1.21 (0.99 to 1.47) NS
Smith 2003 HIGH QUALITY	1995	In care	Age (and exiting care)	Ethnicity, placement duration, type of care	HR 0.95 (SE 0.1)*
Smith 2001 LOW QUALITY	90	In care	Age	Gender, number of placements	β=1.40 (SE 0.6)*
Hunter 1990 MODERATE QUALITY	100	In care 6-17 years	Age	Race, maternal support, child psychopathology	β =0.339*
Park 2009 MODERATE QUALITY	5978	In care 3-18 years	Age	Siblings together, ethnicity, gender, reason for care, placement stability, setting, ran away, mental health problem	7-12 versus 3-6 OR 0.96 NS 13-18 versus 3-6 OR 1.36*

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 42: Risk factor: older age at placement Outcome: duration in care

Study	N	Population	Factor	Controlled for	Outcome

		Age			
Vogel 1999 MODERATE QUALITY	95	In care 1-17 years	Age	Placement type, gender, received services	<1 year β=-0.389* 1-4 years β =0.150*

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 43: Risk factor: older age at placement. Outcome: adoption

Study	N	Age	Factor	Controlled for	Outcome
Akin 2011 HIGH QUALITY	3351	In care 2-17 years	Age at entry	Gender, race, disability, mental health, reason for removal, prior removal history, placement type, sibling placement, stability, runaways, time	HR 0.56 to 0.07* ↓ risk as older
Connell 2006 HIGH QUALITY	508	In care 0-20 years	Adoption or termination of parental rights	Gender, ethnicity, child health, prior removals, reason for removal, setting	RR 0.64 to 0.03* ↓ risk as older Versus 0-1
Courtney 1996b HIGH QUALITY	8625	In care 0-116 years	Adoption	Gender, ethnicity, health, poverty, parents home, removal reason, regions, placement setting	RR 0.48 to 0.04* Versus <1 years
Cheng 2010 MODERATE QUALITY	749	Foster care	Adoption	Caseworker characteristics, maltreatment type, gender, ethnicity, chronic problems, duration	RR 0.87* ↓ risk as older
McDonald 2007 MODERATE QUALITY	24551	Foster care NA	Adoption	Ethnicity, number of placements, family structure, reason for removal, gender	OR 0.872 NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 44: Risk factor: older age at placement. Outcome: re-entry into care

Study	N	Population Age	Controlled for	Outcome
Frame 2002 HIGH QUALITY	630	In care 0-2.5 years	Race, gender, siblings in care, removal from, health, source of referral, type of care, duration in care	NS Re-entry into care
Courtney 1995 HIGH QUALITY	6783	In care 0-16 years	Ethnicity, health problems, SES, placement setting, stability, time in care	1-6 and 13-16 versus <1 NS
				7-12 versus <1 RR 0.74*
Jonson-Reid 2003 HIGH QUALITY	2712	Age at exit	Ethnicity, gender, perpetrator, maltreatment, placement type, number of placements, length in care, exit type	5 to 10 versus <5 NS 5t to 16 versus <5 NS
Lee 2012 MODERATE QUALITY	397	In care 0-15 years	Ethnicity, gender, carer risk , maltreatment, duration of care, number of placements, CWS	5-8 versus 12-15 NS
				9-11 versus 12-15 HR 0.59*
Barth 2008 LOW QUALITY	273	In care 5-12 years	Race, gender, special education, child behaviour, welfare involvement, family risk, number of children at home, duration in care	HR 1.00 NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 45: Risk factor: Older age at placement Outcome: going into care

Study	N	Population Age	Controlled for	Outcome
Horwitz 2011 MODERATE QUALITY	2824	IN care 0-11+	Age, race, reason for going into care, income, history of abuse and likelihood of future abuse	NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 46: Risk factor: age at entry. Outcome: willingness to adopt

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
Brooks 2002 MODERATE QUALITY	616	Age: 0-12 years vs infant vs. 0-18 years vs. infant	Adoptive parents Children 0-18 years	Ethnicity, drug-exposed + siblings, special needs	OR 2.74* 0-12 vs. infant OR 4.60* 0-18 vs. infant

**p<0.05 to <0.001, green= positive association*

6.2.1.5 Factor: Type of care (kinship care or foster care)

Table 47: Risk factor: Foster care versus kinship care. Outcome: reunification

Study	N	Population	Controlled for	Outcome
		Age		
Akin 2011 MODERATE QUALITY	3351	Foster care 0-18 years	Age, race, reason for removal, placement stability, MH problem, initial placement type, disability.	HR 0.76*
Wells 1999 MODERATE QUALITY	2616	Foster care 0-15 years	Age, gender, ethnicity, health status, marital status, reason for placement	RR 0.936 NS
Connell 2006 Moderate quality	2896	In care 0-15 years	Age, gender, ethnicity, disability, prior removals, reason for removal	RR 1.16* (1.03 to 1.31)
Koh 2008 MODERATE QUALITY	3000	In care	Abuse and neglect, age, county care.	NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 48: Risk factor: Foster care versus kinship care. Outcome: placement disruption

Study	N	Population Age	Controlled for	Outcome
Chamberlain 2006 LOW QUALITY	246	foster home versus kinship 5-12 years	Number of children, age, gender, ethnicity, baseline displacement	RR 3.18* Foster care ↑
Hulburt 2010 (additional analysis from above) MODERATE QUALITY	292	Foster care versus kinship 5-12 years	Number of children in home, age, gender, child race, parent daily report score, child behavioural problems	OR 3.68* Foster care ↑
Connell 1996 HIGH QUALITY	5901	Foster care versus kinship care 0-20 years	Age, ethnicity, reason for removal, disability, no. prior removals	RR 3.18* Foster care ↑

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 49: Risk factor: Foster care versus kinship care Outcome: adopted (or unsuccessful exit)

Study	N	Population Age	Controlled for	Outcome
Akin 2011 HIGH QUALITY	3351	Foster care versus kinship 0-18 years	Age, race, reason for removal, placement stability, MH problem, initial placement type, disability.	HR 2.25* ↑ adopted
Connell 2006 HIGH QUALITY	508	Foster care versus kinship	Age, gender, ethnicity, disability, reason for removal	RR 1.00 NS (0.79 to 1.27) (adopted or end of parental rights)
Courtney 1996a HIGH QUALITY	2653	Foster care 17 +	Other placements, duration in care, number of placements	OR 0.977 NS (odds of being adopted versus unsuccessful exit)

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 50: Risk factor: Foster care. Outcome: permanent placement

Study	N	Population Age	Controlled for	Outcome
Johnson 2005 MODERATE QUALITY	1412	Foster care versus other (not kinship) <4 to 19 years	Age, ethnicity, pilot placement	OR 1.549 (1.200 to 1.998)*
Koh 2008 HIGH QUALITY	3000	Foster care versus kinship care 0 to ≥13 years	Abuse and neglect, age, county care.	NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 51: Risk factor: Foster care versus kinship care. Outcome: re-entry into care

Study	N	Population Age	Risk factor	Controlled for	Outcome
Wells 2012 MODERATE QUALITY	398	In care <1 to 12+	Foster care versus kinship care	Gender, age, race, risk assessment characteristics, safety assessment, case characteristics	NS
Wells 1999 HIGH QUALITY	2616	Foster care versus kinship care 0 to 15 years	Foster care versus kinship care	Age, gender, ethnicity, health status, marital status, reason for care, number of moves in 1st placement.	RR 3.256* Foster care ↑

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 52: Risk factor: Therapeutic versus not in foster care. Outcome: successful exit from care

Study	N	Population	Controlled for	Outcome

		Age		
Becker 2007 MODERATE QUALITY	7807	Therapeutic foster care versus none 0-18 years	Gender, race, age, district of residence, medicaid eligibility, substance misuse, mental disorder, developmental disability, psychiatric examinations	OR 0.47 (0.30 to 0.74)* ↓ likelihood

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 53: Risk factor: Private agency versus public foster care. Outcome: permanent placement

Study	N	Population Age	Factor	Controlled for	Outcome
Zullo 2002 HIGH QUALITY	1397	Foster care Unclear	Private agency versus public foster	Gender, race, age, other types of care, subsidy, parent perpetrator, parent unavailable	RR 0.73*

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 54: Risk factor: kinship care versus foster care. Outcome: reunification

Study	N	Population Age	Controlled for	Outcome
Courtney 1996b	8625	Kinship care versus foster care 1-17	Age, gender, ethnicity, health, poverty, services, marital status, reason for removal, region.	RR 0.824* ↓ risk
Frame 2002 MODERATE QUALITY	1357	Kinship care versus foster care 0-2.5 years	Race, gender, age, siblings in care, removal from, health, source of referral, duration.	NS
Wells 2006 MODERATE QUALITY	398	Kinship care versus foster care 0-16 years	Gender, ethnicity, age at entry, health, reason for placement, mother MH problems, substance misuse, working hours, income	HR 0.7112 NS

p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association

Table 55: Risk factor: kinship care versus foster care: Outcome: permanent placement or adopted

Study	N	Population Age	Controlled for	Outcome
Courtney 1996a MODERATE QUALITY	2653	Kinship care 12.5-17 +	Other placements, duration in care, number of placements	OR 1.905* (versus unsuccessful exit =running away from placement, refusing services, incarceration, mental hospital, or death)
Courtney 1996b MODERATE QUALITY	8625	Kinship care versus foster care 1-17	Age, gender, ethnicity, health, poverty, services, marital status, reason for removal, region.	RR 0.486* ↓ risk of adopted
Johnson 2005 MODERATE QUALITY	1412	<4 to 19 years	Age, ethnicity, pilot placement	OR 1.493 (1.151 to 1.936)* Permanent placement (kinship versus other (not foster)
Koh 2014 HIGH QUALITY	184	Kinship care 0-12 years	Care giver willing to commit, sibling co-placement, DSM diagnosis	OR 0.13* ↓ risk of adopted or guardianship

p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association

Table 56: Risk factor: kinship care versus foster care. Outcome: placement disruption

Study	N	Population Age	Controlled for	Outcome
Testa 2001 HIGH QUALITY	23865	Kinship care versus Foster care Primary school age	Adjusted for length of stay, gender, number of placements.	82 to 86% less likely Kinship ↓
Holtan 2013 MODERATE QUALITY	136	Kinship care versus foster care 4-13 years	Gender, age, length of stay in foster care, number of placements, behaviour, foster parent with children, with biological sibling, visits to biological parents, geographical location, marital status,	OR 0.55 (0.18 -1.66) NS

Study	N	Population Age	Controlled for	Outcome
			education of caregivers	

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 57: Risk factor: kinship care versus foster care. Outcome: risk of re-entry

Study	N	Risk factors	Population Age	Controlled for	Outcome
Courtney 1995 HIGH QUALITY	6783	Kinship care versus Foster care	Biological 0-16 years	Age in care, ethnicity, health problems, income assistance, number of places, duration of care	RR 0.686* Kinship care ↓
Jonson-Reid 2003 HIGH QUALITY	1915	Kinship care versus Foster care	0-16 years	Age, ethnicity, gender, parent, maltreatment, number of placements, length in care, services provided	RR 0.66 *↓ Kinship care
Frame 2002 HIGH QUALITY	630	Kinship care versus Foster care	Biological 0-2.5 years	Age, gender, race, siblings, removal, health, reason, source of referral, number of referrals	NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

6.2.1.6 Factor: Relationship or proximity to biological parents

Table 58: Risk factor: living in the same community. Outcome: placement disruption

Study	N	Population Age	Controlled for	Outcome
Holtan 2013 MODERATE QUALITY	136	Foster care 4-13 years	Gender, age, length of stay in foster care, number of placements, behaviour, foster parent with children, with biological sibling, type of care, visits to parents, marital status, education of caregivers	OR 0.71 (0.24 to 2.09) NS

Study	N	Population Age	Controlled for	Outcome
Sallnas 2004 LOW QUALITY	240	Foster care 13-16 years	Gender, race, run-away, abuse, mental health of child, behavioural problems, number of placements, relationship problems, assessed by specialist, court order placement	↑ (suggest that moderating effect on acute conflicts that led to instant rejection of the placement by the youth) *
	158	Privately run residential care 13-16 years	As above	↑*

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 59: Risk factor: visits with biological parents. Outcome: placement disruption

Study	N	Population Age	Controlled for	Outcome
Holtan 2013 MODERATE QUALITY	136	Foster care 4-13 years	Gender, age, length of stay in foster care, number of placements, behaviour, foster parent with children, with biological sibling, type of care, geographical location, marital status, education of caregivers	OR 0.62 (0.16 -2.47) NS
Pardeck 1984 HIGH QUALITY	4288	Foster care Children	Problems in child's birth family, interaction with child's birth family, time in care	Zero order Yule's Q=-0.03 NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 60: Risk factor: visits with biological parents. Outcome: reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Leathers 2005 LOW QUALITY	203	Visits to parents	In care 12-13 years	Age, ethnicity*gender, years in foster care, physical abuse, education needs, behaviour problems, depression, attachment to mother, no of parental	OR 1.13*

Study	N	Risk factor	Population Age	Controlled for	Outcome
				visits, enhanced foster care rate	
Leathers 2005 LOW QUALITY	195	Visits with parents	In care 12-13 years	Ethnicity, years in foster care, foster care integration, sibling placement patterns, placed alone	OR 1.09*
Leathers 2005 LOW QUALITY	203	Attachment to mother	In care 12-13 years	Age, ethnicity*gender, years in foster care, physical abuse, education needs, behaviour problems, depression, home integration, no of parental visits, enhanced foster care rate	OR 2.17*
Davis 1996 MODERATE QUALITY	548	Mother visits child as recommended	In care 5-12 years	Ethnicity, marital status of parents, sexual abuse	OR 0.10* 10x more likely

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 61: Risk factor: relationship with parents. Outcome: entry into adoption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Leathers 2005 MODERATE QUALITY	203	Visits with parents	In care 12-13 years	Age, ethnicity*gender, years in foster care, physical abuse, education needs, behaviour problems, depression, attachment to mother, no of parental visits, enhanced foster care rate	OR 0.89 NS
Leathers 2005 MODERATE QUALITY	195	Visits with parents	In care 12-13 years	Ethnicity, years in foster care, foster care integration, sibling placement patterns, placed alone	OR 0.91 NS
Leathers 2010 LOW QUALITY	164	Attachment to mother	In care 12-13 years	Age, ethnicity*gender, years in foster care, physical abuse, education needs, behaviour problems, depression, home integration, no of parental visits, enhanced foster care rate	OR 0.81 NS
Leathers 2010 LOW QUALITY	164	Attachment mother	In care 20-21 years	Age, ethnicity, abuse, educational needs, depression, foster care integration, duration in care, visits to parents	OR 0.81 NS

p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association

6.2.1.7 Factor: Duration of placement

Table 62: Risk factor: placement duration. Outcome: reunification

Study	N	Population Age	Risk factor	Controlled for	Outcome
Cheng 2010 MODERATE QUALITY	441	Foster care Unclear	Duration in foster care	Caseworker engagement, services needs of parents (9), maltreatment types (8), child's characteristics (6)	HR 1.90 NS
Leathers 2005 LOW QUALITY	167	In care 12-13 years	Duration in foster care	Ethnicity, years in foster care, foster care integration, sibling placement patterns, placed alone	OR 1.15 NS
Leathers 2010 LOW QUALITY	146	In care (12-13 years) 20-21	Years in foster care	Age, gender, ethnicity,, educational needs, behaviour, attachment, integration, frequency of visits	
Courtney 1996a MODERATE QUALITY	2653	In care 17+ years	Duration in care	Number of placements, placement settings	OR 0.999 NS (reunification or adopted)
Park 2009 MODERATE QUALITY	4802	In care 3-18 years	Duration in care	Age, ethnicity, gender, reason for care, placement stability, setting, siblings in care, ran away, mental health problem	HR 0.95& (reunification or adopted or guardianship)
Frame 2002 MODERATE QUALITY	1357	In care 0-2.5 years	Duration in care	Race, gender, age, siblings in care, removal from, health, source of referral, duration, type of care	NS

p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association

Table 63: Risk factor: placement duration. Outcome: risk of re-entry

Study	N	Population	Risk factor	Controlled for	Outcome
		Age			
Barth 2008 LOW QUALITY	273	In care 5-12 years	Duration in out of home placement	Age, race, gender, special education, child behaviour, welfare involvement, family risk, number of children	HR 0.94 NS
Lee 2012 MODERATE QUALITY	397	Biological 5-16 years	Duration in kinship care	Age, gender, ethnicity, mobility, caregiver risk of abuse, , other maltreatment, child welfare services.	HR 0.72 NS
Wells 1999 HIGH QUALITY	2616	In care 0-15 years	Length of stay in 1st placement	Age, gender, ethnicity, health status, marital status, reason for care, number of moves in 1st placement.	RR 0.95*
Frame 200 HIGH QUALITY	630	In care 0-2.5 years	Duration in care	Race, gender, age, siblings in care, removal from, health, source of referral, type of care	HR 0.16 to 0.59*
Lee 2012 MODERATE QUALITY		Biological 5-16 years	Duration in foster care	Gender, age, race, maltreatment, behaviour problems, prior out of home episodes, days in kinship care	HR 1.56* (8-18 months)
					HR 1.08 NS >19 months
Jonson-Reid 2003 HIGH QUALITY	1915	Biological 0-16 years	0-2 months versus 3+ months	Age, ethnicity, gender, parent, maltreatment, number of placements, setting, services provided	RR 2.19* ↑ risk shorter stay
Wells 2012 MODERATE QUALITY	398	In care 0-12 + years	Length of stay	Gender, age, race, risk assessment characteristics, safety assessment, case characteristics	RR 0.47* 6m-1 yr versus <6m
					RR 0.76 NS >1 yr versus < 6m

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 64: Risk factor: duration in kinship care. Outcome: placement change

Study	N	Population	Risk factor	Controlled for	Outcome

		Age			
James 2004 MODERATE QUALITY	1084	In care 0-16 years	Duration in kinship care	Gender, age, race, maltreatment, behaviour problems, prior out of home episodes, no of placement changes	RR 0.99* (SE0.0) p=0.000

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 65: Risk factor: duration in foster care. Outcome: placement change

Study	N	Population Age	Controlled for	Outcome
Fisher 2005 MODERATE QUALITY	90	Foster care 3-6 years	Placements during and prior to study, duration in foster care prior to study, gender	β=-0.11 (before study) NS β = -0.03 (during study) NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 66: Risk factor: duration in adoption. Outcome: placement change

Study	N	Risk factor	Population Age	Controlled for	Outcome
Akin 2011 HIGH QUALITY	3351	Placement stability	Foster care 0-18 years	Age, race, reason for removal, placed with sibling, MH problem, initial placement type, disability.	HR 1.90*
Cheng 2010 HIGH QUALITY	441	Placement duration	Foster care Unclear	Caseworker engagement, services needs of parents (9), maltreatment types (8), child's characteristics (6)	OR 1.03*
Leathers 2005 MODERATE QUALITY	195	Duration in foster care	In care 12-13 years	Ethnicity, years in foster care, foster care integration, sibling placement patterns, placed alone	OR 1.31*
Smith 2003 HIGH QUALITY	1995	Placement duration	In care 0-1 7 years	Age, ethnicity, placement duration, disability	B 0.12 (SE 0.03)* (exit care)

Study	N	Risk factor	Population Age	Controlled for	Outcome
Leathers 2010 MODERATE QUALITY	164	Years in foster care	Varied 20-21 years	Age, ethnicity, abuse, educational needs, depression, foster care integration, attachment to mother, visits to parents	OR 1.18 NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

6.2.1.8 Factor: Number of places

Table 67: Risk factor: Number of places. Outcome: failed placement

Study	N	Population Age	Controlled for	Outcome
Fisher 2005 (RCT) MODERATE QUALITY 6-9 months	90	Foster care 3-6 years	Duration in foster care before and during study, gender	β = 1.74 (prior to study)* β = 2.64 (duration of study)*
Sallnas 2004 LOW QUALITY	240	Foster care 13-16 years	Gender, race, run-away, abuse, mental health of child, behavioural problems,, relationship problems, assessed by specialist, court order placement, distance from home	NS
	158	Residential care 13-16 years	As above	↑

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 68: Risk factor: Number of places. Outcome: adoption

Study	N	Population Age	Controlled for	Outcome

Study	N	Population Age	Controlled for	Outcome
Connell 2006 HIGH QUALITY	5901	In care 0-15 years	Age, gender, ethnicity, disability, placement setting, reason for removal	RR 1.74 NS (0.99 to 3.08) (2 or more placement)
McDonald 2007	24551	In-care NA	Ethnicity, age at entry, family structure, reason for removal, gender	OR 0.751

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 69: Risk factor: number of places. Outcome: entry into kinship care

Study	N	Population Age	Controlled for	Outcome
Iglehart 1994 HIGH QUALITY	812	In care 16+	Age, mental health problem, ethnicity, gender	OR 0.66*

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 70: Risk factor: number of places. Outcome: re-entry into care

Study	N	Population Age	Controlled for	Outcome
Lee 2012 MODERATE QUALITY	397	Biological 5-16 years	Age, gender, ethnicity, mobility, caregiver risk of abuse, other maltreatment, child welfare services.	HR 1.33 NS
Wells 1999 HIGH QUALITY	2616	In care 0-15 years	Age, gender, ethnicity, health status, marital status, reason for care, number of moves in 1st placement.	RR 1.305*
Courtney 1995	6783	Biological	Age in care, ethnicity, health problems, income	RR 1.104*

Study	N	Population Age	Controlled for	Outcome
HIGH QUALITY		0-16 years	assistance, placement setting, duration of care	
Jonson-Reid 2003 HIGH QUALITY	1915	Biological 0-16 years	Age, ethnicity, gender, parent, maltreatment, duration of stay, setting, services provided	RR 1.95*
McDonald 2007 2MODERATE QUALITY	24551	In-care NA	Ethnicity, age at entry, family structure, reason for removal, gender	OR 0.781

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 71: Risk factor: number of places. Outcome: permanency.

Study	N	Population Age	Controlled for	Outcome
Courtney 1996 MODERATE QUALITY	2653	In care 17+ years	Duration in care, placement setting.	OR 0.825 (versus unsuccessful exit)
Park 2009 MODERATE QUALITY	5978	In care 3-18 years	Age, ethnicity, gender, reason for care, placement stability, setting, siblings in care, ran away, mental health problem	HR 0.97 NS (reunification, adopted, guardianship)
Iglehart 1994 HIGH QUALITY	1642	In care Adolescents	Age when placed, mental health problems, ethnicity	OR 0.66* (going into relatives home)
Connell 2006 MODERATE QUALITY	5901	In care 0-15 years	Age, gender, ethnicity, disability, placement setting, reason for removal	RR 0.58* (0.46 to 0.74) (2 or more placement) (reunification)

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 72: Risk factor: number of routine placement moves. Outcome: behavioural-related placement change

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
James 2004 MODERATE QUALITY	1084	No. of routines placement moves	In care 0-16 years	Gender, age, race, maltreatment, behaviour problems, prior out of home episodes, days in kinship care	RR 0.54*

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

6.2.2.1 Factors associated with the environment or experience in care

Table 73: Risk factor: maternal (carer) sensitivity + placement problems

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
Dance 2002 LOW QUALITY	71	Sensitivity	Foster children 6.9 years	Child's psycho-social difficulties	β=0.791* (placement problems)
Dance 2007 LOW QUALITY	63	Maternal sensitivity At 1 year post placement	Foster children 5-11 years	Child behavioural problems, non-genuine affection,	RR 12.3 (3.3-4.6) (poor placement progress)

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 74: Risk factor: age of carer. Outcome: placement stability

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
Casanueva 2014	1196	Age of carers >40 years versus	Foster children 5-7 years	Age, race, gender, health, disability, age at placement, history of abuse, education of carers, marital status	RR 1.3 (1.12, 1.52)* ↑ risk

Study	N	Risk factor	Population Age	Controlled for	Outcome
MODERATE QUALITY		<40			

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 75: Risk factor: age of carer. Outcome: willingness to adopt

Study	N	Risk factor	Population Age	Controlled for	Outcome
Bausch 2006 LOW QUALITY	232	Age of carer	Adoptive an non-adoptive parents 23-85 years	Gender, education, employment status, infertility, genetic background, concerns about adoption, importance of biological ties, adoptive parenting is inferior, pronatalist beliefs	β -0.023 NS

NS=non-significant

Table 76: Risk factor: environmental factors associated with carers. Outcome: placement disruption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Holtan 2013 MODERATE QUALITY	136	Foster parents have their own children	Foster children 4-13 years	Gender, age at placement, number of placements, behavioural problems, placement type, siblings in home, visits to parents, geographical location, marital status, education of caregivers	OR 1.33 (0.44 – 4.01) NS
		Marital status of caregivers			OR 1.96 (0.56 – 6.81) NS
		Maximum education caregivers			OR 0.35 (0.11 – 1.13) NS

*p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association

Table 77: Risk factor: characteristics in care. Outcome: successful reunification

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
Leathers 2010 LOW QUALITY	146	Attachment to mother	In care (12-13 years) 20-21	Age, gender, ethnicity, years in care, educational needs, behaviour, foster care integration, visits to parents	OR 2.17*
		Foster care integration		Age, gender, ethnicity, years in care, educational needs, behaviour, attachment, visits to parents	OR 0.86 NS

*p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association

Table 78: Risk factor: pre-prepare the child for placement. Outcome: placement disruption

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
Palmer 1996 MODERATE QUALITY	184	Pre-prepare child for the move	In care 4 to 17 years	Child's behavioural problems	B= -0.2369 * ↓ no. placements

*p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association

Table 79: Risk factor: maternal support for sexually abused child. Outcome: number of placements

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		

Study	N	Risk factor	Population Age	Controlled for	Outcome
Hunter 1990 MODERATE QUALITY	184	Maternal support – emotional support, belief of child and actions towards perpetrator	In care 6-17 years	Age, ethnicity, child psychopathology	B= -0.317* ↓ no. placements

p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association

Table 80: Risk factor: source of referral. Outcome: reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Frame 2002 MODERATE QUALITY	1357	Law referral, medical or DSS	In care 0-2.5 years	Race, age, gender, removal from mother/fathers, child's health, placements, referrals, infants in care	NS (family reunification)
Frame 2002 MODERATE QUALITY	630	Law referral, medical or DSS	In care 0-2.5 years	Race, age, gender, removal from mother/fathers, child's health, placements, referrals, infants in care	NS (re-unification and re-entry)

p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association

Table 81: Risk factor: source of referral. Outcome: placement breakdown

Study	N	Risk factor	Population Age	Controlled for	Outcome
Sallinas 2004 MODERATE QUALITY	158	Voluntary versus court order placement	Private run residential care 13-16 years	Gender, race, run-away, abuse, mental health of child, behavioural problems, number of placements, relationship problems, assessed by specialist, distance from home	NS

Study	N	Risk factor	Population Age	Controlled for	Outcome
	240		Foster care		NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 82: Risk factor: needs of biological parents. Outcome: reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Cheng 2010 MODERATE QUALITY	441	Need housing services	Foster care	Caseworker engagement, services needs of parents (8), maltreatment types (8), child's characteristics (6)	OR 7.65*
			Unclear		
Cheng 2010 MODERATE QUALITY	441	Need of financial assistance	as above	As above	OR 3.83*
Cheng 2010 MODERATE QUALITY	441	Needed services unobtained	as above	As above	OR 0.21*
Cheng 2010 MODERATE QUALITY	441	Caseworker engagement with family	as above	As above	OR 1.31*

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 83: Risk factor: needs of biological parents. Outcome: adoption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Cheng 2010	441	Parents need housing services	Foster care	Caseworker engagement, services needs of parents (8), maltreatment types (8),	OR 0.11*

Study	N	Risk factor	Population Age	Controlled for	Outcome
HIGH QUALITY			Unclear	child's characteristics (6)	
Cheng 2010 HIGH QUALITY	441	Parents need financial assistance	as above	As above	OR 0.67 NS
Cheng 2010 HIGH QUALITY	441	Parents need services unobtained	as above	As above	OR 0.95 NS
Cheng 2010 HIGH QUALITY	441	Caseworker engagement with family	as above	As above	OR 1.31*
Cheng 2010 HIGH QUALITY	441	Parents need for substance misuse treatment	as above	As above	OR 3.42*
Cheng 2010 HIGH QUALITY	441	Parents need for mental health care	as above	As above	OR 1.16 NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 84: Risk factor: child welfare services. Outcome: staying in care.

Study	N	Risk factor	Population Age	Controlled for	Outcome
Horwitz 2011 MODERATE QUALITY	2824	Child welfare services	In care 0-14 years	Age, race, reason for going into care, income, history of abuse and likelihood of future abuse	NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 85: Risk factor: child welfare services. Outcome: re-entry into care

Study	N	Risk factor	Population	Controlled for	Outcome

			Age		
Lee 2012 MODERATE QUALITY	397	Child welfare services during and after foster care	Biological parents	Age, race, gender, caregiver risk, abuse, number of placements, MH needs, duration of placement,	HR 0.67*
			5-15 years		
		After exit 1-25 months			HR 0.46*
Barth 2012 LOW QUALITY	273	No prior child welfare involvement vs. yes to prior involvement	Biological parents 5-12 years	Age, race, gender, special education, child behaviour, family risk, number of children, duration in care	HR 2.47 NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 86: Risk factor: service needs of parents. Outcome: reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Farmer 2013 LOW QUALITY	180	Adequate support during return	In care 0-14	Other agency supervision, full or interim care order, specific conditions imposed during reunification	OR 3.37 * (1.28 – 8.82)
Farmer 2013 LOW QUALITY	180	Exceptional support by caregivers for the return	In care 0-14	Parents actively sought return, no previous concerns of abuse, number of siblings in house	OR 3.53 * (1.34-9.28
Vogel 1999 MODERATE QUALITY	1418	Biological parents received services	In care 0-17 years	Age, placement type, gender	B -0.297 (SE 0.04)* Duration in care

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 87: Risk factor: caseworker characteristics. Outcome: multiple placements

Study	N	Risk factor	Population Age	Controlled for	Outcome

Study	N	Risk factor	Population Age	Controlled for	Outcome
Pardeck 1984 HIGH QUALITY	4288	Caseworker turnover	In foster care Children (unclear)	Time in care	Zero –order gamma 0.30*
Pardeck 1984 HIGH QUALITY	4288	Educational level	In foster care Children (unclear)	Time in care	Zero –order gamma 0.00 NS
Pardeck 1984 HIGH QUALITY	4288	Years of experience	In foster care Children (unclear)	Time in care	Zero –order gamma 0.07 NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 88: Risk factor: caseworker characteristics. Outcome: foster care versus kinship care.

Study	N	Risk factor	Population Age	Controlled for	Outcome
Havlicek 2010 HIGH	474	Caseworker graduate education versus not	Foster care 0-17 years	Gender, ethnicity, maltreatment, caregiver problem, lived with biological caregiver, region of at first entry	OR 0.37 * Less likely to go into foster care More likely kinship care

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 89: Risk factor: assessed in home by specialist versus secure unit and placed in foster care. Outcome: placement breakdown

Study	N	Population Age	Controlled for	Outcome
Sallinas 2004 MODERATE QUALITY	240	In foster care 13-16 years	Gender, race, run-away, abuse, mental health of child, behavioural problems, number of placements, relationship problems, distance from home	↓*
		In privately run residential care		NS

Study	N	Population Age	Controlled for	Outcome
		13-16 years		

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 90: Risk factor: caregiver not willing to commit. Outcome: multiple placements.

Study	N	Risk factor	Population Age	Controlled for	Outcome
Koh 2014 MODERATE QUALITY	184	Not willing versus yes to commit	In care 0-12 years	Time spent in kinship care, time with sibling, DSM diagnosis	OR 6.11*

Table 91: Risk factor: financial aid to families. Outcome: placement

Study	N	Population Age	Controlled for	Outcome
Courtney 1995 HIGH QUALITY	6783	Biological 0-16 years	Age in care, ethnicity, health problems, duration of care, placement setting, number of placements	RR 1.66 * ↑ risk of re-entry into care
Courtney 1996b MODERATE QUALITY	8625	In care 0-17 years	Age, gender, ethnicity, health, poverty, setting, marital status, reason for removal, region.	RR 0.807* ↓ Risk of reunification
Courtney 1996b HIGH QUALITY	8625	0-17 years	Age, gender, ethnicity, health, poverty, setting, marital status, reason for removal, region.	RR 0.728* ↓ Risk of adoption
Zullo 2002 HIGH QUALITY	1397	In care Unclear	Age, placement type, gender, ethnicity, role of parent	RR 0.71 NS (permanent placement)

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 92: Risk factor: placement prevention services to parents. Outcome: exit from care

Study	N	Risk factor	Population Age	Controlled for	Outcome
Courtney 1996b HIGH QUALITY	8625	Parents received placement prevention services prior to child going into care	In care 0-17	Age, gender, ethnicity, health, poverty, setting, marital status, reason for removal, region.	RR 0.777* ↓ risk of adoption
Courtney 1996b MODERATE QUALITY	8625	Parents received placement prevention services prior to child going into care	In care 0-17	Age, gender, ethnicity, health, poverty, setting, marital status, reason for removal, region.	RR 1.211* ↑ risk or reunification

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 93: Risk factor: No prenatal care before 6 months. Outcome: risk of going into care

Study	N	Population Age	Controlled for	Outcome
Brownell 2011 HIGH QUALITY	15281	Low risk 1.5-4 years	Low birth weight, pregnancy complications, infant trauma, social situation, income assistance, prolonged postpartum separation, lack of bonding, low education status, harsh discipline, existing child protection file, parent's own history of abuse/neglect	↑* X2=10.6

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 94: Risk factor: Reasons for taking children on or experience with care system. Outcome: foster carers satisfaction

Study	N	Population	Factor	Controlled for	Outcome

		Age			
Denby 1999 HIGH QUALITY	468	Foster carers 18-65+ years	Wanted to take in children who needed loving parents	Other variables+ no regrets	B 0.7974 More satisfied
			Dealing with the child's difficult behaviour	Other variables+ no regrets	B -0.3347* Less satisfied
			Felt competent	Other variables+ no regrets	B -0.4264* Less satisfied
			Agency 'red tape'	Other variables + no regrets	B 0.6324
			Social worker showed approval when did well	Other variables + no regrets	B 0.3769
			Social worker gave information when needed	Other variables + no regrets	B 0.5466

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 95: Risk factor: carer's education. Outcome: placement disruption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Casanueva 2014 MODERATE QUALITY	1196	Carer's more education (high school or more)	Foster children 5-7 years	Age, race, gender, health, disability, age at placement, history of abuse, age of caregivers, marital status	RR 0.9 (0.81 to 0.99)* ↓ risk of instability

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 96: Risk factor: employment status. Outcome: willingness to adopt

Study	N	Risk factor	Population Age	Controlled for	Outcome

Study	N	Risk factor	Population Age	Controlled for	Outcome
Bausch 2006 LOW QUALITY	232	Employment status	Adoptive and non-adoptive parents 23-85 years	Gender, education, age, infertility, genetic background, concerns about adoption, importance of biological ties, adoptive parenting is inferior, pronatalist beliefs	β 0.124 NS

NS=non-significant

Table 97: Risk factor: pronatalist belief. Outcome: willingness to adopt

Study	N	Risk factor	Population Age	Controlled for	Outcome
Bausch 2006 LOW QUALITY	232	Pronatalist belief (less lonely in older years, empty lives without children, better marriage)	Adoptive an non-adoptive parents 23-85 years	Gender, education, age, infertility, genetic background, concerns about adoption, importance of biological ties, adoptive parenting is inferior, pronatalist beliefs	β 0.095 NS

NS= non-significant

Table 98: Risk factor: infertility: Outcome: willingness to adopt

Study	N	Risk factor	Population Age	Controlled for	Outcome
Bausch 2006 LOW QUALITY	232	Infertility (either parent)	Adoptive an non-adoptive parents	Gender, education, employment status, age of carer, genetic background, concerns about adoption, importance of biological	B 0.192 – 0.330*

Study	N	Risk factor	Population Age	Controlled for	Outcome
			23-85 years	ties, adoptive parenting is inferior, pronatalist beliefs	

** p<0.01, green= positive association*

Table 99: Risk factor: ethnicity. Outcome: adoption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Akin 20111 HIGH QUALITY	3351	African American vs. White	Foster care 0-18 years	Age, gender, reason for removal, disability, placement stability, MH problem, initial placement type, sibling placement, early stability	HR 0.62 ** weak
Brooks 2002 MODERATE QUALITY	616	African American or Latino	Adoptive parents 0-18 years	Age at placement, special needs, drug exposure, sibling placement	OR 2.215* Willingness to adopt
Courtney 1996b HIGH QUALITY	8625	African American	Exited from care 0-16 years	Age, gender, health, poverty, parents home, removal reason, regions, placement setting	RR 0.395 P<0.01
		Latino			RR 0.764 p<0.01
Leathers 2005 MODERATE QUALITY	167	African American	Foster care 12-13 years	Age, years in foster care, foster care integration, sibling placement patterns, placed alone	OR 0.38 NS p<0.1
Leathers 2010 LOW QUALITY	164	African American (male	Foster care 12-13 years	Age, abuse, educational needs, depression, foster care integration, duration in care, relationship with parents	OR 0.56 NS
McDonald 2007 MODERATE QUALITY	14583	African American	Children enter foster care. NA age	Age, physically disabled, MH, placements, family of origin, reason for removal, gender	B=0.583 p<0.001
		Hispanic			B=0.780 NS

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 100: Risk factor: ethnicity. Outcome: permanent placement

Study	N	Risk factor	Population Age	Controlled for	Outcome
Johnson 2005 MODERATE QUALITY	1412	White African American	Entering care <4 to 19 years	Initial placement, age, pilot case	NS difference between races
Park 2009 MODERATE QUALITY	5978	African American	First time in care 3-18 years	Age, gender, reason for care, duration, instability, sibling placement, run-away, MH care	0.89 P<0.05
Zullo 2002 HIGH QUALITY	1397	African American	First time in are Unclear	Agency, gender, age, perpetrator	RR 0.64 ± 0.105 p<0.001

NS=non-significant, pink=negative association

Table 101: Risk factor: ethnicity. Outcome: kinship placement

Study	N	Risk factor	Population Age	Controlled for	Outcome
Havlicek 2010 HIGH QUALITY	474	African American vs. White	Foster care 0-17 years	Gender, caseworker characteristic, maltreatment, caregiver problem, lived with biological caregiver, region of at first entry	OR 0.10 (0.03 to 0.35) p<0.01
Iglehart 1994 HIGH QUALITY	812	African American	Out of care 16 years+	Age, mental health problem,, gender, number of placements	OR 1.02 to 1.13 NS Odds of kinship care
		Hispanic			OR 0.38 (Females)
					OR 1.20 (Males)

NS=non-significant, pink=negative association

Table 102: Risk factor: ethnicity. Outcome: reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Akin 2011 MODERATE QUALITY	3351	African American vs. White	Foster care 0-18 years	Age, gender, reason for removal, disability, placement stability, MH problem, initial placement type, sibling placement, early stability	HR 1.47 significant
Cheng 2010 MODERATE QUALITY	441	African American vs. White	Long term foster care unclear age	Caseworker characteristics, maltreatment type, gender, age, chronic problems, duration	OR 1.09 NS
Courtney 1996b MODERATE QUALITY	2896	African American vs. White	Exited from care 0-16 years	Age, gender, health, poverty, parents home, removal reason, regions, placement setting, disability	RR 0.672 P<0.01
Courtney 1996b MODERATE QUALITY	2896	Latino			RR 0.981 NS
Connell 2006 HIGH QUALITY	5801	African American	Foster care 0-20 years	Age, gender, disability, MH problems, number of placement, reason, setting	RR 0.89 (0.77 to 0.99)
		Hispanic			RR 1.09 (0.95 to 1.24)
Davis 1996 MODERATE QUALITY	548	African American	Foster care 5-12 years	Visits with biological parents, marital status of parents, sexual abuse	OR 0.66 NS
		Hispanic			OR 1.23 NS
Frame 2005 MODERATE QUALITY	1357	African American	Foster care 3-6 years	Gender, age, duration in care, number of placements, behaviour, foster parent with children, visits to biological parents, geographical location, placement type, marital status, education of caregivers	NS
Leathers 2010 LOW QUALITY	203	African American	Foster care 12-13 years	Age, abuse, educational needs, depression, foster care integration, duration in care, relationship with parents	OR 0.30 p<0.10
Leathers 2005 LOW QUALITY	195	African American		Age, years in foster care, foster care integration, sibling placement patterns, placed alone	OR 0.62 NS

Study	N	Risk factor	Population Age	Controlled for	Outcome
McDonald 2007 MODERATE QUALITY	1473	African American	Children enter foster care. NA age	Age, physically disabled, MH, placements, family of origin, reason for removal, gender	OR 1.070 NS
				Cohort, gender, age, health status, number of parents, reason for care, placement type	
Wells 1999 MODERATE QUALITY	2616	African American	Foster care and kinship care 0-15 year		RR 0.602 P<0.05
Wells 2006 MODERATE QUALITY	1560	African American	Foster care, institution, group home	Gender, age, health, reason, placement type, worked, income	Chi square -1.577 NS

NS=non-significant, pink=negative association

Table 103: Risk factor: ethnicity. Outcome: re-entry into care

Study	N	Risk factor	Population Age	Controlled for	Outcome
Barth 2008 LOW QUALITY	272	Black/non Hispanic	Reunited with parents 5-12 years	Age, gender, special education, child behaviour, welfare involvement, family risk, number of children at home, duration in care	HR 0.75 NS
Courtney 1995 HIGH QUALITY	6783	African American	Discharged from first time in care 0-16 years	Age, health problems, SES, placement setting, stability, time in care	RR 1.233 P<0.05
Frame 2002 MODERATE QUALITY	630	African American	Neglected children in care 0-2.5 years	Age, gender, race, siblings, removal, health, reason, source of referral, number of referrals, type of care	NS
Horwitz 2011 MODERATE QUALITY	2824	Black	Risk of maltreatment 0-14 years	Age, reason for going into care, income, history of abuse and likelihood of future abuse	OR 1.90 (0.86 to 4.21) NS
		Latino			OR 0.94 (0.39 to 2.27)

Study	N	Risk factor	Population Age	Controlled for	Outcome
					NS
Jonson-Reid 2003 HIGH QUALITY	200	Non-White vs. white	Children exited care <5 to 16 years	Age, gender, perpetrator, maltreatment, placement type, number of placements, length in care, exit type	RR 1.46 NS
Lee 2012 LOW QUALITY	397	Black vs. White	Children experienced abuse 5-16 years	Age, gender, carer risk , maltreatment, duration of care, number of placements, CWS	HR 1.96 NS
Wells 2012 MODERATE QUALITY	398	White vs. Black	In foster care 0-12 years	Gender, age, risk assessment, care giver characteristics, reason	RR 0.73 (0.41-1.29) NS

NS=non-significant

Table 104: Risk factor: ethnicity. Outcome: placement disruption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Chamberlain 2006 LOW QUALITY	246	Child Black vs White	Children entering foster care first time 5-12 years	Number of kids, non-kin care, gender, ethnicity of foster parent	B=0.22 NS
Connell 2006 HIGH QUALITY	5901	African American	Foster care 0-20 years	Gender, age, child health, prior removals, reason for removal, setting	RR 0.97 NS
Hunter 1990 MODERATE QUALITY	100	White vs non. white	Sexually abused in care 6-17 years	Age, maternal support, child psychopathology	R=0.011 NS
James 2004 MODERATE QUALITY	1087	African American	Children in care 0-16 years	Gender, age, maltreatment, behaviour problems, number of places, days in care, routine moves, planned moves, disruptive moves	RR 1.12 NS
		Hispanic			RR 0.87 NS
Leathers 2005	196	African American	Children in care	Age, years in foster care, foster care	OR 2.42

Study	N	Risk factor	Population Age	Controlled for	Outcome
MODERATE QUALITY			12-13 years	integration, sibling placement patterns, placed alone	p<0.05
Pardeck 1984 HIGH QUALITY	4288	Ethnicity	Children in care Unclear	Problems in childter care, foster care integration, sibling placement patterns, place	Q=0.22 p<0.05
Sallinas 2004 HIGH QUALITY	240	Immigrant background	Foster care	Gender, run-away, abuse, MH child, behaviour, reason for breakdown, assessment, court order, distance from home	NS

NS=non-significant, pink=negative association

Table 105: Risk factor: ethnicity Outcome: negative placement outcome

Study	N	Risk factor	Population Age	Controlled for	Outcome
Hulburt 2010 MODERATE QUALITY	292	Black	Foster child 5-12 years	Number of children in home, age, gender, child race, parent daily report score, child behavioural problems	OR 3.06 NS
		Hispanic			OR 1.15 NS

NS=non-significant, pink=negative association

Table 106: Risk factor: ethnicity. Outcome: exit from care

Study	N	Risk factor	Population Age	Controlled for	Outcome
Smith 2003 HIGH QUALITY	985	African American vs. White/other	In care 0-17 years	Age, placement duration, number of places, disability, state in US	HR 0.79 NS

NS=non-significant

Table 107: Risk factor: ethnicity. Outcome: placement duration

Study	N	Risk factor	Population Age	Controlled for	Outcome
Church 2006 MODERATE QUALITY	16581	Hispanic vs. non Hispanic	Children in family services 8.6± 5.1 years	Age, gender, economic level, type of abuse	B=-0.3 ± 0.08 P<0.001

pink=negative association

Table 108: Risk factor: disability. Outcome: adoption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Akin 2011 HIGH QUALITY	3351	Has disability (no definition)	Foster care 0-18 years	Age, gender, reason for removal, ethnicity, placement stability, MH problem, initial placement type, sibling placement, early stability	HR 2.18 significant
Courtney 1996b HIGH QUALITY	8625	Health problems (physical, emotional and disability)	Children who exited from foster care 0-16years	Age, gender, health, poverty, parents home, removal reason, regions, placement setting, ethnicity	RR 0.679 P<0.01
McDonald 2007 MODERATE QUALITY	1473	Physically disabled	Children enter foster care. NA age	Age, physically disabled, MH, placements, family of origin, reason for removal, gender	HR 1.080 NS

NS=non-significant, green= positive association, pink=negative association

Table 109: Risk factor: disability. Outcome: reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Akin 20111	3351	Has disability	Foster care	Age, gender, reason for removal,	HR 0.32

Study	N	Risk factor	Population Age	Controlled for	Outcome
MODERATE QUALITY			0-18 years	ethnicity, placement stability, MH problem, initial placement type, sibling placement, early stability	significant
Courtney 1996b MODERATE QUALITY	8625	Health problems (physical, emotional and mental disability)	Exited from care 0-16 years	Age, gender, health, poverty, parents home, removal reason, regions, placement setting, ethnicity	RR 0.70 P<0.01
Frame 2002 MODERATE QUALITY	1357	Multiple disabilities (emotional/physical/orthopaedic handicaps/sensory deprived)	Neglected children in care 0-2.5 years	Age, gender, race, siblings, removal, health, reason, source of referral, number of referrals, type of care	HR 0.360 P<0.005
McDonald 1987 MODERATE QUALITY	14583	Physically disabled	Children enter foster care. NA age	Age, physically disabled, MH, placements, family of origin, reason for removal, gender	HR 0.598 Small effect

pink=negative association

Table 110: Risk factor: disability. Outcome: change in placement

Study	N	Risk factor	Population Age	Controlled for	Outcome
Connell 2006 MODERATE QUALITY	6723	Disability (no definition)	In foster care 0-20 years	Age, gender, race, MH problems, number of placement, reason, setting.	RR 0.94 NS
Pardeck 1984 HIGH QUALITY	4288	Physical handicap	Children in care Unclear	Problems in child QUALITYblems, number of placement, reason, setting. removal, genderferrals, t	Q=-0.06 NS

NS=non-significant

Table 111: Risk factor: disability. Outcome: re-entry into care

Study	N	Risk factor	Population Age	Controlled for	Outcome

Study	N	Risk factor	Population Age	Controlled for	Outcome
Courtney 1995 HIGH QUALITY	6783	Health problem (physical, emotional, dates of placement)	Discharged from first time in care 0-16 years	Age, health problems, SES, placement setting, stability, time in care	RR 1.395 P<0.05

pink=negative association

Table 112: Risk factor: disability. Outcome: successful exit from care

Study	N	Risk factor	Population Age	Controlled for	Outcome
Becker 2007 MODERATE QUALITY	7807	Developmental disability (mental retardation and other)	Children served by welfare system 0-18 years	Gender, race, age, district of residence, medicaid eligibility, substance abuse, mental disorder, developmental, psychiatric examinations	OR 0.28 * (0.10 to 0.79)

**p<0.05 to <0.001 pink=negative association*

Table 113: Risk factor: disability. Outcome: exit from care

Study	N	Risk factor	Population Age	Controlled for	Outcome
Smith 2003 HIGH QUALITY	985	Disability (no definition)	In care but also eligible for adoption 0-17 years	Age, ethnicity, placement duration, type of care, number of places, location in US	HR 0.81 NS

NS=non-significant

Table 114: Risk factor: substance abuse exposure. Outcome: reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Frame 2002 MODERATE	1357	Substance exposure (parental substance use)	Neglected children in care	Age, gender, race, siblings, removal, health, reason, source of referral, number	NS

Study	N	Risk factor	Population Age	Controlled for	Outcome
QUALITY			0-2.5 years	of referrals, type of care	
Wells 2006 MODERATE QUALITY	1560	Substance abuse problems (mother	Foster and kinship care 0-15 years	Gender, age, health, reason, placement type, worked, income	Chi squared 0.219 NS

NS=non-significant

Table 115: Risk factor: substance abuse exposure. Outcome: reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Frame 2002 MODERATE QUALITY	1357	Substance exposure (parental substance use)	Neglected children in care 0-2.5 years	Age, gender, race, siblings, removal, health, reason, source of referral, number of referrals, type of care	NS
Wells 2006 MODERATE QUALITY	1560	Substance abuse problems (mother)	Foster and kinship care 0-15 years	Gender, age, health, reason, placement type, worked, income	Chi squared 0.219 NS

NS=non-significant

Table 116: Risk factor: substance abuse exposure. Outcome: re-entry into care

Study	N	Risk factor	Population Age	Controlled for	Outcome
Frame 2002 HIGH QUALITY	630	Substance exposure (parental substance use)	Neglected children in care 0-2.5 years	Age, gender, race, siblings, removal, health, reason, source of referral, number of referrals, type of care	HR 2.24 P<0.0001
Wells 2012 MODERATE	398	Any caregiver substance abuse (yes vs no)	In Foster care 0-12+ years	Gender, age, risk assessment, care giver characteristics, reason	RR 0.81 (0.49-1.33) NS

Study	N	Risk factor	Population Age	Controlled for	Outcome
QUALITY					

Table 117: Risk factor: substance abuse exposure + in care with sibling. Outcome: willingness to adopt

Study	N	Risk factor	Population Age	Controlled for	Outcome
Brooks 2002 MODERATE QUALITY	616	Drug exposed + siblings in care	Adoptive parents 0-18 years	Age at placement, ethnicity, special needs, sibling placement	OR 2.698*

**p<0.05 to <0.001, NS=non-significant, green= positive association, pink=negative association*

Table 118: Risk factor: mental health of child. Outcome: adoption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Akin 2011 HIGH QUALITY	3351	Serious emotional disturbance	In foster care 0-18 years	Age, gender, reason for removal, ethnicity, placement stability, disability, initial placement type, sibling placement, early stability	HR 0.55*
Leathers 2010 LOW QUALITY	164	Depression/anxiety	Foster care 12-13 years	Age, abuse, ethnicity, educational needs, depression, foster care integration, duration in care, relationship with parents	OR 2.87 NS
McDonald 2007 MODERATE QUALITY	1473	Mental retardation	Children enter foster care. NA age	Age, physically disabled, ethnicity, placements, family of origin, reason for removal, gender	OR 0.640* Small effect

**p<0.05 to <0.001, NS=non-significant, pink=negative association*

Table 119: Risk factor: mental health of child. Outcome: reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Lee 2012 LOW QUALITY	397	Child received MH services	Children experienced abuse 5-16 years	Age, gender, carer risk , maltreatment, duration of care, number of placements, CWS, ethnicity	HR 1.52 NS
McDonald 2007 MODERATE QUALITY	14583	Mental retardation	Children enter foster care. NA age	Age, physically disabled, ethnicity, placements, family of origin, reason for removal, gender	OR 0.738 NS

NS=non-significant

Table 120: Risk factor: mental health of child. Outcome: kinship care

Study	N	Risk factor	Population Age	Controlled for	Outcome
Iglehart 1994 HIGH QUALITY	812	Mental health problem	Out of care 16 years+	Age, mental health problem,, gender, number of placements	OR 0.54 P<0.01

pink=negative association

Table 121: Risk factor: mental health of child. Outcome: change in placement

Study	N	Risk factor	Population Age	Controlled for	Outcome
Connell 2006 HIGH QUALITY	5901	Mental health problems	In foster care 0-20 years	Age, gender, race, disability, problems, number of placement, reason, setting.	RR 1.06 NS
		Foster care and MH problem			RR 0.78 NS
		Group home and MH problem			RR 0.47 P<0.001
		Emergency shelter and MH problem			RR 0.56 P<0.001

Study	N	Risk factor	Population Age	Controlled for	Outcome
Pardeck 1984 HIGH QUALITY	4288	Mental retardation	Discharged from first time in care 0-16 years	Age, health problems, SES, placement setting, stability, time in care, ethnicity	Q=0.05 NS
Sallinas 2004 HIGH QUALITY	240	Mental health problems with child	Foster care	Gender, immigrant background, run-away, behavioural problems, reason for placement, relationship problems, court order, distance from home	NS

NS=non-significant, green= positive association

Table 122: Risk factor: mental health of child. Outcome: successful exit from care

Study	N	Risk factor	Population Age	Controlled for	Outcome
Becker 2007 MODERATE QUALITY	7807	Mental disorder vs none (major psychiatric disorder, bipolar, ADHD, major affective disorder, other)	Children served by welfare system 0-18 years	Gender, race, age, district of residence, medicaid eligibility, substance abuse, developmental disability, psychiatric examinations	OR 0.47 to 0.56 (0.26 to 1.00)*

**p<0.05 to <0.001 pink=negative association*

Table 123: Risk factor: mental health of child. Outcome: permanent placement

Study	N	Risk factor	Population Age	Controlled for	Outcome
Park 2009 MODERATE QUALITY	5978	History of inpatient MH care	First time in care 3-18 years	Age, gender, reason for care, duration, instability, sibling placement, run-away, ethnicity	HR 1.13 NS

NS=non-significant

Table 124: Risk factor: parents mental health or substance abuse problem. Outcome: reunification.

Study	N	Risk factor	Population Age	Controlled for	Outcome
Cheng 2010 MODERATE QUALITY	749	Need of mental health care	Long-term foster care Unclear age	Caseworker characteristics, maltreatment type, gender, ethnicity, chronic problems, duration	OR1.68 NS
		Need of substance abuse treatment			OR 0.49 NS

NS=non-significant

Table 125: Risk factor: parents with mental health or substance abuse problem. Outcome: adoption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Cheng 2010 MODERATE QUALITY	749	Need of mental health care	Long-term foster care Unclear age	Caseworker characteristics, maltreatment type, gender, ethnicity, chronic problems, duration	OR 1.16 NS
		Need of substance abuse treatment			OR 3.42 p<0.05

** NS=non-significant, green= positive association*

6.2.3 Economic evidence

No economic evidence on process and arrangement features for taking children and young people into local authority care that are associated with an increased or decreased risk of developing or worsening attachment difficulties was identified by the systematic search of the economic literature undertaken for this guideline. Details on the methods used for the systematic search of the economic literature are described in Chapter 3.

According to the clinical review, identification of certain process and arrangement features, and provision of training, support and education programmes aimed at foster carers and adoptive parents combined with psychosocial intervention for the child may improve the stability of care placement. Care placement instability is associated with a range of costs and consequences. For example, Hannon and colleagues (2010) explored the consequences associated with 2 hypothetical care journeys. 'Child A' was modelled as having a positive care journey (long-term, stable care placements with supported transitions) and 'Child B' was modelled as having unstable care journey (disruption in care placements through placement breakdown, many placement moves, and associated poor mental health). According to the analysis 'Child B' with unstable care journey cost £32,755 per year more than 'Child A'. The authors also modelled the long-term costs by examining the potential outcomes of the 2 care journeys up to the age of 30. 'Child A' was modelled as leaving care at 18 years with educational qualifications and following a stable care placement, going to university and then being employed with an average starting salary. 'Child B' was modelled as leaving care at 16.5 years with mental health problems and no qualifications. It was estimated that 'Child B' would cost the state an extra £6,558 per year compared with 'Child A'. This indicates the potential resource implications and cost savings associated with interventions (such as training, support and education programmes for foster carers and adoptive parents) aimed at improving stability of care placement.

Holmes and colleagues (2008) compared the costs associated with Multidimensional Treatment Foster care and local authority foster care. The cost of finding subsequent local authority care placement was estimated to be £738. According to Price and colleagues (2007) each care placement change requires 25 hours of casework and support staff time, staff meetings, court reports, and accompanying paper work. Also, it is not unusual for local authority children to experience 3 or more placements in the course of a year (Department for Education and Skills, 2005). Only taking into account the costs associated with finding subsequent local authority care placement and assuming that child has 3 placements per year would result in a cost of £2,214. However, this doesn't consider a range of other consequences including health benefits. There is evidence that provision of a stable environment may help to ameliorate the consequences of family instability and adversity and alter poor developmental trajectories in children (Harden, 2004), and reduce the opportunity to reinforce insecure patterns of attachment (Leathers, 2002); in contrast, multiple care placements contribute to an increase in internalising and externalising behaviours even after controlling for levels of prior behaviour problems (Newton et al., 2000). This would potentially lead to an increase in mental healthcare utilisation and would have implications for the criminal justice and education sectors. For example, Rubin and colleagues (Rubin et al., 2004; 2007) found that children with unstable care placements have twice the odds of having behaviour problems compared with children who achieve early stability in their foster placements; also multiple placements and episodic foster care increase the predicted probability of high mental health service use.

6.2.4 Clinical evidence statements

6.2.4.1 Outcome: Attachment

- Moderate quality evidence from 1 study (n=217) showed a longer duration of deprivation prior to adoption internationally is associated with having attachment difficulties compared with children who were adopted locally.
- Low to moderate quality evidence from 5 studies (n=389) showed if carers were more sensitive it is associated with greater attachment between foster children and their carers; 3 studies showed a positive association, 1 study showed a non-significant association and 1 showed a negative association.
- Moderate quality evidence from 1 study (n=61) showed the adopted carer's education is not associated with secure attachment in the adopted child.
- Low quality evidence from 1 study (n=135) showed the skill of the teachers or the care-workers, including giving positive feedback, commitment, clarity, being respectful, is associated with secure attachment for children in care.
- Moderate quality evidence from 2 studies (n=94) showed the stress and support of carers is not associated with the attachment of foster children 10-15 months of age, but less stress and being more supportive is associated with greater attachment at 26-88 months of age.
- Moderate quality evidence from 1 study (n=46) showed if the carer had experience childhood trauma, then it was less likely they would develop a secure attachment with the foster child.
- Moderate quality evidence from 1 study (n=46) showed financial gain of foster carers is not associates with secure attachment between the child and the foster carers.
- Moderate quality evidence from 1 study (n=46) showed social concern of the community is associated with secure attachment between the child and the foster carers.
- Moderate quality evidence from 1 study (n=46) showed desire to replace grown up child is associated with poor secure attachment between the child and the foster carers.
- Moderate quality evidence from 1 study (n=46) showed desire to adopt is associated with poor secure attachment between the child and the foster carers.
- Moderate quality evidence from 1 study (n=158) showed the older age at adoption (after 12 months of age) is associated with greater secure attachment between adoptive parent and child.
- Moderate quality evidence from 1 study (n=219) showed age at entry into care was not associated with reactive attachment disorder in primary school-aged children.
- Moderate quality evidence from 1 study (n=158) showed a longer duration in adoption is associated with greater secure attachment between adoptive parent and child.
- Moderate quality evidence from 1 study (n=219) showed the number of care placements is not associated with reactive attachment disorder in primary school-aged children.
- Moderate quality evidence from 1 study (n=46) showed foster carers who have age-appropriate learning materials for their child are likely to have a stronger attachment with their foster child.
- Moderate quality evidence from 1 study (n=1196) showed the older age of the carers (>40 versus <40 years) is associated with greater risk of placement stability for foster children.

6.2.4.2 Outcome: Number of placements

- Moderate quality evidence from 3 studies (n=487) showed keeping siblings together is not associated with the number of placements.

- Low to moderate quality evidence from 2 studies (n=330) showed the number of places is associated with a greater likelihood of another failed placement, 2 sets of analysis showed an association, 1 did not.

6.2.443 Outcome: Placement disruption

- Low to high quality evidence 8 studies (n=8973) showed an unclear association between older age at placement and placement disruption.
- One moderate quality study (n=90) showed if children are placed under the age of 1 it is associated with longer placement duration compared with children 1-4 years of age.
- Low to high quality evidence from 3 studies (n=6439) showed foster care versus kinship care is not associated with the risk of placement disruption.
- High quality evidence from 2 studies (n=24001) showed kinship care may be associated with an increased likelihood of placement disruption compared with foster care, 1 study showed a positive association whilst 1 study reported a non-significant effect.
- Low to moderate quality evidence from 2 studies (n=376) showed living in the same neighbourhood may be associated with an increased likelihood of placement disruption, 1 study showed a positive association whilst 1 study reported a non-significant effect.
- Moderate to high quality evidence from 2 studies (n=4424) showed visiting birth parents is not associated with the risk of placement disruption.
- Moderate quality evidence from 1 study (n=1084) showed duration in kinship care is associated with a decreased risk of placement change, although the effect size is very small.
- Moderate quality evidence from 1 study (n=90) showed duration in foster care is not associated with the likelihood of placement change.
- Moderate quality evidence from 1 study (n=1084) showed the number of routine placement changes is associated with a behavioural-related placement change.
- Moderate quality evidence from 1 study (n=184) showed if parents help prepare the child for a placement it is associated with a decreased likelihood of placement change.
- Moderate quality evidence from 1 study (n=184) showed maternal support by the parents of children who have been sexually abused is associated with decreased likelihood of placement change.
- Moderate quality evidence from 1 study (n=240) showed whether the child is placed in care via voluntary means or a court order it is not associated with the likelihood of placement breakdown.
- Low quality evidence from 1 study with two sets of data analysis (n=71) showed carer sensitivity is associated with fewer placement problems.
- Low quality evidence from 1 study (n=1196) showed carer's education, high school or more, is associated with fewer placement disruptions.
- Low quality evidence from 1 study (n=99) showed an older age at placement in adoption is associated with a greater risk of placement disruption.
- Low quality evidence from 1 study (n=99) showed a longer duration in foster care is associated with a greater risk of placement disruption in adopted children.
- Low to high quality evidence from 7 studies (N=12508) suggest that children in care who are African American are no more likely to experience placement disruption than Caucasian children.
- Moderate to high quality evidence from 2 studies (n=1101) showed no association between children who are disabled and the likelihood of experiencing a change in placement compared with children in care who have no disability.

- High quality evidence from 3 studies (n=10429) show inconsistent findings whether children in care with mental health problems are more likely experience a change in placement, there is some evidence to suggest it may reduce the likelihood of a placement change for children in group homes or emergency shelter but have no effect on those in foster care.

Carer and caseworker characteristics

- Moderate quality evidence from 1 study (n=2824) showed the child welfare needs of the birth parents is not associated with them staying in care.
- Moderate quality evidence from 1 study (n=136) showed foster parent who have their own children, or the marital status of the caregivers or their level of education is not associated with placement disruption.
- High quality evidence from 1 study (n=4288) showed caseworker turnover is associated with an increased risk of placement disruption.
- High quality evidence from 1 study (n=4288) showed the caseworker's education or years of experience is not associated with placement disruption.
- High quality evidence from 1 study (n=474) showed if the caseworker has a degree the child is more likely to enter kinship care compared with foster care.
- Moderate quality evidence from 1 study (n=184) showed if the caregiver is not willing to commit it is associated with an increased risk of placement disruption.

6.2.4 Outcome: Risk of entering or re-entering care

- High quality evidence from 1 study (n=1357) showed keeping siblings together in care is not associated with the risk of re-entering care.
- Moderate to high quality evidence from 5 studies (n=10795) showed age at entering care may not be associated with re-entering care and 1 study showed (n=2824) it is not associated with the risk of re-entering care.
- Moderate to high quality evidence from 2 studies (n= 3014) showed a trend for foster care to increase the likelihood of re-entering care, 1 study found an association, 1 study did not.
- High quality evidence from 3 studies (n=9328) showed kinship care may be associated with an increased risk of re-entering care compared with foster care, 2 studies showed a positive association whilst 1 study reported a non-significant effect.
- Moderate to high quality evidence from 6 studies (n=6229) showed duration of placement is not associated with the risk of re-entry into care, 4 sets of data showed a positive association, 4 showed a non-significant association and 1 showed a negative association.
- Moderate to high quality evidence from 5 studies (n=36262) showed a greater number of placements in care may be associated with an increased risk of re-entering care, 3 studies showed a significant association whilst 2 studies reported a non-significant effect.
- Low to moderate quality evidence from 2 studies (n=670) showed the child welfare needs of the birth parents may be associated with an increased risk of the child re-entering care, 1 study however showed no association.
- High quality evidence from 1 study (n=6783) showed financial aid to birth parents is associated with an increased the risk of the child re-entering care.
- High quality evidence from 1 study (n=15281) showed if the mother does not receive prenatal care before the 6th month of the pregnancy, it is associated with an increased risk of the child going into care.

- Low to high quality evidence from 7 studies (n=11504) suggest that children in care who are African American are no more likely to re-enter the care system than Caucasian children.
- Moderate quality evidence form 1 study (n=292) showed no association between children in care who are African American or Hispanic and the likelihood of having a negative placement outcome from care compared with Caucasian children.
- High quality evidence from 1 study (n=6783) showed children in care who are disabled are more likely to re-enter care compared with children who have no disability.
- Moderate to high quality evidence from 2 studies (n=1028) showed unclear findings whether children who are exposed to substance abuse are more likely to re-enter care compared with children who weren't exposed.

6.2.45 Outcome: Enter adoption

- Moderate quality evidence from 2 studies (n=3456) showed keeping siblings together is associated with a trend towards entry into adoption, 1 study showed a positive association 1 study showed a non-significant effect.
- Moderate quality evidence from 1 study (n=616) showed siblings placed in care together who had been exposed to drugs is associated with a greater willingness by parents to adopt.
- Moderate to high quality evidence from 5 studies (n=37784) showed in 4 studies older children placed in care are less likely to enter adoption, 1 study found no association.
- Moderate quality evidence form 1 study (n=616) showed parents were more willing to adopt older children 0-18 years than infants.
- High quality evidence from 3 studies (n=6512) showed a trend for children who are in foster care are more likely to be adopted, 1 study showed a significant association, 2 studies found no significant association.
- Moderate quality evidence from 1 study (n=203) showed visiting birth parents to birth mother is not associated with the likelihood of being adopted.
- Low quality evidence from 1 study (n=164) showed attachment to birth mother is not associated with the likelihood of being adopted
- Moderate to high quality evidence from 5 studies (n=6146) showed a longer duration in-care is associated with an increased risk of being adopted, 4 studies reported a significant association, whilst 1 study found a non-significant association.
- Moderate to high quality evidence from 2 studies (n=30452) showed the number of placement is not associated with the likelihood of being adopted.
- High quality evidence from 1 study (n=6783) showed financial aid to birth parents is associated with a decreased risk of adoption.
- Low quality evidence from 1 study (n=232) showed the age of the carer is not associated with a greater willingness to adopt.
- Low quality evidence from 1 study (n=232) showed employment status is not associated with the willingness to adopt .
- Low quality evidence from 1 study (n=232) showed pro-natalist belief (i.e. desire to be less lonely in older years, fear empty lives without children, have a better marriage) is not associated with the willingness to adopt.
- Low quality evidence from 1 study (n=232) showed infertility of either parent is not associated

- Low to moderate quality evidence from 6 studies (n=27506) showed inconsistent findings whether children in care who are African American are less likely to be adopted compare with Caucasian children.
- Moderate to high quality evidence from 3 studies (n=13449) showed an unclear association between children in care with a disability and the likelihood of being adopted compared with children who have no disability.
- Moderate quality evidence from 1 study (n=616) showed parents are more willing to adopt children who were exposed to drug abuse and their sibling compared with children who weren't exposed to drug abuse and are not in care with their sibling.
- Low to high quality evidence from 3 studies (n= 4988) suggest that children in care who have mental health problems are less likely to be adopted compared with children with no mental health problems.
- Moderate quality evidence from 1 study (n=749) showed children in care of parents with mental health problems are just as likely to be adopted as children in care with parents without such problems.
- Moderate quality evidence from 1 study (n=749) showed children in care of parents with substance abuse problems are more likely to be adopted than children with parents without such problems.

Carer and case worker characteristics

- Moderate quality evidence from 1 study (n=441) showed case worker engagement with the family and the birth parent's need for substance misuse treatment is associated with an increased risk of the child entering adoption.
- Moderate quality evidence from 1 study (n=441) showed the birth parent's need for financial assistance or their need for mental health care are not associated with the likelihood of the child entering adoption.
- Moderate quality evidence from 1 study (n=441) showed the birth parent's need for housing services is associated with a decreased risk of the child entering adoption.
- High quality evidence from 1 study (n=8625) showed if the parents received placement prevention services prior to the child entering care it is associated with a decreased risk of the child entering adoption.

6.2.436 Outcome: Reunification with birth parents

- Low to moderate quality evidence from 4 studies (n=9664) showed keeping siblings together is associated with trend towards reunification, 2 studies showed a positive association, 2 studies showed a non-significant effect.
- Low to high quality evidence from 8 studies (n=18934) showed a trend for an older aged child entering care is more likely to be reunited with their birth parents, 4 studies showed a positive association, 3 studies showed no significant effect and 1 showed a negative association.
- Moderate quality evidence from 4 studies (n=11863) showed an unclear association between foster care and kinship care and the risk of reunification.
- Moderate quality evidence from 1 study (n=7807) showed therapeutic foster care is associated with a decreased risk of a successful exit from care.
- Moderate quality evidence from 3 studies (n=10380) showed a trend for kinship care to be associated with a decreased risk of reunification with parents compared with foster care, 1

negative association was found in 1 study, whilst 2 studies reported no significant association.

- Low to moderate quality evidence from 2 studies (n=751) showed visiting birth parents is associated with an increased risk of reunification in 2 studies.
- Low to moderate quality evidence from 5 studies (n=9420) showed placement disruption is not associated with the likelihood of reunification.
- Low quality evidence from 1 study (n=146) showed years in foster care is not associated with the likelihood of reunification.
- Low quality evidence from 1 study (n=146) showed attachment to mother and the frequency of visits to birth mother is associated with an increased risk of reunification.
- Moderate quality evidence from 1 study (n=1357) showed the source of referral (i.e. law, medical or department of social services) is not associated with the likelihood of reunification.
- Low to moderate quality evidence from 2 studies (n=1598) showed adequate support from services during return and from caregivers is associated with an increased the risk of reunification.
- High quality evidence from 1 study (n=6783) showed financial aid to birth parents is associated with a decreased risk of reunification.
- Low to high quality evidence from 11 studies (n= 20441) showed there may be no association between children in care who are African American and the likelihood of them being reunited with their biological parents compared with children in care who are Caucasian. However, the findings are inconsistent
- Moderate quality from 4 studies (n= 27916) showed children in care who are disabled are less likely to be reunified with their biological parents compared with children who have no disability.
- Moderate quality evidence from 2 studies (n=2917) showed children who are exposed to substance abuse in the home are just as likely to be reunited with their parents as children who weren't exposed to substance abuse.
- Moderate to low quality evidence from 2 studies (n=14980) showed that children in care with mental health problems are just as likely to be reunited with their biological parents as children in care without mental health problems.
- Moderate quality evidence from 1 study (n=749) showed children in care of parents with mental health problems or substance abuse problems were just as likely to be reunited with their biological parents as children with parents without such problems.
-

6.2.47 Outcome: exiting care.

- High quality evidence from 1 study (n=985) showed no association between children in care who are African American and the likelihood of exiting care compared with Caucasian children.
- Moderate quality evidence form 1 study (n=16581) showed children in care who are Hispanic may be more likely to stay in care longer compared with non-Hispanic children in care.
- Moderate quality evidence from 1 study (n=7807) showed children in care who are disabled are less likely to experience a successful exit from care compared with children without a disability.
- High quality evidence from 1 study (n=985) showed children in care who are disabled are just as likely to exit care compared children who have no disability.

- Moderate quality evidence from 1 study (n=7807) showed that children with mental health problems are less likely to experience a positive exit from care compared with children with no mental health problems.
- Moderate quality evidence from 1 study (n=5978) showed children in care with mental health problems are just as likely to receive a permanent placement as children without mental health problems.
-

Carer and caseworker characteristics

- Low quality evidence from 1 study (n=146) showed foster care integration is not associated with the likelihood of reunification.
- Moderate quality evidence from 1 study (n=441) showed the needs of birth parents (housing needs, financial assistance, caseworker engagement) is associated with an increased likelihood of reunification.
- Moderate quality evidence from 1 study (n=441) showed if the service needs of the birth parents were not met it was associated with a decreased risk of reunification.
- High quality evidence from 1 study (n=8625) showed if the parents received placement prevention services prior to the child entering care it is associated with an increased likelihood of reunification.

6.2.4.8 Outcome: Permanent placement

- Moderate quality evidence from 4 studies (n=11428) showed it is unclear whether age at placement is associated with permanent placement.
- Moderate to high quality evidence 2 studies (n=4412) showed foster care may be associated with an increased risk of permanent placement compared with other types of care (not kinship care) but 1 study found no association.
- High quality evidence from 1 study (n=1397) showed that a private agency foster care placement is associated with a decreased risk of having a permanent placement compared with a public foster care placement.
- Moderate quality evidence from 4 studies (n=12874) showed an unclear association between kinship care and risk of permanent placement or being adopted, 2 studies showed a positive association, whilst 2 studies reported a negative association.
- High quality evidence from 1 study (n=812) showed a higher number of placements is associated with a lower chance of going into a relative's home.
- Moderate to high quality evidence from 4 studies (n=16174) showed a higher number of placements is associated with a decreased risk of permanency, 3 studies showed a significant association, whilst 1 study showed a non-significant effect.
- High quality evidence from 1 study (n=6783) showed financial aid to birth parents is not associated with the likelihood of having a permanent placement.
- Moderate to high quality evidence from 3 studies (n= 8787) suggest children in care who are African American may be less likely to receive a permanent placement compared with Caucasian children

6.2.4.19 Outcome: Type of placement

- High quality evidence from 2 studies (n= 1286) showed unclear findings whether children in care who are African American are less likely to receive a foster care placement compared with kinship care.
- High quality evidence from 1 study (n=812) showed that children in care with mental health problems are less likely to receive kinship care compared with children with no mental health problems.

6.2.4.20 Outcome: Foster carer satisfaction

- High quality evidence from 1 study (n=468) showed if foster carers wanted to take in children who needed loving parents it is associated with greater satisfaction.
- High quality evidence from 1 study (n=468) showed if foster carers have to deal with the child's difficult behaviour or if they felt competent it is associated with lower satisfaction.
- High quality evidence from 1 study (n=468) showed if foster carers have to deal with agency red tape it is associated with greater satisfaction.
- High quality evidence from 1 study (n=468) showed if social workers showed approval when the carers did well it is associated with greater satisfaction.
- High quality evidence from 1 study (n=468) showed if social workers gave information when needed it is associated with greater satisfaction.

6.2.5 Economic evidence statements

No economic evidence on process and arrangement features for taking children and young people into local authority care that are associated with an increased risk of developing or worsening attachment difficulties is available. There is clinical evidence showing that identification of certain process and arrangement features and provision of comprehensive education and training for potential carers of looked-after and adopted children and young people that prepares them for the challenges involved in looking after children with attachment difficulties has an impact on care placement stability. There are studies reporting costs and consequences associated with unstable care placements. One UK study found that child with unstable care journey costs significantly more than child with stable care journey. There are high costs associated with finding subsequent placements. Also, there is evidence that multiple care placements contribute to an increase in internalising and externalising behaviours. Children with unstable care placements have twice the odds of having behaviour problems compared with children who achieve early stability in their foster placements; also multiple placements and episodic foster care increase the predicted probability of high mental health service use.

6.3 Recommendations and link to evidence

Ensuring equal access to consistent care

Recommendations	
	6. Ensure that all children, young people and their parents or carers get equal access to interventions for attachment difficulties regardless of their placement (foster, special guardianship, kinship or residential care), whether they: • are on the edge of care or adopted from care

	• are from a minority ethnic group • have a disability or mental health problems • are from the UK or overseas. **7.** Assess all children and young people who enter the UK as unaccompanied immigrants for attachment difficulties once a stable placement has been found, and offer interventions and support if needed. Take into account that, in addition to attachment difficulties, children and young people who enter the UK as unaccompanied immigrants are highly likely to have been traumatised, especially when coming from war zones. If they have post-traumatic stress disorder, offer treatment in line with the NICE guideline on post-traumatic stress disorder.
Relative values of different outcomes	The GC discussed the importance of various outcomes for assessing how the care system can have a positive or negative effect on secure attachment. They agreed that attachment difficulties (including disorganised attachment, insecure attachment and RAD) and secure attachment are critical outcomes. Placement disruption, number of placements, re-entry into care and permanent placement (including being adopted) were also considered critical outcomes. Placement disruption (or number of placements) was considered a critical outcome since the GC agreed that it is a major risk factor for attachment difficulties and it can be an indication that the caregiver system is breaking down. Important outcomes included reunification with biological parents, permanent placement, the child's behavioural, cognitive, educational and social functioning, the child's wellbeing, quality of life, developmental status, criminal outcomes, and parenting attitude/knowledge/behaviour, parenting stress/mental wellbeing
Trade-off between clinical benefits and harms	The recommendation ensuring all groups at risk of developing attachment difficulties (that is on the edge of care, in the care system or have been adopted) have access to the help they need .The GC discussed how it is often incorrectly assumed that once the child has been adopted that the child and or their adoptive parents no longer need access to services. Evidence was also identified on potential difficulties children in care who are ethnic minorities. The results showed children who are African American or Hispanic may be less likely to receive a permanent placement compared with Caucasian children. No difference was found on the likelihood of being adopted, receive foster care placement, re-entering the care system, placement disruption, negative placement outcomes or being reunited with their biological parents. Studies on the risk factors associated with process and arrangement also showed children in care with a disability are less likely to be reunited with their parents, are more likely to enter the care system and less likely to experience a positive exit from care. However, no difference may be found with likelihood of being adopted, experience a change in placement or exiting care. Children in care with a mental health problem may be less likely to be adopted, be placed in kinship care, and experience a positive exit from care. However, they are equally likely to be reunited with parents but it is

	unclear what impact it has on placement disruption. Based on the above evidence the GC felt it was important to ensure these vulnerable groups (children in care who are ethnic minorities, have a disability, or mental health problem) are provided equal access to the care they need. It was also discussed how unaccompanied immigrants who are children or young adults are likely to need additional help once they have been placed in a stable home. Not only may they experience attachment difficulties but they are likely to have been traumatised by war and have PTSD and/or anxiety or depression. For these reasons it is important that all children and young people who enter the UK as unaccompanied migrants are assessed and receive the appropriate care. No studies were identified that reported on any of the important outcomes.
Trade-off between net health benefits and resource use	The GC noted that provision of appropriate and timely assessment and intervention for children and young people with attachment difficulties (regardless of their placement type) has important resource implications. The GC considered the costs of assessment and treatment provision to be negligible considering long-term costs associated with attachment difficulties including poorer mental health, behavioural problems, and placement into care costs. Also, children with attachment difficulties have poorer employment and education outcomes, and higher involvement with the criminal justice system. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice sector costs, and society as a whole.
Quality of evidence	The evidence on children who need special consideration, i.e. children in care who are ethnic minorities, have a disability or mental health problem) was low to high quality. All studies included in the review adjusted for potential confounders. However, none of the studies looked at attachment difficulties as an outcome, instead they only considered movement through the care system, i.e. placement disruption or being adopted. Nevertheless, the outcomes were considered by the GC important on the risk of developing attachment difficulties. Moreover, the studies generally included large sample sizes that were directly relevant to this review. Because most of the studies conducted different statistical analysis from one another, the outcomes could not be meta-analysed and only presented in a narrative form. The remaining recommendations were developed from GC consensus.
Other considerations	Concern had been raised on the importance of ensuring the child in care is placed with a family that is culturally matched to their background. Some discussion was has on this subject and it is generally understood that although this was once a priority when placing children in care into new homes, the evidence now suggests it is no longer an issue. And that adoption agencies no longer have to give due consideration to a child's religious persuasion, racial origin and cultural and linguistic background when matching a child with prospective adopters. In the past a cautious approach to matching has been taken, with an emphasis on achieving the same race placements where possible, or at least partial ethnic matching. This was based on the assumption that transracially adopted children's needs may not be met and risk not developing a positive racial identity. Over time, evidence has shown that identifiable differences and lack of shared heritage, do not act as barriers to a successful adoption.

	It is thought that issues surrounding a child's cultural background can be explored with the child when he or she grows up. All prospective adopters should help children placed with them to understand and appreciate their background and particularly in the case of older children, their religion, linguistic or cultural background, for example celebrating cultural or religious festivals.

1

2

Recommendations	8. Ensure that the health, education and social care processes and structures surrounding children and young people with attachment difficulties are stable and consistent. This should include: • using a case management system to coordinate care and treatment • collaborative decision making among all health, education and social care professionals, the child or young person if possible and their parents and carers • having the same key worker, social worker or personal advisor throughout the period the child or young person is in the care system, adopted from care or on the edge of care.
Relative values of different outcomes	The GC discussed the importance of various outcomes for assessing how the care system can have a positive or negative effect on secure attachment. They agreed that attachment difficulties (including disorganised attachment, insecure attachment and RAD) and secure attachment are critical outcomes, along with placement disruption, number of placements, re-entry into care and permanent placement (including being adopted). Placement disruption (or number of placements) was considered a critical outcome since the GC agreed that it is a major risk factor for attachment difficulties and it can be an indication that the caregiver system is breaking down. Important outcomes included reunification with biological parents, permanent placement, the child's behavioural, cognitive, educational and social functioning, the child's wellbeing, quality of life, developmental status, criminal outcomes, and parenting attitude/knowledge/behaviour, parenting stress/mental wellbeing
Trade-off between clinical benefits and harms	The evidence for the recommendation of ensuring the use of "a case management system to coordinate care and treatment" was derived from a study that showed caseworker engagement with the adopted family increases the odds of a child entering adoption. Thus if caseworkers are more involved in the process and arrangement of children in care, it will more likely lead to a positive outcome. The GC's experience, especially from service users, also contributed to the generation of this recommendation since they highlighted how important it is to ensure that children are provided ongoing support during the transition in and out of care.

	The evidence for "collaborative decision making among all health, education and social care professionals, the child or young person if possible and their parent(s) and carer(s)" was based on GC consensus. No studies were identified that reported factors associated with disruption to school, yet this is considered a concern for children who are placed in care. Therefore to ensure that children with attachment difficulties are provided a stable and consistent environment, the GC felt it was important that schools collaborate with other services to ensure that disruption to school is minimised. The evidence for 'having the same key worker, social worker or personal advisor throughout the period the child or young person's is in the care system or on the edge of care' was derived from 1 study that showed caseworker turnover is associated with an increased risk of placement disruption for children in foster care. Other factors (housing and financial needs of the biological parents) were associated with harmful outcomes, for example they were associated with a reduced likelihood of a child being adopted). These factors, however, did not readily translate to recommendations. The following factors showed no significant influence on children being adopted: relationship with parents, number of placements, visits with parents and unobtained service needs for the biological parents. Factors associated with being reunited with biological parents were not translated into recommendations since it was agreed that it may not be a desirable outcome for the child. Factors associated with permanent placement were also excluded because it included children who were reunited with their parents. No studies were identified that provided data on factors associated with disruption to education or any other important outcomes.
Trade-off between net health benefits and resource use	The GC noted that ensuring that the health, education and social care processes and structures surrounding children and young people with attachment difficulties are stable and consistent has important resource implications, in particular if it allows better placement of children and young people, timely and effective management of attachment difficulties, and potentially prevention of costly short-term multiple placement changes. The GC considered that there are high costs associated with unstable placements including the additional social worker time needed to make placement moves (especially as these children and young people are expected to have multiple placements in any 1 year), and that unstable placements are associated with poorer mental health, behavioural problems, and early exit from care. Also these effects persist into adulthood. As adults, these children have poorer employment and education outcomes, and higher involvement with the criminal justice system. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice system costs, and society as a whole.
Quality of evidence	For these recommendations, no studies were identified that provided data on factors associated with attachment difficulties in children, disruption to education or carer's degree of satisfaction. Placement disruption, a high number of places or re-entry into care were considered proxies for having a negative impact on attachment, conversely a permanent placement was

	considered a proxy for having a positive effect. The studies used for this review included prospective cohort studies where children were observed over time to ascertain which factors were associated with placement disruption. Usually, retrospective studies would only be included if no prospective studies are found since they carry a higher risk of selection bias, that is, children with a particular outcome are selected for the study. They may also be prone to recall bias or errors in how a participant remembers past events. However, the retrospective studies included in this review used a database that recorded events in real time, therefore recall bias was not a concern. Selection bias may still be problematic but the databases typically included a large number of children so they were considered a useful resource. Cross-sectional studies were only included if no other studies were available. For this recommendation, prospective and retrospective cohort were available. Only studies that adjusted for covariates were included in the review. The statistical analysis performed in each study often varied (OR, RR, HR, beta-co-efficient, chi-square, zero-order gamma) in addition to the number and type of adjustments, so the data could not be meta-analysed. For this reason, GRADE software was not used to assess the quality of the evidence, instead we used the criteria explained below. Since the studies were mostly observational (retrospective, prospective, cross-sectional), the quality of the studies/evidence started at very low and were up-graded to low, moderate or high quality each time if they included 1 of the following: • for continuous outcomes the sample size was ≥400 and for dichotomous outcomes the sample size was ≥300 events. • they adjusted the outcome for confounders • no risk of bias or indirectness based on 5 criteria including: the generalisability of the population, the degree of missing data, if the outcome was measured using a valid or reliable tool, if the risk factor was measured adequately, and appropriate statistics were used. High quality evidence was used to generate the recommendation of "using a case management system to co-ordinate care and treatment" since it included more than 441 participants, it adjusted for confounders and included no risk of bias or indirectness. The decision to recommend collaborative decision making was based on the experience and expertise from the GC. High quality evidence was used to generate the recommendation of 'having the same key worker, social worker or personal advisor throughout the period the child or young person's is in the care system or on the edge of care' since the retrospective cohort study included 4288 participants, they adjusted for confounders and had no risk of bias or indirectness. However, they only controlled for 1 covariate (time in care). This recommendation was also generated out of consensus using the GC's experience and expertise.
Other considerations	None.

1

2

Improving the stability of placements

Recommendations	9. Ensure that, whenever possible, children and young people enter the care system in a planned manner rather than in response to a crisis. 10. Ensure carers are ready to accept the child or young person's need to be in a loving relationship and are able and willing to consider longer-term care or involvement if needed. 11. Help arrange kinship placements, if safe and in the best interest of the child or young person. 12. Consider comprehensive education and training for potential carers to prepare them for the challenges involved in looking after children and young people with attachment difficulties and the likely impact on them and their families. 13. Provide ongoing support and advice to carers when needed, either by telephone or in person. **14.** Proactively monitor difficulties in placements to identify opportunities to provide additional support if there are significant attachment difficulties or if disruption to the placement is likely. **15.** Ensure that the stability or instability of the child or young person's placement does not determine whether psychological interventions or other services are offered**.**
Relative values of different outcomes	The GC discussed the importance of various outcomes for assessing how the care system can have a positive or negative effect on secure attachment. They agreed that attachment difficulties (including disorganised attachment, insecure attachment and RAD) and secure attachment are critical outcomes, along with placement disruption, number of placements, re-entry into care and permanent placement (including being adopted). Placement disruption (or number of placements) was considered a critical outcome since the GC agreed that it is a major risk factor for attachment difficulties and it can be an indication that the caregiver system is breaking down. Important outcomes included reunification with biological parents, permanent placement, the child's behavioural, cognitive, educational and social functioning, the child's wellbeing, quality of life, developmental status, criminal outcomes, and parenting attitude/knowledge/behaviour, parenting stress/mental wellbeing
Trade-off between clinical benefits and harms	Evidence from 1 study found foster carers were more satisfied if they had a desire to take on children who needed a loving environment. No harms were associated with this outcome. Three other studies were also identified

	that showed if the carers were more sensitive then the foster children were more securely attached. However, 1 other study showed a non-significant finding, and another showed the opposite effect. Evidence from 2 studies found that kinship care was associated with a decreased risk of re-entering care compared with foster care (1 study found a non-significant association). Two studies also found kinship care is associated with a decreased risk of placement change (1 study found a non-significant result). One study reported that kinship care was associated with a decreased risk of the child being adopted compared with foster care. It is not clear if this is a harmful outcome since staying in kinship care and not being adopted from a different family may be a good outcome for some children. Evidence from 5 RCTs (from the review on promoting attachment in children in care) showed parental education and training reduces the risk of placement disruption and increases the likelihood of children entering adoption, kinship care, or being reunited with parents. Two of the interventions also reported an improvement in the quality of parenting. No harms were identified from these interventions. Evidence was also derived from 2 studies (1 cross-sectional another 6 month prospective cohort) that showed less stress and greater support of carers are associated with greater attachment security in children aged 26 to 88 months (the results were non-significant in children aged 10-15 months). More sensitive carers and adoptive parents were also associated with better placement outcomes and generally better attachment. Regarding the recommendations for "providing ongoing support and advice to carers either by telephone or in person" and to "proactively monitor difficulties in placements, to identify opportunities to provide additional support if there are significant attachment difficulties or if disruption to the placement is likely", the information was extracted from the descriptions of the RCTs that showed parental education and training is effective in reducing placement disruption. The evidence was also provided from 1 retrospective study that showed foster carer satisfaction was increased if the social worker gave information when needed and showed approval when the parents did well. The likelihood of children in care of having attachment difficulties was also reported in a study that found the longer the duration a child had been deprived of good care (prior to adoption), the more likely they had attachment difficulties. The recommendation about ensuring "that the stability or instability of the child or young person's placement does not determine whether psychological interventions or other services are offered" was derived from the GC's expertise and experience. They felt it was important that children and carer from any setting, including those who have been adopted, should have access to psychological interventions or other services. Factors associated with reuniting children with their biological parents were not translated into recommendations in this context since it was agreed that it may not be a desirable outcome for the child. Factors associated with permanent placement were also excluded because it included children who had reunited with their parents. No studies were identified that reported on any of the important outcomes
Trade-off between net health benefits	The GC noted that identification of certain process and arrangement features, and provision of comprehensive education and training for

and resource use	potential carers of looked-after and adopted children and young people that prepares them for the challenges involved in looking after children with attachment difficulties and the likely impact on them and their families may improve care placement stability and consequently has important resource implications. The GC noted that recognition of such features and provision of education and training interventions for potential carers and interventions for children is likely to lead to cost savings if it allows better placement of children and young people, timely and effective management of attachment difficulties, and potentially prevention of costly short-term multiple placement changes. The GC considered that there are high costs associated with unstable care and education placements including additional social worker time needed to make placement moves (especially as these children and young people are expected to have multiple placements in any 1 year), unstable placements are associated with poorer mental health, behavioural problems, and early exit from care. Also these effects persist into adulthood. For example as adults these children have poorer employment and education outcomes, and higher involvement with the criminal justice system. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice sector costs, and society as a whole. The GC also expressed the opinion that such education and training is likely to improve outcomes for foster carers and adoptive parents and may consequently reduce healthcare resource utilisation associated with mental and psychological health problems experienced by them.
Quality of evidence	The evidence for these recommendations was overall of moderate quality and derived from prospective cohort, retrospective cohort or cross-sectional studies. To be included, the authors must have adjusted for possible confounders. High quality evidence was used to generate the recommendation about carers being ready to accept the child or young person's need to be in a loving relationship and able and willing to consider longer-term care was derived from 1 cross-sectional study but it included 468 foster carers, they adjusted for confounders and had low risk of bias and included a direct population. Data were also derived from 5 studies (n=389) that showed low to moderate quality evidence that more sensitive carers will result more secure attachment in foster children. The data was downgraded because of heterogeneity in the results and just falling short of 400 participants. Moderate to high quality evidence was used to generate the recommendation about kinship placements. One study showed that kinship care may decrease the risk of placement disruption compared with foster care, and 2 studies showed it decreased the risk of re-entry into care compared with foster care. One study with high quality evidence and 1 with moderate quality evidence showed it had no effect. The high quality studies all had >400 participants, a low risk of bias and indirectness. High quality evidence from 1 study showed a negative association between kinship care and the likelihood of adoption. The study included a high number of participants (n=8625), had low risk of bias and adjusted the results for confounders. Moderate to low quality evidence was used to generate the recommendations about considering education and training for potential carers, providing ongoing support, and proactive monitoring of difficulties. The evidence was derived from RCTs presented in the review on interventions for children in care (see Chapter 9). Evidence was also derived from a cross-sectional study that compared internationally-adopted children who had been deprived of good care with locally adopted children. The study was moderate quality and only downgraded because of the low

	number of participants (n=217). Moderate quality evidence was also used for the recommendation on providing support for carers when needed. The evidence was downgraded because of the small sample size (n=94), otherwise it showed a low risk of bias (good tools to measure outcomes and data was all adjusted). Mostly moderate quality evidence showed more sensitivity carers and adoptive parents were associated with more secure children. Equally, more sensitive carers were associated with fewer placement problems for children in care. These studies were mostly downgraded because of small numbers (<400 participants). These findings supported the recommendation for education and training for potential carers and the need to provide on-going support. For the recommendations based on the GC's expertise and experience, the GC agreed that it is often assumed that when children are adopted any attachment difficulties will be assuaged because they are living in a stable setting. However, adoption placements may break down and attachment difficulties may persist particularly when adopted children reach adolescence, so it is important that adoptive parents receive similar support as carers. No studies were identified that provided data on factors associated with disruption to education, the child's behavioural, cognitive and social functioning, the child's wellbeing, quality of life, developmental status, criminal outcomes, or parenting stress/mental wellbeing
Other considerations	It was highlighted by the care leaver on the GC that placement breakdown is often not explained to the child nor captured in the published literature. It would help the child if they knew why the placement had broken down. Other evidence was identified that showed the following factors were associated with greater secure attachment in foster children: i) teachers who give positive feedback and are respectful, ii) if the carer has social concern for the community, iii) older age at adoption (all adopted >12 months of age), iv) longer duration in adoption, v) appropriate learning materials in home and vi) younger age of carers. The following factors were associated with poorer attachment outcomes in children: i) carer had experienced childhood trauma, ii) carers wished to replace grown-up children and iii) a desire to adopt (because of fear of losing the child in care). The following factors were not found to be associated with attachment: i) carer's education and ii) if the family is driven by financial gain. The results from this review highlighted the importance of assessing the carer's sensitivity and experience of childhood trauma since both were found to be associated with better and worse secure attachment, respectively, for children in care. This evidence was partially used to generate recommendations for what to consider during as assessment for attachment difficulties. The GC found some of these factors do not translate to recommendations and some need more evidence before they can be used with confidence.

1

Preparing the child or young person before they enter the care system or change placement

Recommendations	16. Actively involve children and young people, and their parents or current carers, in the process of entering the care system or changing placement. This may include: • explaining the reasons for the move • familiarising the child or young person with their new carers and placement (for example, by arranging a pre-placement visit or showing them photographs of their new carers and home) • providing ongoing support during transitions • making sure the child or young person has the opportunity to ask questions and make choices whenever appropriate and possible • supporting the child in maintaining relationships with their parents or previous carers for as long as they feel the need to • taking account of the needs of children at different ages and developmental stages, including needs related to their mental health and any physical disabilities.
Relative values of different outcomes	The GC discussed the importance of various outcomes for assessing how the care system can have a positive or negative effect on secure attachment. They agreed that attachment difficulties (including disorganised attachment, insecure attachment and RAD) and secure attachment are critical outcomes, along with placement disruption, number of placements, re-entry into care and permanent placement (including being adopted). Placement disruption (or number of placements) was considered a critical outcome since the GC agreed that it is a major risk factor for attachment difficulties and it can be an indication that the caregiver system is breaking down. Other important outcomes included reunification with biological parents, permanent placement, the child's behavioural, cognitive, educational and social functioning, the child's wellbeing, quality of life, developmental status, criminal outcomes, and parenting attitude/knowledge/behaviour, parenting stress/mental wellbeing
Trade-off between clinical benefits and harms	Evidence for the recommendations on explaining the reasons for the move to the child and familiarising the child and young people with their new surroundings was derived from 1 study that showed children whose parents prepare them for a move have the reassurance that their parents know where they are and cared enough to explain the move to them.. They are also less likely to feel they have been kidnapped by the state. This may help the child feel acceptance towards the placement which may in turn minimise rebellious behaviour that could lead to placement breakdown. The preparation described in the paper included parents who accompanied their children on the pre-placement visit and the placement itself.

	Evidence for the recommendation of providing ongoing support was derived from 2 RCTs that showed training and support for carers for 6 -12 months after placement can reduce the likelihood of placement disruption for primary and secondary school aged children. The intervention on secondary school-aged children also decreased the likelihood of delinquent behaviour but had no effect on emotional/behavioural problems. The recommendation about giving children and you people the opportunity to ask questions and taking account of the needs of children at different ages and developmental stages were derived from the GC's expertise and experience, particularly the care leavers and carers. The GC also highlighted that young people in their mid-teens often feel the need to seek answers about their childhood and to explore their identity, and may want to visit carers with whom they had had an attachment, but recognised that visiting or reuniting with parents or carers could be harmful if they had been abusive. For the recommendation to take into account the needs of children with physical disabilities and mental health problems, refers to the evidence that showed these vulnerable groups may be at a greater risk of having poor outcomes when in care. The GC noted they may need additional support when in care to address their needs, for example wheel chair access or access to services to address their mental health problems. Evidence for the recommendation to support children in maintaining relationships with their parents or previous carer(s) was derived from 3 studies that showed visiting biological parents had no impact on placement disruption or the likelihood of children entering adoption and 2 studies that showed it was associated with an increased likelihood of reuniting with parents and 1 of these 2 studies showed in a longer duration of follow-up it had no effect on reuniting the child with their biological parents . No studies were identified that reported on any of the important outcomes
Trade-off between net health benefits and resource use	The GC noted that identification of features that prepare the young person in advance of any entry into the care system or placement change may improve the stability of care, minimise the number of placement changes and consequently has important resource implications. Recognition of such features is likely to lead to cost savings; in particular if it allows prevention of costly short-term multiple placement changes. The GC considered that there are high costs associated with unstable care including the additional social worker time needed to make placement moves (especially as these children and young people are expected to have multiple placements in any 1 year), and that unstable placements are associated with poorer mental health, behavioural problems, and early exit from care. Also these effects persist into adulthood. For example, as adults these children have poorer employment and education outcomes, and higher involvement with the criminal justice system. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice system costs, and society as a whole.
Quality of evidence	Moderate quality evidence was used to generate the points about explaining reasons for the move, and providing ongoing support during transitions The data were derived from 1 prospective cohort study with only 184 children followed for 18 months, but it did adjust for confounders and had a low risk of bias and no indirectness. The study showed that children

	whose parents accompanied them in a pre-placement visit to their new home had fewer placement disruptions. The care leavers on the GC suggested the preparation could include showing photographs of their new home. They also suggested children and young people should have an opportunity to ask questions and be provided with a choice regarding their placement wherever possible. Moderate to high quality evidence was used to generate the points about supporting the child in maintaining relationships with their parent(s) or previous carers. It was derived from a number of studies (retrospective and cross-sectional) that showed neither benefit nor harm for children in care visiting their biological parents (that is, placement disruption or entry into adoption). Some of the evidence was moderate quality because of a low number of participants (n<400). Low to moderate quality evidence (1 retrospective, 1 prospective 4-5 years) showed visiting parents increases the risk likelihood of being reunited with parents (downgraded because of <400 participants) however it is unclear if being reunited with the parents is a good outcome for all children. A longer follow-up in 1 of these studies, (9 years) showed visiting parents has no impact on reunification with parents. Thus, maintaining a relationship with biological parents was recommended with caution (i.e. if the child feels the need to) because it is unclear if reunification is an ideal outcome for the child, especially if the child's safety is at risk. The recommendation to take account of the needs of children at different ages and developmental stages was derived from GC consensus. They discussed when children in care get older they may feel the need to seek out their biological parents, even if they were maltreated as children. As adolescents they may have questions that need answering and to learn more about their identity. The evidence on taking into account the needs of children who have disabilities or mental health problems was from low to high quality evidence from cohort studies that controlled for potential confounders. They found these children were associated with potentially poor outcomes when in care. They were generally reasonable sized studies (>400) and used good measures of the risk factors but none measured attachment difficulties in these vulnerable children. The recommendation to provide ongoing support during transitions was derived from moderate quality evidence. The results were derived from 2 RCTs that showed providing ongoing support to carers decreases the likelihood of placement disruption. The studies were moderate quality but could not be meta-analysed because 1 study provided dichotomous data, the other continuous data and the other did not provide raw data for placement disruption. The other outcomes were only reported by 1 study.
Other considerations	Long term follow-up is needed from the RCT to see if the benefits are maintained. The majority of the factors identified in this review were related to increased risk of placement disruption, very little evidence was identified on risk of attachment difficulties.

Improving the likelihood of a more permanent placement, including adoption

Recommendations	**17.** Keep siblings together if it is possible and in the best interests of all the children or young people. **18.** Consider providing additional support and resources (such as mentoring or day visits with a social worker) to children and young people and/or their carers: • at the first sign of serious difficulties in the placement • if there have been frequent changes of placement.
Relative values of different outcomes	The GC discussed the importance of various outcomes for assessing how the care system can have a positive or negative effect on secure attachment. They agreed that attachment difficulties (including disorganised attachment, insecure attachment and RAD) and secure attachment are critical outcomes. Placement disruption, number of placements, re-entry into care and permanent placement (including being adopted) were also considered critical outcomes. Placement disruption (or number of placements) was considered a critical outcome since the GC agreed that it is a major risk factor for attachment difficulties and it can be an indication that the caregiver system is breaking down. Important outcomes included reunification with biological parents, permanent placement, the child's behavioural, cognitive, educational and social functioning, the child's wellbeing, quality of life, developmental status, criminal outcomes, and parenting attitude/knowledge/behaviour, parenting stress/mental wellbeing
Trade-off between clinical benefits and harms	Three prospective studies all showed keeping siblings together had no impact on placement disruption. Overall the studies showed a positive outcome or that it had no effect. One study reported keeping siblings together in care increased the likelihood of the child entering adoption, while 1 study showed a non-significant result. Two studies showed keeping siblings together increased the likelihood of reunification, and 1 study showed a non-significant result. One study showed it had no impact on the child re-entering care, and 1 showed it had no effect on placement change. The GC felt that keeping siblings together should be considered on a case-by-case basis depending on the family dynamics and the child's wishes. One GC member discussed how critical it was for him to live with his brother so that he could look after him and have a family member with him. He said being separated from him caused a lot of trauma and placement breakdown. The recommendation about considering additional support and resources was mostly generated by GC consensus. The GC discussed how carers often feel isolated from support and that it would be helpful if they had access to additional support and resources, including visits with a social worker when they needed it, such as the first sign of serious difficulties. In addition, 3 RCTs from the review on interventions for children in care showed that when mentoring is provided, as part of an intervention

	delivered to the carers, it was associated with fewer placement breakdowns. The mentoring programme provided support to the children and encouraged them to participate in extracurricular activities and develop relationships with peers, develop a positive outlook, and increase their self-confidence. The studies included children from 3 to 11 years of age, so mostly primary-school aged children. One of the studies showed a benefit on behavioural problems, measured by a delinquency score, but it had no effect on externalising or internalising symptoms. None of the studies identified provided data on attachment difficulties or any of the important outcomes.
Trade-off between net health benefits and resource use	The GC noted that identification of factors that improve the likelihood of a more permanent placement has important resource implications. Recognition of such factors is likely to lead to cost savings by prevention of costly short-term multiple placement changes. The GC considered that there are high costs associated with unstable care including the additional social worker time needed to make placement moves (in particular since these children and young people are expected to have multiple placements in any 1 year), and that unstable placements are associated with poorer mental health, behavioural problems, and early exit from care. Also these effects persist into adulthood. For example, as adults these children have poorer employment and education outcomes, and higher involvement with the criminal justice system. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice system costs, and society as a whole.
Quality of evidence	. Limited data was available from 1 cross-sectional study that reported positive feedback and support from social workers was associated with greater foster carer's satisfaction. The evidence was high quality because they adjusted the results for potential confounders, it included >400 participants, there was a low risk of bias and it was in a relevant population. The investigators only asked 1 question to assess foster cares' satisfaction and the results showed moderate effects sizes (beta = 0.4 and 0.6). The evidence for the benefits of mentoring was very low to moderate quality but it was provided by 3 RCTs (see review on interventions for children in care). The outcome for placement breakdown could not be meta-analysed from these 3 studies because they used either continuous or dichotomous outcomes. The results were downgraded because of a risk of bias associated with the randomisation process, i.e. it was unclear if allocation concealment was performed. There were less than 300 events reported for placement breakdown and less than 400 participants from the studies that provided a continuous measure of placement breakdown. GC consensus was also used to generate this recommendation.
Other considerations	The GC discussed the importance of ensuring children are moved to a new place that is in the same area as the previous placement since it can provide some stability (that is school/friends) rather than being moved to a new county. Interestingly, 1 study was identified that showed living close to biological parents may increase the chance of placement disruption, whilst 1 study showed it had no effect. The authors suggested that living >100 km from biological parents may reduce the acute conflicts that lead to instant rejection and placement breakdown. Nevertheless, the GC were reluctant to recommend a new placement >100 km from biological parents. Other evidence identified during the review was that the age of the carer, employment status and pronatalist belief (i.e. feel less lonely in older years, have empty lives without children, have a better marriage) were not associated with a willingness to adopt. However, fertility status was a

	motivating factor for adopting. None of these factors were considered by the GC relevant for developing a recommendation.

Preserving the personal history of children and young people and safeguarding and monitoring

Recommendations	**19.** Social care workers should consider giving children and young people in the care system, or adopted from care, accurate, comprehensive and age-appropriate information about their history and family in a form that they are able to use and revisit at their own pace (for example, through photographs and Life Story work in line with the NICE guideline on looked after children and young people). **20.** Social care workers should consider keeping a record of the significant people and places in the child or young person's life while they are in the care system. **21.** Ensure safeguarding is maintained during any intervention for a child or young person with attachment difficulties. **22.** Consider monitoring the effects of interventions using routine outcome measurement that includes parenting quality and parental sensitivity.
Relative values of different outcomes	The GC discussed the importance of various outcomes for assessing how the care system can have a positive or negative effect on secure attachment. They agreed that attachment difficulties (including disorganised attachment, insecure attachment and RAD) and secure attachment are critical outcomes. Placement disruption, number of placements, re-entry into care and permanent placement (including being adopted) were also considered critical outcomes. Placement disruption (or number of placements) were considered critical outcomes since the GC agreed that it is a major risk factor for attachment difficulties and it can be an indication that the caregiver system is breaking down. Important outcomes included reunification with biological parents, permanent placement, the child's behavioural, cognitive, educational and social functioning, the child's wellbeing, quality of life, developmental status, criminal outcomes, and parenting attitude/knowledge/behaviour, parenting stress/mental well being
Trade-off between clinical benefits and harms	These recommendations were generated from GC consensus. GC members provided accounts of how beneficial it is for children moving through the care system to have access to their life history, including birth family, for example via Life Story work and photographs. It can help them make sense of their past experiences from birth, provide them with a sense of identity and to understand who they are and where they came from. The Life Story book can also play an important role in helping a child come to terms with his or her ethnicity when it differs from that of his or her adoptive parents.

	Children in care often do not have events or experiences recorded like other children growing up the same household often do. Children also experience many changes of social worker and carers, as a result, information about their past and heritage may be missing, lost or forgotten. Children may also be too young to remember or understand what happened in their lives. A Life Story book may be prepared with the child by a social worker, foster carer and/or adoptive parent. For this reason the GC recommended that social care workers should consider keeping a record of the significant people and places in the child or young person's life while they are in the care system. The Life Story book generally records significant information and events, such as a description of their birth family, where they were born, significant people in their lives, and their care history. It can take the form of a book, photo album, or collection of personal items, such as a hospital bracelet, first teddy bear, or drawings that date back to the child's time with their birth or foster family. The Life Story book belongs to the child but is usually given to the adoptive parents or permanent foster carers, so they can share the information sensitively with the child, when age appropriate, as some information may be painful or difficult to understand. The recommendation to ensure safeguarding is maintained during any intervention for a child or young person with attachment difficulties was included to ensure: the NICE guideline complied with UK safeguarding legislation and government guidance that children are protected from maltreatment; prevent impairment of children's health or development; ensure children grow up in circumstances consistent with the provision of safe and effective care; and to take action to enable all children and young people have the best outcome. The recommendation to consider monitoring the effects of an intervention using routine measurements that include parenting quality and parental sensitivity, was included to ensure factors that pre-dispose children to having poor secure attachment are monitored. This will ensure interventions are put in place if the children are at a high risk of developing attachment difficulties. It will also ensure that the role parents/cares play in the development of attachment difficulties is monitored. The GC discussed how children may be labelled as having attachment disorders and it is assumed that the problem lies with the child and not the parents/carer. Therefore monitoring the parent's quality and parental sensitivity will ensure the role of the parents/carers is more carefully considered.
Trade-off between net health benefits and resource use	The GC noted that providing all children and young people in the care system or adopted form care with accurate of comprehensive information about the history and family, safeguarding etc., are likely to decrease the likelihood of attachment difficulties and lead to a positive and stable care experience. The GC considered the long-term costs associated with attachment difficulties and unstable care including poorer mental health, behavioural problems, and placement into care costs. Also, children with attachment difficulties and unstable care have poorer employment and education outcomes, and higher involvement with the criminal justice sector. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice sector costs, and

	society as a whole. Consequently, it is essential that children and young people grow up in circumstances consistent with the provision of safe and effective care that is continuously monitored using appropriate validated measures.
Quality of evidence	None of the studies identified provided data on secure attachment or any of the important outcomes. The evidence for this review was generated from GC consensus and UK safeguarding legislation and government guidance.
Other considerations	A consensus based piece was felt to be necessary and factors that need to be taken into account would need considering. It could be referenced against standards for practice.

Supporting children and young people with attachment difficulties in schools

Recommendations	
	23. Educational psychologists and health and social care provider organisations should work with local authority virtual school heads and designated teachers to develop and provide training courses for teachers of all levels on how • attachment difficulties begin and how they can present in children and young people • attachment difficulties affect learning, education and social development • they can support children and young people with attachment difficulties. 24. Staff in education settings and health and social care professionals should work together to ensure that children and young people with attachment difficulties: • can access child and adolescent mental health services (CAMHS) and education psychology services for interventions • are supported at school while they are taking part in interventions following advice from CAMHS or an educational psychologist. 25. Schools and other education providers should ensure that children and young people in the care system who have attachment difficulties feel safe and supported at school by ensuring that the designated teacher: • is aware of and keeps accurate and comprehensive records about all children and young people in their school who: o are in the care system o have been adopted o have or may have attachment difficulties • has contact details for the parents, carers and health and social care professionals for all the above groups • maintains an up-to-date plan (a personal education plan for children and young people in the care system) setting out how they will be supported in school • provides a key person who can advocate for the child and to whom the child can go for support. • allocates a safe place in school , for example a room where a child or young person can go if they are distressed • attends looked-after children reviews. 26. Social care professionals, schools and other education providers should ensure that changes or gaps in the education of children or young people in the care system are avoided by: • helping them to keep attending school when there are changes to their placements

	• supporting them while they develop new relationships and if they are worried about the new placement. if a change is unavoidable, it should be planned in advance so that disruption is minimal. **27.** Schools and other education providers should avoid using permanent and fixed-term school exclusion as far as possible for children and young people with attachment difficulties.
Relative values of different outcomes	Educational staff may be the first to recognise the behavioural consequences of attachment difficulties and therefore the GC agreed that recommendations specifically for schools were of high importance. As with other settings, attachment difficulties (including disorganised attachment, insecure attachment and attachment disorders) and secure attachment were critical outcomes. Educational functioning was among the outcomes considered to be important.
Trade-off between clinical benefits and harms	One small study was identified that provided evidence for these recommendations (see chapter on process and arrangement risk factors). The authors showed in a cross-sectional study that the skill of the teachers, including giving positive feedback, commitment, clarity, being respectful, is associated with better adolescent-adult relationships for children in care. They also found adolescents in care use teachers and care workers as attachment figures. No other evidence was identified that showed the importance of supporting children and young people with attachment difficulties in schools, therefore the recommendations were mostly developed from GC consensus. The GC recognised that few staff in educational settings will have had training on attachment difficulties and so, although they will encounter these children and experience their behaviour and problems with learning, they may struggle to understand and respond effectively. Both for staff and children this may be unhelpful, at worst leading to higher levels of stress or permanent exclusion, which for a child with attachment difficulties would be counter-therapeutic. It was agreed that it was essential to provide teachers of all levels with training on how to recognise the issues children and young people with attachment difficulties face. Throughout the recommendations the GC emphasised the need for an integrated approach from education, health and social care, highlighting that schools should enable children and young people to access interventions for attachment difficulties from CAMHs and education psychology services and support them while they are taking part in any intervention following the guidance of CAMHS and educational psychologists. Schools can also work with social care to ensure that changes or gaps in a child or young person's education are avoided. The GC recognised the pivotal role of the virtual school head (the officer appointed by local authorities, as set out in the Children and Families Act 2014, to ensure that the authority's duty to promote educational achievement in its looked-after children in properly discharged) and the designated teacher (who works with individual children). The GC considered it important to set out the responsibilities for each of these roles in the recommendations, and the need for all educational staff to have a therapeutic approach to supporting children and young people with attachment difficulties.

	Given that for some children and young people on the edge of care or in the care system, school may be one of the few places they feel safe, the GC therefore wished to emphasise that schools should foster safety and highlighted that the designated teacher should keep accurate records of all children and young people in the care system, those who have been adopted, and those who may have attachment difficulties, and maintain an up-to-date plan. Because of the lack of studies focused specifically on educational settings, the need for research to explore the impact of training for staff on outcomes for children and teacher sensitivity was highlighted.
Trade-off between net health benefits and resource use	No economic evidence on training staff in education settings is available. It was noted that training would enable staff in education settings to recognise the issues children and young people with attachment difficulties face and ensure conducive environment for the promotion of secure attachment. The GDG considered that such training is likely to lead to substantial cost savings if it potentially prevents the exclusion of children and young people with attachment difficulties from schools, and ensure continuity in education. The GDG also considered high costs associated with unstable education including the additional social worker time needed to make school moves; it may potentially lead to poorer mental health, behavioural problems, and early exit from education. These effects are likely to persist into adulthood. For example, as adults children with unstable education experience are likely to have poorer education outcomes and consequently have poorer employment opportunities; and higher involvement with the criminal justice sector. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice sector costs, and society as a whole. The GDG judged that the costs associated with the provision of such interventions will be significantly outweighed by the potential benefits.
Quality of evidence	Only one low quality study was identified that provided evidence that the skill of the teachers, including providing positive feedback, commitment, clarity and being respectful is associated with a better adolescent-adult relationship for children in secure-residential care. It was low quality because it was a cross-sectional study and it is difficult to find causation in these study designs. Only 135 children were included in the analysis and the outcome "quality of the relationship" included whether the adolescents used the teachers as a secure base or not, but they didn't measure attachment *per se*. Nor was the outcome validated for the measure of attachment difficulties. However, they did find that adolescents use care workers and teachers as secure attachment figures. Thus, highlighting the importance of teachers for children and young people in-care and in need. No other studies were identified that provided evidence for these recommendations. Thus the majority of the recommendations were developed from GC consensus.
Other considerations	The role of teachers and the education system in helping care for children with attachment difficulties needs further research. It was therefore agreed by the GC to generate a research recommendation to address this gap in the field.

6.3.1 Research recommendation

2. **Assess the clinical and cost effectiveness of an attachment-based intervention delivered in a school setting for children and young people on the edge of care, in the care system or adopted.**

7 Prediction of attachment difficulties

7.1 Introduction

There are as yet no validated "quick and easy" measures for identifying children at risk of developing attachment difficulties. However, there are tools that measure the parent-child interaction and there are aspects of this interaction that are known to lead to insecure or disorganised attachment and reactive attachment disorder (Boris et al., 2004)..

Maternal insensitivity is one of the strongest precursors of children developing attachment difficulties {Ainsworth, 1978 #36982}. The Maternal Care scales are designed to assess the quality of maternal behaviour tailored to a specific infant and to explain individual differences in attachment quality. The Ainsworth Sensitivity Scale is considered the gold standard for measuring maternal sensitivity and defines sensitivity as a parent's ability to 1) notice child signals, 2) interpret these signals correctly and 3) respond to these signals promptly and appropriately {Ainsworth, 1974 #43591}. It was developed within the attachment framework and aimed at explaining individual differences in the Strange Situation Procedure {Ainsworth, 1978 #36982;Ainworth, 1971 #43592}.

Ainsworth's Baltimore study showed that maternal sensitivity was indeed related to attachment security {Ainsworth, 1978 #36982}, and this finding has been replicated in a meta-analysis showing that improvements in parental sensitivity induced by parental interventions improves child attachment quality {Bakermans-Kranenburg, 2003 #96}. A number of new observational instruments have been designed to measure parental sensitivity and two are included in this review: the CARE-Index and the Maternal Behaviour Q-Sort.

7.2 Review question: What measurements/tools can be used to predict children and young people at risk of developing attachment difficulties? How valid and reliable are they?

For this review, 3 sensitivity tools were investigated: Ainsworth Maternal Sensitivity Scale, CARE-Index and Maternal Q-Sort. These tools were selected by the GC to review because they are either used as a gold standard (Ainsworth Maternal Sensitivity Scale), quick and easy to implement (CARE-Index) or often reported in the literature and freely available (Maternal Q-Sort). A description of these tools is provided below.

Ainsworth Maternal Sensitivity Scale

The Ainsworth Maternal Sensitivity Scale is used to measure the sensitivity of the mother of children aged 3 to 24 months (or thereabouts). The tool measures the mother's 1) ability to perceive the infant's signals accurately and 2) respond to these signals promptly and appropriately. A score is generated on a 9-point scale (9=high, 1=low) for a number of important maternal traits. The scores are generated by observing the interaction between the mother and infant in a variety of settings, i.e. play, feeding, teaching. It may be conducted in the home or the laboratory and has been used to assess the sensitivity of fathers and mothers in non-Western populations. It is reported to take between 25 minutes up to 2 hours and is freely available.

The CARE-Index

The CARE-Index is typically used for parents of children aged 2 months up to 2 years but it is reported in children up to 5.8 years. The test is short and involves filming the interaction between mother and child for 3-5 minutes. The Index describes behavioural patterns relating to 3 adult patterns: i) sensitivity, ii) control and iii) unresponsiveness. It also measures the

infant's behavioural patterns: i) cooperation, ii) compulsively compliant, iii) difficult and iv) passive. It is measured via observation and the interaction can be filmed in the home or laboratory. It takes 3-5 minutes to film and a trained coder 15-25 minutes to code. The tapes are viewed 4 times, each time viewing for different aspects of behaviour. For the 3 adult patterns a score out of 14 is given and for the 4 child patterns another 14 points can be given. It is not freely available but it has been validated in fathers and in non-Western cultures.

The Maternal Behaviour Q-Sort

The Maternal Behaviour Q-Sort is typically used to measure the sensitivity of mothers of infants 8 months up to 3.5 years of age. A standard version of the Q-sort requires an observer to assess the behaviour of the mother based on 90 different descriptions. The 90 items assess the mother's accessibility, responsiveness and promptness to the child's needs. The score is generated by observing the interaction between the mother and child in the home, playground, or laboratory and is usually filmed. It can take anywhere between 40 minutes to 2 hours to complete, in addition to the time required for coding. It is freely available, but it is unclear if it has been validated in fathers or in non-Western populations.

The review protocol summary, including the review question and the eligibility criteria used for this section of the guideline, can be found in Table 126. A complete list of review questions can be found in Appendix F; further information about the search strategy can be found in Appendix H; the full review protocols can be found in Appendix F.

Definitions of the critical and important outcomes included in this review are described elsewhere: see 8.2.2.

Table 126: Clinical review protocol summary

Component	Description
Review question(s)	What measurements/tools can be used to predict children and young people at risk of developing attachment difficulties? How valid and reliable are they?
Population	Infants, children and young people (aged 0–18 years) who are at risk of having attachment difficulties. Settings • adopted, including those adopted from abroad • looked after children in the care system • on the edge of care Strata: • Pre-school (≤4 years), primary school (>4 to 11 years), secondary school (>11 to 18 years)
Intervention(s)	Tools for detecting/predicting attachment difficulties the review will assess the validity and reliability of maternal sensitivity tools. Including: • Ainsworth Maternal Sensitivity Scale (Ainsworth et al., 1974) • CARE-Index (Crittenden, 2001) • Maternal Behaviour Q-Sort (MBQS; Pederson & Moran, 1995)
Comparison	Reference tool
Critical outcomes	Sensitivity Specificity
Important outcomes	Other validity measures Reliability

Component	Description
Study design	RCT Cohort Cross-sectional

7.2.11 Clinical evidence

For this review question, a relevant review published by Mesman et al. in 2013 was identified (Mesman & Emmen, 2013a). The review conducted a systematic search of the literature for 2 of the 3 tools we were interested in: the Ainsworth Maternal Sensitivity Scale and the CARE-Index. Relevant papers were extracted from this review and an updated search was conducted from December 2012. A new search was conducted for Maternal Behaviour Q-Sort.

In total, 26 studies were identified that provided validity and or reliability data on 1 of the 3 sensitivity tools investigated: Ainsworth 1978 (Ainsworth et al., 1978), Bailey 2007 (Bailey et al., 2007), Behrens 2011 (Behrens et al., 2011), Behrens 2012 (Behrens et al., 2012), Crittenden 1988 (Crittenden, 1988), de Wolff 1997(De Wolff & van Ijzendoorn, 1997b), Fuertes 2009 (Fuertes et al., 2009), Goodman 1998 (Goodman et al., 1998), Kim 2009 (Kim & Kim, 2009), Kennedy 2008 (Kennedy, 2008), Künster 2010 (Kunster et al., 2010), Lindhiem 2011 (Lindhiem et al., 2011), Meins 2001(Meins et al., 2001), Miljkovitch 2013 (Miljkovitch et al., 2013), Moran 1992 (Moran et al., 1992), Pederson 1990 (Pederson et al., 1990), Pederson 1995 (Pederson & Moran, 1995), Pederson 2014 (Pederson et al., 2014), Posada 1999 (Posada et al., 1999), Posada 2007 (Posada et al., 2007), Stiles 2004 (Stiles, 2004), Tarabulsy 2009 (Tarabulsy et al., 2009), Tarabulsy 2008 (Tarabulsy et al., 2009), Valenzuela 1997 (Valenzuela, 1997), Ward 1995 (Ward & Carlson, 1995), Whipple 2011 (Whipple et al., 2011). Nine studies were considered prospective cohort studies since there was at least 6 months in between 2 sets of results. Sixteen studies were cross-sectional and 1 study was a meta-analysis of 16 studies that looked at the validity of the Ainsworth Maternal Sensitivity Scale up to the year 1997. An overview of studies included in the review can be found in Table 127.

The studies often found significant results for different validity and reliability measures, but to assess the strength of the results we used a cut-off or threshold for what we deemed was a strong or moderate result. The strength of the results was demonstrated in the summary of the findings tables using a colour coding system: green if it showed a strong association, yellow if it showed a moderate association and blue if it showed good discriminate validity. Results that only gave a significant p-value (and hence the strength of the association could not be gauged), were considered a strong result. Based on the literature the following statistical cut-offs were used to label a strong or convincing result: Pearson correlation r > 0.70, kappa > 0.4 (for inter-rater reliability), intraclass correlation (ICC) > 0.4 (for inter-rater and test re-test), percent agreement >80%, chi squared depends on the degree of freedom (numbers in study), Cronbach's alpha α >0.7, Cohen's d >0.50 and a beta co-efficient as close to 1 as possible (acceptable > 0.6). Summary of findings for the Ainsworth Maternal Sensitivity Scale can be found in Table 128, Table 129, Table 130, Table 131 and Table 132. Summary of findings for the CARE Index can be found in Table 133, Table 134, Table 135, Table 136 and Table 137. Summary of findings for Maternal Behaviour Q-sort can be found in Table 138, Table 139, Table 140 and Table 141.

None of the studies provided data on the critical outcomes for this review: specificity or sensitivity. However, papers were included if they reported any relevant validity data. For convergent validity, studies were included if they compared a sensitivity tool with another validated attachment tool, for example the Strange Situation Procedure. The studies presented the results using various statistical tests so they could not be meta-analysed nor could their quality be assessed using GRADE. For this reason a modified QUADAS check-

list for diagnostic papers was used and the quality of the results is presented in the summary tables and the full assessment can be found in the excel extraction spreadsheet.

See also the study selection flow chart in Appendix P, and exclusion list in Appendix M.

Table 127: Study information table for trials included in the meta-analysis

	Ainsworth Maternal Sensitivity Scale	CARE Index	Maternal Behaviour Q-sort
Total no. of studies (N*)	7 (1313)	6 (612)	14 (949)
Study ID	1) DeWolff 1997 2) Kennedy 2008 3) Meins 2001 4) Moran 1992 5) Stiles 2004 6) Valenzuela 1997 7) Ainsworth 1978 (book) 8) Miljkovitch 2013	1) Crittenden 1988 2) Fuertes 2009 3) Goodman1998 4) Künster 2010 5) Ward 1995 6) Valenzuela 1997 7) Miljkovitch 2013	1) Bailey 2007 2) Behrens 2011 3) Behrens 2012 4) Kim 2009 5) LIndheim 2011 6) Moran 1992 7) Pederson 1990 8) Pederson 1995 9) Pederson 2014 10) Posada 1999 11) Posada 2007 12) Tarabulsy 2009 13) Tarabulsy 2008 14) Whipple 2011
Study design	1) Meta-analysis 2) Cross-sectional 3) Prospective cohort 4) Cross-sectional 5) Cross-sectional 6) Prospective cohort 7) Prospective cohort	1) Prospective cohort 2) Cross-sectional 3) Cross-sectional 4) Prospective cohort 5) Prospective cohort 6) Cross-sectional 7) Prospective cohort	1) Cross-sectional 2) Cross-sectional 3) Cross-sectional 4) Cross-sectional 5) Cross-sectional 6) Cross-sectional 7) Cross-sectional 8) Cross-sectional 9) Cross-sectional 10) Cross-sectional 11) Cross-sectional 12) Prospective cohort 13) Prospective cohort 14) Prospective cohort
Country	1) Netherlands 2) USA 3) UK 4) Canada 5) USA 6) Chile 7) USA 8) France	1) USA 2) USA 3) USA 4) Germany 5) USA 6) Chile 7) France	1) Canada 2) USA 3) USA 4) South Korea 5) USA 6) Canada 7) Canada 8) Canada 9) Canada 10) USA 11) USA 12) Canada

	Ainsworth Maternal Sensitivity Scale	CARE Index	Maternal Behaviour Q-sort
			13) Canada 14) Canada
N children	1) 837 (16 studies) 2) 72 3) 71 4) 19 5) 10 6) 127 7) 106 8) 71	1) 121 2) 48 3) 93 4) 64 5) 88 6) 127 7) 71	1) 99 2) 71 3) 72 4) 141 5) 25 6) 19 7) 40 8) 89 9) 64 10) 41 11) 50 12) 127 13) 40 14) 71
Risk of the population of having poor maternal sensitivity or secure attachment	1) Unclear 2) Low risk 3) High risk 4) High risk 5) High risk 6) High risk 7) Low risk 8) High risk	**1)** High risk 2) Low risk 3) High risk 4) High risk 5) High risk 6) High risk 7) High risk 8) High risk	1) High risk 2) Low risk 3) Low risk 4) High risk 5) High risk 6) Low risk 7) High risk 8) Low risk 9) Low risk 10) High risk 11) Low risk 12) High risk 13) High risk 14) Low risk
Child age mean (SD)	1) NR 2) 14.9 months (3.6) 3) 6 months (23-28 weeks) 4) 20 months (10-31). Mental age = 12 months (4.5-22) 5) 3 to 24 months 6) 17 to 21 months 7) 3 to 51 weeks 8) 6 months	1) 24 months (2 to 48 months) 2) 9 months (12) 3) 3.9 years (0.5) 4) 2.3 to 5.8 years 5) 3 to 9 months 6) 17 to 21 months 7) 6 months	1) 12 months 2) 12 months (3.1 weeks) 3) 10 months 4) 3 to 7 years Developmental age =24 months or 2-3 years 5) 11.9 months (5.7) (3- 20) 6) 20 months (10-31) Mental age 12 months 7) 1 years ± 2 weeks 8) 8 and 12 months 9) 8 months 10) 10-13 months 11) 12.6 months (8- 19) 12) 52 months 13) 6 months (6-10) 14) 6 months 15) 12 months

	Ainsworth Maternal Sensitivity Scale	CARE Index	Maternal Behaviour Q-sort
Child gender (% female)	1) NR 2) 58% girls 3) 50% girls 4) unclear 5) Unclear 6) 51% 7) 43% 8) 50%	1) 50% girls 2) 39.60% 3) 55.9 4) 53.1 5) Unclear 6) 51% 7) 50%	1) 50% 2) 50% girls 3) 41% 4) 25.50% 5) Unclear 6) Unclear 7) Unclear 8) Unclear 9) 50% girls 10) 54% girls 11) 50% girls 12) 50% girls 13) 41% girls 14) 50% girls
Ethnicity of child (% white)	1) NR 2) see mother 3) NR 4) NR 5) see mother 6) NR (likely to all be Latin-American) 7) 100% white 8) NR	1) NR 2) Primarily white 3) 100% African-American 4) NR 5) Unclear 6) NR (likely to all be Latin-American) 7) NR	1) see mother 2) see mother 3) unclear 4) Unclear, all likely to be Asian 5) See mother 6) Unclear 7) Unclear 8) See mother 9) NR 10) Unclear, all likely to be Hispanic 11) 78% white 12) See mother 13) See mother 14) See mother
Carer age mean (SD/range)	1) NR 2) 28.2 (9.5) years 3) 28 (19-42 years) 4) 30 (19-35 years) 5) 15-19 years 6) 28.6 (4.7) years + 27.6 (5.7) years 7) NR 8) 31.8 (4.6) years	1) 23.7 (15 to 38 years) 2) 29.8 (5.7) years 3) 21.3 (1.13) years 4) 35.72 (4.82) years 5) 16.5 (0.99) years 6) 28.6 (4.7) years + 27.6 (5.7) years 7) 31.8 (4.6) years	1) 18.42 (1.01) (15.97 to 19.98 years) 2) 29.4 (4.9) (20 to 40 years) 3) 29.4 (4.9) years 4) 31 to 40 years 5) 25.9 (7.0) (17 to 41 years) 6) 30 (19-35 years) 7) 29.9 (22-39 years). 8) 28.0 (5.2) and 29.9 (4.8) years 9) 30 (4.97) (20- 45 years) 10) 31.5 (21- 42 years) 11) 33.7 (23- 47 years) 12) 18.52 (1.53) years 13) 28.80 (4.66) years + 18.07 (1.25) years 14) 31 (4.7) (20 and 45) years

	Ainsworth Maternal Sensitivity Scale	CARE Index	Maternal Behaviour Q-sort
Carer gender (% Female)	1) NR 2) 100% mothers 3) 100% mothers 4) 100% mothers 5) 100% mothers 6) 100% mothers 7) 100% mothers 8) 100% mothers	1) 100% mothers 2) 100% mothers 3) 100% mothers 4) 100% mothers 5) 100% mothers 6) 100% mothers 7) 100% mothers	1) 100% mothers 2) 100% mothers 3) 100% mothers 4) 100% mothers 5) 100% mothers 6) 100% mothers 7) 100% mothers 8) 100% mothers 9) 100% mothers 10) 100% mothers 11) 100% mothers 12) 100% mothers 13) 100% mother 14) 100% mothers
Carer ethnicity (% White)	1) NR 2) 77% white 3) NR 4) NR 5) 50% white 6) NR (all likely to be Latin-American) 7) 100% white 8) NR	1) 58% 2) Primarily white 3) 100% African-American 4) NR 5) 5% 6) NR (all likely to be Latin-American) 7) NR	1) 81% 2) 84% white 3) 83% white 4) Unclear, all likely to be Asian 5) 6 (24%) were European American 6) Unclear 7) Unclear 8) White all but 2 9) NR 10) Unclear all likely to be Hispanic 11) See children 12) 100% white 13) 99% white 14) 79% white
Tool used (index test)	1) Ainsworth Maternal Sensitivity Scale 2) Ainsworth Maternal Sensitivity Scale 3) Ainsworth Maternal Sensitivity Scale 4) Ainsworth Maternal Sensitivity Scale 5) Ainsworth Maternal Sensitivity Scale 6) Ainsworth Maternal Sensitivity Scale 7) Ainsworth Maternal Sensitivity Scale 8) Ainsworth Maternal Sensitivity Scale	1) CARE Index 2) CARE Index 3) CARE Index 4) Toddler CARE-Index 5) Crittendon Sensitivity Scale (1983) 6) CARE-Index 7) CARE-Index	1) MBQS 2) MBQS 3) Contingency Sensitivity 4) MBQS 5) MBQS 6) MBQS 7) MBQS 8) MBQS 9) MBQS 10) MBQS 11) MBPQS – Pre-schoolers Q-set 12) MBQS – Short form 13) MBQS 14) MBQS

	Ainsworth Maternal Sensitivity Scale	CARE Index	Maternal Behaviour Q-sort
Comparison test (reference tool)	1) Mostly SSP 2) SSP 3) SSP 4) MBQS + AQS 5) MBQS 6) SSP + CARE-Index 7) NR 8) Attachment-Story Completion Task	1) SSP (A,B,C,A/C) 2) SSP 3) Attachment-Story Completion Task 4) Preschool Assessment of Attachment 5) SSP 6) SSP 7) Attachment-Story Completion Task	1) SSP + AAI 2) SSP 3) Contingency based measure 4) AQS 5) AAI 6) Ainsworth Maternal Sensitivity Scale and AQS 7) AQS + Mother versus observer MBQS 8) AQS 9) SSP 10) AQS 11) AQS 12) AQS + Short versus long form MBQS 13) AQS 14) AAI
Setting	1) Laboratory and home 2) Laboratory 3) Laboratory 4) Home 5) Home 6) Home 7) Laboratory 8) Laboratory	1) Home 2) Laboratory 3) Home 4) University 5) Unclear 6) Home 7) Laboratory	1) Home 2) Laboratory 3) Laboratory 4) laboratory 5) home 6) Home 7) Home 8) Home 9) Home 10) Home 11) Home and playground 12) Home 13) Home 14) Home
Time to measure	1) Unclear 2) Unclear 3) 25 minutes video + coding 4) Part of 90 minutes visit 5) 2 hrs, including 59 min coding versus 5 min coding for MBQS 6) 4 hours 7) Unclear 8) 3-5 minutes filming	1) 3 minutes video + coding 2) 2 to 5 minutes video + coding 3) 9 minutes video + coding. 4) 3 minutes free play – Unclear 5) NR 6) 5 minute play 7) 3-5 minutes filming (same filming for ASS)	1) 2 hour observation + plus coding 2) Used recording from SSP. 3) 6 episodes, 4 x 1 minutes 2 x undefined: floor play and structured play. 4) Unclear 5) 1 hour video + coding 6) Part of a 90 minutes visit 7) 2 hour observation + coding 8) 2 hour 9) 38 minutes video + coding (watched whole video then coded). 10) Unclear 11) 1.5-2 hour observation + coding 12) 2 hour observation + coding

	Ainsworth Maternal Sensitivity Scale	CARE Index	Maternal Behaviour Q-sort
			13) 2-3 hour observation + coding 14) 1.5 hour observation + coding
Measure (classification)	1) Maternal Sensitivity 2) Maternal Sensitivity 3) Maternal Sensitivity 4) Maternal Sensitivity 5) Maternal Sensitivity 6) Maternal Sensitivity 7) Maternal Sensitivity 8) Maternal sensitivity	1) Adult Behaviour: Sensitive, Controlling, Unresponsive. Infant items: Cooperative, Difficult, Passive, Compulsive 2) Maternal Sensitivity 3) Maternal Sensitivity 4) Maternal Sensitivity 5) Maternal Sensitivity 6) Maternal sensitivity 7) Reported Unresponsive and controlling only (excluded sensitivity because measured in MSS)	1) Maternal Sensitivity 2) Maternal sensitivity 3) Maternal sensitivity 4) Maternal Sensitivity 5) Maternal sensitivity 6) Maternal Sensitivity 7) Maternal Sensitivity 8) Maternal Sensitivity 9) Maternal Sensitivity 10) Maternal Sensitivity 11) Maternal Sensitivity 12) Maternal Sensitivity 13) Maternal Sensitivity 14) Maternal Sensitivity
Time between reference and index tool	1) NR 2) Same footage as SSP 3) +6 months 4) Same visit. 5) +1 week 6) Unclear, similar 7) NR 8) 24 months	1) Unclear, up to 9 months 2) +3 months 3) Same day 4) -2.6 months 5) +6 months 6) Unclear, similar 7) 36 months	1) Days. 2) Used same footage. 3) Used same footage. 4) +1 week 5) At initial test 6) Soon after, unclear 7) Soon after, unclear 8) Same time and +4 months 9) +3 months 10) +1-3 months 11) Same time and +38.5 days 12) 5 to 9 months 13) 5 to 9 months 14) -4 months prior
Validity outcomes	1) Convergent validity 2) Convergent validity 3) Predictive validity (6mo) 4) Concurrent and convergent validity 5) No validity measure 6) Convergent validity 7) No validity measure 8) Predictive validity	1) Convergent and discerning validity 2) Convergent validity 3) Convergent validity 4) Convergent validity 5) Concurrent validity 6) Convergent validity 7) Predictive validity	1) Convergent validity 2) Convergent validity 3) - 4) Convergent validity 5) Convergent validity 6) Convergent + Concurrent 7) Convergent validity 8) Convergent validity 9) Convergent validity 10) Convergent validity 11) Convergent validity 12) Concurrent + Predictive validity 13) Predictive validity 14) Convergent validity
Reliability	1) NR	1) Inter-rater	1) Inter-rater

	Ainsworth Maternal Sensitivity Scale	CARE Index	Maternal Behaviour Q-sort
outcomes	2) Inter-rater 3) Inter-rater 4) NR 5) Inter-rater (ICC) 6) Inter-rater and for CARE-Index 7) Inter-rater, test-re-test 8) NR	2) Inter-rater 3) Inter-rater 4) Inter-rater (including Ainsworth sensitivity) 5) – 6) Inter and intra-rater reliability 7) NR (previous testing)	2) Inter-rater 3) - 4) Inter-rater 5) Inter-rater + test re-test 6) Inter-rater 7) Inter-rater 8) Inter-rater + test re-test 9) Intra-tester 10) Inter-tester 11) Inter-tester 12) Inter-tester 13) Inter-tester + test re-test 14) Inter-rater

7.2.121 Summary of findings for the Ainsworth Maternal Sensitivity Scale

Table 128: Ainsworth Maternal Sensitivity Scale versus attachment: convergent validity

	Sensitivity versus Attachment SSP	Sensitivity versus Attachment Q sort
De Wolff 1997 (Systematic Review) MODERATE QUALITY	r = 0.24§* k=16, n=837	
Kennedy 2008 MODERATE QUALITY	r=-0.48†* k=1, n= 72	
Moran 1992 MODERATE QUALITY`		r=0.43* k=1, n=19
Valenzuela 1997 LOW QUALITY	F(1,38) = 5.31, p<0.05 k=1, n=127	

§ mostly used Strange Situation Procedure. Showed results were independent of other attachment tools used, age of children, if testing was conducted in the home or laboratory.
† negative association expected because it is between sensitivity and disorganised attachment,
k=number of studies, N=number of participants
*F=results of analysis of variance, r=correlation, * p<0.05 to <0.001*
Green=strong association between tool and sensitivity. Yellow= significant but moderate association between tool and sensitivity

Table 129: Ainsworth Maternal Sensitivity Scale versus sensitivity: concurrent validity

	Concurrent validity Sensitivity tool versus another sensitivity tool
Moran 1992 MODERATE QUALITY	r=0.55* (MBQS) k=1, n=19
Valenzuela 1997 LOW QUALITY	NS (CARE-Index) k=1, n=127

k=number of studies, N=number of participants
*F=results of analysis of variance, r=correlation, * p<0.05 to <0.001*
Green=strong association between 2 sensitivity tools. Yellow= significant but moderate association between 2 sensitivity tools.

Table 130: Ainsworth Maternal Sensitivity Scale: construct validity

	Sensitivity Anxiously attached and normal weight versus anxiously attached and underweight infants
Valenzuela 1997 LOW QUALITY	F(1) =33.5 p<0.001. k=1, n=127

k=number of studies, N=number of participants
F=results of analysis of variance, r=correlation,
Green=strong difference Yellow= significant but moderate difference

Table 131: Ainsworth Maternal Sensitivity Scale: predictive validity

	Predictive validity Measured attachment using	Predictive tool
Meins 2001	$\chi^2 = 8.30$	Attachment: Strange

	Predictive validity Measured attachment using	Predictive tool
MODERATE QUALITY	p<0.005 j=1, n=71	situation procedure 6 months later
Miljkovitch 2013	β=-0.27, p<0.05 K=1, n=71	Attachment: Attachment Story Completion Task

k=number of studies, N=number of participants
χ2 =chi-squared,
Green=strong association between tool and sensitivity. Yellow= significant but moderate association between tool and sensitivity

Table 132: Ainsworth Maternal Sensitivity Scale: Inter-rater reliability

	Inter-rater reliability Average agreement between observers	Test-re-test
Kennedy 2008 MODERATE QUALITY	r=0.85* k=1, n=25	
Meins 2001 MODERATE QUALITY	k=0.75*, exact agreement for 79%. k=1, n=15	
Stiles 2004 MODERATE QUALITY	ICC = 0.81* k=1, n=10	
Valenzuela 1997 MODERATE QUALITY	r=0.9* k=1, n=?	
Ainsworth 1978 LOW QUALITY	96% agreement on A classification, 92% for Group B, and 75% in Group C. K=1, n=12	57% (2 weeks apart) K=1, n=12

k=number of studies, N=number of participants used for reliability measure
ICC: intra-class correlation,
**p<0.05 to <0.001*
Green=strong association. Yellow= significant but moderate association

7.2.11 Summary of evidence tables for CARE-Index

Table 133: CARE-Index versus attachment: convergent validity

	Sensitivity versus attachment SSP	Sensitivity versus Attachment story completion task
Crittendon 1984 Attachment A,B,C,A/C k=1, n=121 LOW QUALITY	<24 months old Mothers: sensitivity, control, unresponsiveness p=0.04 to 0.001	
	>24 months old Sensitivity p=0.05	
	Control, unresponsiveness =ns	
Fuertes 2009 LOW QUALITY	Likelihood ratio = 42.18* k=1, n=48	
Goodman 1988 MODERATE QUALITY		Co-efficient = 0.21* k=1, n=93

	Sensitivity versus attachment SSP	Sensitivity versus Attachment story completion task
Künster 2010 MODERATE QUALITY		r=0.523* k=1, n=64

*p<0.05 to <0.001
k=number of studies, N=number of participants. A,B.C, A/C =attachment categories
Green=strong association. Yellow= significant but moderate association

Table 134: CARE-Index versus Maternal Sensitivity Scale: concurrent validity

	Sensitivity versus sensitivity (Ainsworth)
Valenzuela 1997 LOW QUALITY	NS correlations k=1, n= 127

k=number of studies, N=number of participants, NS=non-significant

Table 135: CARE-Index: construct validity

	CARE Index Abused and non-abused
Crittendon 1984 N=121 LOW QUALITY	< 25 months old abused versus non-abused cooperation p=0.000 compulsive compliance p=0.000
	difficultness NS passivity NS
	children >24 months old abused versus non-abused , cooperation p=0.017 compulsive compliance p=0.023 passivity p=0.034
	difficultness p =0.056

NS=non-significant, green=strongly able to distinguish

Table 136: CARE-Index: predictive validity

	Predictive validity Sensitivity
Valenzuela 1997 MODERATE QUALITY	β=0.03 NS k=1, n= 71

NS=non-significant

Table 137: CARE-Index: Inter and intra-rater reliability

	Agreement between observers	Intra-rater reliability Within same person
Crittenden 1984 LOW QUALITY	82%* K=1, N=13	
Fuertes 2009 LOW QUALITY	κ = 0.87* K=1, N=16	
Goodman 1988	r=0.81 to 0.90*	

	Agreement between observers	Intra-rater reliability Within same person
MODERATE QUALITY	K=1, n=19	
Künster 2010 MODERATE QUALITY	r = 0.925 (0.780-0.980). * K=1, N=10	
Valenzuela 1997 LOW QUALITY	r=0.9 k=1, n=127	87% over 6 months* K=1, n= 127

K=number of studies N=number of observations (sub-sample)
**p<0.05 to <0.001*

7.2.732 Maternal Behaviour Q-sort (MBQS)

Table 138: Maternal Behaviour Q-sort versus attachment score: Convergent validity

	BMQS versus SSP attachment	BMQS versus AAI attachment	BMQS versus Attachment Q sort
Bailey 2007 LOW QUALITY	√ Disorganised versus secure or avoidant p <0.01	√Unresolved versus dismissing or autonomous, p<0.01	
Behrens 2011 LOW QUALITY	√ Avoidant versus secure, resistant, disorganised p<0.001		
Kim 2009 LOW QUALITY			r =0.417*
Lindheim 2011 MODERATE QUALITY		r =0.55* autonomous versus non	
Moran 1992 MODERATE QUALITY			r=0.49*
Pederson 1990 LOW QUALITY			r =0.52*
Pederson 1995 + 4mo MODERATE QUALITY			r=0.61*(observer) r=0.30* (mother)
Pederson 2014 LOW QUALITY			r=0.65* Secure versus insecure
Posada 1997 VERY LOW QUALITY			r =0.48* Secure versus insecure
Posada 2007 LOW QUALITY			r=0.31*
Whipple 2011 MODERATE QUALITY		r=-0.31* dismissing + sensitivity; r=-0.07 NS preoccupied/unresolved + sensitivity	

k=number of studies, N=number of participants
*r=correlation, * p<0.05 to <0.001*
Green=strong association between tool and sensitivity. Yellow= significant but moderate association between tool and sensitivity

Table 139: Maternal behaviour Q sort versus ASS, MBQS: concurrent validity

	Sensitivity versus sensitivity tool	Tool
Moran 1992 MODERATE QUALITY	r=0.55* k=1, n=19	Ainsworth Maternal Sensitivity Scale
Tarabulsy 2009 MODERATE QUALITY	r=0.35* k=1, n=40	MBQS short version versus full version

k=number of studies, N=number of participants
*r=correlation, * p<0.05 to <0.001*
Green=strong association between tool and sensitivity. Yellow= significant but moderate association between tool and sensitivity

Table 140: Maternal behaviour Q sort: predictive validity

	Sensitivity	Future outcome
Tarabulsy 2009 MODERATE QUALITY	r=0.34* k=1, n=40	Attachment 15 months
Tarabulsy 2009 MODERATE QUALITY	r=0.48* k=1, n=40 Short form	Developmental status Bayley 10+15mo
Tarabulsy 2008 MODERATE QUALITY	r=0.31* k=1, n=127	Attachment 15 months

k=number of studies, N=number of participants
*r=correlation, * p<0.05 to <0.001*
Green=strong association between tool and sensitivity. Yellow= significant but moderate association between tool and sensitivity

Table 141: Maternal Behaviour Q-sort: Reliability

	Inter-rater	Mother versus observer	Test re-test over time
Bailey 2007 LOW QUALITY	r=0.67 (SD .20)* n=36		
Behrens 2011 LOW QUALITY	r=0.89* n=26		
Kim 2009 LOW QUALITY		r=0.76 n=20	
Lindheim 2011 MODERATE QUALITY	r=0.84* n=25		r=0.49* n=25
Moran 1992 MODERATE QUALITY	r=0.97* n=13		
Pederson 1990 LOW QUALITY	r=0.75* n=40	r=0.57* n=40	
Pederson 1995 MODERATE QUALITY	r=0.94 (8 m) r=0.95 (12m)		r=0.71* n=89
Pederson 2014 LOW QUALITY	ICC = 0.82* n=12		

	Inter-rater	Mother versus observer	Test re-test over time
Posada 1999 VERY LOW QUALITY	r= 0.66 to 0.94*n=41		
Posada 2007 LOW QUALITY	r=0.83 (0 .69 – 0.93)* n=10		
Tarabulsy 2009 MODERATE QUALITY	r=0.94* n=10 Short form		
Tarabusly 2008 MODERATE QUALITY	r=0.86 to 0.91* n=29		r=0.43* n=129
Whipple 2011 MODERATE QUALITY	ICC = 0.89* n=10		

k=number of studies, N=number of participants
*r=correlation, * p<0.05 to <0.001*
Green=strong association between tool and sensitivity. Yellow= significant but moderate association between tool and sensitivity

7.2.8 Economic evidence

No economic evidence on measurements/tools used to predict children and young people at risk of developing attachment difficulties was identified by the systematic search of the economic literature undertaken for this guideline. Details on the methods used for the systematic search of the economic literature are described in Chapter 3.

7.2.9 Clinical evidence statements

7.2.9.1 Ainsworth Maternal Sensitivity Scale

- Moderate to low quality evidence from 3 studies (n=1036) showed the Ainsworth Maternal Sensitivity Scale is moderately to strongly associated with Strange Situation Procedure Attachment scores. Thus, the Ainsworth Maternal Sensitivity Scale demonstrates convergent validity with attachment.
- Moderate quality evidence from 1 study (n=19) showed the Ainsworth Maternal Sensitivity Scale is moderately associated with Attachment Q-sort attachment scores. Thus, the Ainsworth Maternal Sensitivity Scale demonstrates convergent validity with attachment.
- Moderate quality evidence from 1 study (n=19) showed the Ainsworth Maternal Sensitivity Scale is moderately associated with another sensitivity scale, Maternal Behaviour Q-Sort. Thus, the Ainsworth Maternal Sensitivity Scale may demonstrate concurrent validity with another sensitivity scale.
- Low quality evidence from 1 study (n=127) showed the Ainsworth Maternal Sensitivity Scale is not associated with another sensitivity scale, CARE-Index. Thus, the Ainsworth Maternal Sensitivity Scale may not demonstrate concurrent validity with another sensitivity scale.
- Low quality evidence from 1 study (n=127) showed the Ainsworth Maternal Sensitivity Scale is able to distinguish very well between the sensitivity scores of infants who fail to make appropriate weight gains compared with mothers of infants who are normal weight (all infants were anxious attached. Thus, the Ainsworth Sensitivity Scale is able to demonstrate construct validity.

- Moderate quality evidence from 1 study (n=71) showed the Ainsworth Maternal Sensitivity Scale is able strongly predict attachment scores 6 month later using the Strange Situation Procedure. Thus, the Ainsworth Maternal Sensitivity Scale is able to demonstrate predictive validity.
- Moderate quality evidence from 1 study (n=71) showed the Ainsworth Maternal Sensitivity Scale is associated with attachment measured 24 months later using the Attachment Story Completion Task. Thus, the Ainsworth Maternal Sensitivity Scale is able to demonstrate predictive validity
- Low to moderate quality evidence from 5 studies (number of observations >62) showed very good agreement between the scores generated by 2 or more different observers of the same participant using the Ainsworth Maternal Sensitivity Scale. Thus, the Ainsworth Maternal Sensitivity Scale demonstrates very good inter-rater reliability.
- Low quality evidence from 1 study (n=23 observations) showed the Ainsworth Maternal Sensitivity Scale has poor test-retest validity when the same children are measured 2 weeks apart. Thus, the Ainsworth Maternal Sensitivity Scale may be unable to demonstrate test re-test.

7.2.9.2 CARE-Index

- Low quality evidence from 2 studies (n=169) showed CARE-Index is strongly to moderately associated with Strange Situation Procedure Attachment scores. In 1 study, the mothers of infants <24 months old, their CARE-Index scores strongly associated with attachment. However, for mothers of infants >24 months only 1 of the 3 CARE-Index scores was moderately associated with attachment score. The other 2 scores were non-significant. The other study showed a high likelihood ratio (>10) which indicates that the tool can be used to detect the presence of attachment difficulties. Thus, the CARE-Index demonstrates convergent validity with attachment using the SSP.
- Moderate quality evidence from 2 study (n=157) showed the CARE-Index is moderately associated with Attachment Story Completion Task attachment scores. Thus, the CARE-Index demonstrates convergent validity with Attachment Story Completion Task.
- Low quality evidence from 1 study (n=127) showed the CARE-Index is not correlated with another sensitivity scale, the Ainsworth Maternal Sensitivity Scale. Thus, the CARE-Index is not able to demonstrate concurrent validity.
- Low quality evidence from 1 study (n=121) showed the CARE-Index is able to distinguish between the behaviour of infants who have been abused versus not -abused. For infants <25 months old the behaviour was different in 2 out of the 4 patterns of behaviour (on CARE-Index) between abused and non-abused infants. For infants older than 25 months, the behaviour was different in 3 out of the 4 patterns of behaviour (on CARE-Index) between abused and non-abused infants. Thus, the CARE-Index is able to demonstrate construct validity.
- Moderate quality evidence from 1 study (n=71) showed the CARE-Index is not associated with attachment measured 36 months later using the Attachment Story Completion Task. Thus, the CARE-Index is not able to demonstrate predictive validity.
- Low to moderate quality evidence from 5 studies (number of observations=1858) showed very good agreement between the scores generated by 2 or more different observers of the same participant using the CARE-Index. Thus, the CARE-Index demonstrates very good inter-rater reliability.
- Low quality evidence from 1 study (number of observations=127) showed very good agreement in the scores generated by the same observer of the same participant using the CARE-Index. Thus, the CARE-Index demonstrates very good intra-rater reliability.

7.2.9 Maternal Behaviour Q-sort (MBQS)

- Low quality evidence from 2 studies (n=173) showed the MBQS is strongly associated with Strange Situation Procedure attachment scores. Thus, the MBQS demonstrates convergent validity with Attachment Story Completion Task.
- Low to moderate quality evidence from 3 studies (n=195) showed the MBQS is weakly associated with Adult Attachment Interview attachment scores. One result showed a strong association, 2 results showed a moderate association and 1 showed a non-significant association. Thus, the MBQS demonstrates weak convergent validity with Adult Attachment Interview.
- Very low to moderate quality evidence from 7 studies (n=380) showed the MBQS is moderately associated with Attachment Q-sort scores. Thus, the MBQS demonstrates convergent validity with Attachment Q-sort.
- Moderate quality evidence from 2 studies (n=59) showed the MBQS is moderately associated with the Ainsworth Maternal Sensitivity Scale and the results from the short version MBQS. Thus, the MBQS demonstrates good concurrent validity.
- Moderate quality evidence from 2 studies (n=167) showed the MBQS is moderately able to predict attachment scores 6 to 10 months later and developmental status using the Bayley score 6 months later. Thus the MBQS demonstrates good predictive validity.
- Very low to moderate quality evidence from 12 studies (n=340 observations) showed very good agreement between the scores generated by 2 or more different observers of the same participant using the BMQS. Thus, the MBQS demonstrates very good inter-rater reliability.
- Low quality evidence from 2 studies (n=60 observations) showed moderate to very good agreement between the scores generated by the mother and trained observer of the same participant using the BMQS. Thus, the MBQS demonstrates good inter-rater reliability.
- Moderate quality evidence from 3 studies (n=267 observations) showed moderate to very good agreement in the results of the same individual measured over time using the MBQS. Thus, the MBQS demonstrates test re-test reliability.
-

7.2.10 Economic evidence statements

No economic evidence on measurements/tools used to predict children and young people at risk of developing attachment difficulties is available.

7.3 Recommendations and link to evidence

Recommendations	28. Consider using a parental sensitivity tool, for example the Ainsworth Maternal Sensitivity Scale, to guide decisions on interventions for children and young people who have or may have attachment difficulties and to monitor progress,
Relative values of different outcomes	To predict children and young people at risk of developing attachment difficulties, the GC agreed that maternal insensitivity is a strong predisposing risk factor for the development of attachment difficulties. For this reason, tools that measured maternal (or paternal) sensitivity were reviewed. The GC selected 3 key tools to review: Ainsworth Maternal Sensitivity Scale, CARE-Index and the Maternal Behaviour Q-Sort.

	To capture the validity and reliability of these tools, the GC agreed that sensitivity and specificity were of critical importance. Other outcomes of lesser importance but still relevant were; concurrent validity, convergent validity, construct validity, content validity, predictive validity and discriminant validity. Important reliability measures included: intra-tester, inter-tester, and test re-test reliability.
Trade-off between clinical benefits and harms	The results of this review show that the Ainsworth Maternal Sensitivity Scale is able to demonstrate convergent validity. In other words at the same point in time, maternal sensitivity appears to correlate with parent—child attachment. This tool can also distinguish between the maternal sensitivity of the parents of children at high risk versus low risk of attachment difficulties (that is, normal versus low birth weight). The Ainsworth Maternal Sensitivity Scale is only moderately associated with another sensitivity scale, Maternal Behaviour Q-Sort, but not associated with the CARE-Index. However, a strength of this tool is that it predicts attachment difficulties 6 to 24 months later. Thus showing maternal sensitivity at 1 time point in time is able to predict future difficulties in the relationship between the mother and child. The results of the Ainsworth Maternal Sensitivity Scale are also repeatable between assessors, but test re-test results suggest maternal sensitivity may change as soon as 2 weeks later. The CARE-Index is able to demonstrate reasonable convergent validity. The sub-scales of the CARE-Index are related to attachments scores (measured by the Strange Situation Procedure) if the child is under 24 months of age, but less well if the child is older than 24 months of age. It also showed a moderate association with another attachment tool, suggesting that at that same point in time maternal sensitivity may reflect attachment difficulties in the child. It was also able to distinguish between the maternal sensitivity of parents who abused versus those who did not abuse their children. The CARE-Index did not compare well to the Ainsworth Maternal Sensitivity Scale, nor did it show good predictive validity of attachment difficulties 36 months later. However, the agreement between observers was very good and within the same observer. The Maternal Behaviour Q-Sort showed a strong association with attachment scores using the SSP, but less so with the Adult Attachment Interview and the Attachment Q-sort. It also showed reasonable similarities with the results achieved using a different sensitivity tool (Ainsworth Maternal Sensitivity Scale and MBQS-short form). It is worth noting that the short form compares well with the long-version. Since the long version can take hours, the short version may be a good alternative. The strength of the Maternal Behaviour Q-Sort is that it reasonably predicts long-term behaviour of the child, it showed good predictive validity for attachment 6 to 10 months later and developmental status 6 months later. This is important since it shows maternal sensitivity may help identify children at risk of attachment difficulties at a later time and thus provide a window

	of opportunity to intervene. The inter-rater reliability was very strong, thus showing the results are reliable. Interestingly the results from the mother correlated reasonably well with a trained observer, suggesting the mothers may be able to objectively assess their relationship with their child. The tool is also reasonably stable showing similar results in the mother's sensitivity over time. In summary, all 3 had reasonable psychometric characteristics however more data is needed on the sensitivity and specificity of these tools.
Trade-off between net health benefits and resource use	The GC expressed the view that the use of parental sensitivity tools to predict children and young people with attachment difficulties has important resource implications. The use of such tools would allow better prediction (and thus more timely and effective management) and potentially prevention of attachment difficulties. The GC considered the administration costs of such tools to be negligible (since these would be administered only on the parents of children and young people who are on the edge of care) considering long-term costs associated with attachment difficulties including poorer mental health, behavioural problems, and placement into care costs. Also, children with attachment difficulties have poorer employment and education outcomes, and higher involvement with the criminal justice sector. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice sector costs, and society as a whole. The GC also noted that prediction of attachment difficulties would have consequences on parents' mental and emotional wellbeing too (for example development of depression and anxiety); these are likely to be substantial, making the use of such tools an even better investment.
Quality of evidence	The evidence for this review ranged from very low to high quality. The evidence was downgraded because of potential risks of bias in recruiting the sample population, for instance it was often unclear what exclusion criteria was used or if they matched cases with controls. Studies were also downgraded if the tools were poorly described in the paper, therefore making it difficult to replicate. Most of the studies that compared 2 tools, that is, 2 sensitivity tools, carried out both measurements in a short period time, therefore minimising the likelihood that the mother and infants' behaviour changed during that time. However, in some papers it was unclear how much time had passed between the 2 measures. The majority of the studies had the assessors blind to the results from the other tests, so there was less bias in scoring the mother's behaviour. None of the studies reported data on the critical outcomes sensitivity and specificity. These measures are critical for knowing how likely the tools will provide false positive or false negative results (respectively), thus how likely will they over- or under-diagnose the population. The size of the studies also varied greatly, the average size was 67 participants (from 19 to 127). Approximately one third of the studies included low-risk populations resulting in a small number of participants who would have been diagnosed with low

	maternal sensitivity. This would have weakened the statistical analysis and increased the risk of possible false positives. Populations considered high risk in this review included: adolescent mothers, low birth weight babies, children who had been abused and families of low socio-economic status. The 3 sensitivity tools were applicable to parents of children up to 6 years of age. None of the studies used the tools to assess maternal sensitivity between parents and older children. Hence a limitation with these tools is that they are only appropriate for pre and primary school-aged children. How well the 3 sensitivity tools can be used in other populations is unclear. None of the studies validated the tools in fathers and only 1 study reported the use of Ainsworth Maternal Sensitivity Scale in Latin American populations; most studies used White populations. Nor did any of the studies validate the use of the tools in other settings, that is, foster carers or adoptive parents.
Other considerations	The GC discussed the importance of measuring maternal sensitivity before embarking on an intervention. They agreed that health care workers may want to consider measuring maternal sensitivity because: 1) maternal insensitivity is a risk factor for attachment difficulties; 2) it is difficult to get people to use attachment tools because they are labour intensive, therefore sensitivity tools are more likely to be used in practice; 3) it may be easier to detect improvements in maternal sensitivity compared with attachment difficulties; 4) sensitivity may be a useful measure for the courts; 5) the timing required to train health care workers is no more intensive than the tools used to measure attachment; 6) it may be a useful tool for considering whether a carer should adopt the child. Of the 3 tools reviewed, the Ainsworth Maternal Sensitivity Scale is freely available and is more widely used compared with the CARE-Index and Maternal Behaviour Q Sort. The GC discussed the importance of training before using any sensitivity tool. A psychology degree is not required to perform any of the tests. The GC discussed that in the absence of health economics a weaker recommendation should be made, that is, to consider using a parental sensitivity tool rather than measure sensitivity. It is unlikely that a sensitivity tool will be used to screen the population to ascertain who is at risk of having attachment difficulties because of the expense and impracticality. The GC discussed that before embarking on an intervention, attachment is still the most important outcome to measure. However, many clinicians may also wish to consider measuring maternal sensitivity. The GC suggested that more research is needed to develop a new or existing tool that is both practical and has strong psychometric qualities. It is likely that there is a short window of opportunity to intervene from when the parent is insensitive to when the child develops attachment difficulties. Therefore, the sensitivity tool is relevant and should have strong psychometric properties.

	The GC also felt the 3 tools used in this review need to be validated in biological parents and foster carers/adoptive parents across all age groups (children). Sensitivity and specificity data also needs to be captured and more data on the predictive validity of the tools. This is important so that the long-term prognosis of the children can be estimated, that is, the likelihood that their relationship with their primary care-giver will develop into attachment difficulties. The tool that had the most practical use in a clinical setting was the CARE-Index because sensitivity is assessed from a 3-5 minute play scenario. However, the GC criticised this tool because 'distressed' situations could be missed, thereby affecting it's reliability. The GC mentioned that recent modifications include introducing a stressor to the scenario in order to capture the child's desire to seek out their mother (similar to the strange situation procedure). No data on this was identified. The GC also acknowledged test re-test data is needed for the CARE-Index to ensure the true nature of mother and child's relationship could be captured in a short 3-5 minute episode. The GC questioned the usefulness of the Maternal Behaviour Q-sort. The age group it is used for was from 8 months to 4 years of age, however it is unclear if it is equally effective across all ages. The length of time to administer was also questioned as it varied from 40 minutes to 2 hours. It is unlikely that coding time was included in these estimates, thus making it an impractical tool to use in clinical settings. Cost implications of administering 2-hour observations were queried. However, if the tools could be administered whilst carrying out other duties, it may help with costs. Training also needs to be considered when calculating the costs of recommending a sensitivity tool (or any tool for that matter). The GC wanted new studies to address questions such as: do the tools capture a window of opportunity to intervene? How long from the insensitive behaviour from the mother will attachment difficulties in the child become apparent? Is there only 1 trajectory, that is, once attachment becomes a problem, will it remain that way or can it be reversed? How well does the tool measure the relationship between the child and their new carer?

8 Identification and assessment of attachment difficulties

8.1 Introduction

The attachment needs of all children and young people, including those who are adopted, looked after or at the edge of care, are to form secure attachments. Attachment patterns and difficulties in children and young people are largely determined by the nature of the caregiving they receive. Attachment patterns can be adaptations to the caregiving that they receive from all primary caregivers, including birth parents, foster carers, kinship carers and adoptive parents. Repeated changes of primary caregiver, or neglectful and maltreating behaviour from primary caregivers who persistently disregard the child's attachment needs, are the main contributors to attachment difficulties.

Attachment difficulties include insecure attachment patterns and disorganised attachments that often develop into coercive controlling or compulsive caregiving, as well as those difficulties that are categorised as attachment disorders in DSM-5 (reactive attachment disorder [RAD] and disinhibited social engagement disorder [DSED]) and ICD-10 (reactive attachment disorder and disinhibited attachment disorder).

Identification therefore implies finding those children whose attachments are insecure or disorganised, and children who have an attachment disorder. Children in situations of alternative permanent care are far less likely to have secure attachments, as the majority of these children have experienced disruptions of care, and have been maltreated. Physical and emotional abuse and neglect are strongly associated with insecure and disorganised attachment (Cicchetti and Barnett 1991).

The behavioural pattern of children with DSED has been well described in DSM-5:
A pattern of behaviour in which the child actively approaches and interacts with unfamiliar adults by exhibiting at least 2 of the following:

- Reduced or absent reticence to approach and interact with unfamiliar adults.
- Overly familiar behaviour (verbal or physical violation of culturally sanctioned social boundaries).
- Diminished or absent checking back with adult caregiver after venturing away, even in unfamiliar settings.
- Willingness to go off with an unfamiliar adult with minimal or no hesitation.

This chapter reviews the measurements and tools used in the identification and assessment of attachment difficulties first (see Section 8.2) and attachment disorders second (see Section 8.2.4).

8.2 Review question: What measurements/tools can be used to identify/assess attachment difficulties in children and young people? How valid and reliable are they?

The review protocol summary, including the review question and the eligibility criteria used for this section of the guideline, can be found in Table 142**Table 13**. A complete list of review questions can be found in Appendix F. Further information about the search strategy can be found in Appendix H; the full review protocols can be found in Appendix F.

Table 142: Clinical review protocol summary for the review of what measurements/tools can be used to identify/assess attachment

difficulties/disorders in children and young people? How valid and reliable are they?

Component	Description
Aim of the review	To identify valid and reliable tools to identify/assess attachment difficulties/disorders
Population	Infants, children and young people aged 0–18 years **Settings** • adopted, including those adopted from abroad • looked after children in the care system • on the edge of care • other low risk settings **Strata** • toddlers (1-4 years) • pre/early school age (4-7 years) • older children (7-15 years) • children (+15 years)
Intervention(s)	**Tools considered for identifying attachment difficulties** • Strange Situation Procedure • Attachment Q-sort • Cassidy and Marvin Preschool Attachment Coding System • Preschool Assessment of Attachment • Manchester Child Attachment Story Task • MacArthur Story Stem Battery • Child Attachment Interview • Separation Anxiety Test • School-age Assessment of Attachment • Adult Attachment Interview **Tools considered for identifying attachment disorders** • Disturbances of attachment Interview (DOI)-RAD • Preschool Age Psychiatric Assessment (PAPA)- Research Diagnostic criteria • DSM-IV • ICD-10
Comparison	Any other (reference) tool from the above list
Critical outcomes	Sensitivity and Specificity
Other important outcomes	**Validity** • Convergent validity • Discriminant validity • Construct validity • Predictive validity • Concurrent validity **Reliability** • Inter-rater reliability • test-retest reliability • Internal stability
Study design	RCTs, cohort, cross-sectional, case-control studies

8.2.1 Definition of tools used to identify attachment difficulties

The GC selected a set of tools used to identify attachment difficulties based on their expert clinical judgement which formed the basis of this review.

The following tools were included:

- Strange Situation Procedure
- Cassidy and Marvin Preschool Attachment Coding System
- Preschool Assessment of Attachment
- Attachment Q-sort
- Manchester Child Attachment Story Task
- MacArthur Story Stem Battery
- Child attachment interview
- Separation Anxiety Test
- School-age Assessment of Attachment
- Adult Attachment Interview

For ease of presentation, the tools are organised within the following different age ranges: infants and toddlers aged 1-4; children aged 4-7 years; children aged 7-15 years; children aged 15 years and above. Further details about the characteristics and psychometric properties of each instrument can be found in Table 143.

8.2.1.1 Children aged 1-4 years

8.2.1.1.1 The Strange Situation Procedure (SSP, Ainsworth and Witting, 1969)

The Strange Situation Procedure (Ainsworth & Wittig, 1969a) identifies patterns of attachment that infants between the ages 12-18 months have formed with their mothers/caregivers. The procedure to elicit these consists of 3 minute intervals of separation and reunion of an infant with the mother/primary caregiver (not staff member) and introduction of stranger. Interactions are coded according to level of exploratory behaviour exhibited, distress on separation and behaviour at reunion. Ainsworth described the types of attachment children had to their mothers, defining these as secure (type B), or insecure, including the subtypes anxious ambivalent (type C) and anxious avoidant (type A). A forth category for disorganised attachment (type D) was later added to describe diverse behaviour patterns that were disorganised or disorientated.

8.2.1.1.2 Modifications to the Strange Situation Procedure

Two systems of coding attachment during toddler and preschool age have been devised which are both are based on the assumption that the nature of attachment will change as a function of the child's changing capabilities.

Preschool Assessment of Attachment (PAA, Crittenden 1992)

The Preschool Assessment of Attachment (Crittenden, 1992)is a modification of the Strange Situation that accommodates children's ability to walk, talk, and open doors; there are 5 sub-classifications: the traditional secure category (B), and 2 insecure classifications (defended and coercive), as well as a D classification and an A-C classification. It assesses a child's self-protective strategy in a specific attachment relationship, indicating whether the child identifies the parent as a source of danger or protection or both and what strategy he or she used for self-protection.

Cassidy and Marvin Preschool Attachment Coding System (C-M, Cassidy and Marvin 1990)

The Cassidy and Marvin Coding System (Cassidy & Marvin, 1988) is a reclassification of Ainsworth extended method video. There are 6 sub-classifications: Secure (Type B); 2 types of insecure avoidant (Type A) and insecure ambivalent (Type C); and a D classification that consists of insecure other, controlling punitive, controlling general classifications.

8.2.1.113 Attachment Q- Sort(AQS, Waters and Deane, 1985)

The attachment Q-Sort (Waters & Deane, 1985)utilises Q-Sort methodology. It consists of 100 behavioural description intended to cover the spectrum of attachment related behaviours including the secure base and exploratory behaviours, affective responses and the social cognition of children between 12 and 48 months of age. The items are sorted into 9 piles according to a predefined distribution to provide a summary of an infant's attachment-related behaviour as observed during 2 – 3 hour home visits. Q-sort observers thus describe the infant's behaviour in terms of an array of 100 scores. There is a particular issue with the AQS relating to the sort. The AQS can be used to describe the child's attachment relationship by trained observers, but also by the parent or caregiver who is part of the relationship. The presence of the observer in the family may influence the parent–child interaction. The amount of time an observer can spend in the family is limited, and so is access to attachment-relevant situations and events. The care-giver may be subject to more response-biases because of their own involvement in the attachment relationship

8.2.1.152 Children aged 5-7

8.2.1.261 Manchester Child Attachment Story Task (MCAST, Green 2000)

The Manchester Child Attachment Story Task (Green et al., 2000) is a doll-play story stem technique which seeks to measure attachment patterns in middle childhood. Children between the ages of 5 and 7 are given the beginnings of 4 stories ('story stems') using a dolls house, each containing an attachment-related theme: the child waking following a nightmare, the child injuring him/herself, the child becoming ill and lost whilst out shopping. The interviewer will play out the scenario initially until the child becomes interested and involved; at this point the interviewer asks the child 'what happens next?' The assessment is recorded and how the child plays out the story thereafter is coded based on both Strange Situation and Adult Attachment Interview codes and the child is assigned an attachment classification (Green et al., 2000). The MCAST has good inter-rater reliability, stability of attachment patterns over time.

8.2.1.282 MacArthur Story Stem Battery (MSSB, Bretherton, 1990; 2003)

The MacArthur Story Stem Battery (Bretherton et al., 1990) is usually used with children aged 4 to 8 and uses doll play to assess children's representations of relationships. The process of this includes telling a child the scripted stem of a story, using simple dolls as props. The child is asked to 'show and tell' the clinician 'what happens next'. The child's completion of each scenario is recorded on video and analysed later by a trained evaluator using a scoring template. There are between 8 -12 scenarios used; each stems depicting a range of moral and relationship dilemmas. This tool has been used widely in both clinical work and research, including studies of the internal representations of children from normative samples, maltreated children, children exposed to parental conflict and children with disruptive behavioural disorders. It has been shown to predict behaviour problems and anxiety in children.

8.2.1.413 Children aged 7-15

8.2.1.421 The Child Attachment Interview (CAI, Shmueli-Goetz 2008))

The Child Attachment Interview (Shmueli-Goetz et al., 2008) is a 19 question, semi-structured interview that assesses children's mental representations of attachment figures. The CAI interview includes questions about children's experiences with memories and perceptions of their caregivers. These focus on situations in which the attachment system is presumed to be activated (for example, emotional upset, illness, injury, separation). The CAI is based on the Adult Attachment Interview and therefore it assesses the affective nature of

the relationship and the quality of the child's response. As with other interviews it is videotaped for coding. Research suggests the interview works with children aged 8–12 years.

8.2.1.3.2 Separation Anxiety Test (SAT, Hansburg 1972)

The SAT (Hansburg, 1972) is a semi-projective representational test in which children are shown a number of pictures depicting separations between a child and his/her parent(s). The child is asked a series of questions designed to elicit emotional narratives. Following this the child's response are coded according to a criteria for securely attached, self-reliant and avoidant responses. The original SAT was used with adolescents and has been adapted and revised over the years, including by Klagsbrun & Bowlby (1976) for use with 4-7-year-olds, and Slough & Greenberg (1990) to score the SAT based on 4 attachment scales.

8.2.1.3.3 The School-age Assessment of Attachment (SAA, Crittenden et al2010)

The SAA (Crittenden et al., 2010) consists of cards, such as those used by the SAT, which address threats that school-aged children frequently face or imagine facing. These include: going out alone, being rejected by one's best friend, moving to a new area, being bullied, having the father leave home, running away, and mother going to hospital. For each story, the child gives the sequence of events and the child's feelings, thoughts about attachment figures' thoughts and feelings, and reasons why the child did what he or she did and ideas about what they might do in the future. The interview is audiotaped and transcribed. The grading is based on comments made by the children relating to markers in 6 memory systems. These markers are derived from the method for analysing the Adult Attachment Interview (Crittenden, 1999a) and adapted to fit the speech patterns of school-aged children.

8.2.1.4 Children aged 15 and older

8.2.1.4.1 Adult Attachment Interview (AAI, George, Kaplan and Amin, 1985)

The Adult Attachment Interview (George et al., 1985) is an hour-long semi-structured interview that focuses on childhood and current relationships with attachment figures and attachment-related traumas such as abuse, and loss of significant persons through death.

8.2.2 Definition of outcomes for the review on identification of attachment difficulties

8.2.2.1 Critical outcomes

To assess how valid the identification tools are in measuring attachment difficulties, specificity and sensitivity were considered the critical outcomes to extract. Sensitivity, also called true positive rate, measures the proportion of actual positives which are correctly identified as such and is complementary to the false negative rate. Specificity, also called the true negative rate, measures the proportion of negatives which are corrected identified as such.

8.2.2.2 Important outcomes

Important outcomes that were extracted if reported included concurrent validity, convergent validity, construct validity, content validity, predictive validity and discriminant validity.

Concurrent validity is demonstrated when 1 tool correlates well with another tool, that ideally has been previously validated. For example, comparing a new sensitivity tool (reference tool) with a gold-standard (index tool). The outcome may be reported as a correlation or an analysis of variance.

Convergent validity can be established if 2 similar constructs correspond with one another. Or if 2 constructs that theoretically should be related, are in fact related. For example,

comparing an attachment tool with a sensitivity tool. The outcome may be reported as a correlation, likelihood ratio, beta-coefficient or an analysis of variance.

Construct validity assesses how well a tool can detect significant differences in a case-control study. For example, comparing sensitivity scores in a high versus low risk-populations. Otherwise known as the known-groups method. The outcome may be reported as a correlation or an analysis of variance.

Content validity refers to how accurately a tool taps into the various aspects of the specific construct in question. In other words, do the questions really assess the construct in question, or are the responses influenced by other factors? It is often measured by relying on the knowledge of people who are familiar with the construct. For example, if a tool is designed to measure maternal sensitivity, a group of sensitivity-experts would evaluate each question and rate how well the wording of each question taps into maternal sensitivity.

Predictive validity is a type of validity that examines a measure's ability to predict some subsequent event. For example, does the result from a sensitivity tool predict the attachment behaviour of a child more than 6 months into the future? The outcome may be reported as a beta-co-efficient, ideally adjusting for potential confounders.

Discriminant validity examines the extent to which a measure correlates with measures of attributes that are different from the attribute the measure is intended to assess. A successful evaluation of discriminant validity shows the results of 1 test is not correlated with another tool designed to measure a theoretically different concept. For example, a sensitivity tool is not associated with an outcome such as narcissism.

Other important outcomes that were extracted if reported included reliability data:

Inter-rater reliability determines the extent to which 2 or more raters obtain the same result when using the same instrument to measure a concept. For this review a result greater than r ≥=.70 was considered a reliable.

Intra-rater reliability is when the same assessment is completed by the same rater on 2 or more occasions. These different ratings are then compared, generally by means of correlation. Since the same individual is completing both assessments, the rater's subsequent ratings are contaminated by knowledge of earlier ratings. For this review a result greater than r ≥=.70 was considered a reliable.

Test-retest reliability- stability of the instrument as shown by the correlation between test scores in the same group of participants across 2 different occasions. The 2 scores are then assessed for consistency, as a score r ≥=.70 was considered reliable for this review. This method of reliability is only appropriate if the phenomenon that the scale measures (that is, sensitivity) is known to be stable over the interval between assessments.

Internal consistency reflects the extent to which items of a test measure various aspects of the same characteristic and nothing else. Internal consistency coefficients can take on values from 0 to 1. Higher values represent higher levels of internal consistency.

8.2.3 Clinical evidence

8.2.3.1 Studies considered

For this review question, the GC selected an existing Health Technology Appraisal (HTA): Wright 2014 as the basis of this review. The HTA report focussed on the concurrent validity of 1 tool with another tool and included studies where tools available to screen, assess and/or diagnose attachment difficulties were compared against each other. The review excluded studies which had single measures of attachment difficulties without comparison to

other instruments. If raw data was available in a comparison between a reference standard and another instrument concurrently, sensitivity and specificity was calculated.

The following tools relevant to the current review were included in the HTA report:

- Strange Situation Procedure
- Attachment Q-sort
- Pre-school Assessment of attachment
- Cassidy-Marvin Coding System
- Manchester Child Attachment Story Task
- Child Attachment Interview

The following tools relevant to the current review were not included in the HTA report:

- The School-age Assessment of Attachment
- The MacArthur Story Stem Battery
- Adult Attachment Interview

The School-age Assessment of Attachment and The MacArthur Story Stem Battery were not included in the HTA review as no studies were identified which included a comparison tool. The Adult Attachment Interview was not included as the review only selected studies where the average age of the child was 13 years or below.

The HTA report identified 35 studies which met their inclusion criteria; of these there were 14 studies which reported data comparing at least 2 of the included tools in this review and therefore met the inclusion criteria for the current review Boris 2004 (Boris et al., 2004), Crittenden 2007 (Crittenden et al., 2007), Fagot 1996 (Fagot & Pears, 1996), Goldwyn 2000 (Goldwyn et al., 2000), Mangelsdorf 1996 (Mangelsdorf et al., 1996), Minnis 2009 (McLaughlin et al., 2010 ; Minnis et al., 2009), Minis 2010 (Minnis et al., 2010), Posada 2006 (Posada, 2006), Shmueli-Goetz 2008 (Shmueli-Goetz et al., 2008), Smeekens 2009 (Smeekens et al., 2009), Spieker 2010 (Spieker & Crittenden, 2010), Tarabulsy 1997 (Tarabulsy & Moran, 1997), Van Dam, 1988 (Van Dam & Van IJzendoorn, 1988), Vaughn 1990 (Vaughn & Waters, 1990). 16 studies from the HTA report were excluded from the current review. The main reason was because the study did not compare 2 tools which on the list for the current review. See Appendix M for the list of excluded studies.

The HTA report was used to extract relevant results on the validity and reliability of the tools included in this review. No data were available for the critical outcomes of sensitivity and specificity for any of the included tools, however data on reliability and validity were extracted for all of the 14 included studies. An overview of studies included in the review can be found in

Table **144**. An assessment of the quality of included studies can be found in Table 145

Table 143: Characteristics of included tools used to identify attachment difficulties

	Strange situation procedure	Attachment Q-sort	Preschool assessment of attachment	Cassidy-Marvin classification method	Manchester Child Attachment Story Task	MacArthur Story Stem Battery
Typical age range	1-1.5	1-4	2-4	2-4	4-7	4 -7
Format	Observation	Observation	Observation	Observation	Stories with child response procedure	Stories with child response procedure
Administrator	Observer	Observer or self-report	Observer	Researcher-clinician	Researcher-clinician	Researcher-clinician
Setting	Laboratory	Home	Laboratory	Laboratory	Not specified	Not specified
Time taken to administer	45 minutes	2-3 hours	Unclear	Unclear	17.1 minutes administration 40 minutes rating	Unclear
Training needed for administration	Yes	Yes	Yes	Yes	Yes- Time to train administrators= 1.5 hours of a 2 hour training course	Yes

	The Separation Anxiety Test	The Child Attachment Interview	School-age assessment of attachment	The Adult Attachment Interview
Age range	7-15	7-15	6-12	>18 years, however has been validated for use in adolescents
Format	Stories with child response procedure	Semi-structured interview	picture cards used to elicit fantasy stories and recalled episodes	Quasi-clinical semi-structured interview
Administrator	Interviewer-	Interviewer-	Interviewer-	Interviewer-

	The Separation Anxiety Test	The Child Attachment Interview	School-age assessment of attachment	The Adult Attachment Interview
	researcher/clinician	researcher/clinician	researcher/clinician	researcher/clinician
Setting	Not specified	Any quiet area	Any quiet area	Any quiet area
Time taken to administer	Not reported	20-80 minutes (Shmueli 2008)	30-45 minutes 1 to 2 hours to code	45-60 minutes
Training needed for administration	Yes	Yes 4 days (£600-£900)	Yes	Yes 18 day training course (£2,100)

Table 144: Study information table for studies included in the analysis

	Attachment Q-Sort	Strange Situation Procedure	Pre-school Assessment of Attachment	Cassidy and Marvin Coding system	MCAST	Child Attachment Interview	Separation Anxiety Test
Total no. of studies (N*)	7 (519)	8 (955)	3 (532)	3 (402)	3 (190)	1 (227)	2 (258)
Study ID	(1) Boris 2004 (2) Mangelsdorf 1996 (3) Posada 2006 (4) Smeekens 2009 (5) Tarabulsy 1997 (6) Van dam 1988 (7) Vaughn 1990	(1) Boris 2004 (2) Fagot 1996 (3) Mangelsdorf 1996 (4) Smeekens 2009 (5) Spieker 2010 (6) Tarabulsy 1997 (7) Van Dam 1988 (8) Vaughn 1990	(1) Crittenden 2007 (2) Faggot 1996 (3) Spieker 2010	(1) Crittenden 2007 (2) Posada 2006 (3) Spieker 2010	(1) Goldwyn 2000 (2) Minnis 2009; McLaughlin 2010 (3) Minnis 2010;	Shmueli-Goetz 2008	(1) Goldwyn 2000 (2) Shmueli-Goetz 2008
Country	(1-3) USA (4) Netherlands (5) Canada (6) Netherlands (7) USA	(1-3) USA (4) Netherlands (5) USA (6) Canada (7) Netherlands (8) USA	(1-3) USA	(1-3) USA	(1-3) UK	UK	(1-2) UK
N children	(1) 69 (2) 100 (completed =74; clinical=34, normative=40) (3) 45 (4) 129 (complete data for 111) (5) 79 (6) 39 (7) 58	(1) 69 (2) 175 (3) 100 (completed =74; clinical=34, normative=40) (4) 129 (complete data for 111) (5) 306 (6) 79 (7) 39 (8) 58	(1) 51 (2) 175 (3) 306	(1) 51 (2) 45 (3) 306	(1) 31 (2) 77 (clinical: 38, normative: 39) (3) 82 (complete= 55)	227	(1) 31 (2) 227
Child age	(1) 13-49 months	(1) 13-49 months	(1) 2.5-4	(1) 2.5-4	(1) NR	Mean clinical:	(1) NR

	Attachment Q-Sort	Strange Situation Procedure	Pre-school Assessment of Attachment	Cassidy and Marvin Coding system	MCAST	Child Attachment Interview	Separation Anxiety Test
mean (range)	(2) 14 and 19 months at first and second visit (3) 36-43 months (4) mean=63.6 months (5) 15 and 36 months at first and second visit (6) 18 months (7) 12 or 18 months	(2) 8 and 30 months at first and second visit (3) 14 and 19 months at first and second visit (4) mean=63.6 months (5) 15 and 36 months at first and second visit (6) 15 and 36 months at first and second visit (7) 18 months (8) 12 or 18 months	(2) 18 and 30 months at first and second visit (3) 15-36 months at first and second visit	(2) 36-43 months (3) 15 and 36 months at first and second visit	(2) Clinical: 6.57, normative: 6.44 (3) 5-8 years	10.4 years, mean normative: 10.9 years	(2) Mean clinical: 10.4 years, mean normative: 10.9 years
Child gender (% female)	(1) 45.5-55 (2) Clinical 45.9, Normative 59.5 (3) 44.4 (4) Clinical: 41.5, normative: 49.7 (5) NR (6) 51.3 (7) 56.9	(1) 45.5-55 (2) NR (3) Clinical 45.9, Normative 59.5 (4) Clinical: 41.5, normative: 49.7 (5-6) NR (7) 51.3 (8) 56.9	(1) 43% (2-3) NR	(1) 43% (2) 44% (3) NR	(1) NR (2) Clinical: 44%, normative: 43% (3) 40	Clinical: 41.5, normative: 49.7	(1) NR (2) Clinical: 41.5, normative: 49.7
Ethnicity (% white)	(1) NR (2) Clinical=89.2 Normative=95.1 (3) 97.7%	(1) NR (2) 95 (3) Clinical= 89.2, normative= 95.1 (4-8) NR	(1) 100 (2) 95 (3) NR	(1) NR (2) 99% (3) NR	(1) NR (2) 100 (3) NR	Clinical: 82%, normative: 70%	(1) NR (2) Clinical: 82%, normative: 70%

	Attachment Q-Sort	Strange Situation Procedure	Pre-school Assessment of Attachment	Cassidy and Marvin Coding system	MCAST	Child Attachment Interview	Separation Anxiety Test
	(4) NR (5-7) NR						
Carer age (mean years)	(1) 18.55-25.40 (2) Clinical=27.5, normative=28.9 (3) maternal= 33.04, paternal= 35 (4) range 22-47 (5) range 29 to 30 (6-7) NR	(1) 18.55-25.40 (2) NR (3) Clinical=27.5, normative=28.9 (4) range 22-47 (5) NR (5) 12-37 years at delivery (6) range 29 to 30 (7-8) NR	(1-3) NR	(1) NR (2) Average maternal age 33.04 years, paternal age 35 years (3) NR	(1-3) NR	NR	(1-2) NR
Carer ethnicity (% White)	(1) 9.1-55 (2) NR (3) 97.7% (4-7) NR	(1) 9.1-55 (2-8) NR	(1-3) NR	(1) NR (2) 99% (3) NR	(1-3) NR	NR	(1-2) NR
Tool Used	(1-3) Standard AQS (4) Modified AQS (5) Standard AQS (6) Modified AQS (7) Standard AQS	(1-8) Standard Strange Situation Procedure	(1-3) PAA	(1-3) Cassidy and Marvin 1992	(1-2) Manchester Child Attachment Story Task (MCAST) (3) Manchester Child Attachment Story Task (MCAST); Computerised Manchester Child Attachment Story Task (CMCAST)	Child Attachment Interview	(1-2) SAT
Index or reference	(1) Index (2) Reference (3) Index	(1) Index (2) Reference (3-4) Index	(1) Reference (2-3Index	(1-2) Reference (3) Index	(1) Index (2) Reference (3) Index/reference	Index	(1-2) Reference

	Attachment Q-Sort	Strange Situation Procedure	Pre-school Assessment of Attachment	Cassidy and Marvin Coding system	MCAST	Child Attachment Interview	Separation Anxiety Test
	(4) Reference (5-6) Index (7) Reference	(5-7) Reference (8) Index					
Comparison with another tool	(1) SSP and DSM) (2) SSP (3) Cassidy-Marvin (4) Shortened SSP (5-7) SSP	(1) Q-sort and DSM (2) PAA (3) AQS (4) AQS (5) C-M and PAA (1-3) AQS	(1) C-M (2) Ainsworth coding system (3) C-M; SSP	(1) Ainsworth-extended method; PAA (2) Q-sort (3) PAA;SSP	(1) SAT (2) CAPA-RAD (3) Computerised MCAST (CMCAST)	SAT	(1) MCAST (2) CAI
Setting	(1-7) Home (check)	(1-26) Laboratory	(1) Laboratory (2-3) NR	(1-3) Laboratory	(1-3) NR	NR	(1-2) NR

Table 145. Quality of studies included in the review

Study	Patient selection: Consecutive or random sample	Patient selection: Avoided case-control	Patient selection: Avoided inappropriate exclusions	Patient selection: Overall risk of bias	Index test: Index test interpreted blind to reference test	Index test: Threshold pre-specified	Index test: Overall risk of bias	Overall quality
Boris, 2004	?	×	?	HIGH	×	N/A	HIGH	VERY LOW
Goldwyn, 2000	?	?	?	UNCLEAR	?	N/A	UNCLEAR	LOW
Posada, 2006	?	✓	?	UNCLEAR	?	N/A	UNCLEAR	LOW
Shmueli, 2008	?	×	?	HIGH	✓	✓	LOW	LOW
Smeekens, 2009	?	✓	?	UNCLEAR	?	N/A	UNCLEAR	LOW

Study	Patient selection: Consecutive or random sample	Patient selection: Avoided case-control	Patient selection: Avoided inappropriate exclusions	Patient selection: Overall risk of bias	Index test: Index test interpreted blind to reference test	Index test: Threshold pre-specified	Index test: Overall risk of bias	Overall quality
Spieker, 2010	?	✓	?	UNCLEAR	?	N/A	UNCLEAR	LOW
Tarabulsy, 1997	?	×	?	HIGH	?	N/A	UNCLEAR	VERY LOW
Van Dam, 1988	?	✓	?	UNCLEAR	?	N/A	UNCLEAR	LOW
Minnis, 2009; McLaughlin, 2010	?	×	?	HIGH	?	N/A	UNCLEAR	VERY LOW
Minis 2010	?	×	✓	HIGH	✓	N/A	LOW	LOW
Mangelsdorf, 1996	?	×	?	HIGH	✓	N/A	LOW	LOW
Vaughn 1990	?	✓	?	UNCLEAR	×	N/A	HIGH	VERY LOW
Fagot 1996	?	✓	✓	UNCLEAR	✓	N/A	LOW	MODERATE
Crittenden 2007	?	✓	?	UNCLEAR	✓	N/A	LOW	MODERATE

Note.
? = unclear ✓ = performed x = not conducted. N/A= not applicable

For ease of presentation, the evidence is organised by instrument and grouped within the following age ranges: 0-4 years; 4-7 years; 7-15 years; 15+ years. Results for the concurrent validity of studies where the tool under evaluation is considered the index tool (as determined by the HTA report) will be presented narratively. Data on reliability and other validity measures for these tools when they are a reference tool are presented in table format.

8.2.372 Tools for infants and toddlers aged 1-4 years

8.2.3.281 The Strange Situation Procedure (SSP)

The HTA review identified 8 studies which compared the Strange Situation Procedure to another tool included in this review. Boris 2004, Fagot 1996, Mangelsdorf 1996, Smeekens 2009, Spieker 2010, Tarabulsy 1997, Van Dam 1988, Vaughn 1990. Six studies compared the SSP to the AQS (Boris 2004; van Dam 1998; Mangelsdorf 1996; Smeekens 2009; Tarabulsy 1997; Vaughn 1990) and 2 studies compared the SSP to the Preschool Assessment of Attachment (Spieker, 2010; Fagot 1996). Four studies assessed the SSP as an index tool (Boris 2004, Manglesdorf 1996, Smeekens 2009, Vaughn 1990). Evidence for concurrent validity of the SSP, where it is the index tool is discussed narratively below. Evidence for convergent validity, construct validity, predictive validity and reliability for all studies can be found in Table 146, Table 147, Table 148 and Table 149, respectively.

Concurrent validity

Boris 2004 (N = 69) examined the association between the SSP and DSM diagnosis of an attachment disorder as the reference tool. Concurrent validity was calculated by examining the relationship between 3-way SSP classification (secure, insecure, and disorganised) and 2-way attachment disorder diagnosis (disordered and not disordered). Infants classified as secure in the SSP were significantly less likely to be diagnosed with an attachment disorder ($\chi^2 = 5.55$, p=.018), however children classified as disorganised were not more likely to be diagnosed with any type of attachment disorder.

Mangeldorf 1996 (N = 100) examined the association between the SSP and the AQS as the reference tool in a group of very low birth weight (VLBW) infants and a group of full-term infants. Concurrent validity was examined by conducting a 1-way ANOVA using the 3 attachment categories and AQS security score as the dependent variable. No significant associations were found between the attachment classification and the overall security scores.

Vaughn 1990 (N = 58) examined the association between the SSP and the AQS as the reference tool. Concurrent validity was examined using a multivariate statistic comparing secure versus insecure infants in the SSP with security, dependency, and sociability on the AQS. The overall statistic was significant, $F(3,53) = 4.79$, $p < .005$; infants classified as secure in the SSP received significantly higher scores on both the security and sociability scores from the AQS based on home observations, $F(1,55) = 11.72$ and 7.95, $p < .001$ and .01, respectively. The anxious-resistant versus anxious-avoidant comparison was not significant ($F < 1.0$). R was .50, $F(4,46) = 3.83$, $p < .01$, indicating that Strange Situation reunion behaviours are a significant predictor of home-based attachment security assessment.

Smeekens 2009 (N = 111) used a shortened version of the Strange Situation Procedure (SSSP) and examined the association with the AQS as the reference tool. Inter-correlations between the infant attachment measures were r=.34, p<.01 for AQS security and SSSP security, r=-.30, p<.01 for AQS security and SSSP disorganised attachment.

Table 146. Strange Situation Procedure: Convergent Validity

Study ID	Population (age range)	Convergent validity measure	Association
Van Dam 1988 LOW QUALITY	Low risk (mean18 moths)	Mothers responsiveness in free-play situation	Less resistant behaviour (statistic not reported)

Note.
Green = strong association, yellow = moderate association. Grey = non-significant association

Table 147: Strange Situation Procedure: Construct Validity

Study ID	Population (age range)	Construct validity measure	Association
Mangelsdorf 1996 LOW QUALITY	46% VLBW (14-19 months)	Distinguish between preterm birth at 19 months	χ^2=6.34 (2, N=74), p<.05
		Distinguish between preterm birth at 14 months	ns

Note.
Green = strong association, yellow = moderate association. Grey = non-significant association

Table 148. Strange Situation Procedure: Predictive Validity

Study ID	Population (age range)	Predictive validity measure	Association
Smeekens 2009 LOW QUALITY	Low risk (15 months)	Association between attachment at 15 months and measures of socio-emotional development at 5 years	SSSP disorganisation predicted children's ego-resiliency, school adjustment, and dissociation.
			SSSP security, β =0.21, p<.05 were found to significantly and independently contribute to the prediction of the security of the children's attachment representation, r2 =0.13, F = 7.34, p<0.001.
			SSSP disorganisation was a significant contributor to the prediction of the children's peer social competence, r2 = 0.05, F = 5.76, p < .05; β =−.22, p<0.05.
			SSSP disorganisation was a significant contributor to the prediction of externalising behaviour, r2 = 0.20, F =27.28, p<0.00.

Note.
Green = strong association, yellow = moderate association. Grey = non-significant association

Table 149. Strange Situation Procedure: Reliability

Study ID	Population (age range)	Inter-rater reliability (% agreement)	Internal Stability (% agreement)
Strange Situation Procedure as the Index tool			
Boris 2004 VERY LOW QUALITY	High risk (13-49 months)	71% agreement	
Mangelsdorf 1996 LOW QUALITY	46% VLBW (14-19 months)	90% agreement	60% (VLBW) 65% (Full term)
Smeekens2009 LOW QUALITY	Low risk (15 months)	95% agreement	
Vaughn 1990 VERY LOW QUALITY	Low risk (12-18 months)	86% agreement	
Strange Situation Procedure as the Reference tool			
Fagot 1996 MODERATE QUALITY	Low risk (18-30 months)	88% agreement	
Speiker 2010 LOW QUALITY	Low risk (15 months)	82% agreement Kappa= .70	
Tarabulsy 1997 VERY LOW QUALITY	52% preterm (15-36 months)	91% agreement	
Van Dam 1988 LOW QUALITY	Low risk (mean18 moths)	100% agreement	
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

8.2.3.232 The Attachment Q-Sort (AQS)

The HTA review identified 7 studies which compared the AQS to another tool: Boris 2004, Mangelsdorf 1996, Posada 2006, Smeekens 2009, Tarabulsy 1997, van Dam 1988, Vaughn 1990. One study used a modified version of the AQS (Van Dam 1988). In 4 studies, the AQS was the index tool (Boris 2004; Posada 2006; Tarabulsy 1997; van Dam 1988). In 3 studies the comparison tool was the SSP, or a modified version of the SSP and in 1 study DSM criteria was also the reference tool. Evidence on the concurrent validity of the AQS is discussed narratively below. Evidence for convergent validity, discriminant validity, construct validity, predictive validity and reliability of the AQS as reported in the included studies are presented in

Table 151,

Table 152, Table 153, Table 154 and Table 154 respectively.

Concurrent validity

Boris 2004 (N = 69) reported on the association between the AQS and DSM diagnosis of an attachment disorder, with DSM criteria as the reference tool. To calculate concurrent validity, AQS security scores of the pooled group of children who met criteria for 1 or more disorders were compared with those of the children who did not meet criteria for any disorder, and no difference was found ($F_{1,67} = .0092$, $p > .10$). However, those children diagnosed with reactive attachment disorder using DSM or ICD criteria or, using the alternative criteria, with a disorder of non-attachment (for example, children presenting with indiscriminate sociability

or inhibition) were found to have a significantly lower AQS security scores compared with those children meeting criteria for any other disorder type (F1,31 = 4.63, p <.05). There were no differences in security scores of children who had at one time met criteria for disrupted attachment compared with the other disorder groups (F1,31 = 1.55, p > .10).

Smeekens 2009 (N = 129) reported on the association between the AQS and the Cassidy-Marvin Coding System as the reference tool. The SSP was not related to either global AQS security scores or specific scale scores that reflect the quality of child-mother interactions at home.

Tarabulsy 1997 (N = 79) reported on the association between the AQS and the SSP. The correlation between mothers' AQS scores and were unrelated to SSP classification, whereas observers' scores distinguished between secure, ambivalent, and avoidant dyads. SSP classifications were significantly related to mothers' AQS scores when the score of the fussiness domain was used as a covariate [F(2,77) = 3.19, p<, .05]. When the scores for fussiness items of the AQS were co-varied, the residual 12-month AQS security score is predictive of strange situation classification at 18 months. Thus, mothers were not insensitive to variation in aspects of their infant's behaviour other than fussiness. However, the results may indicate that mothers' AQS security scores reflect a confounding of infant fussiness and attachment security. The correlation between mother and observer AQS scores was moderate (r = .55, P= .001).

Van dam 1988 (N = 39) used a translated a parental version of the AQS (containing 75 items) into Dutch. They altered the wording of items removing double negatives to avoid confusing the parents. They found no association between the SSP and AQS.

Table 150. Attachment Q-sort: Convergent Validity

Study ID	Population (age range)	Convergent validity measure	Association
Van Dam 1988 LOW QUALITY	Low risk (mean 18 moths)	Mothers responsiveness	Correlation with attachment security: r=-0.15, p = .17

Note.
Green = strong association, yellow = moderate association. Grey = non-significant association
Van Dam 1988 used a modified versions of the AQS

Table 151. Attachment Q-sort: Discriminant Validity

Study ID	Population (age range)	Discriminant validity measure	Association
Van Dam 1988 LOW QUALITY	Low risk (mean 18 moths)	Infant difficultness	Security correlated with infant difficultness. More difficult children appeared to be rated as more secure(statistic not reported)

Note.
Green = strong association, yellow = moderate association. Grey = non-significant association
Van Dam 1988 used a modified versions of the AQS

1

2 **Table 152. Attachment Q-sort: Construct Validity**

Study ID	Population (age range)	Construct validity	Association
Mangelsdorf 1996 LOW QUALITY	46% VLBW (14-19 months)	Association between VLBW infants and attachment security	VLBW infants seen as less secure, t=1.75, p<.05
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

3

4 **Table 153. Attachment Q-sort: Predictive Validity**

Study ID	Population (age range)	Predictive validity	Association
Smeekens 2009 LOW QUALITY	Low risk (15 months)	AQS security at 15 months and children's later socio-emotional development	AQS security at 15 months predicted children's later attachment representation, B=.30, p<.001, peer social competence, B=.19, p<.05 and externalising behaviour p= -.22, p<.05. It did not predict ego-resiliency, school adjustment, internalising behaviour or dissociation (p = ns)
Note. Green = strong association, yellow = moderate association. Grey = non-significant association Smeekers used a modified version of the AQS and reported concurrent validity with a shortened version of the SSP			

5 **Table 154. Attachment Q-sort: Reliability**

Study ID	Population (age range)	Inter-rater reliability	Test-retest reliability/ Internal stability
		Index tool	
Boris 2004 VERY LOW QUALITY	High risk (13-49 months)	Kappa 0.77 (0.48 to 0.92)	
Posada 2006 LOW QUALITY	Low risk (36-43 months)	Coders correlation 0.78	Cronbach's alpha 0.81-0.90 for subscales
Tarabulsy 1997 VERY LOW QUALITY	52% preterm (15-36 months)	91% agreement	Moderate correlation between mother and observer AQS scores r=0.55, p < .001
Van Dam 1988 LOW QUALITY	Low risk (mean 18 months)		Re-test (10 days) 0.75-0.86.
		Reference tool	
Mangelsdorf 1996 LOW QUALITY	46% VLBW (14-19 months)	Reliability coefficient full term =0.76 VLBW =0.85	
Smeekens 2009 LOW QUALITY	Low risk (15 months)	Coders correlation >0.75	
Vaughn 1990	Low risk	Kappa	

Study ID	Population (age range)	Inter-rater reliability	Test-retest reliability/ Internal stability
VERY LOW QUALITY	(12-18 months)	Security score =0.58. Dependency score =0.72. Sociability score =0.53, p<0.05	
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

8.2.3.223 Modifications of the SSP

Preschool Assessment of Attachment (PAA)

The HTA review included 3 studies, 1 compared the PAA to the SSP (Fagot 1996) and 2 compared the PAA to the Cassidy-Marvin Preschool Attachment Coding System (Crittenden 2007; Spieker 2010). In 2 studies the PAA was the index tool (Fagot 1996; Spieker 2010). Data on the predictive validity, convergent validity and reliability of these tools as reported in the included studies are presented in Table 155,Table 157 and Table 157.

Fagot 1996 (N = 175) compared the classification on the PAA to earlier SSP classifications, and reported that some children who had been classified as avoidant in the SSP in infancy had moved to the coercive attachment classification by their preschool years'.

Spieker 2010 (N = 306) compared the PAA with the SSP and found low level s of association with infancy classifications $\chi^2(15) = 33.5$, $p < .01$. Concurrent validity between the PAA and the C-M was statistically significant, χ^2 (15) = 157.3, $p < .001$ (the 2 methods showed 50% agreement).

Table 155. Preschool Assessment of Attachment: Predictive validity

Study ID	Population (age range)	Measure used	Predictive validity
Fagot 1996 MODERATE QUALITY	Low risk (18-30 months)	Problem behaviour	Significant association (statistic not reported)
Spieker 2010 LOW QUALITY	Low risk (3 years)	Teacher reports of child behaviour and achievement tests at 7 years	Trend association with dyadic affective mutuality, r2=.04. A significant association with internalising symptoms, r = .08. No significant association with externalising symptoms or depressive symptoms (p = ns)
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

Table 156. Preschool Assessment of Attachment: Convergent validity

Study ID	Population (age range)	Measure used	Predictive validity
Crittenden 2007 MODERATE QUAILTY	Maltreated children (2-5 years)	Maltreatment status	Effect=.66, p<.000
		Maternal interaction	MANOVA, F(2, 48), p<.05
		Child DQ	t(47)= 2.15, p<.05

Study ID	Population (age range)	Measure used	Predictive validity
		Maternal attachment strategy	Effect=.60, p<.0000
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

1

2 **Table 157. Preschool assessment of attachment: Reliability**

Study ID	Population (age range)	Inter-rater reliability	Test-retest reliability/ Stability
		Index tool	
Fagot 1996 MODERATE QUALITY	Low risk (18-30 months)	84% agreement	
Spieker 2010 LOW QUALITY	Low risk (3 years)	59% agreement Kappa =0.45, p<0.001	Infancy and preschool classifications-: $\chi^2(15) = 33.5$, p < .01
		Reference tool	
Crittenden 2007 MODERATE QUAILTY	Maltreated children (2-5 years)	86% agreement kappa= .82 p<.000	
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

3

4 **Cassidy-Marvin Preschool Attachment Coding System**

5 The HTA review included 3 studies that reported on the C-M (Crittenden 2007, Posada 2007,
6 Spieker 2010). One study compared the C-M with the Ainsworth-Extended method and the
7 PAA, 1 compared the C-M with the PAA and 1 study compared the C-M with the AQS. In 1
8 study the C-M was the index tool (Spieker 2010). Data on reliability and validity of these tools
9 are presented in Table 158, Table 160, Table 160.

10

11 Spieker 2010 (N = 306) compared the C-M with the SSP as the reference tool. The SSP in
12 infancy and the C-M were significantly associated, χ^2 (9) = 18.9, p <.05. Concurrent validity
13 with the PAA was statistically significant, χ^2 (15) = 157.3, p < .001 (classified 50% similarly).

14 **Table 158: Cassidy-Marvin Preschool Attachment Coding System: Predictive Validity**

Study ID	Population (age range)	Measure used	Predictive validity
Spieker 2010 LOW QUALITY	Low risk (3 years)	Dyadic affective mutuality	F(3,256)=4.28, p<0.01, r2=.05
		Externalising and internalising problems	ns
		Child reported depressive symptoms	trend association, r2=0.03
Note.			

Study ID	Population (age range)	Measure used	Predictive validity
Green = strong association, yellow = moderate association. Grey = non-significant association			

Table 159: Cassidy-Marvin Preschool Attachment Coding System: Convergent ValidityStudy ID	Population (age range)	Measure used	Predictive validity
Crittenden 2007 MODERATE QUAILTY	Maltreated children (2-5 years)	Maltreatment status	ns
		Maternal interaction	ns
		Child DQ	ns
		Maternal attachment strategy	ns
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

Table 160. Cassidy-Marvin Preschool Attachment Coding System: Reliability

Study ID	Population (age range)	Inter-rater reliability	Test-retest reliability/ Stability
Spieker 2010 LOW QUALITY	Low risk (3 years)	Agreement= 77%. Kappa =0.50, p<0.001.	Infancy and preschool classifications- significant- χ^2 (9) = 18.9, p <.05
Crittenden 2007 MODERATE QUAILTY	Maltreated children (2-5 years)	78% agreement kappa= .72, p<.01	
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

8.2.363 Tools for children aged 5-7 years

8.2.3.371 Manchester Child Attachment Story Task

From the HTA review, there were 3 studies which investigated the MCAST (Goldwyn 2000, Minnis 2009, Minnis 2010). In 1 study the MCAST was the index tool compared with the SAT as the reference tool (Goldwyn 2000). In 1 study the MCAST was a reference tool to RAD diagnosis. One study compared a computerised version of the MCAST with the MCAST. Data on reliability and validity of these tools as reported in the included studies are presented in Table 161, Table 163, Table 164 and Table 164.

Goldwyn 2000 (N = 31) compared the MCAST to the SAT. Concurrent validity was measured with the SAT. Agreement was 80%.

Minnis 2010 (N = 55) compared a computerised version on the MCAST to the Standard MCAST. Agreement between ratings of attachment security was kappa = 0.67.

Table 161. Manchester Child Attachment Story Task: Convergent validity

Study ID	Population (age range)	Measure used	Convergent validity

Study ID	Population (age range)	Measure used	Convergent validity
Goldwyn 2000 LOW QUALITY	Low risk (NR)	Parental ratings of behaviour	Emotionality (r=–0.36, p=0.048) Activity (r=-0.38, p=0.04)
		Independent behaviour ratings	Disorganisation teacher ratings in areas of social problems (r=0.39, p < .01) and attentional problems (r=0.43, p < .005).
			Disorganisation and parental ratings of behaviour problems = ns
		Maternal attachment representations	% agreement between 3-way attachment categories 61.3% (k = 0.18, ns)
			agreement on security/insecurity 65.4% (k = 0.18, ns)
			association between AAI/U category and categorical D (77% agreement, K = 0.493, p<0.1)
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

1
2

3 **Table 162. Validity of the Manchester Child Attachment Story Task**

Study ID	Population (age range)	Measure used	Construct validity
Minnis 2009; McLaughlin 2010 VERY LOW QUALITY	49% clinical (ICD-10 symptoms of RAD) (mean age Clinical: 6.57, normative: 6.44 years)	Maltreatment status	Children with maltreatment status not statistically more likely to be insecure (RR = 1.47 (.4-4.9), p=.54), but significantly more likely to be disorganised (RR = 1.6 (1.1-2.2), p=.036)
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

4

5 **Table 163. Reliability of the Manchester Child Attachment Story Task**

Study ID	Population (age range)	Inter-rater reliability
Minnis 2009; McLaughlin 2010 VERY LOW QUALITY	49% clinical (ICD-10 symptoms of RAD) (mean age Clinical: 6.57, normative: 6.44 years)	90% (93 Kappa) (100% further sub set)
Minnis 2010 LOW QUALITY	50% RAD diagnosis (5-8 years)	Dual coded. Agreement on 4-way classification 96%, kappa =0.93
Note. Green = strong association, yellow = moderate association. Grey = non-significant association		

Table 164. Reliability of the Computerised version of the Manchester Child Attachment Story Task

Study ID		Inter-rater reliability
Minnis 2010 LOW QUALITY	50% RAD diagnosis (5-8 years)	Dual coded. Agreement on 4-way classification 94%. Kappa =0.91
Note. Green = strong association, yellow = moderate association. Grey = non-significant association		

8.2.3.3 MacArthur Story Stem Battery

The HTA report did not identify any studies which reported on the MSSB.

8.2.3 Tools for children aged 7-15 years

8.2.3.4 The Child Attachment Interview (CAI)

From the HTA report there was 1 study which examined the CAI (Shmueli, 2008). This study compared the CAI to the SAT where the CAI was the index tool. Data on reliability and convergent, discriminant, discerning and predictive validity of these tools as reported in the included studies are presented in Table 165 to Table 169.

Shmueli 2008 (N= 227) compared the CAI to the SAT. SAT protocols were obtained from 67 (40%) of the sample. The SAT does not have a disorganised category, so the association between CAI and SAT involved a 3-way categorisation of D, E, and F sub-classifications. Coefficient kappa was calculated as an estimate of agreement (k= 0.36, approximate t =3.72, p < .005) which reflected a 64% agreement.

Table 165. Child Attachment Interview: Reliability

Study ID	Population (age range)	Inter-rater reliability	Test-retest reliability
Shmueli 2008 LOW QUALITY	Low risk and children referred for mental health treatment (mean clinical: 10.4 years, mean normative: 10.9 years)	0.80-0.86 0.67-0.81 0.78-0.87	State of mind scales alpha =0.87. Avoidance scales alpha =0.84. Active conflict scales alpha =0.43
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

Table 166. Child Attachment Interview: Convergent validity

Study ID	Population (age range)	Measure used	Association
Shmueli 2008 LOW QUALITY	Low risk and children referred for mental health treatment (mean	Association with AAI on four-way categorisation Hampstead Child Adaptation	X2(9, N=88) = 23.9, p<.004 Kappa 0.16, p<.002 Difference among three groups (dismissing,

Study ID	Population (age range)	Measure used	Association
	clinical: 10.4 years, mean normative: 10.9 years)	Measure Scales	preoccupied, secure caregivers). Global scores F(2, 83)= 3.93, p<.03
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

1

2 **Table 167: Child Attachment Interview: Discriminant validity**

Study ID	Population (age range)	Measure used	Association
Shmueli 2008 LOW QUALITY	Low risk and children referred for mental health treatment (mean clinical: 10.4 years, mean normative: 10.9 years)	demographic or cognitive variables	demographic variables (age, SES, ethnicity) and cognitive variables (IQ and expressive language) did not predict attachment classification in either the referred or the nonreferred sample
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

3

4 **Table 168: Child Attachment Interview: Discerning validity**

Study ID	Population (age range)	Measure used	Association
Shmueli 2008 LOW QUALITY	Low risk and children referred for mental health treatment (mean clinical: 10.4 years, mean normative: 10.9 years)	Attachment status in referred sample	Predominance of insecure attachment in referred sample
Note. Green = strong association, yellow = moderate association. Grey = non-significant association			

5

6 **Table 169: Child Attachment Interview: Predictive validity**

Study ID	Population (age range)	Measure used	Association
Shmueli 2008 LOW QUALITY	Low risk and children referred for mental health treatment	Social functioning Social adaptation	Predicts social functioning. Association between social adaptation

Study ID	Population (age range)	Measure used	Association
	(mean clinical: 10.4 years, mean normative: 10.9 years)		

Note.
Green = strong association, yellow = moderate association. Grey = non-significant association

8.2.3.4 The Separation Anxiety Test (SAT)

From the HTA report there were 2 studies which examined the SAT (Goldwyn 2000, Shmueli 2008). In both studies the SAT was the reference tool and its concurrent validity with the comparison tool is summarised under the narrative for index tool. Data on reliability and validity of this tool was not reported.

8.2.3.5 School-age Assessment of Attachment (SAA)

The HTA report did not identify any studies which reported on the SAA.

8.2.3 Tools for children aged 15 years and older

8.2.3.6 Adult Attachment Interview (AAI)

The HTA report did not include any studies which reported on the AAI.

8.2.4 Economic evidence

No economic evidence on measurement/tools used to identify/assess attachment difficulties in children and young people was identified by the systematic search of the economic literature undertaken for this guideline. Details on the methods used for the systematic search of the economic literature are described in Chapter 3.

8.2.5 Clinical evidence statements for tools to identify attachment difficulties

8.2.5.1 Strange Situation Procedure

- Very low quality evidence from 1 study (N = 69) showed that the Strange Situation Procedure is associated with DSM diagnosis for secure attachment but not disorganised attachment. Thus, the Strange Situation Procedure may demonstrate convergent validity with DSM diagnosis for attachment security.
- Very low to low quality evidence from 2 studies (N = 185) showed that the Strange Situation Procedure is associated with the Attachment Q-Sort, however low quality evidence from 1 study (N = 100) did not show an association. Thus, it is unclear whether the Strange Situation Procedure demonstrates convergent validity with the Attachment Q-Sort.
- Very low to moderate quality evidence from 8 studies (N = 953) showed moderate to very good agreement between the scores generated by 2 or more different observers of the same participant using the Strange Situation Procedure. Thus, the Strange Situation Procedure demonstrates good inter-rater reliability.
- Low quality evidence from 1 study (N = 100) showed good internal stability over time. Thus, the Strange Situation Procedure demonstrates test retest reliability.
- Low quality evidence from 1 study (N = 74) showed moderate ability to distinguish between preterm birth at 19 months but not 14 months. Thus, the Strange Situation Procedure may demonstrate construct validity.

- Low quality evidence from 1 study (N = 129) showed the Strange Situation Procedure measured at 15 months is able to predict socio-emotional development at 5 years. Thus, the SSP is able to demonstrate predictive validity.
- Low quality evidence from 1 study (N = 39) showed that the Strange Situation Procedure is associated with mothers responsiveness. Thus, the Strange Situation Procedure demonstrates good convergent validity.

8.2.572 Attachment Q-sort

- Very low evidence from 1 study (N = 69) showed that the Attachment Q-Sort is associated with DSM criteria. Thus, the Attachment Q-Sort demonstrates concurrent validity with DSM.
- Low quality evidence from 1 study (N = 129) showed that the Attachment Q-Sort is not associated with the Cassidy-Marvin Coding System. Thus, the Attachment Q-Sort is unable to demonstrate concurrent validity with the Cassidy-Marvin Coding System.
- Very low quality evidence from 1 study (N = 79) showed an association with the Strange Situation Procedure, however low quality evidence from 1 study (N = 39) did not. Thus, it is unclear whether the Attachment Q-Sort demonstrates concurrent validity with the Strange Situation Procedure.
- Very low to low quality evidence from 6 studies (N = 436) showed good agreement between the scores generated by 2 or more different observers of the same participant using the Attachment Q-Sort. Thus, the Attachment Q-Sort demonstrates good inter-rater reliability.
- Very low quality evidence from 1 study (N = 79) shows good test-retest reliability. Thus, the Attachment Q-Sort demonstrates good test-retest reliability.
- Low quality evidence from 1 study (N = 45) showed good internal consistency. Thus, the Attachment Q-Sort demonstrates good internal consistency.
- Very low quality evidence from 1 study (N = 79) showed that the Attachment Q-Sort was not associated with mothers responsiveness. Thus, the Attachment Q-Sort was unable to demonstrate convergent validity with mother's responsiveness.
- Very low quality evidence from 1 study (N = 79) showed that the Attachment Q-Sort correlated with infant difficultness. Thus, the AQS is unable to demonstrate discriminate validity.
- Low quality evidence from 1 study (N = 74) showed that the very low birth weight infants were less secure on the Attachment Q-Sort. Thus, the Attachment Q-Sort may demonstrate construct validity.
- Low quality evidence from 1 study (N = 111) showed that the Attachment Q-Sort security at 15 months predicted socio-emotional development at 5 years. Thus, the Attachment Q-Sort demonstrates good predictive validity.

8.2.583 Cassidy-Marvin Preschool Attachment Coding System

- Low quality evidence from 1 study (N = 306) showed that the Cassidy-Marvin Preschool Attachment Coding System was associated the preschool assessment of attachment. Thus, the Cassidy-Marvin Preschool Attachment Coding System demonstrates concurrent validity with the Preschool Assessment of Attachment.
- Low quality evidence from 1 study (N = 306) showed that the Cassidy-Marvin Preschool Attachment Coding System had a low level association with Strange Situation Procedure classifications in infancy. Thus, the Cassidy-Marvin Preschool Attachment Coding System may demonstrate concurrent validity with the Strange Situation Procedure.
- Low to moderate quality evidence from 2 studies (N = 357) showed good agreement between the scores generated by 2 or more different observers of the same participant using the Cassidy-Marvin Preschool Attachment Coding System. Thus, the Cassidy-Marvin Preschool Attachment Coding System demonstrates good inter-rater reliability
- Low quality evidence from 1 study (N = 306) demonstrates good test-retest reliability.

- Low to moderate quality evidence from 2 studies (N = 357) showed no association with externalising or internalising behaviour, maltreatment status, maternal interaction, child development or maternal attachment strategy, and showed a moderate association with dyadic affective mutuality and child depressive symptoms. Thus, the Cassidy-Marvin Preschool Attachment Coding System is unable to demonstrate good convergent validity.

8.2.574 Preschool Assessment of Attachment

- Low quality evidence from 1 study (N = 306) showed that the Preschool Assessment of Attachment was associated with the Cassidy-Marvin Preschool Attachment Coding System. Thus, the Preschool Assessment of Attachment demonstrates good concurrent validity with the Cassidy-Marvin Preschool Attachment Coding System.
- Low to moderate quality evidence from 2 studies (N = 481) showed that the Preschool Assessment of Attachment was moderately associated with Strange Situation Procedure classifications in infancy. Thus, the Preschool Assessment of Attachment may demonstrate concurrent validity with the Strange Situation Procedure.
- Low to moderate quality evidence from 3 studies (N = 532) showed good agreement between the scores generated by 2 or more different observers of the same participant using the Preschool Assessment of Attachment. Thus, the Preschool Assessment of Attachment demonstrates good inter-rater reliability.
- Low quality evidence from 1 study (N = 306) showed good test-retest reliability. Thus, the Preschool Assessment of Attachment demonstrates good test-retest reliability.
- Low to moderate quality evidence from 3 studies (N = 532) showed that the Preschool Assessment of Attachment was associated with problem behaviour, internalising symptoms, depressive symptoms, maltreatment status, maternal interaction, child development quotient and maternal attachment strategy, and showed a trend association with dyadic affective mutuality, and not depressive symptoms. There was no association with externalising problems. Thus, the Preschool Assessment of Attachment demonstrates good cxonvergent validity.

8.2.595 Manchester Child Attachment Story Task

- Low quality evidence from 1 study (N = 31) showed that the Manchester Child Attachment Story Task was associated with the Separation Anxiety Test. Thus the Manchester Child Attachment Story Task demonstrates good concurrent validity with the Separation Anxiety Test.
- Very low to low quality evidence from 2 studies (N = 132) showed good agreement between the scores generated by 2 or more different observers of the same participant using the Manchester Child Attachment Story Task. Thus, the Manchester Child Attachment Story Task demonstrates good inter-rater reliability.
- Low quality evidence from 1 study (N = 31) showed that the Manchester Child Attachment Story Task was associated with parent ratings of behaviour, independent behaviour ratings and maternal attachment representations. Thus, the Manchester Child Attachment Story Task demonstrates convergent validity with maternal attachment status and independent teacher ratings of classroom behaviour.

8.2.636 Child Attachment Interview

- Low quality evidence from 1 study (N = 227) showed that the Child Attachment Interview was associated with the Separation Anxiety Test. Thus, the Child Attachment Interview demonstrated good concurrent validity with the Separation Anxiety Test.
- Low quality evidence from 1 study (N = 227) showed that the Child Attachment Interview was associated with the Hampstead Child Adaptation Measures Scales and the AII. Thus, the Child Attachment Interview demonstrates good convergent validity.

- Low quality evidence from 1 study (N = 227) showed that the Child Attachment Interview had no relation with demographic or cognitive variables. Thus, the Child Attachment Interview demonstrated good discriminant validity.
- Low quality evidence from 1 study (N = 227) showed that there was a predominance of insecure attachment in the referred sample compared with a community sample. Thus, the Child Attachment Interview demonstrated good construct validity.
- Low quality evidence from 1 study (N = 227) showed that the Child Attachment Interview predicted social functioning and social adaptation. Thus, the Child Attachment Interview demonstrated good predictive validity.

8.2.5.7 Separation Anxiety Test

- Low quality evidence from 1 study (N = 227) showed good agreement between the scores generated by 2 or more different observers of the same participant using the Separation Anxiety Test. Thus, the Separation Anxiety Test demonstrates good inter-rater reliability.

8.2.6 Economic evidence statements

No economic evidence on measurement/tools used to identify/assess attachment difficulties in children and young people is available.

8.3 Review question: What measurements/tools can be used to identify/assess attachment disorders in children and young people? How valid and reliable are they?

Attachment disorders are differentiated from the terms associated with attachment difficulties, that is, insecure attachment, disorganised attachment and secure attachment. RAD has been included in the DSM-III since 1980. DSM-IV includes 2 subtypes, the indiscriminate and inhibited behaviour. ICD-10 on other hand includes 2 main types of disorders: Reactive Attachment Disorder and Disinhibited Attachment Disorder, varying only slightly from DSM-IV.

This review assesses the validity and reliability of various tools to attachment disorders. The same protocol use for attachment difficulties was used for this reviews; that is the GC selected an existing Health Technology Appraisal (HTA; Wright 2014) as the basis of this review. The HTA report focussed on the concurrent validity of 1 tool with another gold standard and included studies where tools available to screen, assess and/or diagnose attachment disorders were compared against each other. The review excluded studies which had single measures of attachment disorders without comparison to other instruments. If raw data was available in a comparison between a reference standard and another instrument concurrently, sensitivity and specificity was calculated. Another inclusions criteria was the child must be 13 years of age or below.

8.3.1 Definition of tools used to identify attachment disorder

Using the above inclusion criteria, the HTA identified 4 studies that investigated the validity of the following tools to measure attachment disorders:

- Disturbances of attachment interview
- Pre-school aged psychiatric assessment (PAPA)
- ICD-10
- Diagnostic Statistical Manual.

8.3.11 Disturbances of Attachment Interview (DAI).

The DAI is a semi-structured examiner-based interview of a caregiver who reports on signs of RAD in very young children approximately aged 20 to 54 months. There are 12 behaviours that the interviewer asks the carer whether the child demonstrates and responses are coded as: 0 is "clearly demonstrates" a behaviour, 1 is "sometimes or somewhat demonstrates a behaviour and 2 is "rarely or minimally demonstrates"" a behaviour. The DAI includes 3 signs of indiscriminately social/disinhibited RAD and 5 items focused on signs of emotionally/withdrawn inhibited signs of RAD.

8.3.12 Preschool Age Psychiatric Assessment (PAPA)

The Preschool Age Psychiatric Assessment (PAPA) is a comprehensive parent-report psychiatric diagnosis interview for preschool children, around 54 months of age. Based on responses to PAPA, an algorithm generates a diagnosis, scale score and scores reflecting the number of domains in which the child is impaired.

8.3.13 ICD-10 Diagnosis of Reactive Attachment Disorder (RAD)

ICD-10 includes 2 types of disorders: reactive attachment disorder and disinhibited attachment disorder, varying only slightly from DSM-IV**. Reactive Attachment Disorder** is 'characterised by persistent abnormalities in the child's pattern of social relationships that are associated with emotional disturbance and are reactive to changes in environmental circumstances (for example, fearfulness and hyper vigilance, poor social interaction with peers, aggression towards self and others, misery, and growth failure in some cases)'. **Disinhibited attachment disorder** is described as 'a particular pattern of abnormal social functioning that arises during the first five years of life and that tends to persist despite marked changed in environmental circumstances, e.g. diffuse, non-selectively focused attachment behaviour, attention-seeking and indiscriminately friendly behaviour, poorly modulated peer interactions; depending on circumstances there may also be associated emotional or behavioural disturbance'.

8.3.14 Diagnostic Statistical Manual (DSM-IV)

The DSM-IV criteria for RAD requires clinicians to detect "abnormal social behaviour" across social contexts" and beginning before the age of 5 for a diagnosis. Two subtypes of social behaviour are possible 1) indiscriminate sociability, in which the infant or young child readily engages with and seeks comfort from strangers and 2) inhibited behaviour, in which the infant or young child actively and fearfully disengages from caregivers, seeing little comfort in the times of distress.

8.3.2 Clinical evidence

8.3.21 Studies considered

For this review the HTA identified 4 relevant studies: Boris 2004, Equit 2011 (Equit et al., 2011), Gleason 2011 (Gleason et al., 2011), and Minnis 2009 (Minnis et al., 2009). Information about the included studies can be found in Table 170. An assessment of the quality of included studies can be found in Table 171.

Gleason 2011 examined the validity of 2 instruments for detecting the attachment disorders: 1) the Disturbances of Attachment Interview (DAI) and 2) Preschool Age Psychiatric Assessment (PAPA). They assessed convergent validity by comparing the results from the DAI and PAPA with the Strange Situation Procedure (SSP) and concurrent validity was assessed by comparing the results from the Stranger at the Door test (specifically developed as an observational measure of indiscriminate behaviour).

Equit 2011 used the ICD-10 criteria for detecting attachment disorders and compared the amount of cross-over with children who had been maltreated/neglected as defined by The Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood-Revised (DC: 0-3R). DC is a diagnostic manual that provides clinical criteria for categorising mental health and developmental disorders in infants and toddlers. Another study by Minnis 2009 investigated the validity of the ICD-10 criteria for attachment disorders by comparing with results from the Manchester Child Attachment Story Task, Reported Difficulties Questionnaire, Child and Adolescent Psychiatric Assessment and Waiting Room Observation.

Boris 2004 assessed the validity of the Diagnostic Statistical Manual to detect attachment disorders and compared the results with the attachment scores from the Strange Situation Procedure and Attachment Q-sort.

Table 170. Study information table for trials included in the analysis of measurements/tools to identify/assess attachment disorders in children and young people

	Disturbances of Attachment Interview	Preschool Age Psychiatric Assessment PAPA	ICD-10 Reactive versus Diagnostic Classification: 0-3 R deprivation/ maltreatment disorder Disinhibited attachment disorder	Diagnostic Statistical Manual (DSM)
Total no. of studies (N*)	1 (136)	1 (136)	2 (330)	1 (69)
Study ID	1) Gleason 2011	1) Gleason 2011	1) Equit 2011 2) Minnis 2009	1) Boris 2004
Country	1) Romanian	1) Romanian	1) Germany 2) UK	1) USA
N children	1) 136	1) 136	1) 299 2) 31	1) 69
Child age mean (range)	1) Range unknown, mean 22 months	1) Range unknown, mean 22 months	1) 3.94 years (0 to 5) 2) 6.4 to 6.6 years	1) 13 to 48 months
Child gender (% female)	1) Unknown	1) Unknown	1) 49% 2) 34%	1) 45 to 55%
Ethnicity (% white)	1) 53.9	1) 53.9	1) Unknown 2) 100%	1) Unknown
Carer age (mean years)	1) Details unknown	1) Details unknown	1) Details unknown 2) Details unknown	1) 17 to 35 years (mean 24.5)
Carer ethnicity (% White)	1) Details unknown	1) Details unknown	1) Details unknown 2) Details unknown	1) 9.1 to 55% White
Tool Used	1) Disturbance of Attachment Interview	1) Preschool Age Psychiatric Assessment	1) International Statistical Classification of Diseases and	1) Clinical assessment (DSM-IV criteria for

	Disturbances of Attachment Interview	Preschool Age Psychiatric Assessment PAPA	ICD-10 Reactive versus Diagnostic Classification: 0-3 R deprivation/ maltreatment disorder Disinhibited attachment disorder	Diagnostic Statistical Manual (DSM)
	(DAI) (Diagnostic Interview: Indiscriminately social/disinhibited RAD or Emotionally withdrawn /Inhibited RAD).	(PAPA). (Diagnostic interview: RAD, ADHD, disruptive behaviour disorder, major depressive disorder and functional impairment).	Related Health Problems 10 (ICD-10) used to screen psychiatric referrals for any diagnosis 2) RAD children, screened with ICD-10 v Normative sample.	presence/absence of attachment disorders).
Index or reference	1) Index	1) Reference	1) Reference 2) Reference	1) Index
Comparison with another tool	1) Preschool Age Psychiatric Assessment (PAPA). (Diagnostic interview: RAD, ADHD, disruptive behaviour disorder, major depressive disorder and functional impairment). Strange situation procedure Stranger at the door.	1) Disturbance of Attachment Interview (DAI) (Diagnostic Interview: Indiscriminately social/disinhibited RAD or Emotionally withdrawn /Inhibited RAD).	1) Revised Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood (DC: 0-3R) used to screen psychiatric referrals for any diagnosis. 2) Manchester Child Attachment Story Task (MCAST) (A10). Child and Adolescent Psychiatric Assessment (CAPA-RAD) (Screening tool for RAD & other diagnosis). Waiting Room Observation (WRO) (Screening tool	1) Strange Situation Procedure Standard Ainsworth laboratory procedure (Ainsworth 1978). Attachment Q-sort.

	Disturbances of Attachment Interview	Preschool Age Psychiatric Assessment PAPA	ICD-10 Reactive versus Diagnostic Classification: 0-3 R deprivation/ maltreatment disorder Disinhibited attachment disorder	Diagnostic Statistical Manual (DSM)
			for RAD). Relationship problems questionnaire (RPQ)	
Setting	1) Not reported	1) Not reported	1) Not reported 2) Not reported	1) Laboratory

1

2

3

4

5

6

Table 171: Quality of diagnostic studies used to assess reactive attachment disorder

Study	Patient selection: Consecutive or random sample	Patient selection: Avoided case-control	Patient selection: Avoided inappropriate exclusions	Patient selection: Overall risk of bias	Index test: Index test interpreted blind to reference test	Index test: Threshold pre-specified	Index test: Overall risk of bias	Overall quality
Boris, 2004	?	×	?	HIGH	×	N/A	HIGH	VERY LOW
Gleason , 2011	✓	✓	✓	LOW	?	✓	UNCLEAR	MODERATE
Minnis, 2010	✓	×	✓	HIGH	✓	N/A	LOW	LOW
Equit, 2011	✓	✓	✓	LOW	?	N/A	UNCLEAR	MODERATE

? = unclear ✓= performed x = not conducted.

8.3.218 Disturbances of Attachment Interview (DAI)

Table 172 to Table 179 describe the results from the study by Gleason 2011 that assessed the concurrent validity of the DAI with PAPA (that used RDC criteria for RAD = Research Diagnostic Criteria, modified version of DSM criteria. This definition focuses more on attachment). Concurrent validity was also assessed by the Stranger at the Door, as an observational measurement of indiscriminate behaviour at 54 months developed by the authors. Convergent validity was measured by comparing results from an Observational record of Caregiving Environment. This tool assesses the quality of the caregiver's sensitivity, stimulation of development and positive regard for the child. Bear-Dragon was also used as a measure of inhibitory control. The child is instructed to follow directions of the bear puppet but not the dragon puppet and is scored based on how many they follow from each.

Table 172: Disturbances of Attachment Interview (DAI) versus PAPA, Stranger at the door: Concurrent validity

Study ID	Population	Tool	Association
Gleason 2011 K=1, n=136	At risk. Children spent 86% of their lives in institutional care.	RAD DAI + PAPA (RDC) 54mo	85.8% concordance indiscriminate/disinhibited 98.3% concordance emotionally withdrawn/inhibited
		RAD DAI + Stranger at the door	86.7% concordance RAD + indiscriminate behaviour

DAI = Disturbances of Attachment Interview – carers assessment
PAPA = Preschool Psychiatric assessment = used RDC for RAD
RDC = Research Diagnostic Criteria, modified version of DSM criteria. Focuses more on attachment.
Stranger at the door = indiscriminate behaviour at 54 mo
Green = strong association, yellow = moderate association. Grey = non-significant association

Table 173: Disturbances of Attachment Interview (DAI) versus SSP: Convergent validity

Study ID	Population	Tool	Association
Gleason 2011 K=1, n=136	At risk. Children spent 86% of their lives in institutional care.	RAD DAI + SSP 42 mo	19 had attachment disorders + organised patterns of attachment (19 out of 22; very low sensitivity of 0.14). 62 had insecure or disorganised attachment + no attachment disorders (62 out of 82; very poor specificity of 0.39).

DAI = Disturbances of Attachment Interview – carers assessment
PAPA = Preschool Psychiatric assessment = used RDC for RAD
RDC = Research Diagnostic Criteria, modified version of DSM criteria. Focuses more on attachment.
SSP = strange situation procedure
Green = strong association, yellow = moderate association. Grey = non-significant association

Table 174: Disturbances of Attachment Interview (DAI): Convergent validity

Study ID	Tool	Association between Indiscriminate social/disinhibited RAD and similar behaviour	Association between Emotionally withdrawn/inhibited RAD (DAI) and similar behaviour
Gleason	RAD (DAI) +	r= -0.28* + inhibition	

Study ID	Tool	Association between Indiscriminate social/disinhibited RAD and similar behaviour	Association between Emotionally withdrawn/inhibited RAD (DAI) and similar behaviour
2011	inhibition 54 mo Bear Dragon		
	RAD (DAI) + Caregiving quality	NS 20 mo, 30mo r =-0.20* 42 mo	r=-0.29 to 0.38* 20, 30, 42mo

Bear dragon = inhibition
Care giving environment = 1.5 hour observation using Observational Record of the Caregiving Environment
Yellow = moderate association. Grey = non-significant association
*r=correlation, * p<0.05 to <0.001*

Table 175: Disturbances of Attachment Interview (DAI) versus PAPA: Concurrent validity

	Sensitivity	Specificity	ROC	DOR	PPV	NPV
DAI versus PAPA RAD-Disinhibited	0.81 (0.54–0.96)	0.86 (0.78–0.92)	0.83 (0.73–0.94)	0.27 (0.07–103.00)	0.48 (0.28–0.68)	0.96 (0.90–0.99)
DAI versus PAPA RAD-Inhibited Withdrawn	0.80 (0.28–0.99)	0.99 (0.95–1.00)	0.86 (0.69–1.00)	456.00 (31.30–*)	0.80 (0.28–0.99)	0.99 (0.95–1.00)

***Sensitivity** – also called the true positives, 100% sensitive, all with attachment difficulties are identified*
***Specificity** – also called true negatives, 100% specific, all secure children are not identified as having RAD*
Green = strong association, yellow = moderate association. Grey = non-significant association

Table 176: Disturbances of Attachment Interview (DAI): Discriminate validity

Study ID	Tool	Association between Indiscriminate social/disinhibited RAD and externalising signs	Association between Emotionally withdrawn/inhibited RAD (DAI) and externalising signs
Gleason 2011	RAD (DAI) + behaviour PAPA behaviours 54 mo	r=0.45* + ADHD signs r=0.30* + oppositional defiant disorder r=0.49* + total impairment	r=0.62 depression r=0.41 total impairment
	RAD (DAI) + ITSEA	r=0.19* activity/impulsivity 42mo	
		r=0.72* depression 42 mo	
		r=0.14* aggression/defiance 42 mo	
		r=-0.21 to -.28* social competence 30, 42 mo	r=-0.25 to -0.64* social competence 20, 30, 42mo
		NS baseline social competence	

PAPA = Preschool Psychiatric assessment = number of domains impaired for: ADHD, disruptive behaviour, major depressive disorder, functional impairment.
ITSEA = caregiver social and emotional well-being and behaviour problems. Caregiver report
*Blue = good discriminate validity, yellow = moderate discriminate validity. r=correlation, * p<0.05 to <0.001*

Table 177: Disturbances of Attachment Interview (DAI): Stability over time.

Study ID	Tool	Association
Gleason 2011	RAD – DAI over time	NS difference over time from baseline, 30 months,42 months, 54 months

Green = strong association, yellow = moderate association. Grey = non-significant association

Table 178: Disturbances of Attachment Interview (DAI): Inter-rater reliability

Study ID	Association
Gleason 2011	Agreement on RAD DAI kappa =0.80

Green = strong association, yellow = moderate association. Grey = non-significant association

Table 179: Summary of the validity and reliability of the Disturbances of Attachment Interview (DAI)

Concurrent validity	Convergent validity versus other behaviour	Discriminate validity	Predictive validity	Stability	Construct validity	Reliability between observers	Reliability within observer
√ K=1, n=136 PAPA	Low K=1, n=136 SSP	√ 1/21 K=1, n=136	Not reported	√ K=1, n=136	NR	√ K=1, n=136 Unclear number. of coders	NR
	√ K=1, n=136 Caregiving quality	4/21 NS K=1, n=136 √16/21 K=1, n=136					
√ K=1, n=136 Stranger at the door	√ K=1, n=136 Bear dragon						

k= number of studies, n=number of participants √ = significant finding, NS=non-significant
Green = strong association, blue = good discriminate validity, yellow = moderate association. Grey = non-significant association

8.3.1 Preschool Age Psychiatric Assessment PAPA

The study identified in the HTA, Gleason 2011, used the DSM-IV criteria for all diagnosis except RAD, for which the RDC for preschool age criteria were used. In this study, PAPA was used to diagnose RAD, ADHD, disruptive disorder, major depressive disorder and functional impairment. Summary findings can be found in Table 180– Table 184.

Table 180: PAPA versus DAI: Concurrent validity

Study ID	Population	Tool	Association
Gleason 2011 K=1, n=136	At risk. Children spent 86% of their lives in institutional care.	RAD DAI + PAPA (RDC) 54mo	85.8% concordance indiscriminate/disinhibited 98.3% concordance emotionally withdrawn/inhibited

PAPA = Preschool Psychiatric assessment = used RDC for RAD
Green = strong association, yellow = moderate association. Grey = non-significant association

Table 181: PAPA versus SSP: Convergent validity

Study ID	Population	Tool	Association
Gleason 2011 K=1, n=136	At risk. Children had spent a mean of 86% of their lives in institutional care.	RAD PAPA versus Strange situation procedure	RAD r=-0.39* indiscriminate social/disinhibited + attachment R=-0.51* emotionally withdrawn/inhibited + attachment
			no RAD = 39% classified secure
			X2=12.3§, indiscriminate social/inhibited RAD less likely to be organised (versus disorganised)

PAPA = Preschool Psychiatric assessment = used RDC for RAD
Green = strong association, yellow = moderate association. Grey = non-significant association
*§ or * p<0.05 to 0.001*

Table 182: PAPA RAD versus ADHD: Discriminant validity

Study ID	Tool	Association
Gleason 2011	RAD (PAPA) + ADHD	4/16 RAD PAPA= ADHD

Blue = good discriminate validity.

Table 183: Disturbances of Attachment Interview (DAI) versus depression: Discriminant validity

Study ID	Tool	Association
Gleason 2011	RAD (DAI) Emotionally withdrawn + Depression	2/5 RAD – DAI = major depression disorder

Blue = good discriminate validity.

Table 184: Summary of validity and reliability PAPA –RAD

Concurrent validity	Convergent validity versus other behaviour	Discriminate validity	Predictive validity	Stability	Construct validity	Reliability between observers	Reliability Within observer
√ N=136, k=1	2/4 K=1, n=136	√ N=16, k=1	NR	NR	NR	NR	NR
	¼ K=1, n=136						
	¼ NS K=1, n=136						

Green = strong association, yellow = moderate association. Grey = non-significant association Blue = good discriminate validity.

8.3.12 ICD-10 Diagnosis of Reactive Attachment Disorder (RAD)

The Health Technology Appraisal identified 2 studies, Equit 2011 and Minnis 2009, that investigate the validity and reliability of the ICD-10 diagnosis of attachment disorders. Equit 2011 included children with both reactive attachment disorder and disinhibited attachment

disorder in their grouping for attachment disorder. Minnis 2009, on the other hand, only included children with symptoms of reactive attachment disorder. They used the Waiting Room Observation to assess indices such as shyness and interactions with strangers. The Relationship Problems Questionnaire (RPQ) was completed by the teachers and parents to measure emotional problems, conduct problems, hyperactivity, problems with peers and prosocial behaviour. Summary findings can be found in Table 185–Table 190.

Table 185: ICD-10 versus DC: 0-3R: Convergent validity

Study ID	Tool	Association
Equit 2011 n=299, k=1	ICD-10 and DC: 0-3R. RAD =disinhibited attachment disorder	Both tools detected similar number of attachment disorders. ICD-10 = 13 (4.3%) and DC: 0-3R=15 (5%).

Table 186: ICD10: Convergent and Construct validity

Study ID	Tools used	RAD + Attachment	Total	Maltreated N=23	Non-abused N=8
Minnis 2009	ICD (RAD) versus MCAST	RAD + Insecure RAD + Secure	= 22 (71%) = 9 (29%)	=17 (74%) =6 (26%)	=5 (63%) =3 (37%)
		RAD + Organised RAD + Disorganised	=22 (71%) = 9 (29%)	=14 (61%) =9 (39%)	=8 (100%) =0

Green = strong association, yellow = moderate association. Grey = non-significant association

Table 187: ICD10: Convergent validity

Study ID	Tools used	RAD + Attachment
Minnis 2009	ICD (RAD) versus MCAST	Children with RAD demonstrated statistically higher levels of disorganised behaviour RAD + Secure

Table 188: ICD10: Construct validity

Study ID	Tools used	Following showed differences between RAD and controls:
Minnis 2009	ICD (RAD)	Teacher PRQ p<0.0001 Parent PRQ p<0.0001 Verbal IQ p=0.04 History of physical abuse p<0.0001 History of sexual abuse p=0.04 Neglect p<0.001

Green = strong association, yellow = moderate association. Grey = non-significant association

Table 189: ICD-10: Inter-rater reliability

Study ID	
Minnis 2009	There was good agreement (97%; 1 disagreement) between the research team and expert panel on diagnostic status

Green = strong association, yellow = moderate association. Grey = non-significant association

Table 190: Summary table of the validity and reliability of ICD-10 diagnosis of RAD

Concurrent validity RAD	Convergent validity	Discriminate validity	Predictive validity	Stability	Construct validity	Reliability between observers	Reliability within observer
NR	√ K=1, n=299 DC:0-3R	NR	NR	NR	√ Unclear K=1,n=77	√ Unclear K=1, n=77	NR
	Poor K=1, n=77 MCAST (attachment)						

Green = strong association, yellow = moderate association. Grey = non-significant association

8.3.3051 Diagnostic Statistical Manual (DSM-IV)

The Health Technology Appraisal identified 1 study by Boris 2004 that selected families with children at high risk for attachment disorders. The DSM-IV criteria for RAD requires clinicians to document 'abnormal social behaviour' evidence 'across social contexts' and beginning before age 5 for diagnosis. Two subtypes of social behaviour are possible 1) indiscriminate sociability, in which the infant or young child readily engages with and seeks comfort from strangers and 2) inhibited behaviour, in which the infant or young child actively and fearfully disengages from caregivers, seeing little comfort in the times of distress. In this study they compared the diagnosis of children with RAD with attachment difficulties measured by the Strange Situation Procedure. Summary findings can be found in Table 191– Table 194.

Table 191: Diagnostic Statistical Manual (DSM – IV): Convergent validity

Study ID	Population	Tool	Association
Boris 2004 K=1,n=69	Included high-risk Children = placed in foster care for abuse; an inner-city homeless shelter; and a comparison group	RAD versus SSP	Secure: χ2 = 5.55§. (secure infants less likely to have RAD)
			Disorganised: ns

Green = strong association, yellow = moderate association. Grey = non-significant association.
§ p<0.05

Table 192: Diagnostic Statistical Manual (DSM – IV): Construct validity

Study ID	Maltreated versus non-maltreated
Boris 2004 K=1,n=69	maltreatment sample were significantly more likely to meet criteria for 1 or more attachment disorders (p <.001)

Green = strong association, yellow = moderate association. Grey = non-significant association

Table 193: Diagnostic Statistical Manual (DSM – IV): Inter-rater reliability

Study ID	Inter-rater reliability
Boris 2004 K=1,n=69	DSM-IV = Tri coded. Agreement =54-73% Agreement kappa =0.44-0.76.

Green = strong association, yellow = moderate association. Grey = non-significant association

Table 194: Summary of the validity and reliability of DSM-IV measure of reactive attachment disorder

Tool compared with	Concurrent validity	Convergent validity	Discriminate validity	Predictive validity	Stability	Construct validity	Reliability between observers	Reliability Within observer
SSP	NR	√ secure K=1,n=69 NS disorganised K=1,n=69	NR	NR	NR	√ N=69 k=1	√ N=69 k=1	NR

Green = strong association, yellow = moderate association. Grey = non-significant association

8.3.35 Economic evidence

No economic evidence on measurement/tools used to identify/assess attachment disorders in children and young people was identified by the systematic search of the economic literature undertaken for this guideline. Details on the methods used for the systematic search of the economic literature are described in Chapter 3.

8.3.36 Clinical evidence statements for tools to identify reactive attachment disorders

8.3.36.1 Disturbances of Attachment Interview (DAI)

- Moderate quality evidence from 1 study (n=136) showed the DAI is strongly associated with PAPA score. Thus the DAI demonstrates concurrent validity for attachment disorders.
- Moderate quality evidence from 1 study (n=136) showed the DAI is strongly associated with Stranger at the Door procedure (developed by the authors to detect indiscriminate behaviour). Thus, the DAI demonstrates concurrent validity for attachment disorders.
- Moderate quality evidence from 1 study (n=136) showed the DAI is moderately associated with attachment scores from Strange Situation Procedure. Thus, the DAI demonstrates convergent validity for attachment disorders.
- Moderate quality evidence from 1 study (n=136) showed the DAI has good sensitivity and specificity with results from PAPA measure of inhibited RAD and moderate to good sensitivity and specificity for disinhibited RAD. Thus, the DAI demonstrates good concurrent validity.
- Moderate quality evidence from 1 study (n=136) showed the DAI is moderately associated with sensitivity scores derived from an observational measure of caregiving quality. Thus, the DAI demonstrates convergent validity for attachment disorders.
- Moderate quality evidence from 1 study (n=136) showed the DAI is moderately associated with inhibitory control scores from the Bear-Dragon test. Thus, the DAI demonstrates convergent validity for attachment disorders.
- Moderate quality evidence from 1 study (n=136) showed the DAI is moderately associated with inhibitory control scores from the Bear-Dragon test. Thus, the DAI demonstrates convergent validity for attachment disorders.
- Moderate quality evidence from 1 study (n=136) showed the DAI is able to discriminate results from depression scores at 42 months. Thus, the DAI may demonstrate discriminate validity for attachment disorders.
- Moderate quality evidence from 1 study (n=136) showed the DAI may be able to discriminate results from children with ADHD, who are oppositional defiant. Thus, the DAI demonstrates discriminate validity for attachment disorders.
- Moderate quality evidence from 1 study (n=136) showed the DAI may be able to discriminate results from children with ADHD, oppositional defiant disorder, total impairment, activity/impulsivity, aggression/defiance, social competence,. Thus, the DAI demonstrates good discriminate validity for attachment disorders.
- Moderate quality evidence from 1 study (n=136) showed the DAI may be able to discriminate results from children with depression. Thus, the DAI may demonstrate good discriminate validity for attachment disorders.
- Moderate quality evidence from 1 study (n=136) showed the DAI reports similar results over 54 months. Thus, the DAI demonstrates good stability measuring attachment disorders over time.
- Moderate quality evidence from 1 study (n=136) showed different assessors using the DAI have good agreement in their scores. Thus, the DAI demonstrates good inter-

rater reliability.

8.3.362 Preschool Age Psychiatric Assessment

- Moderate quality evidence from 1 study (n=136) showed the PAPA is strongly associated with DAI score. Thus the PAPA demonstrates concurrent validity for attachment disorders.
- Moderate quality evidence from 1 study (n=136) showed the DAI is poor to strongly associated with the attachment results from the Strange Situation Procedure. Thus the DAI may demonstrate convergent validity for attachment disorders.
- Moderate quality evidence from 1 study (n=136) showed the DAI shows it can distinguish the results from children with ADHD and major depression. Thus the DAI demonstrates discriminate validity.

8.3.363 ICD-10

- Moderate quality evidence from 1 study (n=299) showed the ICD-10 criteria is poor to strongly associated with the attachment results from the Strange Situation Procedure. Thus the DAI may demonstrate convergent validity for attachment disorders.
- Low quality evidence from 1 study (n=38) showed the ICD-10 criteria may be able to similarly categorise those who have RAD + disorganised attachment + been maltreated versus those who have not been maltreated. But it was not able to similarly categorise children who have RAD + insecure attachment + been maltreated compared to those who have not been maltreated. Thus, it is unclear if the DAI may demonstrate convergent validity for attachment disorders.
- Low quality evidence from 1 study (n=136) showed the ICD-10 criteria similarly categorised children with RAD and disorganised attachment but not secure attachment (compare with controls). Thus the ICD-10 may not demonstrates convergent validity.
- Low quality evidence from 1 study (n=136) showed the ICD-10 shows it can distinguish the results in RPQ scores, history of abuse, and IQ in children with RAD versus with RAD. Thus the ICD-10 demonstrates construct validity.
- Low quality evidence from 1 study (n=136) showed good concordance in the results between observers who used the ICD-10 criteria. Thus, the ICD-10 demonstrates good inter-rater reliability.

8.3.364 DSM-IV

- Very low quality evidence from 1 study (n=69) showed children diagnosed with the DMS-IV criteria as having RAD were less likely to have secure attachment, but not disorganised attachment. Thus, it is unclear if DSM-IV shows convergent validity for disorganised attachment.
- Very low quality evidence from 1 study (n=69) showed children diagnosed with the DMS-IV criteria were more likely to have been maltreated. Thus, DSM-IV shows construct validity.
- Very low quality evidence from 1 study (n=69) showed good agreement in the results between observers who used the DSM-IV criteria. Thus, DMS-IV demonstrates good inter-rater reliability.

8.3.37 Economic evidence statements

No economic evidence on measurement/tools used to identify/assess attachment disorders in children and young people is available.

8.4 Recommendations and link to evidence

Recommendations	
	29. Consider using the following assessment tools to guide decisions on interventions for children and young people who have or may have attachment difficulties: • Strange Situation Procedure for children aged 1–2 years • modified versions of the Strange Situation Procedure for children aged 2–4 years (either the Cassidy Marvin Preschool Attachment Coding System or the Preschool Assessment of Attachment) • Attachment Q-sort for children aged 1–4 years • Manchester Child Attachment Story Task and McArthur Story Stem for children aged 4–7 years • Child Attachment Interview for children and young people aged 7–15 years • Adult Attachment Interview for young people (aged 15 years and over) and their parents or carers.
Relative values of different outcomes	The GC discussed the importance and relevance of various outcomes for identifying children with attachment difficulties. The GC specified that the sensitivity and specificity of different tools against an appropriate gold standard was regarded as the most useful outcome to assess the diagnostic accuracy of each tool. However in the absence of such data, the GC decided that other measures of validity (concurrent, convergent, predictive, discriminant and construct) and reliability (inter-rater, intra-rater, internal stability) would be important outcomes to judge the utility of each tool. The GC also decided that in the absence of evidence, the clinical utility and ease of administration based on their expert opinion and experience were important outcomes.
Trade-off between clinical benefits and harms	For toddlers and children aged 1-2, the Strange Situation Procedure was found to have good reliability and validity for identifying attachment difficulties, and for children aged 1-4 the Attachment Q-sort was found to have good reliability and moderate to good validity. Based on this evidence, the GC agreed that both the SSP and the AQS were good tools to identify attachment difficulties infants and children for the recommended age ranges. However, based on their clinical experience, the GC noted that these tools can be time consuming to administer (up to 3 hours for the Attachment Q-sort). Therefore, in order to avoid putting burden on services and to ensure the access threshold wasn't too high, the GC stressed that tools should only be considered where there was concern about attachment difficulties, and where there was reason to believe the infant might benefit from an attachment focused intervention. The evidence for the reliability and validity of the 2 modified versions

	of the SSP suitable for use in infants and children 2-4 years, the Cassidy-Marvin Coding System and the Preschool Attachment Assessment, was more limited. However the available evidence demonstrated moderate to good reliability and validity for both tools, although evidence suggested the Preschool Attachment Assessment may have more predictive validity, based on data from the studies included in this review. The GC discussed the importance of having a tool which can measure attachment disorganisation in children up to the age of 4 years, and because the AQS does not measure disorganisation and the standard SSP is only used up to the age of 2, the GC felt that the modified versions of the SSP (the Cassidy-Marvin coding system and the PAA) should be recommended. The attachment Q-sort was felt to be important for use in children up to 4 years as it can be administered in the home, unlike the SSP which takes place at the clinic, and the GC agreed that the use of the AQS fits with clinical practice. For children aged between 4 and 7 the GC considered 2 tools; the Manchester Child Attachment Story Task and the MacArthur Story Stem Battery. Based on the available evidence, the Manchester Child Attachment Story Task was found to have good validity and reliability, and drawing on their expert clinical experience, the GC agreed that this was a good tool to recommend for use in clinical practice. There was no available evidence for the MacArthur Story Stem Battery (from the HTA report- comparing the MSSB to another tool), therefore the GC drew on their expert clinical experience of the practical application in order to evaluate its clinical utility. Based on their judgement, the GC agreed that the MacArthur Story Stem Battery was a useful tool in clinical practice for this group of children and would recommend its use for the appropriate age range of children. For children aged between 7 and 15 years, 3 tools were considered, the Child Attachment Interview, the Separation Anxiety Test and the School Age Attachment Assessment. The CAI was found to have good validity across a range of different measures and good reliability for identifying children with attachment difficulties and the GC agreed that this tool would be applicable to clinical situations. There was very limited evidence for the Separation Anxiety Test (which only came from studies where the SAT was a reference tool) and the GC did not feel there was sufficient evidence from either of the studies considered or their expert clinical experience to recommend this tool for use in clinical practice. There was no available evidence for the School Age Attachment Assessment, and the GC did not feel there was strong enough evidence from their clinical experience to warrant recommending this tool. For adolescents over the age of 15, there was no evidence covered by the HTA report. Therefore the GC drew on their expert clinical experience and judgement to evaluate and recommend the use of the Adult Attachment Interview.
Trade-off between net	The GC considered that the use validated tools for identification and

health benefits and resource use	assessment has the potential to be cost effective if it leads to timely identification and assessment, and to adequate subsequent treatment of attachment difficulties. The costs of administration of identification and assessment tools would be negligible given that such tools would be administered only where there was concern about attachment difficulties, and where there was reason to believe that a child might benefit from an attachment focused intervention. The GC also considered substantial long-term costs associated with attachment difficulties including poorer mental health, behavioural problems, and placement into care costs. Also, children with attachment difficulties have poorer employment and education outcomes, and higher involvement with the criminal justice sector. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice sector costs, and society as a whole. The GC also noted that timely identification and assessment would have consequences on parents' mental and emotional wellbeing too (for example development of depression and anxiety); these are likely to be substantial, making the use of such tools an even better investment.
Quality of evidence	The evidence across studies on the identification of attachment difficulties was limited. The quality of the evidence ranged from very low to moderate. The evidence was downgraded because of potential risks of bias in the patient selection which were generally unclear. Studies were also downgraded for risk of bias in the administration of the index test; in particular, it was unclear in a number of studies whether the index test was interpreted blind to the reference test. The sample sizes were also small, that is, each study had less than 400 participants. None of the studies reported on the critical outcomes: sensitivity and specificity. These measures are critical for knowing how likely the tools will provide false positives or false negative results (respectively), thus how likely will they over- or under-diagnose the population. Nor did any of the studies measure predictive validity. The GC considered this an important outcome for understanding whether the behaviour measured at 1 point in time can predict behavioural problems in the future. The results from this review were limited in that only studies identified by the HTA were included. The studies needed to have compared the tool with another tool that is considered a gold standard. For this reason, papers were excluded that may have compared 1 of the tools of interest with a behavioural related tool and provided additional data on construct validity. Thus, it is not known what other outcomes may have been provided (that is, predictive validity, intra-tester reliability) should papers such as these met our inclusion criteria.
Other considerations	When making decisions about clinical utility of these tools, the GC also drew on their clinical knowledge and expertise to guide the recommendations. In the absence of any evidence on the sensitivity and specificity of tools, the GC used evidence on the validity (in particular concurrent validity) and reliability of tools to arrive at the recommendations where data was available.

	Moreover, in the absence of any evidence on validity and reliability, the GC drew on their expert clinical experience and option of using the tools in clinical practice and used informal consensus methods to arrive at the recommendations. When judging the clinical utility of some of the tools, the GC were also aware of existing systematic reviews which reported data on the reliability and validity of tools however they included papers that did not meet the inclusion criteria of the HTA report. The GC used their knowledge of information from these reviews to help inform their decisions. When judging the clinical utility of the Preschool Assessment of Attachment, the GC noted that the only evidence for this tool came from studies authored Crittenden et al. who also developed the tool, therefore the GC and were mindful about the lack of evidence on validity from groups outside that of Crittenden's. The GC agreed that clinicians should consider the use of tools as part of a robust assessment for children on the edge of care or children manifesting attachment difficulties, who may benefit from an attachment focused intervention, in order to substantiate their view of attachment difficulty and to guide their decisions about interventions. In particular, the GC felt that the tool should be considered before and at the end of an intervention alongside a comprehensive assessment of risk factors. The GC discussed the need for a longitudinal study to better understand the relationship between the child's functioning and attachment patterns. This will help us better understand the long-term outcomes of children who have attachment difficulties. It will also provide us with the predictive validity of attachment measurement tools.

1

2

Recommendations	**30.** Only diagnose an attachment disorder if a child or young person has attachment difficulties that meet diagnostic criteria as defined in the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5; reactive attachment disorder and disinhibited social engagement disorder) or the International Classification of Diseases and Related Health Problems, 10th revision (ICD-10; reactive attachment disorder and disinhibited attachment disorder).
Relative values of different outcomes	The GC discussed the importance and relevance of various outcomes for identifying children with attachment disorders. The GC specified that the sensitivity and specificity of different tools for against an appropriate gold standard was regarded as the most useful outcome to assess the diagnostic accuracy of each tool. However in the absence of such data, the GC decided that other measures of validity (concurrent, convergent, predictive, discriminant and construct) and reliability (inter-rater, intra-rater, internal stability)

	would be important outcomes to judge the utility of each tool. The GC also decided that in the absence of evidence, the clinical utility and ease of administration based on their expert opinion and experience were important outcomes.
Trade-off between clinical benefits and harms	The DAI overall showed good concurrent validity, moderate convergent validity with other behavioural measures (including attachment) and apparently good discriminate validity. It also showed good sensitivity and specificity with the scores by PAPA and good stability over time and inter-rater reliability. No measures on construct validity, predicted validity or intra-rater reliability were reported. The PAPA overall showed good concurrent validity, unclear convergent validity, very good discriminate validity. No other outcomes were reported, including any on reliability. The ICD-10 diagnosis of RAD showed poor convergent validity with attachment and good convergent validity with children who had been abused. It also demonstrated very good construct validity and inter-rater reliability. No outcomes were reported for discriminate validity, stability over time, predictive validity or intra-rater reliability. The DSM-IV diagnosis of RAD showed children with RAD were less likely to be secure but it was unable to detect children who were more likely to be disorganised (measured using the Strange Situation Procedure). The tool demonstrated very good construct validity and inter-rater reliability.
Trade-off between net health benefits and resource use	The GC expressed the view that diagnosis of an attachment disorder using diagnostic criteria as defined in DSM-V (reactive attachment disorder and social engagement disorder) and ICD-10 (reactive attachment disorder and disinhibited attachment disorder) has important resource implications. The GC considered the costs of administering such semi-structured diagnostic interviews to be negligible, if it leads to timely and appropriate diagnosis, and to adequate subsequent treatment of attachment difficulties. This is because there are substantial long-term costs associated with attachment difficulties including poorer mental health, behavioural problems, and placement into care costs. Also, children with attachment difficulties have poorer employment and education outcomes, and higher involvement with the criminal justice sector. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice sector costs, and society as a whole. Hence the importance of timely and appropriate diagnosis, and subsequent treatment (where appropriate) to potentially prevent costly consequences associated with attachment difficulties.
Quality of evidence	Overall, the quality of the evidence ranged from very low to moderate. Studies were downgraded if they showed an unclear method of selecting the sample or if they failed to avoid selecting cases and controls. Some studies also failed to describe what their exclusion criteria was. Studies were downgraded if the assessors were not blind to the results from the reference text or if they did not stipulate if they included a pre-specified criteria for their diagnosis. The size of the samples ranged from 31 to 299, thus they were relatively small. They did, however include high risk children thus reduced the risk of false positives in their results. The GC discussed how it is incorrect to assume that a diagnosis of attachment disorders should converge with attachment difficulties

	(secure, insecure or disorganised attachment), since it is measuring different behaviours. Therefore, the GC would not necessarily expect a good correlation between these outcomes. The results from this review were limited in that only studies identified by the HTA were included. The studies needed to have compared the tool with another tool that is considered a gold standard. For this reason, papers were excluded that may have compared 1 of the tools of interest with a behavioural related tool and provided additional data on construct validity. Thus, it is not known what other outcomes may have been provided (that is, predictive validity, intra-tester reliability). None of the tools provided predictive validity. This is an important outcome that will give insight into how 1 measure in time can reflect what may be an on-going behavioural problem in the child. The GC did not find any of the tools showed obviously better results than another. For this reason they recommended the use of the internationally recognised tools ICD-10 and DSM-IV to assess attachment disorders.
Other considerations	The GC discussed the importance of correctly diagnosing attachment disorder in the field. They discussed how children with attachment difficulties are often assumed to have an attachment disorder (mostly due to lack of understanding and a diagnosis). Thus, whilst it is important to diagnose, especially when it comes to accessing services, it is important that not all children are assumed to have attachment disorder. For these reasons the GC wanted a recommendation that addressed this problem and only wanted children correctly assessed and diagnosed (that is, via DSM or ICD) to be described as having an attachment disorder.

8.41 Research Recommendation

3. A longitudinal study to identify correlations between measured attachment patterns and other measures of the child's functioning over time, using well-validated instruments.

9 Interventions for children and young people on the edge of care

9.1 Introduction

Children 'looked after' by a local authority comprise 2 groups: those 'in the care' of the local authority, with or without the agreement of the birth parents, and those 'accommodated' (section 20 of the Children's Act 1989) i.e. in circumstances when birth parents have agreed voluntarily to such an arrangement, sometimes on a planned, short-term basis to give the family time to deal with certain problems. Children on the 'edge of care' consist of 2, often overlapping, 'at risk' populations. There are children who are considered to be 'in need', due to impaired development. Whilst this group is seen by local authorities in the lower thresholds of risk assessment, their circumstances can change rapidly, leaving them at risk of 'significant harm' (as defined by section 47 of the Children Act 1989). When this assessment is made, a child will be made subject to a child protection plan (what used to be referred to as being 'placed on the child protection register'). Children on child protection plans are monitored regularly and formally through the child protection system, which involves formal multi-agency meetings and visits by child protection professionals, especially social workers who usually act as the key worker.

Children may enter the care system for reasons other than where there are child protection concerns, however. Recent statistics indicate, for example, that around 62% of children in care entered the system as a result of abuse and/or neglect. Other reasons for being looked after include: children with a disability, the parent is ill or disabled, the parent is absent (e.g. with unaccompanied asylum seekers), family dysfunction, where there is acute family distress and, in some UK countries, when the young person has offended).

Previously unacknowledged or unknown forms of abuse, such as child sexual exploitation, child trafficking and online grooming, add to the number of children likely to be on the 'edge of care'. Similarly, additional 'at risk' groups can surface as a result of social problems which have previously also been unacknowledged or unknown, or which have emerged relatively recently. One such example is the age at which children enter the care system. 40% of children are starting to be looked after in England are aged 10-15, for example. This represents not only a change in the demographic profile of those in care, it also challenges professionals and agencies to respond creatively but urgently to address the problems that are thought to lay beneath the data.

Referring to Department for Education statistics (31 October 2013 –In England at 31 March 2013 there were 68,110 children looked after, an increase of 2% compared to the previous year and an increase of 12% compared to 31 March 2009 (around the time of the death of Peter Connelly – 'Baby P'). 28,830 children started being 'looked after' during the year ending 31 March 2013, also an increase of 2% compared to the previous year and, again, an increase of 12% compared to the end of March 2009. The number of children adopted during the year ending 31 March 2013 was 3,890, an increase of 15% from 2012 and 20% from 2009 (this increase probably reflects deliberate changes in government policy).

Using the same official governmental statistical source, predictably the 'edge of care' population is larger; but it is difficult to calibrate accurately and reliably, due to definitional and terminological imprecision. As an indication, however, if we try and focus on 'children in need', there were 593,500 referrals to children's social services. Perhaps surprisingly, this is the lowest since 2009-10. From this 441,500 initial assessments (also down 2.2% on the previous year). The number of children starting an 'episode' of being 'in need' rose by 2.5% compared to the previous year to 378,000.

Turning to the child protection system, the number of core assessments – the next stage on from the initial assessment – went up 5.4% from the previous year to 232,700, of which there were 127,100 section 47 enquiries conducted (that is, formal child protection investigations). 52,700 of these investigations resulted in a child protection plan. (It is important to remember here that the majority of children subject to formal plans live at home with their 'carers': they are not 'in the care' of the local authority).

In 2013 just over 63% of referrals around concerns about a child's safety and/development became a 'child in need', just under 9% were made subject to a child protection plan and just under 5% entered the care system. Any of these children can be considered at the 'edge of care' – even those looked after, because sometimes they leave care relatively quickly and then re-enter. But other children, who do not appear in the original 593,500 referrals, can also be on the 'edge of care': they are not identified, as professionals are unaware of problems. And sometimes we do not know, until it is too late.

9.2 Review question: What interventions are effective in promoting attachment in children and young people on the edge of care?

The review protocol summary, including the review question and the eligibility criteria used for this section of the guideline, can be found in Table 195 . A complete list of review questions and the full review protocols can be found in Appendix F; further information about the search strategy can be found in Appendix H.

This review includes interventions for children and young people who have been exposed to one or more risk factor likely to bring them to the edge of care. It includes an additional review that focuses children who have been maltreated or are at risk of being maltreated. The inclusion criteria for the latter was broadened to incorporate papers with outcomes that are related to attachment or parental sensitivity (i.e. family cohesion). The reason for this was because the GG agreed maltreatment is a critical risk factor and they wanted to capture as many relevant papers as possible.

For all reviews on interventions that promote attachment in children and young people in all settings, where only a few events were recorded for dichotomous outcomes (i.e. less than 40% of the population) the results were inverted or changed from the number of children who had an event to those who did not (non-event). This correction adjusts the relative risk and provides a more conservative estimate of the effectiveness of the intervention (or effect size).

Table 195: Clinical review protocol summary for the review of interventions for promoting attachment in children and young people on the edge of care

Component	Description
Review question(s)	What interventions are effective in promoting attachment in children and young people on the edge of care? What are the adverse effects associated with each intervention?
Population	**Include:** Children and young people (aged 0-18 years) at risk of developing attachment problems and on the edge of care. Children on the edge of care are defined as those who are exposed to risk factors that are likely to bring them to the edge of care. Risk factors may include 1 or more of the following – children who have: o Been maltreated or are at risk of being maltreated

Component	Description
	○ Parents with mental health/substance misuse problems ○ Parents who have been in care themselves ○ Parents who have attachment problems ○ Families at social disadvantage (for example, living in poverty) ○ Parents in prison ○ Adolescent mothers ○ Experienced domestic abuse ○ Been identified by social care services as being at high risk and have had a Core Assessment Strata: • Age of child: Preschool (≤4 years); primary school (>4 to 11 years); secondary school (>11 to 18 years) **Exclude:** • People aged >18 years • Children and young people not at the edge of care
Intervention(s)	Include: Any intervention aimed at improving 1 or more of the critical outcomes (see below).These could include: Video feedback Parent–child psychotherapy Parent sensitivity and behaviour training Home visiting Psychotherapy Cognitive behavioural therapy (CBT) Counselling Exclude: Any intervention that does not target at least 1 of the critical outcomes (see below)
Comparison	Control (No treatment; Waitlist; Treatment-as-usual; Non-therapeutic control) Any other active intervention
Critical outcomes	Attachment (secure, insecure, disorganised) Parental sensitivity/responsiveness Placement stability
Secondary outcomes	Emotional and behavioural functioning (i.e. internalising and externalising behaviour) Developmental status, specifically mental and motor development Parental attitudes
Subgroup analysis	If heterogeneity is present, the influence of the following subgroups will be considered: Age of child: Preschool (≤4 years); primary school (>4 to 11 years); secondary school (>11 to 18 years) Duration of treatment: Short (≤4 weeks); medium (>4 weeks to <12 months); long (≥ 12 months)
Study design	Randomised control trials
Note.	

9.2.1 Clinical evidence for interventions for children and young people on the edge of care

9.2.1.1 Video feedback versus any other comparison

There were 11 RCTs (N = 1058) that met the eligibility criteria for this review: Akai 2008 (Akai et al., 2008), Bakermans-Kranenberg 1998 (Bakermans-Kranenburg et al., 1998), Bernard 2012 (Bernard et al., 2012), Guttentag 2014 (Guttentag et al., 2014), Klein-Velderman 2006 (Klein Velderman et al., 2006), Koniak-Griffen 1992 (Koniak-Griffin, 1992), Moran 2005, Moss 2011(Moss et al., 2011) , Negrao 2014 (Negrao et al., 2014) Stein 2006 (Stein et al., 2006), van Doesum 2008 (van Doesum et al., 2008). Of the eligible studies, all included sufficient data to be included in the evidence syntheses.

10 studies compared video feedback with control (N = 978), and 1 study compared video feedback with counselling (N = 80).

Of the included studies, the risk factor likely to bring children to the edge of care were: adolescent mothers (N = 2), children who have been or are at risk of being maltreated (N = 2), mothers who had insecure attachment (N = 2), mothers with depression (N = 1), families at social disadvantage (N = 2) and mothers with an eating disorder (N = 1).

An overview of the trials included in the meta-analysis can be found in Table 196. Further information about both included and excluded studies can be found in Appendices L and M, respectively. Summary of the results for video feedback versus control at the end of the intervention, at first follow-up and at second follow-up can be found in Table 197, Table 198 and Table 199, respectively. Summary of the findings for video feedback versus counselling can be found in Table 200. The full GRADE evidence profiles and associated forest plots can be found in Appendices N and O.

Table 196: Study information table for trials included in the meta-analysis of video feedback versus control

	Video feedback versus control	Video feedback versus counselling
Total no. of studies (N[1])	9 (935)	1 (80)
Study ID	(1) Akai 2008 (2) Bakermans-Kranenberg 1998 (3) Bernard 2012 (4) Guttentag 2014 (5) Klein-Velderman 2006 (6) Koniak-Griffin 1992 (7) Moran 2005 (8) Negrao 2014 (9) Moss 2011 (10) VanDoesum 2008	Stein 2006
Country	(1, 3 to 4, 6) USA (2, 5, 10) NL (8) Portugal (7 to 9) Canada	UK
Number of participants originally randomised	(1) 48 (2) 30 (3) 120 (4) 361 (5) 81 (6) 31 (7) 100 (8) 43	80

	Video feedback versus control	Video feedback versus counselling
	(9) 79 (10) 85	
Risk factor	(1, 4) Social disadvantage (2, 5) Mothers with an insecure attachment (3) At risk of maltreatment (6, 7) Adolescent mothers (8) Social disadvantage (9) Maltreating families (10)Mothers with depression	Mothers with bulimia nervosa
Title of intervention	(1,4) My baby and me (2, 5 to 10) None (3) Attachment and biobehavioural catch-up	None
Stage of intervention (approximate age range of children at onset of intervention)	(1) 3-6m (2) 7-10m (3) 1-22m (4) Began prenatally (3rd trimester of pregnancy) (5) 7-10m (6) 4-6wks (7) 6m (8) 0-36m (9) 1-5yrs (10) 1-12m	4-6m
Delivered by	(1) Bachelor's level parent facilitators (2) Professors of Psychology (3) Parent trainers with experience with children. (4) Family coaches with a minimum bachelors' degree in Psychology, education or related field. (5) Home visitors with minimum bachelors' degree in education and child studies. (6) Nurses (7) Two home visitors. One with PhD in child clinical psychology and the other is a childhood educator. (8) Interveners with a master's degree in Psychology (9) Clinical workers with experience in child welfare settings (10) Home visitors with master's degree in psychology or social psychiatry and graduate or postgraduate training in prevention or health education	Therapists experienced in child and family mental health care
Length of session	(1, 4, 9) 1.5 (2, 5) 1.5-3hrs (3, 7) 1 hr (6, 8)Unclear.	1hr.

	Video feedback versus control	Video feedback versus counselling
	(10)1-1.5hrs	
Frequency	(1) Unclear (12 sessions in total) (2, 5) Monthly (3) Weekly (4, 10) Weekly/Fortnightly (6) Unclear (2 sessions in total) (7) Weekly/Biweekly/Triweekly (8) Biweekly (9) Unclear	Unclear (13 sessions in total)
	(1) Approx 4m (2, 5) 3m (3, 9) 2m (4) Approx 3yrs (6) 1m (7) 5m (8) Approx 6m (10)3-4m	Approx 6 months
Tool used to measure attachment	(1 to 2, 4, 6, 8) None (3, 5, 7 to 9) Strange situation (10) Attachment Q-sort (story completion at follow up)	None
Tool used to measure sensitivity/responsiveness	(1) Mother-infant observation (2, 5) Ainsworth's sensitivity scales (3, 7) None (4) Landry parent–child interaction scale (5) Ainsworth's sensitivity scales (6) Nursing child assessment teaching scale (8) Emotional availability scale (9) Maternal behavioural Q-set (10)Emotional availability scale	Own measure (measured insensitivity)
Control/comparison	(1) Non-therapeutic control – parenting literature and community referrals. (2) Control – no information provided. (3) Non-therapeutic control – developmental education. (4) Non-therapeutic control – community referrals and print materials. (5) Control – no information provided. (6) Non-therapeutic control – videotaped interactions but not feedback provided. (7) Non-therapeutic control – videotaped interactions but no feedback provided. (8) Control – 6 telephone (9) Treatment-as-usual (10) Non-therapeutic control – general information provided via phone on childrearing skills	Supportive counselling

	Video feedback versus control	Video feedback versus counselling
Post-treatment assessment (after baseline)	(1) Approx 4m (2, 5) None (3) Approx 3m (4) 30m (6) 1m (7) 5m (8) Approx 2m (9) 3-4m	6m
Follow-up assessment (after end of treatment)	(1, 3 to 4, 7 to 8) None (2, 5) 3m (6) 1m (9) 6m and 56m	None

Table 197**: Summary of findings table for video feedback versus control at the end of intervention**

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control PT	Risk difference with Video feedback (95% CI)
Sensitivity/Responsiveness Mother-infant observation; Landry parent–child interaction scale; Nursing child assessment teaching scale; Maternal behavioural Q-set; Emotional availability scale	442 (6 studies) 1-30 months	⊕⊕⊕⊖ MODERATE1 due to risk of bias			The mean sensitivity/responsiveness in the intervention groups was 0.47 standard deviations higher (0.29 to 0.65 higher)
Secure attachment Strange situation	286 (3 studies) 2-5 months	⊕⊕⊖⊖ LOW2,3 due to risk of bias, imprecision	RR 1.66 (1.27 to 2.19)	338 per 1000	223 more per 1000 (from 91 more to 402 more)
Insecure attachment Strange situation	286 (3 studies) 2-5 months	⊕⊕⊖⊖ LOW2,3 due to risk of bias, imprecision	RR 0.72 (0.57 to 0.91)	535 per 1000	150 fewer per 1000 (from 48 fewer to 230 fewer)
Disorganised attachment Strange situation	286 (3 studies) 2-5 months	⊕⊖⊖⊖ VERY LOW2,3,4 due to risk of bias, inconsistency, imprecision	RR 0.62 (0.35 to 1.1)	570 per 1000	217 fewer per 1000 (from 371 fewer to 57 more)
Externalising behaviour Child behaviour checklist	67 (1 study) 2 months	⊕⊕⊖⊖ LOW3,5 due to risk of bias, imprecision			The mean externalising behaviour in the intervention groups was 0.03 standard deviations higher (0.45 lower to 0.51 higher)
Internalising behaviour Child behaviour checklist	67 (1 study) 2 months	⊕⊕⊖⊖ LOW3,5 due to risk of bias, imprecision			The mean internalising behaviour in the intervention groups was 0.12 standard deviations lower (0.6 lower to 0.36 higher)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control PT	Risk difference with Video feedback (95% CI)

1 risk of bias (due to one or more of the following in the majority of studies: unclear random sequence generation, unclear allocation concealment, unclear reporting of participant drop out)
2 risk of bias (due to one or more of the following in the majority of studies: unclear random sequence generation, unclear allocation concealment)
3 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants).
4 inconsistency (I2>50%, p<0.05)
5 risk of bias (due to lack of blinding of parent-reported outcomes)

Table 198: Summary of findings table for video feedback versus control at follow up (first time point)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control FU 1	Risk difference with Video feedback (95% CI)
Sensitivity/Responsiveness Ainsworth's sensitivity scales; Nursing child assessment teaching scale; Emotional availability scale	203 (4 studies) 1-6 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision			The mean sensitivity/responsiveness in the intervention groups was 0.70 standard deviations higher (0.4 to 0.99 higher)
Secure attachment Strange situation	81 (1 study) 3 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision	RR 1.20 (0.82 to 1.77)	556 per 1000	111 more per 1000 (from 100 fewer to 428 more)
Secure attachment Attachment story completion task	71 (1 study) 6 months	⊕⊕⊕⊖ MODERATE2 due to imprecision			The mean secure attachment in the intervention groups was 0.45 standard deviations higher (0.02 lower to 0.93 higher)
Externalising behaviour Infant Toddler Social and Emotional Assessment	71 (1 study)	⊕⊕⊖⊖ LOW2,3			The mean externalising behaviour in the intervention groups was

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control FU 1	Risk difference with Video feedback (95% CI)
	6 months	due to risk of bias, imprecision			0.09 standard deviations higher (0.38 lower to 0.55 higher)
Internalising behaviour Infant Toddler Social and Emotional Assessment	71 (1 study) 6 months	⨁⨁⨀⨀ LOW2,3 due to risk of bias, imprecision			The mean internalising behaviour in the intervention groups was 0.3 standard deviations higher (0.17 lower to 0.77 higher)

1 risk of bias (due to one or more of the following in the majority of studies: unclear random sequence generation, unclear allocation concealment)
2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants).
3 risk of bias (due to lack of blinding of parent-reported outcomes)

Table 199: Summary of findings table for video feedback versus control at follow up (second time-point)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control FU 2	Risk difference with Videofeedback (95% CI)
Secure attachment Attachment story completion task	58 (1 study) 56 months	⨁⨁⨁⨀ MODERATE1 due to imprecision			The mean secure attachment in the intervention groups was 0.42 standard deviations higher (0.1 lower to 0.95 higher)
Externalising behaviour Child behaviour checklist	58 (1 study) 56 months	⨁⨁⨀⨀ LOW1,2 due to risk of bias, imprecision			The mean externalising behaviour in the intervention groups was 0.14 standard deviations lower (0.65 lower to 0.38 higher)
Internalising behaviour Child behaviour checklist	58 (1 study) 56 months	⨁⨁⨀⨀ LOW1,2 due to risk of bias, imprecision			The mean internalising behaviour in the intervention groups was 1.79 standard deviations higher (1.17 to 2.4 higher)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control FU 2	Risk difference with Videofeedback (95% CI)
1 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants) 2 risk of bias (due to lack of blinding of parent-reported outcomes)					

Table 200: Summary of findings table for video feedback versus counselling at the end of treatment

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Counselling PT	Risk difference with Video feedback (95% CI)
Insensitivity Author's own measure	77 (1 study) 6 months	⨁⨁⨁⊖ MODERATE1 due to imprecision	RR 0.67 (0.44 to 1.02)	667 per 1000	220 fewer per 1000 (from 373 fewer to 13 more)
1 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants).					

Table 201: Clinical/economic question: What is the cost effectiveness of interventions for children and young people on the edge of care (including video feedback, parental sensitivity and behaviour training, home visiting and parent-child psychotherapy)?

Economic evidence profile							
Study & country	Limitations	Applicability	Other comments	Incremental cost vs. standard care (n=100) (£)[1]	Incremental effect vs. standard care (n=100)	NMB (λ=£20,000/QALY; n =100)[1]	Uncertainty[1]
Guideline economic model	Potentially serious limitations[2]	Directly applicable[3]	Cost-utility Time horizon: 11 years Perspective: NHS & PSS	Video feedback: £76,024 Parental sensitivity and behaviour training:	Video feedback: 3.91 Parental sensitivity and behaviour training: 5.30	Video feedback: £15,398,673 Parental sensitivity and behaviour	PSA: probability of video feedback being cost effective at £20,000/QALY is 0.253

Economic evidence profile							
				£114,259 Home visiting and parent-child psychotherapy £666,245	Home visiting and parent-child psychotherapy : 14.75	training: £15,388,258 Home visiting and parent-child psychotherapy £15,025,297	
1 Costs expressed in 2013/14 UK pounds 2 Simple economic model including intervention costs only, resource use from RCTs included in guideline systematic review, efficacy data for video feedback from 1 trial; time horizon 11 years; PSA performed 3 NHS & PSS perspective, QALYs based on HUI2 for children with emotional disorders (valuations elicited from UK population)							

9.2.112 Parent child psychotherapy versus any comparison

There were 5 RCTs that met the eligibility criteria for this review and included sufficient data to be included in the evidence syntheses: Cicchetti 1999 (Cicchetti et al., 1999; Toth et al., 2006), Cicchetti 2006 (Cicchetti et al., 2006), Lieberman 1991 (Lieberman et al., 1991), Sleed 2013 (Sleed et al., 2013), Toth 2002 (Toth et al., 2002). All 5 studies compared parent–child psychotherapy with control. 2 of the studies (Cicchetti 2006 and Toth 2002) included 3 study arms and also compared parent–child psychotherapy with home visiting.

Of the included studies, the risk factor likely to bring children to the edge of care were: mothers with depression (N = 1), children who have been maltreated (N = 2), families at a social disadvantage (N = 1) and mothers in prison (N = 1).

An overview of the trials included in the meta-analysis can be found in Table 202. Further information about both included and excluded studies can be found in Appendices L and M, respectively.

Summary of findings for parent–child psychotherapy versus control at the end of treatment and follow-up can be found in Table 203 and Table 204, respectively. Summary of findings for parent–child psychotherapy versus home visiting can be found in Table 205 and Table 206, respectively. The full GRADE evidence profiles and associated forest plots can be found in Appendix N and O.

Table 202: Study information table for trials included in the meta-analysis of parent child psychotherapy versus any comparison

	Parent–child psychotherapy versus control	Parent–child psychotherapy versus home visiting
Total no. of studies (N[1])	5 (504)	2 (163)
Study ID	(1) Cicchetti 1999/Toth 2006 (2) Cicchetti 2006[2] (3) Lieberman 1991 (4) Sleed 2013 (5) Toth 2002[3]	(1) Cicchetti 2006[2] (2) Toth 2002[3]
Country	(1 to 3, 5) USA (3) UK	(1 to 2) USA
Number of participants originally randomised	(1) 130 (2) 88 (3) 59 (4) 163 (5) 64	(1) 84 (2) 79
Risk factor	(1) Mothers with depression (2, 5) Maltreating families (3) Social disadvantage (4) Mothers in prison	(1 to 2) Maltreating families
Title of intervention	(1) Toddler-Parent Psychotherapy (TPP) (2 to 3) Infant-Parent Psychotherapy (IPP) (4) New Beginnings (5) Preschooler-Parent Psychotherapy (PPP)	(1) Infant-Parent Psychotherapy (IPP) (2) Preschooler-Parent Psychotherapy (PPP)

	Parent–child psychotherapy versus control	Parent–child psychotherapy versus home visiting
Stage of intervention (approximate age range of children at onset of intervention)	(1) Birth-3 yrs (2 to 3) 1-2yrs (4) Birth-2yrs (5) 4-5yrs	(1) 1-2 yrs (2) 4-5 yrs
Delivered by	(1) Psychotherapists (2) Masters level therapists (3) Women with a masters degree in Psychology or Social work and with clinical experience (4) Psychotherapists (5) Masters and doctoral level therapists	(1) Masters level therapists (2) Masters and doctoral level therapists
Length of session	(1 to 2) Unclear (3) 1.5hrs (4) 2hrs (5) 1hr	(1) Unclear (2) 1 hr
Frequency	(1 to 3) Unclear (4) Twice per week (5) Weekly	(1 to 2) 12 months
Tool used to measure attachment	(1 to 2) Strange situation (3) Attachment Q-sort (4) None (5) Global relationship expectation scale	(1) Strange situation (2) Global relationship scale
Tool used to measure sensitivity/responsiveness	(1 to 2, 5) None (3) Own measure (4) Coding interactive behavioural scale (5) None	(1 to 2) None
Control/comparison	(1) No treatment. (2, 4 to 5) Treatment-as-usual (3) Control – no information provided.	(1 To 2) Home visiting (influenced by the work of Olds – nurse-family partnership model)
Post-treatment assessment (after baseline)	(1) 16m (2 to 3, 5) 12m (4) 1m	(1 to 2) 12m
Follow-up assessment (after end of treatment)	(1, 3 to 5) None (2) 12m	(1) 12m (2) None

Note.
[1] Number randomised.
[2] 3-amed trial: utilised parent–child psychotherapy versus control; utilised parent–child psychotherapy versus home visiting in the head to head analysis.
[3] 3-amed trial: utilised parent–child psychotherapy versus control; utilised parent–child psychotherapy versus home visiting in the head to head analysis.

1
2

Table 203. Summary of findings table for parent–child psychotherapy versus control at the end of treatment

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control PT	Risk difference with Parent–child psychotherapy (95% CI)
Sensitivity/Responsiveness Coding interactive behaviour scale; Authors' own measure	141 (2 studies) 1-12 months	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, inconsistency, imprecision			The mean sensitivity/responsiveness in the intervention groups was 0.14 standard deviations higher (0.91 lower to 1.18 higher)
Secure attachment Strange situation	182 (2 studies) 1-16 months	⊕⊖⊖⊖ VERY LOW2,3,4 due to risk of bias, inconsistency, imprecision	RR 9.55 (1.09 to 83.42)	93 per 1000	792 more per 1000 (from 8 more to 1000 more)
Secure attachment Attachment Q-set; Global relationship expectation scale	106 (2 studies) 12 months	⊕⊖⊖⊖ VERY LOW2,3,5 due to risk of bias, inconsistency, imprecision			The mean secure attachment in the intervention groups was 0.27 standard deviations higher (0.51 lower to 1.05 higher)
Insecure attachment Attachment Q-set	53 (1 study) 12 months	⊕⊕⊖⊖ LOW3,6 due to risk of bias, imprecision			The mean insecure attachment in the intervention groups was 0.74 standard deviations lower (1.3 to 0.17 lower)
Insecure attachment Strange situation	182 (2 studies) 1-16 months	⊕⊖⊖⊖ VERY LOW3,4 due to risk of bias, imprecision	RR 0.48 (0.27 to 0.86)	315 per 1000	164 fewer per 1000 (from 44 fewer to 230 fewer)
Disorganised attachment Strange situation	182 (2 studies) 1-16 months	⊕⊖⊖⊖ VERY LOW3,4 due to risk of bias, imprecision	RR 0.37 (0.23 to 0.59)	593 per 1000	373 fewer per 1000 (from 243 fewer to 456 fewer)

1 risk of bias (1 or more of the following: unclear allocation concealment, selective outcome reporting, use of non-validated assessment measures)
2 inconsistency (I2>50%, p<0.05)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control PT	Risk difference with Parent–child psychotherapy (95% CI)
3 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants). 4 risk of bias (downgraded twice due to broken randomisation and selective outcome reporting) 5 risk of bias (due to 1 or more of the following: unclear random sequence generation, unclear allocation concealment, use of non-validated assessment measures) 6 risk of bias (due to unclear allocation concealment, use of non-validated assessment measures)					

Table 204. Summary of findings table for parent–child psychotherapy versus control at follow up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control FU	Risk difference with Parent–child psychotherapy (95% CI)
Secure attachment Strange situation	76 (1 study) 12 months	⨁⊖⊖⊖ VERY LOW1,2 due to risk of bias, imprecision	RR 4.54 (1.99 to 10.32)	122 per 1000	433 more per 1000 (from 121 more to 1000 more)
Insecure attachment Strange situation	76 (1 study) 12 months	⨁⊖⊖⊖ VERY LOW1,2 due to risk of bias, imprecision	RR 0.48 (0.2 to 1.14)	388 per 1000	202 fewer per 1000 (from 310 fewer to 54 more)
Disorganised attachment Strange situation	76 (1 study) 12 months	⨁⊖⊖⊖ VERY LOW1,2 due to risk of bias, imprecision	RR 0.53 (0.26 to 1.06)	490 per 1000	230 fewer per 1000 (from 362 fewer to 29 more)
1 risk of bias (downgraded twice due to broken randomisation and selective outcome reporting) 2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants).					

Table 205. Parent–child psychotherapy versus home visiting at the end of treatment

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Home visiting PT	Risk difference with Parent–child psychotherapy (95% CI)
Secure attachment	50 (1 study) 12 months	⊕⊖⊖⊖ VERY LOW1,2 due to risk of bias, imprecision	RR 1.11 (0.69 to 1.81)	545 per 1000	60 more per 1000 (from 169 fewer to 442 more)
Secure attachment	57 (1 study) 16 months	⊕⊕⊖⊖ LOW2,3 due to risk of bias, imprecision			The mean secure attachment in the intervention groups was 0.67 standard deviations higher (0.12 to 1.21 higher)
Less likely to have an insecure attachment	50 (1 study) 12 months	⊕⊖⊖⊖ VERY LOW1,2 due to risk of bias, imprecision	RR 0.93 (0.82 to 1.06)	1000 per 1000	70 fewer per 1000 (from 180 fewer to 60 more)
Disorganised attachment	50 (1 study) 12 months	⊕⊖⊖⊖ VERY LOW1,2 due to risk of bias, imprecision	RR 0.71 (0.35 to 1.43)	455 per 1000	132 fewer per 1000 (from 295 fewer to 195 more)

1 risk of bias (downgraded twice due to broken randomisation)
2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants).
3 risk of bias (due to unclear random sequence generation, unclear allocation concealment)

Table 206. Parent–child psychotherapy versus home visiting at follow-up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Home visiting FU	Risk difference with Parent–child psychotherapy (95% CI)
Secure attachment	49	⊕⊖⊖⊖	RR 2.44	227 per 1000	327 more per 1000

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Home visiting FU	Risk difference with Parent–child psychotherapy (95% CI)
	(1 study) 12 months	VERY LOW1,2 due to risk of bias, imprecision	(1.05 to 5.67)		(from 11 more to 1000 more)
Less likely to have an insecure attachment	49 (1 study) 12 months	⨁⊖⊖⊖ VERY LOW1,2 due to risk of bias, imprecision	RR 1 (0.76 to 1.3)	818 per 1000	0 fewer per 1000 (from 196 fewer to 245 more)
Disorganised attachment	49 (1 study) 12 months	⨁⊖⊖⊖ VERY LOW1,2 due to risk of bias, imprecision	RR 0.44 (0.21 to 0.91)	591 per 1000	331 fewer per 1000 (from 53 fewer to 467 fewer)

1 risk of bias (downgraded twice due to broken randomisation)
2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants).

9.2.123 Parent sensitivity and behaviour training versus any comparison

There were 9 RCTs (N = 1355) that met the eligibility criteria for this review and included sufficient data to be included in the evidence syntheses: Ammaniti 2006 (Ammaniti et al., 2006), Britt 1994 (Britt & Myers, 1994), Cooper 2009 (Cooper et al., 2009), Horowitz 2001 (Horowitz et al., 2001), Horowitz 2013 (Horowitz et al., 2013), Hughes 2004 (Hughes & Gottlieb, 2004), O'Conner 2013(O'Conner et al., 2003), Thomas 2011 (Thomas & Zimmer-Gembeck, 2011), Thomas 2012 (Thomas & Zimmer-Gembeck, 2012).

Of the included studies, the risk factor likely to bring children to the edge of care were: mothers with depression and at social disadvantage (N = 1), mothers misusing substances (N = 1), families at a social disadvantage (N = 1), mothers with depression (N = 2), children who have been maltreated (N = 3), families at a social disadvantage (N = 1).

An overview of the trials included in the meta-analysis can be found in Table 207. Further information about both included and excluded studies can be found in Appendices L and M, respectively.

Summary of findings for parent sensitivity and behaviour training at the end of intervention and at follow up can be found in Table 208 and Table 209, respectively. The full GRADE evidence profiles and associated forest plots can be found in Appendices N and O.

Table 207: Study information table for trials included in the meta-analysis of parent sensitivity and behaviour training versus control

	Parent sensitivity and behaviour training
Total no. of studies (N[1])	9 (1355)
Study ID	(1) Ammaniti 2006 (2) Britt 1994 (3) Cooper 2009 (4) Horowitz 2001 (5) Horowitz 2013 (6) Hughes 2004 (7) O'Conner 2013 (8) Thomas 2011 (9) Thomas 2012
Country	(1) Italy (2, 4 to 5) USA (3) South Africa (6) Canada (7) UK (8 to 9) AUS
Number of participants originally randomised	(1) 110 (2) 26 (3) 449 (4) 122 (5) 144 (6) 28 (7) 174 (8) 150 (9) 152
Risk factor	(1) Mothers with depression and at social disadvantage (2) Mothers misusing substances. (3) Social disadvantage (4 to 5) Mothers with depression (6, 8 to 9) Maltreating families/at risk of maltreatment

	Parent sensitivity and behaviour training
	(7) Social disadvantage
Title of intervention	(1 to 3) none (4) Interaction coaching for at risk parents and their infants (ICAP) (5) Communicating and relating effectively (CARE) (6) Webster-Stratton 'Incredible Years' parenting programme (7) Webster-Stratton 'Incredible Years' parenting programme and SPOKES literacy programme (8 to 9) Parent–child interaction therapy
Stage of intervention (approximate age range of children at onset of intervention)	(1) Began prenatally (8th month of pregnancy) (2) Birth. (3) Began prenatally (third trimester) (4) 4wks. (5) 4-6wks. (6) 3-8yrs. (7) 4-6yrs. (8) 5-8yrs. (9) 3-7yrs.
Delivered by	(1) Psychologists and social workers (2) Certified neonatal behavioural assessment scale examiner. (3) Lay trainers (all mothers) (3 To 6) Nurses. (7) Trainers with a minimum qualification of a Psychology degree (8 To 9) Masters and doctoral level psychologists
Length of session	(1 to 2, 7 to 9) Unclear (3, 5) 1 hr (4) 15 minutes (6) 2 hrs
Frequency	(1) Weekly/Fortnightly (2, 8) Unclear (3, 5) Variable (5) Every 3-5 weeks (6 to 7, 9) Weekly
Duration	(1) Approx 13m. (2) 4wks. (3) Approx 7m. (4) 10wks. (5) Approx 7m. (6) 8wks. (7) 18wks. (8) Varied according to participant progress. Average 6m. (9) Unclear (12 sessions)
Tool used to measure attachment	(1 to 2, 4 to 9) None (2) Strange situation procedure
Tool used to measure sensitivity/responsiveness	(1) Strange situation procedure (2) Nursing child assessment feeding scale (3) Parent-caregiver involvement scale (4) Dyadic mutuality code (5) Nursing child assessment teaching scale (6) Parenting skills observation scale (7) Coding of attachment related parenting (8 to 9) Emotional availability scale
Control/comparison	(1, 4) Control – no information provided (2) Non-therapeutic control (3, 7) Treatment-as-usual (5) Non-therapeutic control – nurse visits

	Parent sensitivity and behaviour training
	(6, 8 to 9) Waitlist.
Post-treatment assessment (after baseline)	(1) 13m. (2) 1m. (3, 5) 7m. (3) 2m. (4) 7m. (5 to 7, 9) 3m. (8) 4m.
Follow-up assessment (after end of treatment)	(1 to 2, 4 to 9) None (3) 5m

(a) <Insert Note here>

Table 208. Summary of findings table for parent sensitivity and behaviour training versus control at the end of treatment

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control PT	Risk difference with Parent sensitivity and behaviour training (95% CI)
Sensitivity/Responsiveness Strange situation; Nursing child assessment feeding scale; Parent-caregiver involvement scale; Dyadic mutuality code; Nursing child assessment teaching scale; Parenting skills observation scale; Coding of attachment related parenting; Emotional availability scale	1080 (9 studies) 1-13 months	⊕⊕⊕⊖ MODERATE1 due to risk of bias			The mean sensitivity/responsiveness in the intervention groups was 0.25 standard deviations higher (0.09 to 0.42 higher)
Externalising behaviour Child behaviour checklist	224 (2 studies) 3-4 months	⊕⊕⊖⊖ LOW2,3 due to risk of bias, imprecision			The mean externalising behaviour in the intervention groups was 0.28 standard deviations lower (0.55 to 0.01 lower)
Internalising behaviour Child behaviour checklist	224 (2 studies) 3-4 months	⊕⊕⊖⊖ LOW2,3 due to risk of bias, imprecision			The mean internalising behaviour in the intervention groups was 0.11 standard deviations higher (0.16 lower to 0.38 higher)
Negative parenting attitudes Child abuse potential inventory	226 (2 studies) 3-4 months	⊕⊕⊖⊖ LOW2,3 due to risk of bias, imprecision			The mean negative parenting attitudes in the intervention groups was 0.06 standard deviations lower (0.33 lower to 0.2 higher)

1 risk of bias (due to 1 or more of the following in the majority of studies: unclear random sequence generation, unclear allocation concealment)
2 risk of bias (due to high participant drop out rate and lack of blinding for parent-reported outcomes)
3 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants).

Table 209. Summary of findings table for parent sensitivity and behaviour training versus control at follow-up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control FU	Risk difference with Parent sensitivity and behaviour training (95% CI)
Sensitivity/Responsiveness	318 (1 study) 5 months	⊕⊕⊕⊖ MODERATE1 due to imprecision			The mean sensitivity/responsiveness in the intervention groups was 0.26 standard deviations higher (0.04 to 0.48 higher)
Secure attachment Strange situation	318 (1 study) 5 months	⊕⊕⊕⊖ MODERATE1 due to imprecision	RR 1.18 (1.02 to 1.37)	630 per 1000	113 more per 1000 (from 13 more to 233 more)
Less likely to have an insecure attachment Strange situation	318 (1 study) 5 months	⊕⊕⊕⊖ MODERATE1 due to imprecision	RR 1.11 (0.98 to 1.25)	728 per 1000	80 more per 1000 (from 15 fewer to 182 more)
Less likely to have a disorganised attachment Strange situation	318 (1 study) 5 months	⊕⊕⊕⊖ MODERATE1 due to imprecision	RR 1.04 (0.97 to 1.11)	901 per 1000	36 more per 1000 (from 27 fewer to 99 more)
1 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants).					

9.2.124 Home visiting versus any comparison

There were 23 RCTs (N = 13183) that met the eligibility criteria for this review and included sufficient data to be included in the evidence syntheses: Armstrong 1999 (Armstrong et al., 1999), Barlow 2007 (Barlow et al., 2007b), Barlow 2013 (Barlow et al., 2013), Barnett 1987 (Barnett et al., 1987), Black 1994 (Black et al., 1994), Booth 1989 (Booth et al., 1989), Caldera 2007 (Caldera et al., 2007), Duggan 2004 (Duggan et al., 2004), Goodson 2000 (Goodson et al., 2000), Heinicke 2001 (Heinicke, 2001), Infante-Rivard 1989 (Infante-Rivard et al., 1989), Jacobson 1991 (Jacobson & Frye, 1991), Kemp 2011 (Kemp et al., 2011), Kitzman 1997 (Kitzman, 1997), Knoche 2012 (Knoche et al., 2012), Love 2005 (Love et al., 2005), Norr 2003 (Norr et al., 2003), Olds 1994 (Olds et al., 1994), Olds 2002 (Olds et al., 2002), Sadler 2013 (Sadler et al., 2013) Schuler 2000 (Schuler et al., 2000), Wagner 2002 (Wagner et al., 2002), Walkup 2009 (Walkup et al., 2009).

There were 22 studies (N = 13078) which compared home visiting with control and 1 study (N = 105) which compared home visiting plus parent-child psychotherapy with control.

Of the included studies, the risk factor likely to bring children to the edge of care were: families at a social disadvantage (N = 16), adolescent American Indian mothers (N = 2), mothers with high trait anxiety (N = 1), mothers misusing substances (N = 1) and children at risk of maltreatment (N = 3).

An overview of the trials included in the meta-analysis can be found in Table 210. Further information about both included and excluded studies can be found in Appendices L and M, respectively.

Summary of findings for home visiting versus control at the end of intervention and follow up time points can be found in Table 211, Table 212, Table 213 and Table 214. Summary of findings for home visiting versus parent–child psychotherapy at the end of intervention can be found in Table 216. The full GRADE evidence profiles and associated forest plots can be found in Appendices N and O.

Table 210. Study information table for trials included in the meta-analysis of home visiting versus any control

	Home visiting versus control	Home visiting + parent–child psychotherapy versus control
Total no. of studies (N[1])	22	1
Study ID	(1) Armstrong 1999 (2) Barlow 2007 (3) Barlow 2013 (4) Barnett 1987 (5) Black 1994 (6) Booth 1989 (7) Caldera 2007 (8) Duggan 2004 (9) Goodson 2000 (10) Heinicke 2001 (11) Infante-Rivard 1989 (12) Jacobson 1991 (13) Kemp 2011 (14) Kitzman 1997 (15) Knoche 2012 (16) Love 2005	Sadler 2013

	Home visiting versus control	Home visiting + parent–child psychotherapy versus control
	(17) Norr 2003a/b (18) Olds 1994 (19) Olds 2002 (20) Schuler 2000 (21) Wagner 2002 (22) Walkup 2009	
Country	(1,4, 13) Australia (2) UK (3 to 10, 12, 14 to 22) USA (11) Canada	USA
Number of participants originally randomised	(1) 181 (2) 131 (3) 322 (4) 90 (5) 60 (6) 147 (7) 364 (8) 643 (9) 4410 (10) 70 (11) 47 (12) 46 (13) 208 (14) 743 (15) 234 (16) 3001 (17) 588 (18) 300 (19) 490 (20) 171 (21) 665 (22) 167	105
Risk factor	(1 to 2, 9 to 21) Social disadvantage (3, 22) Adolescent American Indian mothers (3) Mothers with high trait anxiety (4) Mothers misusing substances (6 to 8) At risk of maltreatment	Social disadvantage
Title of intervention	(1 to 2, 4 to 5, 10 to 11, 14, 18 to 19) None (3, 22) Family Spirit (6) Mental health model (7) Healthy Families Alaska (8) Hawaii's Healthy Start program (9) Comprehensive child development program (12) Oakland family services (13)The Miller Early Childhood Sustained Home-visiting programme (15) The getting ready	None

	Home visiting versus control	Home visiting + parent–child psychotherapy versus control
	intervention (16)Early head start (17)REACH-Futures intervention (20) Mothers misusing substances (21)Parents as teachers	
Stage of intervention (approximate age range of children at onset of intervention)	(1, 4, 7 to 10, 16, 18 to 20) Birth (2) Began prenatally (6m of pregnancy) (3, 5, 11) Began prenatally (time point, unclear) (6) Began prenatally (approx. 22 weeks pregnancy) (12) Began prenatally (3rd trimester of pregnancy)	Began prenatally (3rd trimester of pregnancy)
Delivered by	(1) Nurses supported by a social worker and a paediatrician (2) Health visitors. (3) Native paraprofessionals. (4) Female social workers. (4 to 6, 9, 11, 13 to 14, 17 to 19) Nurses (7 to 8, 20, 22) Paraprofessionals. (10)Mental health professionals with experience in child development and family systems approaches (12) 'Volunteer coach' – (bachelors'/associates' degree nurses) (15)Early childhood professionals. (16) Home visitors and teachers (min education 2yr degree) (21)'Parent educators' with associate/bachelor's/masters' degree and training in child development or education.	Nurses and social workers
Length of session	(1 to 2, 4, 6 to 8, 11 to 12, 14, 16 to 17 19, 21) Unclear (3, 5, 10, 22) 1 hr (9) 0.5- 1.5 hrs (13, 15) 1- 1.5 hrs (18)1hr 15 minutes (20) 30 minutes	1 hr (but variable depending on family's needs
Frequency	(1) Weekly/fortnightly (2, 15, 20) weekly (3 to 4, 11 to 12, 18) variable (5) fortnightly (6, 19, 22) Unclear	Weekly/fortnightly

	Home visiting versus control	Home visiting + parent–child psychotherapy versus control
	(7) Weekly for first 6-9m. Frequency decreases as family improves (8) Variable depending on progress (17) Monthly (more frequent depending on need) (18) Variable (21) Monthly	
Duration	(1) 4m (2) 18m (3) 36m (4) 12m (5 to 6) 18m (7, 10, 13, 19) 2 yrs (8, 16, 21) 3 yrs (9) 5 yrs (11)7 yrs (12)Approx. 14m (14, 18) 25m (15)16m (17)13m (20)6m (22)7m	27m
Tool used to measure attachment	(1) Parenting stress index (2 to 3, 5 to 9, 11, 13 to 22) None (4, 10) Strange situation (13) Attachment Q-sort	Strange situation
Tool used to measure sensitivity/responsiveness	(1,3,5,8,11,13,17,18,22) HOME inventory (2) CARE index (4,12) None (6 to 7, 9, 14, 21) Nursing child assessment teaching scale (10)Bayley test situation (15)Parent-caregiver involvement scale (16) Own measure (19) Emotional availability scale (20) Cowen and Cowen 1992 rating scales	AMBIANCE scale
Control/comparison	(1 to 3, 5, 9, 12, 14 to 16) Treatment-as-usual (3, 11) No treatment (6, 7, 10, 13, 17, 18) Non-therapeutic control- community referrals (8)control- no information provided	Treatment-as-usual

	Home visiting versus control	Home visiting + parent–child psychotherapy versus control
	(19)	
Post-treatment assessment (after baseline)	(1) 1m (mid-treatment). (2, 5 to 6) 18m (2) 12m (mid-treatment) (3) 12m. (7) 24m (8) 36m (9) 36m (mid-treatment). (10, 13) 24m. (11)9m. (12)14m. (14) 25m (15) 16m. (16) 36m (17) 13m (18) 24m (no extractable data) (19) 24m. (20) 6m. (21) 24m (mid-treatment). (22) 7m	12m (mid-treatment) (some outcomes measured at 4m)
Follow-up assessment (after end of treatment)	(1) 1m (3 to 4, 6 to 8, 10, 13 to 17, 21) none (9) 12m and 24m (11)6m (some outcomes only) (12) 9m (18) 10m and 22m (19) 24m, 48m and 84m (20) 12m (22) 6m	None

1
2
3
4
5
6
7

Table 211. Summary of findings table for home visiting versus control at the end of treatment

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control PT (GIV and non GIV outcomes)	Risk difference with Home visiting (95% CI)
Sensitivity/Responsiveness GIV HOME inventory; CARE index; Nursing child assessment teaching scale; Bayley test situation; Parent-caregiver involvement scale; Emotional availability scale; Cowen & Cowen 1992 rating scales; Author's own measure	8309 (20 studies) 1-36 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, inconsistency			The mean sensitivity/responsiveness GIV in the intervention groups was 0.24 standard deviations higher (0.14 to 0.35 higher)
Secure attachment Strange situation	113 (2 studies) 12-24 months	⊕⊕⊖⊖ LOW3,4 due to risk of bias, imprecision	RR 1.05 (0.61 to 1.78)	642 per 1000	32 more per 1000 (from 250 fewer to 500 more)
Secure attachment Parenting stress index; Strange situation; Attachment q-set	284 (3 studies) 1-24 months	⊕⊖⊖⊖ VERY LOW2,4,5 due to risk of bias, inconsistency, imprecision			The mean secure attachment in the intervention groups was 0.81 standard deviations higher (0.15 to 1.47 higher)
Insecure attachment	113 (2 studies) 12-24 months	⊕⊕⊖⊖ LOW4,6 due to risk of bias, imprecision	RR 0.81 (0.22 to 2.95)	415 per 1000	79 fewer per 1000 (from 324 fewer to 809 more)
Externalising behaviour GIV Infant Toddler Social and Emotional Assessment (ITSEA); Child behaviour checklist	6645 (7 studies) 7-36 months	⊕⊕⊕⊖ MODERATE1 due to risk of bias			The mean externalising behaviour GIV in the intervention groups was 0.11 standard deviations lower (0.19 to 0.03 lower)
Internalising behaviour GIV	3491	⊕⊕⊖⊖			The mean internalising behaviour

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control PT (GIV and non GIV outcomes)	Risk difference with Home visiting (95% CI)
Infant Toddler Social and Emotional Assessment (ITSEA); Child behaviour checklist	(4 studies) 7-36 months	LOW1,2 due to risk of bias, inconsistency			GIV in the intervention groups was 0.13 standard deviations lower (0.32 lower to 0.06 higher)
Mental development GIV Bayley scales of infant development; Kaufman assessment battery for children; Stanford-Binet test of intelligence; Developmental profile II	6605 (12 studies) 9-36 months	⊕⊕⊕⊖ MODERATE1 due to risk of bias			The mean mental development GIV in the intervention groups was 0.08 standard deviations higher (0.03 to 0.13 higher)
Motor development Bayley scales of infant development	960 (6 studies) 13-24 months	⊕⊕⊕⊖ MODERATE7 due to risk of bias			The mean motor development in the intervention groups was 0.11 standard deviations higher (0.02 lower to 0.24 higher)
Parenting attitudes GIV Adult-adolescent parenting inventory	1062 (3 studies) 24-25 months	⊕⊕⊕⊖ MODERATE1,8 due to risk of bias			The mean parenting attitudes GIV in the intervention groups was 0.18 standard deviations higher (0.06 to 0.31 higher)

Table 212. Summary of findings for home visiting versus control at follow-up (time point 1)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control FU (GIV and non GIV outcomes)	Risk difference with Home visiting (95% CI)
Secure attachment	224	⊕⊕⊕⊖			The mean secure attachment in the

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control FU (GIV and non GIV outcomes)	Risk difference with Home visiting (95% CI)
Parenting stress index	(1 study) 1 months	MODERATE1 due to imprecision			intervention groups was 0.72 standard deviations higher (0.34 lower to 1.78 higher)
Sensitivity/Responsiveness GIV HOME inventory	269 (3 studies) 1-10 months	⊕⊕⊖⊖ LOW2,3 due to risk of bias, imprecision			The mean sensitivity/responsiveness GIV in the intervention groups was 0.46 standard deviations higher (0.22 to 0.71 higher)
Mental development GIV Bayley scales of infant development; Stanford-Binet test of intelligence	93 (2 studies) 6-10 months	⊕⊕⊖⊖ LOW3,4 due to risk of bias, imprecision			The mean mental development GIV in the intervention groups was 0.15 standard deviations higher (0.27 lower to 0.57 higher)
Motor development Bayley scales of infant development	44 (1 study) 6 months	⊕⊕⊖⊖ LOW1,3 due to risk of bias, imprecision			The mean motor development in the intervention groups was 0.36 standard deviations higher (0.23 lower to 0.96 higher)

1 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants).
2 risk of bias (due to 1 or more of the following across some studies: unclear allocation concealment, high participant drop out rate and no method used to account for missing data)
3 risk of bias (due to unclear random sequence generation and unclear allocation concealment)
4 risk of bias (due to 1 or more of the following across some studies: unclear allocation concealment and high or unclear participant drop out rate)

Table 213. Summary of findings table for home visiting versus control at follow-up (time point 2)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control FU 2	Risk difference with Home visiting (95% CI)
Sensitivity/Responsiveness HOME inventory	49 (1 study)	⊕⊕⊖⊖ LOW1,2			The mean sensitivity/responsiveness in the intervention groups was

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control FU 2	Risk difference with Home visiting (95% CI)
	22 months	due to risk of bias, imprecision			0.38 standard deviations higher (0.2 lower to 0.96 higher)
Less likely to have externalising behaviour Child behaviour checklist	345 (1 study) 48 months	⊕⊕⊖⊖ LOW2,3 due to risk of bias, imprecision	RR 1.02 (0.99 to 1.05)	972 per 1000	19 more per 1000 (from 10 fewer to 49 more)
Less likely to have internalising behaviour Child behaviour checklist	345 (1 study) 48 months	⊕⊕⊖⊖ LOW2,3 due to risk of bias, imprecision	RR 1 (0.93 to 1.07)	898 per 1000	0 fewer per 1000 (from 63 fewer to 63 more)
Mental development Stanford-Binet test of intelligence	49 (1 study) 22 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision			The mean mental development in the intervention groups was 0.19 standard deviations higher (0.4 lower to 0.79 higher)

1 risk of bias (due to unclear allocation concealment, high participant drop out rate)
2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants)
3 risk of bias (due to unclear allocation concealment, lack of blinding of parent-reported outcomes and no method used to account for missing data)

Table 214. Summary of findings table for home visiting versus control at follow-up (time point 3)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control FU 3	Risk difference with Home visiting (95% CI)
Less likely to have externalising behaviour Child behaviour checklist	302 (1 study) 84 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision	RR 1.05 (0.99 to 1.11)	921 per 1000	46 more per 1000 (from 9 fewer to 101 more)
Less likely to have internalising behaviour	303 (1 study)	⊕⊕⊖⊖ LOW1,2	RR 1.04 (0.97 to	897 per 1000	36 more per 1000 (from 27 fewer to 108 more)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control FU 3	Risk difference with Home visiting (95% CI)
Child behaviour checklist	84 months	due to risk of bias, imprecision	1.12)		

1 risk of bias (due to unclear allocation concealment, lack of blinding of parent-reported outcomes and no method used to account for missing data)
2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants)

Table 215: Clinical/economic question: What is the cost effectiveness of home visiting compared with standard care?

Economic evidence profile							
Study & country	Limitations	Applicability	Other comments	Incremental cost (£)[1]	Incremental effect	ICER (£/effect)[1]	Uncertainty[1]
Barlow et al., 2007; McIntosh et al., 2009 UK	Minor limitations[2]	Partially applicable[3]	Cost-effectiveness Time horizon: 18 months; 5 years[4] Perspective: public sector and informal care; health service	£4,195 – public sector and informal care perspective £3,050 – health service perspective	Proportion of infants identified as being ill-treated: 0.059 CARE index score (maternal sensitivity): 1.07 CARE index score (infant cooperativeness): 1.44 Time exposed to abuse and neglect: 1.92 months	Public sector & informal care perspective: £71,096 per extra infant identified as being ill-treated £3,920 per extra unit of improvement on maternal sensitivity index £2,933 per extra unit of improvement on infant cooperativeness index £2,185 for a reduction in infant exposure to abuse and neglect by one month Healthcare payer perspective: £51,690 per extra infant identified as being ill-treated £2,850 per extra unit of	Public sector & informal care perspective: Probability of intervention being cost effective is 0.95 at WTP of £16,100 and £4,000 per unit of improvement on maternal sensitivity index and improvement on infant cooperativeness index, respectively At WTP of £1,400 for a reduction in infant exposure to abuse and neglect by one month, probability that the intervention is cost effective is 0.75; at WTP of £3,100 it is 0.95

Economic evidence profile							
						improvement on maternal sensitivity index £2,133 per extra unit of improvement on infant cooperativeness index £1,588 for a reduction in infant exposure to abuse and neglect by one month	

1 Costs uplifted to 2013/2014 UK pounds using the hospital & community health services (HCHS) pay and prices inflation index (Curtis, 2014)

2 Economic evaluation alongside an RCT (n=131), time horizon of the main analysis 18 months but when time to abuse and neglect outcome was used time horizon was 5 years; considered a range of direct and non-direct healthcare costs, other public sector costs, and informal care; PSA conducted

3 Public sector and informal care perspective, but reports results from healthcare perspective too; no QALYs (maternal sensitivity and responsiveness was used as a proxy for attachment security)

4 Time horizon was 5 years when time exposed to abuse and neglect was used as an outcome

Table 216. Summary of findings table for home visiting and parent–child psychotherapy versus control at the end of treatment

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with Home visiting + Parent–child psychotherapy (95% CI)
Sensitivity/Responsiveness AMBIANCE scale	76 (1 study) 4 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision	RR 0.78 (0.55 to 1.11)	710 per 1000	156 fewer per 1000 (from 319 fewer to 78 more)
Secure attachment Strange situation	82 (1 study) 12 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision	RR 1.73 (1.09 to 2.76)	366 per 1000	267 more per 1000 (from 33 more to 644 more)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with Home visiting + Parent–child psychotherapy (95% CI)
Disorganised attachment Strange situation	60 (1 study) 12 months	⨁⨁⊖⊖ LOW1,2 due to risk of bias, imprecision	RR 0.85 (0.45 to 1.58)	433 per 1000	65 fewer per 1000 (from 238 fewer to 251 more)

1 risk of bias (due to lack of blinding of outcome assessors)
2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants)

9.2.1.5 Parent CBT versus any comparison

There was 1 RCT (N = 95) that met the eligibility criteria for this review and included sufficient data to be included in the evidence syntheses: Murray 2003 (Murray et al., 2003). The included study was composed of 3 arms: 2 active intervention arms and one control arm. All comparisons involving Parent CBT were included in the evidence synthesis: parent CBT versus control (N = 95), parent CBT versus psychotherapy (N = 93), parent CBT versus parent non-directive counselling (N = 91).

The risk factor likely to bring children to the edge of care was mothers with depression.

An overview of the trials included in the meta-analysis can be found in Table 217. Further information about both included and excluded studies can be found in Appendices L and M, respectively.

Summary of findings for parent CBT versus control, parent-CBT versus psychotherapy and parent CBT versus parent non-directive counselling can be found in

Table 218, Table 219, Table 220, respectively. The full GRADE evidence profiles and associated forest plots can be found in Appendices N and O.

Table 217 Study information table for trials included in the meta-analysis of parent CBT versus any control

	Parent CBT versus control	Parent CBT versus psychotherapy	Parent CBT versus parent non-directive counselling
Total no. of studies (N[1])	1	1	1
Study ID	Murray 2003	Murray 2003	Murray 2003
Country	UK	UK	UK
Number of participants originally randomised	95	93	91
Risk factor	Mothers with depression	Mothers with depression	Mothers with depression
Title of intervention	None	None	None
Stage of intervention (approximate age range of children at onset of intervention)	Birth	Birth	Birth
Delivered by	Individuals trained in delivering the intervention	Individuals trained in delivering the intervention	Individuals trained in delivering the intervention
Length of session	Unclear	Unclear	Unclear
Frequency	Weekly	Weekly	Weekly
Duration	10 weeks	10 weeks	10 weeks
Tool used to measure attachment	Strange situation procedure	Strange situation procedure	Strange situation procedure
Tool used to measure sensitivity/responsiveness	None	None	None
Control/comparison	Treatment as usual	Psychotherapy (Cramer & Stern techniques)	Counselling (replication of intervention in Holden et al 1989)
Post-treatment assessment (after baseline)	None	None	None
Follow-up assessment (after end of treatment)	14 months	14 months	14 months

Table 218. Summary of findings table for CBT versus control at follow-up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with CBT (95% CI)
Insecure attachment Strange situation	88 (1 study) 14 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision	RR 1.26 (0.81 to 1.95)	426 per 1000	111 more per 1000 (from 81 fewer to 404 more)
1 risk of bias (due to unclear allocation concealment and use of non-validated outcome measures) 2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants)					

Table 219. Summary of findings table for CBT versus psychotherapy at follow-up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Psychotherapy	Risk difference with CBT (95% CI)
Insecure attachment Strange situation	81 (1 study) 14 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision	RR 1.02 (0.68 to 1.54)	525 per 1000	10 more per 1000 (from 168 fewer to 283 more)
1 risk of bias (due to unclear allocation concealment and use of non-validated outcome measures) 2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants)					

Table 220. Summary of findings table for CBT versus counselling at follow-up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Counselling	Risk difference with CBT (95% CI)
Insecure attachment Strange situation	80 (1 study)	⊕⊕⊖⊖ LOW1,2	RR 1.31 (0.82 to 2.1)	410 per 1000	127 more per 1000 (from 74 fewer to 451 more)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Counselling	Risk difference with CBT (95% CI)
	14 months	due to risk of bias, imprecision			
1 risk of bias (due to unclear allocation concealment and use of non-validated outcome measures) 2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants)					

9.2.126 Parent psychotherapy versus any comparison

There were 2 RCTs (N = 149) that met the eligibility criteria for this review and included sufficient data to be included in the evidence syntheses: Murray 2003, Suchman 2010 (Suchman et al., 2010). 1 study included was composed of 2 arms which compared parent psychotherapy with another comparison (Murray 2003): parent psychotherapy compared with control (N = 149) and parent psychotherapy compared with parent non-directive counselling (N = 98).

The risk factor likely to bring children to the edge of care were: mothers with depression (N = 1) and mothers misusing substances (N = 1)

An overview of the trials included in the meta-analysis can be found in Table 221. Further information about both included and excluded studies can be found in Appendices L and M, respectively.

Summary of findings for parent psychotherapy versus control at the end of intervention and at follow-up can be found in Table 191 and Table 223, respectively. Summary of findings table for parent psychotherapy versus counselling can be found in Table 224. The full GRADE evidence profiles and associated forest plots can be found in Appendices N and O.

Table 221. Study information table for trials included in the meta-analysis of parent CBT versus any control

	Parent psychotherapy versus control	Parent psychotherapy versus parent non-directive counselling
Total no. of studies (N[1])	2 (149)	1 (98)
Study ID	(1) Suchman 2010 (2) Murray 2003	Murray 2003
Country	(1) USA (2) UK	UK
Number of participants originally randomised	(1) 47 (2) 102	98
Risk factor	(1) Mothers misusing substances (2) Mothers with depression	Mothers with depression
Title of intervention	(1) Mothers and Toddlers Program (MTP) None	None
Stage of intervention (approximate age range of children at onset of intervention)	(1) Birth- 3yrs (2) Birth	Birth
Delivered by	(1) Masters and doctoral level therapists (2) Individuals trained in delivering the intervention	Individuals trained in delivering the intervention
Length of session	(1) 1hr (2) Unclear	Unclear

	Parent psychotherapy versus control	Parent psychotherapy versus parent non-directive counselling
Frequency	(1 to 2) Weekly	Weekly
Duration	(1) 12 weeks (2) 10 weeks	10 weeks
Tool used to measure attachment	(1) None (2) Strange situation	Strange situation
Tool used to measure sensitivity/responsiveness	(1) Nursing child assessment teaching scale (2) None	
Control/comparison	(1) Non-therapeutic control – individual case management and child guidance brochures (2) Treatment-as-usual	Counselling (replication of intervention in Holden et al 1989)
Post-treatment assessment (after baseline)	(1) 3m (2) None	None
Follow-up assessment (after end of treatment)	(1) 1m (2) 14m	14m

Table 222. Summary of findings table for psychotherapy versus control at the end of treatment

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control PT	Risk difference with Psychotherapy (95% CI)
Sensitivity/Responsiveness	47 (1 study) 3 months	⨁⨁⨀⨀ LOW1,2 due to risk of bias, imprecision			The mean sensitivity/responsiveness in the intervention groups was 0.58 standard deviations higher (0 to 1.17 higher)
1 risk of bias (due to unclear random sequence generation and allocation concealment) 2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants)					

Table 223. Summary of findings table for psychotherapy versus control at follow-up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control FU	Risk difference with Psychotherapy (95% CI)
Sensitivity/Responsiveness	47 (1 study) 1 months	⨁⨁⨀⨀ LOW1,2 due to risk of bias, imprecision			The mean sensitivity/responsiveness in the intervention groups was 0.71 standard deviations higher (0.12 to 1.3 higher)
Insecure attachment Strange situation	87 (1 study) 14 months	⨁⨁⨀⨀ LOW1,2 due to risk of bias, imprecision	RR 1.23 (0.79 to 1.92)	426 per 1000	98 more per 1000 (from 89 fewer to 391 more)
1 risk of bias (due to unclear allocation concealment and use of non-validated outcome measures) 2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants)					

Table 224. Summary of findings table for psychotherapy versus counselling at follow-up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Counselling	Risk difference with Psychotherapy (95% CI)
Insecure attachment Strange situation	79 (1 study) 14 months	⨁⨁⊖⊖ LOW1,2 due to risk of bias, imprecision	RR 1.28 (0.79 to 2.06)	410 per 1000	115 more per 1000 (from 86 fewer to 435 more)

1 risk of bias (due to unclear allocation concealment and use of non-validated outcome measures)
2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants)

9.2.127 Parent non-directive counselling versus any comparison

There was 1 RCT (N = 100) that met the eligibility criteria for this review and included sufficient data to be included in the evidence syntheses: Murray 2003. Further information about both included and excluded studies can be found in Appendices L and M, respectively.

The risk factor likely to bring children to the edge of care was mothers with depression.

An overview of the trials included in the meta-analysis can be found in Table 225. Further information about both included and excluded studies can be found in Appendices Y and Z, respectively. Summary of findings can be found in Table 226. The full GRADE evidence profiles and associated forest plots can be found in Appendices N and O**.**

Table 225. Study information for r trials included in the meta-analysis of counselling versus any control

	Parent non-directive counselling versus control
Total no. of studies (N[1])	1
Study ID	Murray 2003
Country	UK
Number of participants originally randomised	100
Risk factor	Mothers with depression
Title of intervention	None
Stage of intervention (approximate age range of children at onset of intervention)	Birth
Delivered by	Individuals trained in delivering the intervention
Length of session	Unclear
Frequency	Weekly
Duration	10 weeks
Tool used to measure attachment	Strange situation
Tool used to measure sensitivity/responsiveness	None
Control/comparison	Treatment as usual
Post-treatment assessment (after baseline)	None
Follow-up assessment (after end of treatment)	14m

Table 226. Summary of findings table for counselling versus control at follow-up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with Counselling (95% CI)
Insecure attachment Strange situation	86 (1 study) 14 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision	RR 0.96 (0.58 to 1.59)	426 per 1000	17 fewer per 1000 (from 179 fewer to 251 more)

1 risk of bias (due to unclear allocation concealment and use of non-validated outcome measures)
2 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants)

9.2.2 Clinical evidence for interventions for children and young people who have been or are at risk of being maltreated

9.2.2.1 Home visiting versus any control

There were 4 RCTs across 8 publications (N = 1940) that met the eligibility criteria for this review: Caldera 2007, Duggan 1999, Fergusson 2005 (Fergusson et al., 2005), Olds 2002. All the eligible studies included sufficient data to be included in the evidence synthesis. An overview of the trials included in the meta-analysis can be found inTable 227. Further information about both included and excluded studies can be found in Appendix L and M.

In all studies, families were at risk of maltreatment. The stage at onset of the intervention was from birth and the age of the children ranged from 0 to 5 years.

Summary of findings can be found in

Table 228, Table 229 and Table 230. The full GRADE evidence profiles and associated forest plots can be found in Appendix N and O.

Table 227: Study information table for trials included in the meta-analysis of home visiting versus any control

	Home visiting versus any control
Total no. of studies (N[1])	4 (1940)
Study ID	(1) Caldera 2007 (2) Duggan 1999 (3) Fergusson 2005 (4) Olds 2002
Country	(1 to 2, 4) USA (3) New Zealand
Number of participants originally randomised	(1) 364 (2) 643 (3) 443 (4) 490
Risk factor	(1 to 4) At risk of maltreatment
Title of intervention	(1) Healthy Families Alaska (2) Hawaii's Healthy Start program (3) Early Start programme (4) Not reported
Stage of intervention (approximate age range of children at onset of intervention)	(1 to 4) Birth
Delivered by	(1 to 2) Paraprofessionals (3) Trained family support workers (4) Nurses
Length of session	(1 to 4) Unclear
Frequency	(1) Weekly for first 6-9 months. Frequency decreased as family improves (2) Variable depending on progress (3) Weekly during a 1 month period (4) Unclear
Duration	(1, 4) 2 years (2 to 3) 3 years
Tool used to measure attachment	(1 to 4) None
Tool used to measure sensitivity/responsiveness	(1) Nursing Child Assessment Teaching Scale (2) HOME (3) Maternal parenting attitude (4) Emotional availability scale
Control/comparison	(1) Non-therapeutic control- community referral (2 to 3) Control- no information provided Non-therapeutic control- home visits
Post-treatment assessment (after baseline)	(1) 2 years (2 to 3) 3 years

	Home visiting versus any control
	(5) 24 months
Follow-up assessment (after end of treatment)	(1 to 3) None (4) 12 months
Note. [1] Number randomised.	

Table 228: Summary of findings table for home visiting versus control at the end of intervention

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with Home visiting (95% CI)
Parenting outcomes: sensitivity/responsiveness nursing child assessment teaching scale, HOME, Emotional availability scale	1178 (3 studies) 2-3 years	⊕⊕⊕⊖ MODERATE1 due to risk of bias			The mean parenting outcomes: sensitivity/responsiveness in the intervention groups was 0.19 standard deviations higher (0.08 to 0.31 higher)
Parent outcomes: Parenting attitudes Adult-adolescent parenting inventory, 49-item parenting questionnaire (Block, 1981)	640 (2 studies) 2-3 years	⊕⊕⊕⊖ MODERATE1 due to risk of bias			The mean parent outcomes: parenting attitudes in the intervention groups was 0.25 standard deviations higher (0.1 to 0.41 higher)
Child outcomes: Externalising behaviour CBCL	1028 (3 studies) 2-3 years	⊕⊕⊕⊖ MODERATE1 due to risk of bias			The mean child outcomes: externalising behaviour in the intervention groups was 0.20 standard deviations lower (0.32 to 0.08 lower)
Child outcomes: Internalising behaviour CBCL	640 (2 studies) 2-3 years	⊕⊕⊕⊖ MODERATE1 due to risk of bias			The mean child outcomes: internalising behaviour in the intervention groups was 0.27 standard deviations lower (0.43 to 0.11 lower)
Child outcomes: Mental development Bayley scales of infant development	637 (2 studies) 2-3 years	⊕⊕⊕⊖ MODERATE1 due to risk of bias			The mean child outcomes: mental development in the intervention groups was 0.15 standard deviations higher (0.05 lower to 0.36 higher)
Child outcomes: Motor development Bayley scales of infant development	249 (1 study) 2 years	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision			The mean child outcomes: motor development in the intervention groups was 0.18 standard deviations higher (0.07 lower to 0.43 higher)
Maltreatment outcomes: Child abuse report (12	309	⊕⊖⊖⊖	RR 1.18	101 per	18 more per 1000

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with Home visiting (95% CI)
months mid-treatment) Child protective services reports	(1 study) 2 years	VERY LOW1,3 due to risk of bias, imprecision	(0.62 to 2.22)	1000	(from 38 fewer to 124 more)
Maltreatment outcomes: Child abuse report Child protective services reports, Parent report of contact with child, youth and family service	688 (2 studies) 2-3 years	⊕⊕⊖⊖ LOW1,3 due to risk of bias, imprecision	RR 0.93 (0.66 to 1.31)	162 per 1000	11 fewer per 1000 (from 55 fewer to 50 more)
Maltreatment outcomes: Severe physical assault Parent report of contact with child, youth and family service	391 (1 study) 3 years	⊕⊕⊕⊖ MODERATE1 due to risk of bias	RR 0.38 (0.17 to 0.81)	116 per 1000	72 fewer per 1000 (from 22 fewer to 96 fewer)

1 Unclear risk of bias in several domains
2 OIS violated- Total number of events is less than 300 (a threshold rule-of-thumb)/ Total population size is less than 400 (a threshold rule-of-thumb)
3 95% CI crosses both line of no effect and measure of appreciable benefit or harm (SMD -0.5/0.5 or RR 0.75/1.25)

Table 229. Summary of findings table for home visiting versus control at 2 year follow-up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control (2 year follow-up)	Risk difference with Home visiting (95% CI)
Less likely to have externalising behaviour CBCL	345 (1 study) 3 years	⊕⊕⊕⊖ MODERATE1 due to risk of bias	RR 1.02 (0.99 to 1.05)	972 per 1000	19 more per 1000 (from 10 fewer to 49 more)
Less likely to have internalising behaviour CBCL	345 (1 study) 3 years	⊕⊕⊕⊖ MODERATE1 due to risk of bias	RR 1 (0.93 to 1.07)	898 per 1000	0 fewer per 1000 (from 63 fewer to 63 more)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control (2 year follow-up)	Risk difference with Home visiting (95% CI)
1 Unclear risk of bias across several domains					

Table 230. Summary of findings table for home visiting versus control at 7 year follow-up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control (7 year follow-up)	Risk difference with Home visiting (95% CI)
Less likely to have externalising behaviour CBCL	302 (1 study) 3 years	⨁⨁⨁⊖ MODERATE1 due to risk of bias	RR 1.05 (0.99 to 1.11)	921 per 1000	46 more per 1000 (from 9 fewer to 101 more)
Less likely to have internalising behaviour CBCL	303 (1 study) 3 years	⨁⨁⨁⊖ MODERATE1 due to risk of bias	RR 1.04 (0.97 to 1.12)	897 per 1000	36 more per 1000 (from 27 fewer to 108 more)
1 Unclear risk of bias across several domains					

9.2.222 Parent–child psychotherapy versus control

There were 2 RCTs (N = 163) that met the eligibility criteria for this review: Cicchetti 2006, Toth 2002. Both studies included sufficient data to be included in the evidence synthesis. An overview of the trials included in the meta-analysis can be found in Table 231. Further information about both included and excluded studies can be found in Appendix L and M.

In all studies, participants were from maltreating families, the stage at onset of the intervention was from birth and the age of children ranged from 1 to 2 years in one trial (Cicchetti 2006) and 4 to 5 years in the other trial (Toth 2002).

Both trials had 3 study arms and both comparisons for parent-child psychotherapy were included in the evidence synthesis: parent-child psychotherapy versus control (N = 163) and parent-child psychotherapy versus home visiting (N = 163). Summary of findings for the comparison parent–child psychotherapy versus control at the end of treatment and at follow up can be found in Table 232 and Table 233, respectively. Summary of findings for child-parent psychotherapy versus home visiting at the end of treatment and at follow up can be found in Table 234 and Table 235, respectively. The full GRADE evidence profiles and associated forest plots can be found in Appendix N and O.

Table 231: Study information table for trials included in the meta-analysis of parent–child psychotherapy versus any control

	Parent–child psychotherapy versus control	Parent–child psychotherapy versus home visiting
Total no. of studies (N[1])	2	2
Study ID	(1) Cicchetti 2006/ Stronach 2013 (2) Toth 2002	(1) Cicchetti 2006/ Stronach 2013 (2) Toth 2002
Country	(1 to 2) USA	(1 to 2) USA
Number of participants originally randomised	(1) 84 (2) 79	(3) 84 (4) 79
Risk factor	(1 to 2) Maltreating families	(1 to 2) Maltreating families
Title of intervention	(1 to 2) Infant-parent psychotherapy	(1 to 2) Infant-parent psychotherapy
Stage of intervention (approximate age range of children at onset of intervention)	(1) 1 to 2 years (2) 4 to 5 years	(1) 1 to 2 years (2) 4 to 5 years
Delivered by	(1) Masters level therapists (2) Masters and doctoral level therapists	(1) Masters level therapists (2) Masters and doctoral level therapists
Length of session	(1) Unclear (2) 1 hour	(1) Unclear (2) 1 hour
Frequency	(1) Unclear (2) Weekly	(1) Unclear (2) Weekly
Duration	(1 to 2) 1 year	(1 to 2) 1 year
Tool used to measure attachment	(1) Strange situation (2) Global relationship scale	(1) Strange situation (2) Global relationship scale
Tool used to measure sensitivity/responsiveness	(1-2) None	(1-2) None
Control/comparison	(1 to 2) Treatment as usual	(1 to 2) Treatment as usual

	Parent–child psychotherapy versus control	Parent–child psychotherapy versus home visiting
Post-treatment assessment (after baseline)	(1 to 2) 1 year	(1 to 2) 1 year
Follow-up assessment (after end of treatment)	(1) 1 year (2) None	(1) 1 year (2) None
Note. [1] Number randomised.		

Table 232: Summary of findings table for parent–child psychotherapy versus control

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with Parent–child psychotherapy (95% CI)
Secure attachment Global relationship expectation scale	57 (1 study) 1 years	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision			The mean secure attachment in the intervention groups was 0.67 standard deviations higher (0.12 to 1.21 higher)
Child outcomes: Secure attachment Strange situation	82 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW2,3 due to risk of bias, imprecision	RR 0.40 (0.25 to 0.64)	981 per 1000	589 fewer per 1000 (from 353 fewer to 736 fewer)
Child outcomes: Insecure attachment Strange situation	82 (1 study)	⊕⊖⊖⊖ VERY LOW2,3,4 due to risk of bias, imprecision	RR 0.35 (0.08 to 1.47)	204 per 1000	132 fewer per 1000 (from 187 fewer to 96 more)
Child outcomes: Disorganised attachment Strange situation	82 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW2,3 due to risk of bias, imprecision	RR 0.41 (0.24 to 0.72)	778 per 1000	459 fewer per 1000 (from 218 fewer to 591 fewer)
Maternal maladaptive representations Coding manuals	57 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW1,4,5 due to risk of bias, imprecision			The mean maternal maladaptive representations in the intervention groups was 0.39 standard deviations lower (0.93 lower to 0.14 higher)

1 Unclear randomisation and allocation concealment
2 Total number of events is less than 300 (a threshold rule-of-thumb
3 Serious risk of attrition bias
4 95% CI crosses both line of no effect and measure of appreciable benefit or harm (SMD -0.5/0.5 or RR 0.75/1.25)
5 Total population size is less than 400 (a threshold rule-of-thumb)

Table 233 Summary of findings table for parent–child psychotherapy versus control at 12 month follow up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control (12-month follow-up)	Risk difference with Parent–child psychotherapy (95% CI)
Child outcomes: Secure attachment Strange situation	76 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW1,2 due to risk of bias, imprecision	RR 4.54 (1.99 to 10.32)	122 per 1000	433 more per 1000 (from 121 more to 1000 more)
Child outcomes: less likely to have insecure attachment Strange situation	76 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW1,2 due to risk of bias, imprecision	RR 1.33 (1 to 1.77)	612 per 1000	202 more per 1000 (from 0 more to 471 more)
Child outcomes: Disorganised attachment Strange situation	76 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, imprecision	RR 0.53 (0.26 to 1.06)	490 per 1000	230 fewer per 1000 (from 362 fewer to 29 more)

1 Serious attrition bias
2 Total number of events is less than 300 (a threshold rule-of-thumb
3 95% CI crosses both line of no effect and measure of appreciable benefit or harm (SMD -0.5/0.5 or RR 0.75/1.25)

Table 234. Summary of findings table for parent–child psychotherapy versus home visiting at the end of intervention

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Home visiting	Risk difference with Parent–child psychotherapy (95% CI)
Secure attachment Strange situation	50 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, imprecision	RR 1.11 (0.69 to 1.81)	545 per 1000	60 more per 1000 (from 169 fewer to 442 more)
Secure attachment	53	⊕⊕⊖⊖			The mean secure attachment in the intervention

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Home visiting	Risk difference with Parent–child psychotherapy (95% CI)
Global relationship expectation scale	(1 study) 1 years	LOW4,5 due to risk of bias, imprecision			groups was 0.67 standard deviations higher (0.11 to 1.23 higher)
Less likely to have an insecure attachment Strange situation	50 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW1,2 due to risk of bias, imprecision	RR 0.93 (0.82 to 1.06)	1000 per 1000	70 fewer per 1000 (from 180 fewer to 60 more)
Disorganised attachment Strange situation	50 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, imprecision	RR 0.71 (0.35 to 1.43)	455 per 1000	132 fewer per 1000 (from 295 fewer to 195 more)
Parent outcomes: Maternal maladaptive representations Coding manuals	57 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW3,4,5 due to risk of bias, imprecision			The mean parent outcomes: maternal maladaptive representations in the intervention groups was 0.39 standard deviations lower (0.93 lower to 0.14 higher)

1 Serious attrition bias
2 Total number of events is less than 300 (a threshold rule-of-thumb)
3 95% CI crosses both line of no effect and measure of appreciable benefit or harm (SMD -0.5/0.5 or RR 0.75/1.25)
4 Unclear randomisation and allocation concealment
5 Total population size is less than 400 (a threshold rule-of-thumb)

Table 235. Summary of findings table for parent–child psychotherapy versus home visiting at 12 month follow up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Home visiting (12-month follow-up)	Risk difference with Parent–child psychotherapy (95% CI)
Secure attachment	49	⊕⊖⊖⊖	RR 2.44	227 per 1000	327 more per 1000

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Home visiting (12-month follow-up)	Risk difference with Parent–child psychotherapy (95% CI)
Strange situation	(1 study) 1 years	VERY LOW1,2 due to risk of bias, imprecision	(1.05 to 5.67)		(from 11 more to 1000 more)
Less likely to have an insecure attachment Strange situation	49 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW3,4 due to risk of bias, imprecision	RR 1 (0.76 to 1.3)	818 per 1000	0 fewer per 1000 (from 196 fewer to 245 more)
Disorganised attachment Strange situation	49 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW2,3 due to risk of bias, imprecision	RR 0.44 (0.21 to 0.91)	591 per 1000	331 fewer per 1000 (from 53 fewer to 467 fewer)

1 Serious risk of bias
2 Total number of events is less than 300 (a threshold rule-of-thumb)
3 Serious risk of attrition bias
4 95% CI crosses both line of no effect and measure of appreciable benefit or harm (SMD -0.5/0.5 or RR 0.75/1.25)

9.2.213 Parent sensitivity and behaviour training versus control

There were 4 RCTs (N = 440) that met the eligibility criteria for this review: Chaffin 2004 (Chaffin et al., 2004), Hughes 2004, Thomas 2011, Thomas 2012. All studies included sufficient data to be included in the evidence synthesis. An overview of the trials included in the meta-analysis can be found in Table 236. Further information about both included and excluded studies can be found in Appendix L and M.

Summary of findings can be found in Table 237. The full GRADE evidence profiles and associated forest plots can be found in Appendix N and O.

Table 236: Study information table for trials included in the meta-analysis of parent sensitivity and behaviour training versus control

	Parent sensitivity and behaviour training versus control
Total no. of studies (N[1])	4
Study ID	(1) Chaffin 2004 (2) Hughes 2004 (3) Thomas 2011 (4) Thomas 2012
Country	(1) USA (2) Canada (3 to 4) Australia
Number of participants originally randomised	(1) 110 (2) 28 (3) 150 (4) 152
Risk factor	(1) Abusive parents (2) Maltreating families (3 to 4) Maltreating families/at risk of maltreatment
Title of intervention	(1, 3 to 4) Parent– child interaction therapy Webster-Stratton parenting programme
Stage of intervention (approximate age range of children at onset of intervention)	(1) 4-12 years (2) 3-8yrs. (3) 5-8yrs. 3-7yrs.
Delivered by	(1 Therapists (including both trainees and experts) (2 Nurses. (3 Masters and doctoral level psychologists (4 Masters and doctoral level psychologists
Length of session	(1, 3 to 4) Unclear. (2) 2hrs.
Frequency	(1) Average 2 x a month (12-14 sessions over 6 months) (2, 4) Weekly. (4) Unclear
Duration	(1) 6 months (2) 8wks. (3) Varied according to participant progress. Average 6m. (5 Unclear (12 sessions)
Tool used to measure attachment	(1-4) None
Tool used to measure sensitivity/responsiveness	(1) Dyadic Parent–child Interaction Coding System (2) Parenting skills observation scale (3-4) Emotional availability scale
Control/comparison	(1) Standard community (group psycho-education) (2 to 4) Waitlist

	Parent sensitivity and behaviour training versus control
Post-treatment assessment (after baseline)	(1) 28 weeks (median 850 days) (2) 11wks. (3 to 4) 12wks.
Follow-up assessment (after end of treatment)	(1 to 4) None
Note. [1] Number randomised.	

Table 237. Summary of findings table for parent sensitivity and behaviour training versus control

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with Parent sensitivity and behavioural training (95% CI)
Parent outcomes: Sensitivity and responsiveness Positive parent behaviour, parenting skills observation scale, emotional availability scale	319 (4 studies) 2-6 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, inconsistency			The mean parent outcomes: sensitivity and responsiveness in the intervention groups was 0.46 standard deviations higher (0.12 to 0.8 higher)
Parent outcomes: negative parenting behaviour Dyadic Parent–child Interaction Coding System (DPICS-II)	77 (1 study) 6 months	⊕⊕⊖⊖ LOW1,3 due to risk of bias, imprecision			The mean parent outcomes: negative parenting behaviour in the intervention groups was 0.75 standard deviations lower (1.22 to 0.29 lower)
Parent attitudes: Negative parenting attitudes Child abuse potential inventory	226 (2 studies) 6 months	⊕⊕⊖⊖ LOW1,3 due to risk of bias, imprecision			The mean parent attitudes: negative parenting attitudes in the intervention groups was 0.06 standard deviations lower (0.33 lower to 0.2 higher)
Child outcomes: internalising behaviour Child Behaviour Checklist, Behaviour Assessment System for Children	301 (3 studies) 6 months	⊕⊕⊖⊖ LOW1,3 due to risk of bias, imprecision			The mean child outcomes: internalising behaviour in the intervention groups was 0.09 standard deviations higher (0.14 lower to 0.31 higher)
Child outcomes: externalising behaviour Child Behaviour Checklist, Behaviour Assessment System for Children	301 (3 studies)	⊕⊕⊖⊖ LOW1,3 due to risk of bias, imprecision			The mean child outcomes: externalising behaviour in the intervention groups was 0.22 standard deviations lower (0.45 lower to 0.01 higher)
Maltreatment outcomes: re-report of physical abuse	77 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW4,5 due to risk of bias, imprecision	RR 0.39 (0.19 to 0.8)	486 per 1000	296 fewer per 1000 (from 97 fewer to 393 fewer)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with Parent sensitivity and behavioural training (95% CI)
1 Risk of bias in several domains across studies 2 Heterogeneity 50% 3 Total population size is less than 400 (a threshold rule-of-thumb) 4 High attrition bias 5 Total number of events is less than 300 (a threshold rule-of-thumb)					

9.2.2.4 Video feedback versus control

There were 2 RCTs (N = 199) that met the eligibility criteria for this review: Bernard 2012, Moss 2011. All studies included sufficient data to be included in the evidence synthesis. An overview of the trials included in the meta-analysis can be found in Table 238. Further information about both included and excluded studies can be found in Appendix L and M.

Summary of findings can be found in Table 239. The full GRADE evidence profiles and associated forest plots can be found in Appendix N and O.

Table 238: Study information table for trials included in the meta-analysis of video feedback versus control

Total no. of studies (N[1])	2 (199)
Study ID	(1) Bernard 2012 (2) Moss 2011
Country	(1) USA (2) Canada
Number of participants originally randomised	(1) 120 (2) 79
Risk factor	(1) At risk of maltreatment (2) Maltreating families
Title of intervention	(1) Attachment and bio-behavioural catch-up (2) Not reported
Stage of intervention (approximate age range of children at onset of intervention)	(1) 1-22 months (2) 1-5 years
Delivered by	(1) Parent trainers with experience with children (2) Clinical workers with expertise in child welfare settings
Length of session	(1) 1 hour (2) 1.5 hours
Frequency	(1) Weekly (2) Unclear
Duration	(1) 10 weeks (2) 8 weeks
Tool used to measure attachment	(1) Strange situation (2) Strange situation/The preschool separation reunion procedure
Tool used to measure sensitivity/responsiveness	(1) None (2) Maternal Q-sort
Control/comparison	(1) Non-therapeutic control- developmental education (2) Treatment as usual
Post-treatment assessment (after baseline)	(1) 14 weeks (2) 10 weeks
Follow-up assessment (after end of treatment)	(1 to 2) None
Note. [1] Number randomised.	

Table 239. Summary of findings table for video feedback versus control

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with Video feedback (95% CI)
Sensitivity/Responsiveness Maternal behavioural Q-sort	67 (1 study) 2 months	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, imprecision			The mean sensitivity/responsiveness in the intervention groups was 0.48 standard deviations higher (0.01 lower to 0.97 higher)
Secure attachment Strange situation	187 (2 studies) 2-3 months	⊕⊕⊖⊖ LOW1,4 due to risk of bias, imprecision	RR 1.8 (1.22 to 2.65)	315 per 1000	252 more per 1000 (from 69 more to 520 more)
Insecure attachment Strange situation	187 (2 studies) 2-3 months	⊕⊕⊖⊖ LOW1,4 due to risk of bias, imprecision	RR 0.74 (0.54 to 1)	489 per 1000	127 fewer per 1000 (from 225 fewer to 0 more)
Disorganised attachment Strange situation	187 (2 studies) 2-3 months	⊕⊕⊖⊖ LOW1,4 due to risk of bias, imprecision	RR 0.49 (0.33 to 0.73)	565 per 1000	288 fewer per 1000 (from 153 fewer to 379 fewer)
Externalising behaviour Child behaviour checklist	67 (1 study) 2-3 months	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, imprecision			The mean externalising behaviour in the intervention groups was 0.03 standard deviations higher (0.45 lower to 0.51 higher)
Internalising behaviour Child behaviour checklist	67 (1 study) 2-3 months	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, imprecision			The mean internalising behaviour in the intervention groups was 0.12 standard deviations lower (0.6 lower to 0.36 higher)

1 Unclear risk of bias across several domains
2 Total population size is less than 400 (a threshold rule-of-thumb)
3 95% CI crosses both line of no effect and measure of appreciable benefit or harm (SMD -0.5/0.5 or RR 0.75/1.25)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with Video feedback (95% CI)
4 Total number of events is less than 300 (a threshold rule-of-thumb)					

9.2.215 Trauma focused CBT versus parent–child psychotherapy

There was 1 RCT across 2 publications (N = 229) that met the eligibility criteria for this review: Cohen 2004 (Cohen et al., 2004; Deblinger et al., 2006).and studies included sufficient data to be included in the evidence synthesis. An overview of the trial included in the meta-analysis can be found in Table 240. Further information about both the included and excluded studies can be found in Appendix L and M.

Summary of findings can be found in Table 241, Table 242 and Table 243. The full GRADE evidence profiles and associated forest plots can be found in Appendix N and O.

Table 240: Study information table for trials included in the meta-analysis of trauma focused CBT versus parent–child psychotherapy

Total no. of studies (N[1])	1 (229)
Study ID	Cohen 2004
Country	USA
Number of participants originally randomised	229
Risk factor	Sexually abused children
Title of intervention	Trauma-focused CBT
Stage of intervention (approximate age range of children at onset of intervention)	8-14 years
Delivered by	Study therapists diverse in professional training
Length of session	Unclear
Frequency	Weekly
Duration	12 weeks
Tool used to measure attachment	None
Tool used to measure sensitivity/responsiveness	Parental Support Questionnaire
Control/comparison	Child-centred therapy
Post-treatment assessment (after baseline)	12 weeks
Follow-up assessment (after end of treatment)	6 months and 12 months
Note. [1] Number randomised.	

Table 241. Summary of findings table for trauma focused CBT versus control

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Parent–child psychotherapy	Risk difference with CBT (95% CI)
Parental outcomes: sensitivity/responsiveness Parental Support Questionnaire	179 (1 study) 3 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision			The mean parental outcomes: sensitivity/responsiveness in the intervention groups was 0.32 standard deviations higher (0.02 to 0.61 higher)
Child outcomes: Internalising behaviour Child behaviour checklist	179 (1 study) 3 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision			The mean child outcomes: internalising behaviour in the intervention groups was 0.42 standard deviations lower (0.71 to 0.12 lower)
Child outcomes: externalising behaviour Child behaviour checklist	179 (1 study) 3 months	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, imprecision			The mean child outcomes: externalising behaviour in the intervention groups was 0.29 standard deviations lower (0.58 lower to 0.01 higher)

1 Unclear risk of bias in several domains
2 Total population size is less than 400 (a threshold rule-of-thumb)
3 95% CI crosses both line of no effect and measure of appreciable benefit or harm (SMD -0.5/0.5 or RR 0.75/1.25)

Table 242. Summary of findings table for trauma focused CBT versus control at 6 month follow up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Parent–child psychotherapy (6-month follow-up)	Risk difference with CBT (95% CI)
Parental outcomes: parenting practices Parental Support	143 (1 study) 3 months	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias,			The mean parental outcomes: parenting practices in the intervention groups was 0.08 standard deviations higher

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Parent–child psychotherapy (6-month follow-up)	Risk difference with CBT (95% CI)
Questionnaire		imprecision			(0.25 lower to 0.4 higher)
Child outcomes: Internalising behaviour Child behaviour checklist	142 (1 study) 3 months	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, imprecision			The mean child outcomes: internalising behaviour in the intervention groups was 0.11 standard deviations lower (0.43 lower to 0.22 higher)
Child outcomes: externalising behaviour Child behaviour checklist	142 (1 study) 3 months	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, imprecision			The mean child outcomes: externalising behaviour in the intervention groups was 0.09 standard deviations lower (0.42 lower to 0.24 higher)

1 Unclear risk of bias across several domains
2 Total population size is less than 400 (a threshold rule-of-thumb)
3 95% CI crosses both line of no effect and measure of appreciable benefit or harm (SMD -0.5/0.5 or RR 0.75/1.25)

Table 243. Summary of findings table for trauma focused CBT versus control at 12 month follow up

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Parent–child psychotherapy (12-month follow-up)	Risk difference with CBT (95% CI)
Parental outcomes: parenting practices Parental Support Questionnaire	148 (1 study) 3 months	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, imprecision			The mean parental outcomes: parenting practices in the intervention groups was 0.1 standard deviations lower (0.42 lower to 0.22 higher)
Child outcomes: Internalising behaviour Child behaviour checklist	146 (1 study) 3 months	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, imprecision			The mean child outcomes: internalising behaviour in the intervention groups was 0.3 standard deviations lower (0.63 lower to 0.02 higher)

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Parent–child psychotherapy (12-month follow-up)	Risk difference with CBT (95% CI)
Child outcomes: externalising behaviour child behaviour checklist	146 (1 study) 3 months	⨁⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, imprecision			The mean child outcomes: externalising behaviour in the intervention groups was 0.12 standard deviations higher (0.21 lower to 0.44 higher)

1 Unclear risk of bias across several domains
2 Total population size is less than 400 (a threshold rule-of-thumb)
3 95% CI crosses both line of no effect and measure of appreciable benefit or harm (SMD -0.5/0.5 or RR 0.75/1.25)

9.2.3 Economic evidence

9.2.3.1 Systematic literature review

The systematic search of the literature identified 1 study in two publications that assessed the cost effectiveness of psychosocial interventions in promoting attachment in children and young people on the edge of care (Barlow et al., 2007a; McIntosh et al., 2009). No economic evidence on interventions for children and young people who have been or at risk of being maltreated was identified by the systematic search of the economic literature undertaken for this guideline. Details on the methods used for the systematic review of the economic literature are described in Chapter 3; full references and evidence tables for all economic evaluations included in the systematic literature review are provided in Appendix R. Completed methodology checklists of the studies are provided in Appendix Q. Economic evidence profile of the study considered during guideline development is presented in Table 215. Also, a decision-analytic model was developed to assess the cost effectiveness of different types of interventions aimed at promoting attachment in children on the edge of care (see section 9.2.3.2). Economic evidence profile of the economic analysis conducted for this review question is presented in Table 201.

Barlow and colleagues (2007a) evaluated the cost effectiveness of a home visiting programme compared with standard care in vulnerable pregnant women alongside an RCT (Barlow 2007) (n=131) conducted in the UK. Women were screened using a range of demographic and socioeconomic criteria (for example, presence of mental health problems or housing problems). The intervention programme involved health visitors trained in the Nurse-Family Partnership Model who provided intensive weekly home visiting services from 6 months antenatally to 12 months after childbirth. Standard care was defined as locally available services. The publication by McIntosh and colleagues (2009) is based on the same RCT but reports additional analyses. The main analysis was conducted from a public sector perspective plus informal care but authors conducted sensitivity analyses considering a healthcare perspective. The study considered a range of direct healthcare costs including primary and secondary care, direct non-healthcare costs (that is, social worker, alcohol/drug support, child and family team, foster care, adoption services, family centre, Sure Start, Home Start); also the costs accruing to Housing department, legal advice centre, Citizens Advice Bureau, court and police; and childcare costs (that is, crèche, playgroup and private childcare). The resource use estimates were based on the RCT and other published sources. The unit costs were obtained from local and national sources. The measures of outcome for the economic analysis included the proportion of infants identified as being ill-treated on the basis of child protection proceedings between 6 and 12 months after childbirth, improvement in maternal sensitivity and infant cooperativeness components of the CARE-Index scores; and time of infant exposure to abuse and neglect. The CARE-Index is a measure that assesses mother–infant interaction from birth to about 2 years of age based on a short, videotaped play interaction of 3-5 minutes. The measure assesses mothers on 3 scales: sensitivity, control and unresponsiveness. There are also 4 scales for infants: cooperativeness, compulsivity, difficultness, and passivity. The time horizon of the main analysis was 18 months, however when using the time of infant exposure to abuse and neglect as an outcome of the economic analysis costs were modelled for 5 years. The authors assumed that exposure to abuse and neglect would continue throughout the preschool period, and that the neglect would be identified as soon as the child went to school at the age of 5 years (for example, assuming that neglect was identified when the child was 6 months old, the intervention would have prevented 4.5 years of abuse and neglect); the costs considered over this period of time included foster care and adoption costs.

The intervention resulted in a greater proportion of infants being identified as ill-treated between 6 and 12 months compared with standard care (0.059 versus 0.000, respectively;

difference 0.059, *p* value was non-significant); the improvement in the maternal sensitivity component of the CARE-Index score was 9.27 versus 8.20 for the intervention and standard care, respectively (difference of 1.07 points); the improvement in the infant cooperativeness component of the CARE-Index score was 9.35 and 7.92 for the intervention and standard care, respectively (difference of 1.43 points). In terms of time of exposure to abuse, the difference was 1.9 months in favour of the intervention. From a public sector perspective (and informal care) the mean total costs per mother–infant dyad over 18 months were £7,120 for the intervention and £3,874 for standard care, a difference of £3,246 ($p < 0.05$) in 2003/04 prices. Similarly, when considering only health service costs, the mean total costs per mother–infant dyad over 18 months were £5,685 for the intervention and £3,324 for standard care, a difference of £2,360 ($p < 0.05$).

From a public sector perspective (and informal care) the cost per extra infant identified as being ill-treated was £55,016; per extra unit of improvement on maternal sensitivity and infant cooperativeness components of CARE-Index it was £2,723 and £2,023, respectively; and £1,691 per additional month reduced of infant exposure to abuse and neglect. From a healthcare perspective the cost per extra infant identified as being ill-treated was £40,000; per extra unit of improvement on maternal sensitivity and infant cooperativeness components of CARE-Index it was £2,178 and £1,621, respectively; and £1,229 for a reduction in infant exposure to abuse and neglect by 1 month. Interestingly the intervention leads to greater cost-savings from a healthcare perspective. This is due to the fact that a wider perspective considers extra costs (such as, foster care, adoption expenses, court costs, child protection resources, legal and social care involvement) to manage the greater number of cases of infants exposed to abuse and neglect identified in the intervention group.

From a public sector perspective (and informal care) probabilistic analysis indicated that at a willingness-to-pay (WTP) of £16,100 per unit improvement on the maternal sensitivity component of CARE-Index the probability that the intervention was cost effective was 0.95 and at WTP of £4,000 per unit improvement on infant cooperativeness component of CARE-Index the probability that the intervention was cost effective was 0.95. Moreover, at WTP of £1,400 for a reduction in infant exposure to abuse and neglect by 1 month the probability that the intervention was cost effective was 0.75 and at WTP £3,100 this probability increased to 0.95. From a healthcare perspective when WTP was £13,900 and £2,700 per unit improvement on maternal sensitivity component of CARE-Index and on infant cooperativeness component of CARE-Index, respectively, the probability that intervention was cost effective was 0.95. Deterministic sensitivity analyses were very limited and were conducted only on the ICER estimated from a public sector perspective plus informal care. It was found that ranging the proportion of infants identified as being ill-treated from 0.03 to 0.13 in the intervention group (base-case 0.06), the cost for a reduction in infant exposure to abuse and neglect by 1 month ranged from £2,505 to £1,284. Overall results suggest that intervention provides better outcomes however at an additional cost.

The analysis was judged by the GC to be partially applicable to the NICE decision-making context. The authors did not attempt to estimate quality adjusted life years (QALYs) which made it difficult to interpret the cost-effectiveness results and to compare the findings with other studies. Maternal sensitivity and responsiveness was used as a proxy for attachment security. However, overall, given the data limitations in this area, this was a well conducted study and was judged by the GC to have only minor methodological limitations.

9.2.3.2 Economic modelling – psychosocial interventions for children on the edge of care

9.2.3.2.1 Introduction – objective of economic modelling

The provision of psychosocial interventions aimed at promoting attachment in children on the edge of care was identified by the GC as an area with potentially significant resource

implications. The existing economic evidence was not sufficient to support decision making by the GC, since it did not include interventions that were found to be effective in the meta-analysis conducted for this guideline. Consequently a decision-analytic model was developed to assess the cost effectiveness of different types of interventions aimed at promoting attachment in children on the edge of care.

The study population in the model was determined by the populations in the RCTs included in the meta-analysis undertaken for this guideline.

9.2.3.282 Economic modelling methods

Interventions assessed

The economic model considered psychosocial interventions that were judged by GC to be effective at promoting attachment in children on the edge of care in the meta-analysis conducted for this guideline. Three different types of interventions were considered:

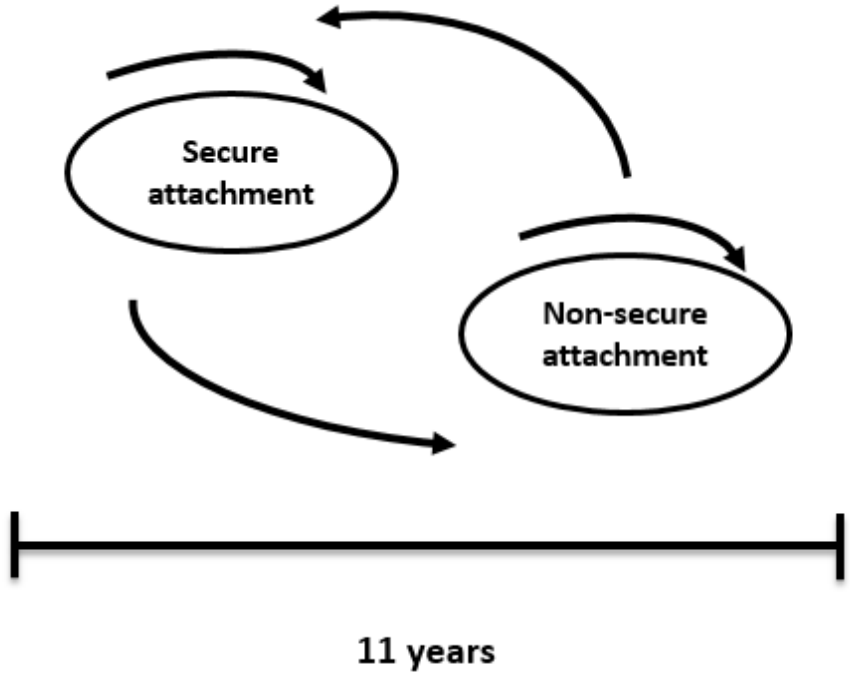
- video feedback added to standard care
- parental sensitivity and behaviour training added to standard care
- home visiting and parent–child psychotherapy added to standard care

In addition, standard care alone was considered as an alternative option, in order for the active treatments to be assessed.

Model structure

A simple Markov model was constructed using Microsoft Excel 2013 to estimate the cost effectiveness of psychosocial interventions aimed at promoting attachment in children on the edge of care. According to the model structure, hypothetical cohorts of 100 children on the edge of care and their parents received one of the interventions assessed at the age of 2 years. The time horizon of the analysis was 11 years (from 2 to 13 years of age, up until early adolescence). Within each year of the intervention or standard care alone children either remained securely attached or developed non-secure attachment. Similarly during each year of long-term follow up (starting at 2 years from the initiation of treatment) children could either remain securely attached or develop non-secure attachment. In addition during the long-term follow children who were non-securely attached at the end of the intervention could either remain non-securely attached or could develop secure attachment. Non-secure attachment was defined as any type of attachment other than secure. The treatment duration was 3.5 months for video feedback, 6 months for parental sensitivity and behaviour training, and 27 months for home visiting and parent–child psychotherapy. The half-cycle correction was applied in the Markov model to compensate for the fact that transitions between states, in reality, occur in the middle of each cycle on average. A schematic diagram of the decision-analytic model is presented in Figure 1.

Figure 1: Schematic diagram of the structure of the economic model



Costs and outcomes considered in the analysis

Due to the lack of relevant cost data the economic analysis was unable to consider wider costs associated with attachment difficulties. As a result the perspective of the NHS and personal social services was adopted. Costs consisted of intervention costs only, as no data on costs associated with attachment in children on the edge of care were identified in the relevant literature. In the analysis it was assumed that equipment required to provide video feedback intervention would be readily available and as a result the acquisition costs of equipment were excluded. Standard care costs were omitted from the analysis as these were the same across all arms of the model. Other costs to family, such as personal expenses and productivity losses were also excluded as they were beyond the scope of the analysis. The measure of outcome was the QALY.

Clinical input parameters of the economic model

Clinical input parameters included the relative risk of developing non-secure attachment associated with each intervention versus standard care. Efficacy of video feedback and parental sensitivity and behaviour training was based on the short-term follow-up data at approximately 6 and 7 months, respectively. This was the longest available follow-up data. The GC judged the efficacy data at follow-up to be more important for decision making than the 'end of the intervention' data (that is, it is more important to know how well 'secure attachment' is sustained). Efficacy of home visiting and parent–child psychotherapy was based on the 'end of the intervention' data at 27 months. There was no follow-up data available for home visiting and parent–child psychotherapy. For the purposes of estimating outcomes the model was annualised (that is, for video feedback and parental sensitivity and behaviour training efficacy data was applied at 1 year, and for home visiting and parent-child psychotherapy efficacy data was applied over 2 years).

Other clinical input parameters included the absolute risk of non-secure attachment associated with standard care, and long-term transition probabilities from secure to non-

secure attachment and from non-secure to secure attachment that were applied during the long-term follow up.

The guideline meta-analysis identified 1 RCT assessing video feedback versus standard care (Klein-Veldermann 2006; n=81) that provided dichotomous efficacy data (that is, number of children with secure and non-secure attachments). Similarly, only 1 RCT was identified assessing parental sensitivity and behaviour training (Cooper 2009; n=318), and another one assessing home visiting and parent–child psychotherapy (Sadler 2013; n=82) that reported dichotomous efficacy data.

Responders in each trial that provided efficacy data for the model were calculated on an intention-to-treat basis (that is, response rates were estimated for those who were randomised in each arm and not only for those who completed intervention); consequently discontinuation has not been considered separately in the model.

Since there were no direct comparisons between the interventions under assessment, it was decided to perform an indirect comparison between them. In order to do this, relative risks of non-secure attachment (efficacy) of each of the 3 interventions versus standard care were used, with standard care serving as the baseline common comparator. The absolute risk of developing non-secure attachment associated with standard care was estimated by pooled weighted annualised data from the standard care arms of the 3 studies providing efficacy data (Klein-Veldermann 2006, Cooper 2009 and Sadler 2013).

The absolute risks of non-secure attachment of each intervention were estimated by multiplying the respective relative risks for each intervention, estimated from each respective study, by the absolute risk of non-secure attachment as calculated for standard care, using the formula:

$$NIAR_{int(i)}=NIRR_{int(i)} \times NIAR_{st\ care}$$

where:

$NIAR_{int(i)}$ = absolute risk of non-secure attachment of each treatment

$NIRR_{int(i)}$ = relative risk of non-secure attachment of each treatment versus standard care

$NIAR_{st\ care}$ = absolute risk of non-secure attachment of standard care

It is acknowledged that the indirect comparison between interventions may have introduced some degree of bias in the analysis, as there were differences between the studies in terms of diagnostic measures used (that is, the measure of attachment), comparators, and some other aspects of protocol design. Nevertheless, due to the limited availability of data, the indirect comparison was considered necessary in order to populate the economic model.

Moreover it was assumed that the data reported in standard care arms (that is, the weighted annualised absolute risk of non-secure attachment of standard care) are representative of what happens in the first 1-2 years of the model (that is, 2-4 years of child's life), as this is the most 'crucial' period when attachment develops (or not), and when children are on the edge of care. This rate was used for all interventions and standard care as baseline rate over the first 2 years in the model. Following this long-term transition probabilities (from secure to non-secure and non-secure to secure attachment) were applied across all 4 arms of the model for the remaining of the time horizon.

Long-term transition probabilities

The development of attachment to a primary caregiver is a process rather than a state. A change may occur at any stage with the transformation in the child's caregiving environment. In the USA, Bar-Haim et al. (2000) examined stability and change of attachment longitudinally in a group of 48 children at 14, 24, and 58 months of age. At the 14-month visit mother–child dyads were videotaped through a 1-way mirror in the standard Strange Situation procedure and at 24 and 58 months mothers and children participated in a modified version of the Strange Situation procedure. Change of attachment observed between 24 and 58 months was used to approximate long-term annual transition probabilities from secure to non-secure and non-secure to secure attachment.

Utility data and estimation of QALYs

In order to express outcomes in the form of QALYs, the health states of the economic model need to be linked to appropriate utility scores. Utility scores represent the Health Related Quality of Life (HRQoL) associated with specific health states on a scale from 0 (death) to 1 (perfect health); they are estimated using preference-based measures that capture people's preferences on the HRQoL experienced in the health states under consideration. Preference-based measures are instruments consisting of a health state classification system (that is, an instrument that allows determination of the health state of the respondent), and an algorithm that links every health state described by the instrument with a utility score. Utility scores (which express preferences) can be elicited from various population groups (for example, service users, their carers, health professionals or members of the general population). The main methods of valuation are the visual analogue scale (VAS), the time trade-off (TTO) and the standard gamble (SG) (Brazier, 2007).

The systematic search of the literature did not identify any studies that reported utility scores for children and young people with attachment difficulties. One study was identified (Petrou et al., 2010) that reported utility scores for children with psychiatric disorders. This study reported HRQoL associated with a broad range of psychiatric disorders including emotional disorders, ADHD, conduct disorders, autism, tic disorders, any DSM–IV clinical diagnosis, moderate cognitive impairment, and severe cognitive impairment. Emotional disorder encompassed separation anxiety, specific phobia, social phobia, post-traumatic stress disorder, generalised anxiety disorder, and childhood emotional disorder (not otherwise specified). The GC decided to utilise the reported utility data for children with emotional difficulties in the economic model as a proxy of the HRQoL for children with attachment difficulties.

In the study by Petrou et al. (2010) utility scores associated with childhood psychiatric disorders were estimated using parents' ratings of their children's HRQoL around the child's eleventh birthday on both the Health Utility Index mark 2 (HUI2) and mark 3 (HUI3). The HUI is a family of preference-based multi-attribute utility measures (Torrance et al., 1995). The HUI2 consists of 6 domains: sensation, mobility, emotion, cognition, self-care, and pain. A 7th domain of fertility can be added if relevant. The HUI3 health state classification has many similarities to the HUI2, but with the sensation domain expanded into 3 separate attributes of vision, hearing and speech, and additional response levels added to some domains. Responses to HUI3 can be converted into utility scores using a published algorithm that was developed based on the principles of multi-attribute utility theory, following a valuation survey of members of the general population in Canada; respondents' preferences were elicited using VAS and SG (Feeny et al., 2002). The valuation of health states using HUI2 and an underpinning multi-attribute utility scoring algorithm has been estimated on the basis of the preferences of members of the UK general population; respondents' preferences were elicited using SG (McCabe et al., 2005; Petrou & Kupek, 2009).

Table 244 summarises the methods used to derive and value health states associated with emotional problems and the resulting utility scores using HUI2 UK multi-attribute utility scores that were considered in the economic model undertaken for this guideline.

According to NICE guidance on the selection of utility values for use in cost-utility analysis, the measurement of changes in HRQoL should be reported directly from people with the condition examined, and the valuation of health states should be based on public preferences elicited using a choice-based method, such as the TTO or SG, in a representative sample of the UK population. When changes in HRQoL cannot be obtained directly by the people with the condition examined, then data should be obtained from their carers. NICE recommends EQ-5D (Brooks, 1996; Dolan, 1997) for use in cost-utility analyses of interventions for adults; when EQ-5D data are not available, NICE recommends mapping other HRQoL measures to EQ-5D. For economic evaluation of interventions for children, the Institute suggests consideration of alternative standardised and validated preference-based measures of HRQoL that have been designed specifically for use in children (NICE, 2013).

The study by Petrou et al. (2010) provides utility scores based on HUI2 with an underpinning multi-attribute utility scoring algorithm estimated on the basis of the preferences of 198 members of the UK general population. The valuation method of HUI2 was SG, which is a method recommended by NICE. The GC also expressed the opinion that utility scores of children with emotional problems are only partially relevant to the symptoms of children and young people with attachment difficulties. Nevertheless, given the lack of other appropriate utility data, the utility scores of children with emotional problems were used as a proxy for the HRQoL of children with attachment difficulties in the economic modelling performed to assist development of this guideline.

The economic analysis assumed that at initiation of treatment the HRQoL of the study population corresponded to a health state 'without emotional disorder' (that is, no attachment difficulties). At the end of the intervention/short-term follow-up children either remained at this health state or were assumed to develop non-secure attachment and were assigned utility corresponding to a health state 'with emotional disorder'. During the long-term follow-up a proportion of children with secure attachment (that is, in 'without emotional disorder' health state) at the end of the intervention/short-term follow-up either remained at this health state or developed non-secure attachment (that is, moved to 'with emotional disorder' health state) and remained in this health state for the duration of the model. Similarly, during the long-term follow-up a proportion of children with non-secure attachment (that is, in 'with emotional disorder' health state) at the end of the intervention/short-term follow-up either remained at this health state or developed secure attachment (that is, moved to 'without emotional disorder' health state) and remained in this health state for the duration of the model. It was assumed that all decrements/increments in utility occurred linearly between initiation and completion of intervention/short-term follow-up, and between that point and the end of the model, respectively.

Table 244: Summary of methods and utility scores for health states experienced by children and young people with emotional difficulties

Study	Definition of health states	Valuation method	Population valuing	Health states & corresponding health states	
Petrou et al. (2010)	HUI2 profiles of 16 children with emotional disorder and 315 children without emotional disorder aged approximately 11 years, in the UK and Republic of Ireland; the questionnaire was completed by parent. Psychiatric childhood disorders diagnosed using the Development and Well Being Assessment (DAWBA); information obtained using DAWBA was used to assign ICD-10 and DSM-IV-TR diagnoses. Emotional problems encompassed separation anxiety, specific phobia, social phobia, post-traumatic stress disorder, generalised anxiety disorder, childhood emotional disorder (not otherwise specified) and major depression.	SG	198 members of the UK general population	**HUI2** With emotional disorder (N=15) Without emotional disorder (N=315)	 0.760 (SD 0.161) 0.888 (SD 0.139) (p value 0.009)
HUI2 - Health Utilities Index Mark 2; SG – Standard Gamble					

Cost data

The intervention costs were calculated by combining relevant resource use (based on data reported in the RCTs included in the guideline systematic review and GC expert opinion) with respective national unit costs. Table 245 presents the details of resource use associated with video feedback, parental sensitivity and behaviour training, and home visiting and parent-child psychotherapy. Since none of RCTs were conducted in the UK the GC estimated that video feedback would require approximately 10 sessions lasting 1 hour each, parental sensitivity and behaviour training is more intensive intervention and would require up to 15 sessions lasting 1 hour each. For home visiting and parent-child psychotherapy number of sessions as reported in Sadler 2013 was used (that is, 90 sessions lasting 1 hour each delivered over 2 years). The unit cost for a health visitor band 6 is £76 per hour of patient-related work (according to Agenda for Change band 6 of the July 2013-June 2014 NHS staff earnings estimates for qualified nurses); this cost includes salary, salary oncosts, overheads and capital overheads, and qualification costs (Curtis, 2014). The intervention cost per child or young person for 10 sessions of video feedback was estimated at £760, for 15 sessions of parental sensitivity and behaviour training £1,140, and for 90 sessions of home visiting and parent–child psychotherapy £6,687.

Table 245: Resource use data reported in RCTs assessing videofeedback, parental sensitivity and behaviour training, and home visiting and parent-child psychotherapy for children on the edge of care

Study ID	Resource use information
Video feedback	
Akai 2008	12 sessions, lasting 90 min each
Bakermans-Kranenberg 1998	3 sessions, lasting 90 to 180 min each
Bernard 2012	11 sessions, lasting 60 min each
Klein-Velderman 2006	3 sessions, lasting 90 to 180 min each
Moran 2005	7-21 sessions, lasting 60 min each
VanDoesum 2008	6-17 sessions, lasting 60 to 90 min each
Parental sensitivity and behaviour training	
Ammaniti 2006	28-56 sessions
Cooper 2009	16 sessions, lasting 60 min each
Horowitz 2001	4-6 sessions, lasting 15 min each
Horowitz 2013	7 sessions, lasting 60 min each
Hughes 2004	9 sessions, lasting 120 min each
Thomas 2012	12 sessions
Home visiting and parent–child psychotherapy	
Sadler 2013	68-116 sessions, duration varied depending on family's needs (approximately 60 min each)

The intervention cost of standard care was assumed to be the same across all arms of the model and was omitted from the analysis. Other costs relevant to the NHS and PSS perspective incurred by children with attachment difficulties were not included in the analysis due to lack of relevant data, but it is likely that children with attachment difficulties incur considerable additional health and social care costs; such costs may include, for example, costs associated with the provision of mental health care. Also, wider costs such as special education costs, etc.

Table 246 presents the values of all input parameters utilised in the economic model. As the time horizon of the analysis was 11 years, discounting was applied at an annual rate of 3.5%.

Table 246: Input parameters utilised in the economic model of psychosocial interventions for children on the edge of care

Input parameter	Deterministic value	Probabilistic distribution	Source of data – comments
Absolute risk of non-secure attachment at the end of intervention	0.390	**Beta distribution** α= 42, β= 24	Weighted pooled annualised rate for standard care arms, guideline meta-analysis (ITT)
Risk ratio of non-secure attachment: Video feedback versus standard care Parental sensitivity and behaviour training versus standard care Home visiting and parent–child psychotherapy versus standard care	 0.750 0.690 0.580	**Log-normal distribution** 95% CIs: 0.43 to 1.32 95% CIs: 0.50 to 0.97 95% CIs: 0.36 to 0.92	Guideline meta-analysis (ITT). Efficacy of video feedback, and parental sensitivity and behaviour training was based on the short-term follow-up data at 3 and 5 months, respectively; efficacy of home visiting and parent–child psychotherapy was based on the 'end of the intervention' data at 27 months.
Annual long-term transition probabilities: Secure to non-secure attachment Non-secure to secure attachment	 0.06 0.06	**Beta distribution** α= 167, β= 2,617 α= 167, β= 2,617	Bar-Haim et al.,(2000); probability of change between 24 and 58 months was used to extrapolate probability of change up to 11 years and to estimate annual probabilities; based on method of moments.
Utility scores: Non-secure attachment Secure attachment	 0.760 0.888	**Beta distribution** α= 4.61, β= 1.47 α= 3.68, β= 0.46	Petrou et al.,(2010); based on method of moments. Utility score for 'non secure attachment' approximated using utility score for children young people without emotional problems; and utility score for 'secure attachment' approximated using utility score for children and young people with emotional problems.
Cost data:		**'Inverse' of gamma distribution**	Based on resource use reported in RCTs included in the guideline systematic review supported with GC expert opinion (video

Input parameter	Deterministic value	Probabilistic distribution	Source of data – comments
Video feedback Parental sensitivity and behaviour training Home visiting and parent–child psychotherapy	£760 £1,140 £6,687	α= 100, β= 7.60 α= 100, β= 11.40 α= 100, β= 66.87	feedback 10 hourly sessions, parental sensitivity and behaviour training 15 hourly sessions, and home visiting and parent–child psychotherapy 90 hourly sessions). Unit cost of £76 per hour of patient-related work for health visitor band 6 (Curtis, 2014). 'Inverse' of gamma distribution for intervention costs was used to generate distribution with a negative (left) skew. It was defined as: deterministic cost plus difference between deterministic cost and cost generated using gamma distribution.
Discount rate: Costs Outcomes	 3.5% 3.5%	 NA	 NICE.,(2008a)
ITT – Intention-to-treat analysis			

Handling uncertainty

Model input parameters were synthesised in a probabilistic analysis. This means that model input parameters were assigned probability distributions (rather than being expressed as point estimates), to reflect the uncertainty characterising the available data. Subsequently, 1000 iterations were performed, each drawing random values out of the distributions fitted onto the model input parameters. Results of the probabilistic analysis (mean costs and QALYs for each intervention) were averaged across the 1000 iterations. This exercise provides more accurate estimates than those derived from a deterministic analysis (which utilises the mean value of each input parameter ignoring any uncertainty around the mean), by capturing the non-linearity characterising the economic model structure (Briggs et al., 2006).

The relative risk of non-improvement associated with video feedback, parental sensitivity and behaviour training, home visiting and parent–child psychotherapy were given a log-normal distribution. The absolute risk of non-improvement was given a beta distribution. Beta distribution was also given to annual long-term transition probabilities and utility values. Intervention costs were modelled as 'inverse' of gamma distribution. 'Inverse' of gamma distribution was assigned since a high number of service users are expected to have fewer than optimal sessions, due to discontinuation; and as a result the cost is likely to be skewed to the left rather than to the right. The estimation of distribution ranges was based on available data in the published sources of evidence, and further assumptions where relevant data were not available. Table 246 provides details on the types of distributions assigned to each input parameter and the methods employed to define their range.

One-way sensitivity analyses (run with the point estimates rather than the distributions of the input parameters) explored the impact of the uncertainty characterising the model input parameters on the model's results:

- changes in the relative risk estimates
- changes in treatment costs
- changes in utility weights
- changes in the duration of the model
- changes in the long-term transition probabilities

Moreover, threshold sensitivity analyses were conducted to explore the magnitude of change in base-case values for the conclusions of the cost-utility analysis to be reversed.

9.2.3.23 Presentation of the results

Results of the economic analysis are presented as follows:

For each intervention mean total costs and QALYs are presented, averaged across 1000 iterations of the model. An incremental analysis is provided, where all options have been ranked from the most to the least effective (in terms of QALYs gained). Options that are dominated by absolute dominance (that is, they are less effective and more costly than 1 or more other options) or extended dominance (the latter occurs when an option is less effective and more costly than a linear combination of two alternative options) are excluded from further analysis. Subsequently, incremental cost effectiveness ratios (ICERs) are calculated for all pairs of consecutive options remaining in analysis.

ICERs are calculated by the following formula:

$$ICER=\Delta C / \Delta E$$

where ΔC is the difference in total costs between 2 interventions and ΔE the difference in their effectiveness (QALYs). ICERs express the extra cost per extra unit of benefit (that is, QALY in this analysis) associated with 1 treatment option relative to its comparator. The

treatment option with the highest ICER below the NICE lower cost-effectiveness threshold of £20,000 per QALY (NICE, 2008b) is the most cost-effective option.

In this case ICERs express the additional cost per QALY gained associated with the provision of each intervention (that is, video feedback, parental sensitivity and behaviour training, and home visiting and parent–child psychotherapy) for the promotion of attachment in children and young people on the edge of care.

In addition, the cost-effectiveness plane and cost effectiveness acceptability curves (CEAC), which show the probability of each intervention being cost effective at various cost-effectiveness thresholds, including the NICE cost-effectiveness thresholds of £20,000 and £30,000 per QALY (NICE, 2008b), are provided. This is accompanied by the cost-effectiveness acceptability frontier (CEAF), which shows the intervention with the highest mean net monetary benefits (NMB) over different cost-effectiveness thresholds, and the probability that this intervention is the most cost effective among those assessed. NMB is defined by the following formula:

$$NMB = E * \lambda - C$$

where E and C are the effectiveness (number of QALYs) and costs associated with each intervention, respectively, and λ is the level of the willingness-to-pay per unit of effectiveness, set at the NICE lower cost-effectiveness threshold of £20,000 per QALY (NICE, 2008). The intervention with the highest NMB is the most cost-effective option (Fenwick et al., 2001).

9.2.3.204 Validation of the economic model

The economic model (including the conceptual model and the excel spreadsheet) was developed by the health economist working on this guideline and checked by a second modeller not working on the guideline. The model was tested for logical consistency by setting input parameters to null and extreme values and examining whether results changed in the expected direction. The results were discussed with the GC for their plausibility.

9.2.3.205 Results

Full probabilistic results of the base-case economic analysis are presented in Table 247. According to the results, over 11 years of the analysis, provision of video feedback resulted in 3.91 additional QALYs per 100 children and young people, compared with standard care, at an additional cost of £76,024. The ICER of video feedback versus standard care was £19,437 per QALY, which is just below the lower (£20,000 per QALY) NICE cost-effectiveness threshold. Parental sensitivity and behaviour training resulted in 1.39 additional QALYs per 100 children, compared with video feedback, at an additional cost of £38,235. The ICER of parental sensitivity and behaviour training versus video feedback was £27,487 per QALY, which is just below the upper (£30,000 per QALY) NICE cost-effectiveness threshold. Home visiting and parent–child psychotherapy resulted in 9.45 additional QALYs per 100 children, compared with parental sensitivity and behaviour training, at an additional cost of £551,986. The ICER of home visiting and parent–child psychotherapy versus parental sensitivity and behaviour training was £58,404 per QALY, which is well above the upper (£30,000 per QALY) NICE cost-effectiveness threshold.

Table 247: Mean probabilistic results of the economic analysis of psychosocial interventions for children on the edge of care

Intervention	NHS & PSS costs	QALYs	Cost per QALY
Standard care	-	770	
Video feedback	£76,024	774	£19,437 (video feedback vs. standard care)

Intervention	NHS & PSS costs	QALYs	Cost per QALY
Parental sensitivity and behaviour training	£114,259	775	£27,487 (parental sensitivity and behaviour training vs. video feedback)
Home visiting and parent–child psychotherapy	£666,245	785	£58,404 (home visiting and parent–child psychotherapy vs. parental sensitivity and behaviour training)
QALY – Quality adjusted life year			

Figure 2 present the cost-effectiveness plane showing the incremental costs and benefits (QALYs) of video feedback, parental sensitivity and behaviour training, and parent–child psychotherapy versus standard care. It can be seen from the cost-effectiveness plane that home visiting and parent-child psychotherapy has the highest number of QALYs but also the highest intervention costs. Both video feedback and parental sensitivity and behaviour training has similar number of QALYs but significantly lower costs when compared with home visiting and parent-child psychotherapy. The CEAC, shown in Figure 3, shows that video feedback has relatively low probability of being cost-effective of 0.253 and 0.231 under the NICE lower and upper cost-effectiveness threshold, respectively. The CEAF, shown in Figure 4, suggests that although standard care has the highest probability of being cost effective at any threshold below £20,000 per QALY, video feedback and parent sensitivity and behaviour training both have higher NMBs above £20,000 per QALY threshold. Home visiting and parent-child psychotherapy has never got the highest NMB at NICE lower or upper cost-effectiveness threshold values.

Figure 2: Cost-effectiveness plane showing incremental costs and QALYs

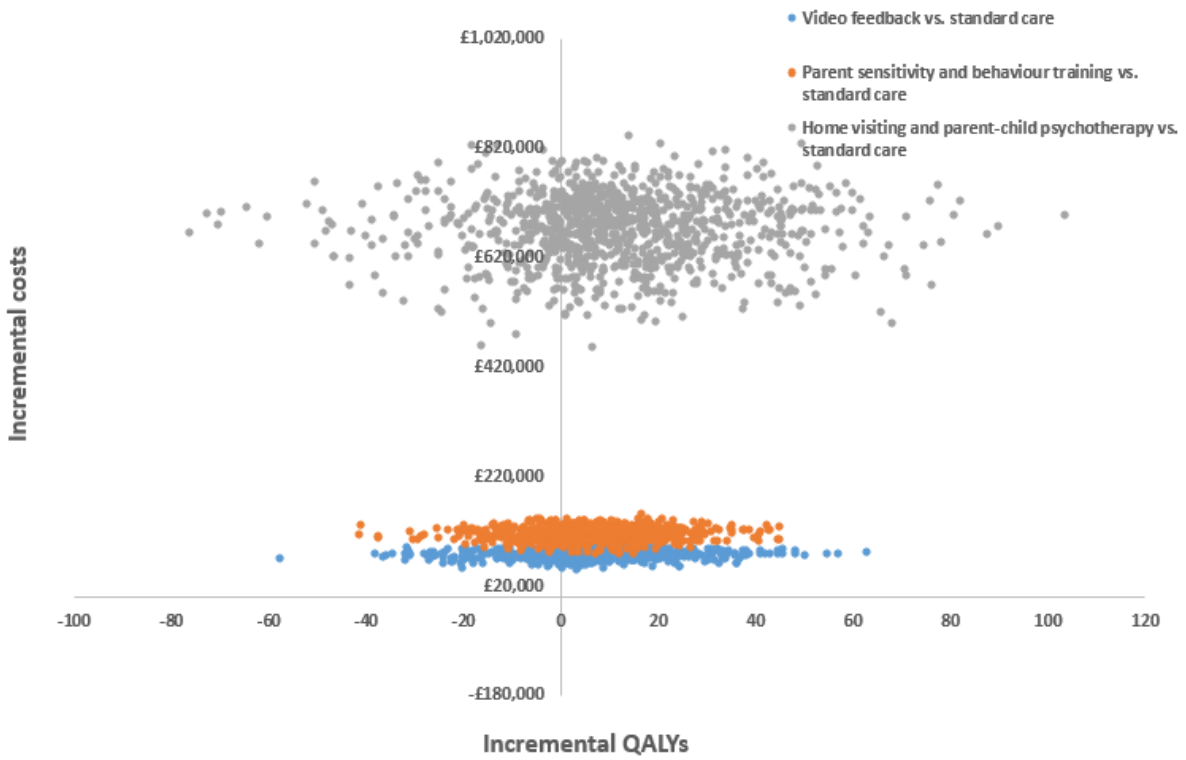


Figure 3: CEACs showing the probability of standard care, video feedback, parental sensitivity and behaviour training, and home visiting and parent–child psychotherapy being cost effective at various threshold values

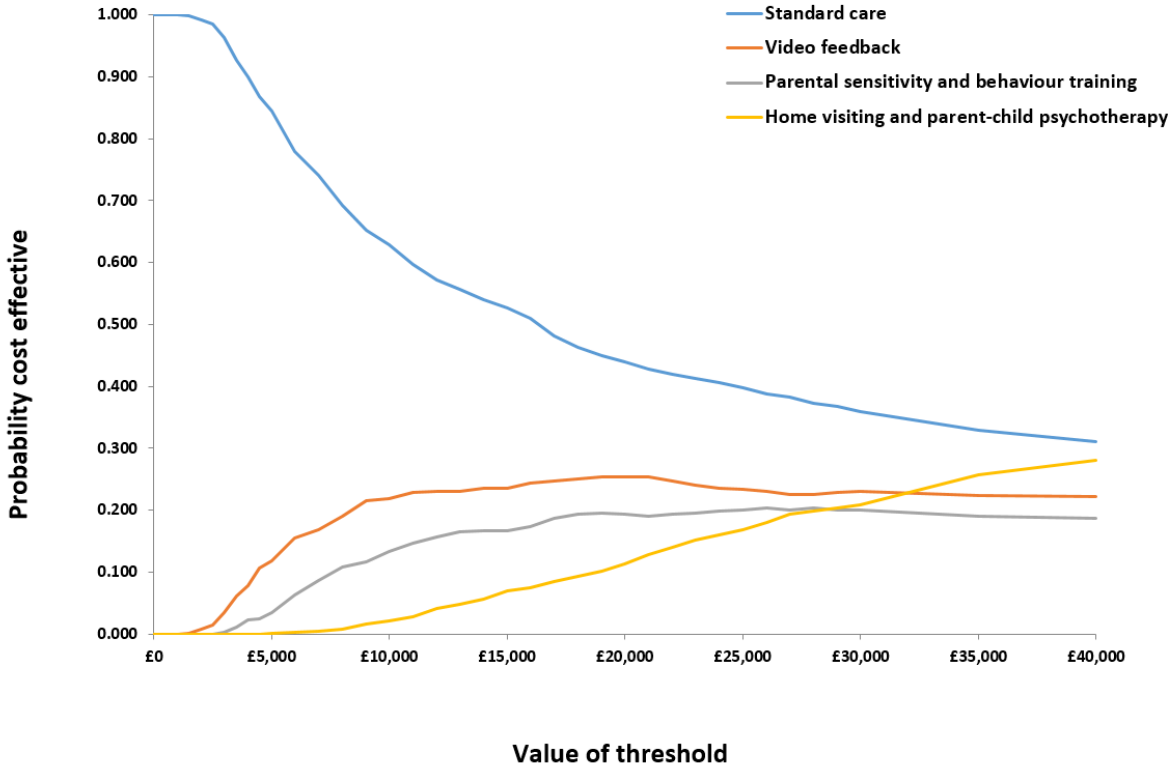
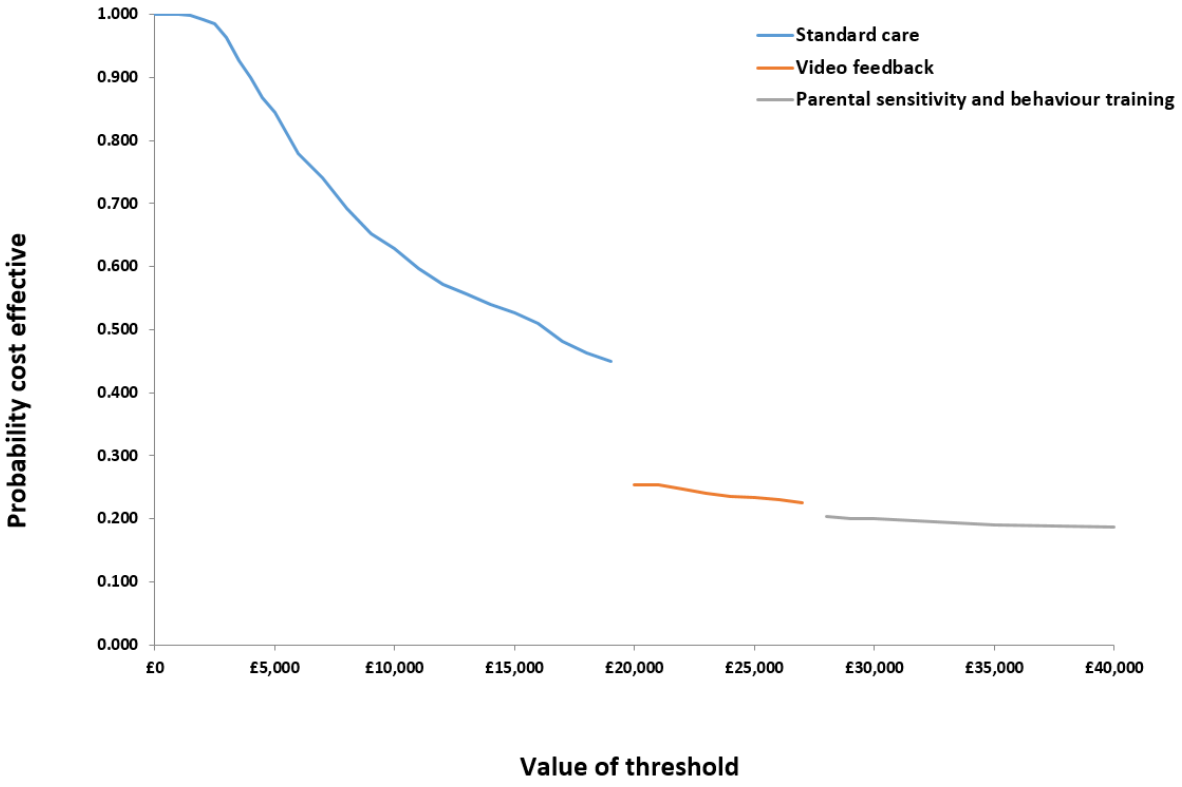


Figure 4: CEAF showing the probability of highest mean NMBs at various threshold values for standard care, video feedback, and parent sensitivity and behaviour training



The conclusions were sensitive to the estimate of relative risk of non-secure attachment associated with video feedback. For example, if the relative risk of non-secure attachment increases to 0.81 (from the base-case value of 0.75) the ICER associated with video feedback (when compared with standard care) increases to just over £20,0000 per QALY. The results are also sensitive to the change in the cost of parental sensitivity and behaviour training. As the cost is reduced by 50% parental sensitivity and behaviour training (when compared with video feedback) becomes the dominant intervention (it is both more effective and less costly than video feedback). The results are also sensitive to the difference in quality of life scores between 'secure attachment' and 'non-secure' attachment health states. At the base-case the difference between the health states is 0.130 points and as this difference is reduced by 50% (to 0.065) the ICER associated with video feedback (when compared with standard care) increases to £29,825 per QALY which is just below the upper NICE cost-effectiveness threshold of £30,000 per QALY. Similarly, as the difference between the quality of life scores increases by 50% (to 0.195) the ICER associated with parental sensitivity and behaviour training (when compared with video feedback) decreases to £20,712 per QALY which is just above the lower NICE cost-effectiveness threshold of £20,000 per QALY and it could potentially be the preferred intervention. The results are also sensitive to the duration of the model. For example if duration of the model is reduced to 6 years (from the base-case of 11 years) the ICER associated with video feedback increases to £20,100 which is just above the lower (£20,000 per QALY) NICE cost-effectiveness threshold. Overall sensitivity analysis indicates that the conclusions of economic analysis are relatively sensitive in relation to the ICER associated with parental sensitivity and behaviour training (when compared with video feedback), but only large changes in the base-case values would be required for home visiting and parent–child psychotherapy to be the cost-effective option. The results of the threshold analysis are presented in Table 248.

Table 248: Results of threshold sensitivity analysis

Parameter	Values that resulted in:		
	ICER of video feedback (vs. standard care) exceeding the threshold of £20,000/QALY	**ICER of parental sensitivity and behaviour training (vs. video feedback) below the threshold of £20,000/QALY**	**ICER of home visiting and parent–child psychotherapy (vs. parental sensitivity and behaviour training) below the threshold of £20,000/QALY**
Relative risk of non-secure attachment: Video feedback Parental sensitivity and behaviour training Home visiting and parent–child psychotherapy	0.81	0.78 0.66	1.54 0.22
Absolute risk of non-secure attachment Standard care	0.25	-	-
Intervention costs: Video feedback Parental sensitivity and behaviour training Home visiting and parent–child psychotherapy	£1,019	£895 £1,005	£4,597 £3,229
Difference in quality of life scores between 'secure attachment' and 'non-secure' attachment health states	0.10	0.20	0.35
Duration of the model (years)	~ 6 years	-	-
Long-term annual transition probability from secure to non-secure attachment state	19%	-	-
Long-term annual transition probability from non-secure to secure attachment state	19%	-	-
ICER – Incremental cost-effectiveness ratio; QALY – Quality adjusted life year			

9.2.3.226 Discussion – limitations of the analysis

Based on the results of the economic analysis, it can be concluded that video feedback is likely to be a cost-effective intervention in children on the edge of care. Results were driven by the superior efficacy (expressed by the relative risk of non-improvement) of video feedback and the relatively low intervention costs. Also, it has the highest NMB at the lower NICE cost-effectiveness threshold of £20,000 per QALY.

Parental sensitivity and behaviour training resulted in an ICER of £27,487 which is above the lower (£20,000 per QALY) but below the upper (£30,000 per QALY) NICE cost-effectiveness threshold. However, the GC considered the ICER to be associated with high uncertainty, also HRQoL was approximated using utility weights for children and young people with emotional problems, and in general clinical evidence was weak. As a result, the GC judged that parental sensitivity and behaviour training could be considered only where parents decline the offer of a video feedback programme (that is, because they do not want to be videoed).

The analysis was undertaken using the most accurate effectiveness and cost data available. However, evidence on clinical effectiveness was based on indirect comparisons between treatments, derived from a very limited number of studies. The sample sizes of the studies reporting clinical effectiveness were small. The findings favoured video feedback, but lacked statistical significance on the 'secure attachment' outcome, suggesting that the study may have been underpowered. Nevertheless, the intervention appeared to have increased the number of children on the edge of care who have developed secure attachments. Moreover, the intervention is relatively short, potentially reducing the length of time children are exposed to damaging environments. The stability of attachment during the long term follow-up was extrapolated from a study by Bar-Haim and colleagues (2000) who looked at attachment stability only up to 58 months. The study provides relatively conservative estimates of attachment stability that is consistent with the rates of 53-62% found in families undergoing life changing circumstances such as stressful life events, on-set of regular non-maternal care, and onset of maternal depression (Owen et al., 1984; Touris et al., 1995). However, as indicated by sensitivity analysis results are not sensitive to this model input.

Cost estimates were based on the description of relevant healthcare resource use as provided in the clinical studies, further supported by the GC expert opinion since none of the studies were conducted in the UK. Number of sessions of video feedback used in the model are greater than in the study that provided efficacy data. As a result the cost effectiveness of video feedback may be underestimated. On the other hand in the analysis it was assumed that equipment required to deliver video feedback would be readily available. If that's not the case the cost of intervention may increase and the cost effectiveness of video feedback may be overestimated.

The main limitation of the analysis is that it considered only intervention costs due to the lack of cost data on attachment difficulties. Consequently, any potential cost-savings from prevention of attachment difficulties were not incorporated. A range of other important consequences were not considered in the analysis due to data limitations and methodological difficulties in incorporating such events (for example, difficulty in capturing incremental change in long-term outcomes for incremental change in improved parenting or maternal sensitivity associated with interventions in question). There is evidence linking attachment difficulties with conduct disorder and criminal behaviour. In the case of adolescents with offending behaviour, the majority of incurred costs falls on the criminal justice system, education services, housing, social and other public services. Also, other long term outcomes associated with non-secure attachment such as increased future service requirements associated with mental healthcare use were not considered. The impact on parents has not been considered either (for example, attachment associated impacts on parent's health and their healthcare resource use; productivity losses for the parents, and other intangible costs to the family).

The utility review couldn't identify studies reporting quality of life scores for health states associated with attachment difficulties. As a result these were approximated using quality of life scores for children and young people with emotional disorders. However, the GC felt that the quality of life scores for children and young people with emotional disorders did not sufficiently capture symptoms experienced by children and young people with attachment difficulties. Another point for consideration is that the model incorporated exclusively changes in the HRQoL of children and young people with attachment difficulties. Consideration of the improvement in HRQoL of carers and the family would increase the cost effectiveness of

video feedback and parental sensitivity and behaviour training, and home visiting and parent-child psychotherapy.

It is recognised that, overall, results of the analysis are subject to uncertainty regarding some input parameters and potential bias; nevertheless, as indicated by the extensive sensitivity analysis, the conclusions relating to home visiting and parent–child psychotherapy are robust to changes in model's inputs and only fairly large changes would be needed for conclusions to change. Results pertaining to video feedback, and parental sensitivity and behaviour training are sensitive to cost estimates and quality of life estimates.

Further research is needed on the efficacy and acceptability of psychosocial treatments for the promotion of attachment in children and young people on the edge of care, on the HRQoL of children and young people with attachment difficulties, and on the long-term costs of health and social care of those children and young people including criminal justice and education sectors, in order to determine more accurately the relative cost effectiveness of these interventions and assist decision making.

9.2.353 Overall conclusions from economic evidence

The existing economic evidence on psychosocial interventions for children on the edge of care is very sparse. The search has identified only 1 UK-based economic evaluation that was judged by the GC to be only partially applicable to the NICE decision-making context and this guideline because it hasn't used QALYs as an outcome measure and also maternal sensitivity and responsiveness was used as a proxy for attachment security. In the economic analysis conducted for this guideline, low cost interventions such as video feedback appear to be cost effective when compared with standard care, parental sensitivity and behaviour training, and home visiting and parent–child psychotherapy. However, as outlined above the analysis has potentially serious limitations. For example clinical effectiveness was based on indirect comparisons between treatments, derived from a very limited number of studies, some of the resource use estimates were based on the GC expert opinion, consideration of intervention costs only and utility values were for young children with emotional difficulties. The aforementioned limitations should be considered when making recommendations.

9.2.4 Clinical evidence statements for children and young people on the edge of care

9.2.4.1 Video feedback versus control

- Low to moderate quality evidence from up to 5 studies showed that video feedback is more effective than the control in improving sensitivity/responsiveness (k = 5; N = 442) and secure attachment (k = 3; N = 286), and reducing insecure attachment (k = 3; N =286), at the end of treatment.
- Very low quality evidence from 3 studies (N = 286), showed that video feedback is more effective than the control in reducing disorganised attachment at the end of treatment, but there was some uncertainty.
- Low quality evidence from 1 study (N = 67) is inconclusive as to the effectiveness of video feedback in improving externalising and internalising behaviour when compared with the control at the end of treatment.
- Low quality evidence from 4 studies (N = 203), showed that video feedback is more effective than the control in improving sensitivity/responsiveness at 1 to 6-month follow-up.
- Moderate quality evidence from 1 study (N = 71), showed that video feedback is more effective than the control in improving secure attachment (as assessed by continuous measures), at 6-month follow-up, but there was some uncertainty.
- Low quality evidence from 1 study (N = 81), is inconclusive as to the effectiveness of video feedback in improving secure attachment (as assessed by dichotomous measures) at 3-month follow-up.
- Low quality evidence from 1 study (N = 71) is inconclusive as to the effectiveness of video feedback in improving externalising and internalising behaviour when compared with the control at 6-month follow-up.
- Moderate quality evidence from 1 study (N = 58) showed that video feedback is more effective than the control in improving secure attachment at 56-month follow-up, but this estimate was imprecise.
- Low quality evidence from 1 study (N = 58) is inconclusive as to the effectiveness of video feedback compared to the control in improving externalising behaviour at 56-month follow-up.
- Low quality evidence from 1 study (N = 58) showed that the control is more effective than video feedback in improving internalising behaviour at 56-month follow-up.

9.2.4.2 Video feedback versus counselling

- Moderate quality evidence from 1 study (N = 77), showed that video feedback is more effective than counselling in reducing insensitivity at the end of treatment.

9.2.4.3 Parent–child psychotherapy versus control

- Very low quality evidence from up to 2 studies showed that parent–child psychotherapy compared with the control is more effective in improving secure attachment (as assessed by dichotomous measures) at the end of treatment (k = 2; N = 182) and at 12- month follow-up (k = 1; N = 76).
- Very low to low quality evidence from up to 2 studies, showed that parent–child psychotherapy compared with the control is more effective in reducing insecure attachment as assessed by continuous measures (k = 2; N = 53) and dichotomous measures (k = 2; N = 182), at the end of treatment.
- Very low quality evidence from 2 studies (N = 106), showed that parent–child psychotherapy compared with the control is more effective in improving secure

attachment (as assessed by continuous measures) at the end of treatment, but there was some uncertainty.

- Very low quality evidence from up to 2 studies is inconclusive as to the effectiveness of parent–child psychotherapy compared with the control in improving sensitivity/responsiveness (k = 2; N = 141) and reducing disorganised attachment (k = 2; N = 182) at the end of treatment.
- Very low quality evidence from 1 study (N = 76), showed that parent–child psychotherapy compared with the control is more effective in reducing insecure and disorganised attachment at 12-month follow-up, but there was some uncertainty.

9.2.4.4 Parent–child psychotherapy versus home visiting

- Low quality evidence from 1 study (N = 57), showed that parent–child psychotherapy compared with home visiting is more effective in improving secure attachment (as assessed by continuous measures), at the end of treatment.
- Very low quality evidence from 1 study (N = 50), is inconclusive as to the effectiveness of parent–child psychotherapy compared with the control in improving secure attachment (as assessed by dichotomous measures) and reducing insecure and disorganised attachment, at the end of treatment.
- Very low quality evidence from 1 study (N = 49) showed that parent–child psychotherapy compared with home visiting is more effective in improving secure attachment and reducing disorganised attachment, at 12-month follow-up.
- Very low quality evidence from 1 study is inconclusive as to the effectiveness of parent–child psychotherapy compared with home visiting in reducing insecure attachment at 12-month follow-up.

9.2.4.5 Parent sensitivity and behaviour training versus control

- Low to moderate quality evidence from up to 9 studies, showed that parent sensitivity and behaviour training is more effective than the control in improving sensitivity/responsiveness (k = 9; N = 1080), and in reducing externalising behaviour (k = 2; N = 224), at the end of treatment.
- Low to moderate quality evidence from up to 2 studies, is inconclusive as to the effectiveness of parent sensitivity and behaviour training compared with the control in reducing internalising behaviour (k = 2; N = 224) and improving parenting attitudes (k = 2; N = 226), at the end of treatment.
- Moderate quality evidence from 1 study (N = 318), showed that parent sensitivity and behaviour training is more effective than the control in improving sensitivity/responsiveness and secure attachment, at 5-month follow-up.
- Moderate quality evidence from 1 study (N = 318), showed that parent sensitivity and behaviour training is more effective than the control in reducing insecure attachment at 5-month follow-up, but there was some uncertainty.
- Moderate quality evidence from 1 study (N = 318), is inconclusive as to the effectiveness of parent sensitivity and behaviour training compared with the control in reducing disorganised attachment at 5-month follow-up.

9.2.4.6 Home visiting versus control

- Very low to low quality evidence from up to 20 studies, showed that home visiting is more effective than the control in improving sensitivity/responsiveness (k = 20; N = 1080) and secure attachment (as assessed by continuous measures) (k = 3; N = 284), at the end of treatment.
- Moderate quality evidence from up to 12 studies, showed that home visiting is more effective than the control in reducing externalising behaviour (k = 7; N = 6645) and in improving mental development (k = 12; N = 6605), motor development (k = 6; N = 960)

and parenting attitudes (k = 3; N = 1062), at the end of treatment. However, the effect sizes were too small to be clinically effective.

- Low quality evidence from up to 4 studies, is inconclusive as to the effectiveness of home visiting compared with the control in improving secure attachment (as assessed by dichotomous measures) (k = 2; N = 113), and in reducing insecure attachment (k = 2; N = 113) and internalising behaviour (k = 4; N = 3491), at the end of treatment.
- Moderate quality evidence from 3 studies (N = 269), showed that home visiting is more effective than the control in improving sensitivity/responsiveness, at 1 to 12-month follow-up.
- Low quality evidence from one study (N = 49), is inconclusive as to the effectiveness of home visiting compared with the control in improving sensitivity/responsiveness and mental development at 22-month follow-up.
- Low quality evidence from up to 2 studies, is inconclusive as to the effectiveness of home visiting compared with the control in improving secure attachment (k = 1; N =224), mental development (k = 2; N =93) and motor development (k = 1; N =44), at 6 to 10-month follow-up.
- Low quality evidence from one study (N = 345), is inconclusive as to the effectiveness of home visiting compared with the control in reducing externalising and internalising behaviour at 4-year follow-up.
- Low quality evidence from one study, is inconclusive as to the effectiveness of home visiting compared with the control in reducing externalising behaviour (N = 302) and internalising behaviour (N = 303) at 7-year follow-up.

9.2.37 Home visiting combined with parent–child psychotherapy versus control

- Low quality evidence from one study (N = 82), showed that home visiting combined with parent–child psychotherapy is more effective than the control in improving secure attachment, at the end of treatment.
- Low quality evidence from one study, is inconclusive as to the effectiveness of home visiting combined with parent–child psychotherapy compared with the control, in improving sensitivity/responsiveness (N = 76) and reducing disorganised attachment (N = 60), at the end of treatment.

9.2.38 Psychotherapy versus control

- Low quality evidence from one study (N = 47), showed that psychotherapy is more effective than the control in improving sensitivity/responsiveness at the end of treatment and at 6-week follow-up.
- Low quality evidence from one study (N = 87), is inconclusive as to the effectiveness of psychotherapy compared with the control in reducing insecure attachment at 14-month follow-up.

9.2.39 Psychotherapy versus counselling

- Low quality evidence from one study (N = 79), is inconclusive as to the effectiveness of CBT compared with psychotherapy in reducing insecure attachment at 14-month follow-up.

9.2.40 CBT versus control

- Low quality evidence from one study (N = 88), is inconclusive as to the effectiveness of CBT compared with the control in reducing insecure attachment at 14-month follow-up.

9.2.4.11 CBT versus psychotherapy

- Low quality evidence from one study (N = 81), is inconclusive as to the effectiveness of CBT compared with psychotherapy in reducing insecure attachment at 14-month follow-up.

9.2.4.12 CBT versus counselling

- Low quality evidence from one study (N = 80), is inconclusive as to the effectiveness of CBT compared with counselling in reducing insecure attachment at 14-month follow-up.

9.2.4.13 Psychotherapy versus counselling

- Low quality evidence from one study (N = 86), is inconclusive as to the effectiveness of CBT compared with psychotherapy in reducing insecure attachment at 14-month follow-up.

9.2.5 Clinical evidence statements for children and young people who have been maltreated or who are at risk of being maltreated

9.2.5.1 Home visiting versus any control

- Moderate quality evidence from 3 studies (N = 1178) showed that home visiting is more effective than control in increasing parental sensitivity and responsiveness in preschool age children at the end of intervention, but the effect size is too small to be clinically effective.
- Moderate quality evidence from 2 studies (N = 640) showed that home visiting is more effective than control in improving parenting attitudes in preschool age children at the end of intervention.
- Moderate quality evidence from 3 studies (N =1028) showed that home visiting is more effective than control in reducing externalising behaviour in preschool age children at the end of intervention.
- Moderate quality evidence from 2 studies (N = 640) showed that home visiting is more effective than control in reducing internalising behaviour in preschool age children at the end of intervention.
- Moderate quality evidence from 2 studies (N = 637) is inconclusive as to the effectiveness of home visiting compared with control in improving mental development in preschool age children at the end of intervention.
- Low quality evidence from 1 study (N = 249) is inconclusive as to the effectiveness of home visiting compared with control in improving motor development in preschool age children at the end of intervention.
- Very low quality evidence from 1 study (N = 309) study is inconclusive as to the effectiveness of home visiting compared with control in reducing child abuse reports in preschool age children at 12 months follow up.
- Low quality evidence from 2 studies (N = 688) is inconclusive as to the effectiveness of home visiting compared with control in reducing child abuse reports in preschool age children at the end of intervention.
- Moderate quality evidence from 1 study (N = 391) showed that home visiting is more effective than control in reducing severe physical assault in preschool age children at the end of intervention at the end of intervention.
- Moderate quality evidence from 1 study (N = 345) showed no effect of home visiting compared with control on reducing internalising or externalising behaviour in preschool age children at 2 year follow up and at 7 year follow up.

9.2.5.12 Parent child psychotherapy versus control

- Low quality evidence from 1 study (N = 57) showed that parent child psychotherapy is more effective than control in increasing secure attachment (as assessed by continuous measures) in preschool age children at the end of intervention
- Very low quality evidence from 1 study (N = 50) showed that parent child psychotherapy is more effective in reducing insecure attachment (as assessed by dichotomous measures) in preschool age children at the end of intervention.
- Very low quality evidence from 1 study (N = 50) showed that parent child psychotherapy is more effective than control in reducing disorganised attachment in preschool age children at the end of intervention.
- Very low quality evidence from 1 study (N = 57) showed that parent child psychotherapy is more effective than control in reducing maternal maladaptive representations in preschool age children, but precision of this estimate is poor.
- Very low quality evidence from 1 study (N = 78) showed that parent child psychotherapy is more effective than control in reducing insecure and disorganised attachment in preschool age children at 12 month follow up.

9.2.5.13 Parent child psychotherapy versus home visiting

- Very low quality evidence from 1 study (N = 50) showed no effect of parent child psychotherapy compared to home visiting in increasing secure attachment (as assessed by dichotomous measures) in preschool age children at the end of intervention.
- Low quality evidence from 1 study (N = 53) showed that parent child psychotherapy is more effective than home visiting in increasing secure attachment (as assessed by continuous measures) in preschool age children at the end of intervention.
- Low quality evidence from 1 study (N = 50) showed that parent child psychotherapy is more effective than control in reducing disorganised attachment in preschool age children at the end of intervention, but precision of this estimate is poor.
- Low quality evidence from 1 study (N = 57) showed that parent child psychotherapy is more effective than control in reducing maternal maladaptive representations in preschool age children, but precision of this estimate is poor.
- Very low quality evidence from 1 study (N = 49) showed that parent child psychotherapy is more effective than home visiting in increasing secure attachment in preschool age children at 12 month follow up.
- Low quality evidence from 1 study (N = 49) is inconclusive as to whether parent child psychotherapy is more effective than home visiting in reducing insecure attachment in preschool age children at 12 month follow up.
- Very low quality evidence from 1 study (N = 49) showed that parent child psychotherapy is more effective than home visiting in reducing disorganised attachment in preschool age children at 12 month follow up.

9.2.5.14 Parent sensitivity and behaviour training

- Low quality evidence from 4 studies (N = 319) showed that parent sensitivity and behaviour training is more effective than control in increasing parental sensitivity and responsiveness in preschool and primary school aged children at the end of intervention.
- Low quality evidence from 1 study (N = 77) showed that parent sensitivity and behaviour training is more effective than control in reducing negative parenting behaviour in primary school aged children at the end of intervention.
- Low quality evidence from 2 studies (N = 226) showed no effect of parent sensitivity and behaviour training on negative parenting attitudes in preschool and primary school aged children at the end of intervention.

- Low quality evidence from 3 studies (N = 301) showed no effect of parent sensitivity and behaviour training on internalising behaviour in preschool and primary school aged children at the end of intervention.
- Low quality evidence from 3 studies (N = 301) showed that parent sensitivity and behaviour training is more effective than control in reducing externalising behaviour in preschool and primary school aged children at the end of intervention, but there was some uncertainty.
- Low quality evidence from 1 study (N = 77) showed that parent sensitivity and behaviour training is effective than control in reducing re-report of physical abuse in primary school age children at the end of intervention.

9.2.5.5 Video feedback versus control

- Very low quality evidence from 1 study (N = 67) showed that video feedback is more effective than control in increasing parent sensitivity and responsiveness in preschool age children at the end of intervention, but there was some uncertainty.
- Low quality evidence from 2 studies (N = 187) showed that video feedback is more effective than control in increasing secure attachment in preschool age children at the end of intervention.
- Low quality evidence from 2 studies (N = 187) showed that video feedback is more effective than control in reducing disorganised attachment in preschool age children at the end of intervention.
- Very low quality evidence from 1 study (N = 67) is inconclusive as to the effectiveness of video feedback compared with control in reducing internalising and externalising behaviour in preschool age children at the end of intervention.

9.2.5.6 Trauma focused CBT versus parent–child psychotherapy

- Low quality evidence from 1 study (N = 179) showed that trauma focused CBT is more effective than parent–child psychotherapy at increasing parental sensitivity and responsiveness in primary and secondary school age children at the end of intervention.
- Low quality evidence from 1 study (N = 179) showed that trauma focused CBT is more effective than parent–child psychotherapy at reducing internalising behaviour in primary and secondary school age children at the end of intervention.
- Very low quality evidence from 1 study (N = 179) showed that trauma focused CBT is more effective than parent–child psychotherapy at reducing externalising behaviour in primary and secondary school age children at the end of intervention, but there was some uncertainty.
- Very low quality evidence from 1 study (N = 143) is inconclusive as to the effectiveness of trauma focused CBT compared with parent–child psychotherapy in increasing parental sensitivity and responsiveness in primary and secondary school age children at 6 month follow up.
- Very low quality evidence from 1 study (N = 142) is inconclusive as to the effectiveness of trauma focused CBT compared with parent–child psychotherapy in reducing internalising and externalising behaviour in primary and secondary school age children at 6 month follow up.
- Very low quality evidence from 1 study (N = 148) is inconclusive as to the effectiveness of trauma focused CBT compared with parent–child psychotherapy in increasing parental sensitivity and responsiveness in primary and secondary school age children at 12 month follow up.
- Very low quality evidence from 1 study (N = 146) showed that trauma focused CBT is more effective than parent–child psychotherapy at reducing internalising behaviour in primary and secondary school age children at 12 month follow up, but there was some uncertainty.

- Very low quality evidence from 1 study (N = 146) is inconclusive as to the effectiveness of trauma focused CBT compared with parent–child psychotherapy in reducing externalising behaviour in primary and secondary school age children at 12 month follow up.

9.2.6 Economic evidence statements

- There was only one economic evaluation undertaken alongside an RCT (N = 131) suggesting that provision of home visiting compared with standard care for children on the edge of care may be a cost-effective option in the UK. However, the authors did not attempt to estimate QALYs which made it difficult to interpret the cost-effectiveness results. The analysis is only partially applicable to this guideline review and the NICE reference case and is characterised by minor methodological limitations.
- Low-quality evidence from the guideline economic analysis suggests that video feedback is potentially the most cost-effective option for children on the edge of care. The guideline economic analysis was characterised by a number of potentially serious limitations relating to limited evidence base, lack of long-term clinical data, lack of appropriate data on costs associated with attachment difficulties, and lack of directly relevant utility data.
- No economic evidence on interventions for children and young people who have been maltreated or who are at risk of being maltreated is available.

9.3 Recommendations and link to evidence

Recommendations	
	Preschool-age children 31. Health and social care professionals should offer a video feedback programme to the parents of preschool-age children on the edge of care to help them: • improve how they nurture their child, including when the child is distressed • improve their understanding of what their child's behaviour means • respond positively to cues and expressions of the child's feelings • behave in ways that are not frightening to the child • improve mastery of their own feelings when nurturing the child. 32. Ensure video feedback programmes are delivered in the parental home by a trained health or social care worker who has experience of working with children and young people and: • consist of 10 sessions (each lasting at least 60 minutes) over 3–4 months • include filming the parents interacting with their child for 10–20 minutes every session • include the health or social care worker watching the video with the parents to: o highlight parental sensitivity, responsiveness and communication o highlight parental strengths o acknowledge positive changes in the

	behaviour of the parents and child. 33. If there is little improvement to parental sensitivity and the child's attachment after 10 sessions of a video feedback programme, arrange a multi-agency review before going ahead with more sessions or other interventions.
Relative values of different outcomes	The GC discussed the importance and relevance of various outcomes when assessing the effectiveness of interventions aimed at promoting attachment in children on the edge of care. For this population attachment (secure, insecure and disorganised) is of greatest concern. The GC felt that maternal sensitivity/responsiveness is causally related to attachment and should be considered as a critical outcome. Other outcomes of concern for children on the edge of care, which are of less importance to attachment but are important in relation to family cohesion, are the child's emotional/behavioural functioning (that is, internalising and externalising behaviour), the child's developmental status, specifically their mental and motor development, and the parent's attitudes towards parenting. Child-focused outcomes were chosen over and above parent-focused outcomes such as the parent's mental health because the focus of the review was on improving outcomes for the child, therefore benefits for the parent were viewed as subsidiary and were not considered in this review.
Trade-off between clinical benefits and harms	Video feedback for parents of children on the edge of care may improve sensitivity/responsiveness and secure attachment, and reduce insecure attachment. Video feedback may reduce disorganised attachment, but our confidence in the evidence is very low. The evidence was inconclusive for externalising and internalising behaviour. For sensitivity/responsiveness, the benefit was maintained at follow-up, and for secure attachment, assessed with continuous measures, there was a trend towards a benefit, but when assessed with dichotomous measures, findings were inconclusive. Insecure attachment was not measured at follow-up. One study included a long-term follow-up of 56 months and found a trend towards improvement in secure attachment. There was no conclusive evidence for externalising behaviour and an effect was found in favour of the control for internalising behaviour. When compared with counselling, video feedback showed greater benefits in reducing maternal insensitivity. No harms were associated with this treatment. The information that fed into the recommendations relating to what information to look for on the video feedback was extracted from the studies. The information relating to the number of session and the duration of the programme was also extracted from the relevant studies but also amended by the GC to ensure the programme was relevant to a UK setting. The GC highlighted the importance of ensuring families who either fail to respond to Video Feedback or choose not to part-take are given the option to try another intervention, i.e. parental education and training or to try Video Feedback again. Because of the lack of evidence on families who try one intervention after another, a consensus recommendation was made by the GC to say a multi-agency review should be conducted before such families go ahead with more sessions or begin another intervention.

Trade-off between net health benefits and resource use	Video feedback is the most cost-effective option when compared with parental sensitivity and behaviour training, home visiting and parent–child psychotherapy, and standard care for children on the edge of care. The resource use estimates (that is, number of sessions) were derived from studies included in the guideline systematic review. However, since none of the studies were UK-based and a high variation in the number of sessions reported, the GC estimated the number of sessions that would be applicable to the UK clinical practice. The GC noted that since costs associated with attachment difficulties in children (such as costs incurred by healthcare professional contacts, need for special education, placements, offending) were not taken into account in the guideline economic model, it was very likely that the cost effectiveness of all interventions has been underestimated. There is a high potential that parental sensitivity and behaviour training under different plausible scenarios could result in a cost per QALY that is below NICE's lower cost-effectiveness threshold. The GC considered other limitations of the guideline economic analyses, such as the limited evidence base, the lack of long-term clinical data and the lack of directly relevant utility data, which may have affected the results of the economic analyses.
Quality of evidence	The majority of outcomes were graded as moderate or low, with a high proportion being graded as moderate and only one outcome being graded as very low quality. Some outcomes were downgraded for risk of bias, mainly due to unclear random sequence generation, unclear allocation concealment or lack of blinding in parent-reported outcomes. The GC also felt that non-validated measures of attachment could contribute to potential bias, hence where relevant outcomes were downgraded for risk of bias. Most outcomes were downgraded for imprecision due to a low number of events (<300) or a low number of participants (<400) in the analysis. Some outcomes were downgraded for substantial heterogeneity between the studies.
Other considerations	To investigate heterogeneity, subgroups of age and duration of treatment were considered (see protocol for definitions). For video feedback compared with a control, in cases where substantial heterogeneity was observed, the subgroups were not applicable, that is, studies could not be divided according to the categories defined. In addition to considering the clinical and health economic evidence, the GC also considered limited or non-response to video feedback programmes, and based on their expert opinion judged that a multi-agency review should be convened before offering further sessions or an alternative intervention. The GC identified children of families at a social disadvantage and parents with mental health problems as groups that needed special consideration. These two groups were included as factors that are likely to bring them to the edge of care, therefore the GC paid particular attention to studies that included children from these groups. Although children with disabilities were identified as a group requiring consideration, for the purpose of this review the GC decided that the focus of the intervention should be directed towards the parents. As such, children with disabilities were not included as a factor that would place them on the edge of care because the intervention would not have been relevant.

1

2

3

Recommendations	**Preschool-age children** **34.** If parents do not want to take part in a video feedback programme, offer parental sensitivity and behaviour training to help them: • understand their child's behaviour • improve their responsiveness to their child's needs • manage difficult behaviour. 35. Ensure parental sensitivity and behaviour training: • first consists of a single session with the parents followed by at least 5 (and up to 15) weekly or fortnightly parent–child sessions (lasting 60 minutes) over 6 months • is delivered by a trained health or social care professional • includes: o coaching the parents in behavioural management (for children aged 0–18 months) and limit setting o reinforcing sensitive responsiveness o ways to improve parenting quality o homework to practise applying new skills. 36. If parents do not want to take part in a video feedback programme or parental sensitivity and behaviour training, or if there is little improvement to parental sensitivity and the child's attachment after either intervention and there are still concerns, arrange a multi-agency review before going ahead with more interventions. **Primary and secondary school-age children and young people** 37. Offer parental sensitivity and behaviour training to parents of primary and secondary school-age children and young people (as described in recommendation 35), adapting the intervention for the age of the child or young person.
Relative values of different outcomes	The GC discussed the importance and relevance of various outcomes when assessing the effectiveness of interventions aimed at promoting attachment in children on the edge of care. For this population attachment (secure, insecure and disorganised) is of greatest concern. The GC felt that maternal sensitivity/responsiveness is causally related to attachment and should be considered as a critical outcome. Other outcomes of concern for children on the edge of care, which are of less importance to attachment but are important in relation to family cohesion, are the child's emotional/behavioural functioning (that is, internalising and externalising behaviour), the child's developmental status, specifically their mental and motor development, and the parent's attitudes towards parenting. Child-focused outcomes were chosen over and above

	parent-focused outcomes such as the parent's mental health, as the focus of the review was on improving outcomes for the child, therefore benefits for the parent were viewed as subsidiary and were not considered in this review.
Trade-off between clinical benefits and harms	Parental sensitivity and behaviour training for parents of children on the edge of care may improve maternal sensitivity/responsiveness and reduce externalising behaviour. The evidence was inconclusive for internalising behaviour and parenting attitudes. One study included a 5-month follow-up and found benefits in favour of the intervention for sensitivity/ responsiveness and secure attachment, and a trend towards a reduction in insecure attachment. Findings were inconclusive for disorganised attachment at follow-up. No harms were associated with this treatment. The GDG judged that the evidence for pre-school children could be extrapolated to primary and secondary school-age children and young people and therefore recommended parental sensitivity and behaviour training to parents of children at these ages. The GC highlighted the importance of ensuring families who either fail to respond to Video Feedback and Parental Education and Training programmes, or choose not to participate are given a multi-agency review before beginning another intervention. Because of the lack of evidence on families such as these, the GC generated a consensus recommendation.
Trade-off between net health benefits and resource use	Video feedback is the most cost-effective option for children on the edge of care. However, the GC noted that treatment options are very limited for this population; and if parents decline the offer of video feedback programme parental sensitivity and behaviour training should be an option. According to the guideline economic analysis parental sensitivity and behaviour training resulted in the cost per QALY that was below NICE upper cost-effectiveness threshold of £30,000 per QALY. The GC noted that since costs associated with attachment difficulties in children (such as costs incurred by healthcare professional contacts, need for special education, placements, offending) were not taken into account in the guideline economic model, it was very likely that the cost effectiveness of all interventions had been underestimated (including parental sensitivity and behaviour training). As a result, there is a high potential that parental sensitivity and behaviour training under different plausible scenarios could result in a cost per QALY that is below NICE's lower cost-effectiveness threshold.
Quality of evidence	Outcomes were graded as moderate or low quality, with the majority of outcomes being graded as moderate. Some outcomes were downgraded for risk of bias including: unclear random sequence generation, unclear allocation concealment, lack of blinding in parent-reported outcomes and high participant drop-out rate. Most outcomes were downgraded for imprecision due to a low number of events (<300) or a low number of participants (<400) in the analysis.
Other considerations	To investigate heterogeneity, subgroups of age and duration of treatment were considered (see protocol for definitions). For parent sensitivity and behaviour training compared with a control, no substantial heterogeneity was observed in any of the outcomes. In addition to considering the clinical and health economic evidence, the GC also considered limited or non-response to video feedback programmes and parental sensitivity and behaviour training, and based on their expert opinion judged that a multi-agency review should be convened before offering an alternative intervention. The GC identified children of families at a social disadvantage and parents with mental health problems as groups that needed special consideration.

	These two groups were included as factors that are likely to bring them to the edge of care, therefore the GC paid particular attention to studies that included children from these groups. Although children with disabilities were identified as a group requiring consideration, for the purpose of this review the GC decided that the focus of the intervention should be directed towards the parents. As such, children with disabilities were not included as a factor that would place them on the edge of care because the intervention would not have been relevant.

1

2 .

Recommendations	38. If the multi-agency review concludes that further intervention is appropriate, consider a home visiting programme to improve parenting skills delivered by a trained lay home visitor or a healthcare professional such as a nurse **39.** Ensure home visiting programmes: • consist of 12 weekly or monthly sessions (lasting 30–90 minutes) over a period of up to 18 months • include observing the child (not using video) with their parents • give the parents advice about how they can improve their communication and relationship with their child by o supporting positive parent–child interaction using role modelling o reinforcing positive interactions and parental empathy • provide parental education and guidance about child development.
Relative values of different outcomes	The GC discussed the importance and relevance of various outcomes when assessing the effectiveness of interventions aimed at promoting attachment in children on the edge of care. For this population attachment (secure, insecure and disorganised) is of greatest concern. The GC felt that maternal sensitivity/responsiveness is causally related to attachment and should be considered as a critical outcome. Other outcomes of concern for children on the edge of care, which are of less importance to attachment but are important in relation to family cohesion, are the child's emotional/behavioural functioning (that is, internalising and externalising behaviour), the child's developmental status, specifically their mental and motor development, and the parent's attitudes towards parenting. Child-focused outcomes were chosen over and above parent-focused outcomes such as the parent's mental health because the focus of the review was on improving outcomes for the child, therefore benefits for the parent were viewed as subsidiary and were not considered in this review.
Trade-off between clinical benefits and harms	Home visiting for parents of children on the edge of care may improve maternal sensitivity/responsiveness and secure attachment (as assessed by continuous, not dichotomous, measures). The intervention also showed benefits in reducing externalising behaviour and improving mental development, motor development, and parental attitudes, although the

	effect sizes were very small. The evidence was inconclusive for secure attachment (as assessed by dichotomous scales), insecure attachment and internalising behaviour. Benefits were maintained after the intervention had finished but only for sensitivity/responsiveness. Parent–child psychotherapy for parents of children on the edge of care may improve secure attachment and reduce insecure attachment. Findings were inconclusive for sensitivity/responsiveness and disorganised attachment. Benefits in some outcomes were maintained after the intervention had finished. When compared with home visiting, parent–child psychotherapy showed improvements in secure attachment, but this was only evident when assessed by continuous, not dichotomous, measures. There was no conclusive evidence for a reduction in insecure and disorganised attachment, however for disorganised attachment there was an effect still detected at follow-up. At follow-up, findings were inconclusive for insecure attachment, but a benefit was observed for secure attachment. Caution should be taken in interpreting these findings, as our confidence in the evidence was very low for the majority of outcomes. No harms were associated with this treatment. Home visiting combined with parent–child psychotherapy for parents of children on the edge of care may improve secure attachment, but findings were inconclusive for sensitivity/responsiveness and disorganised attachment. Psychotherapy for parents of children on the edge of care may improve maternal sensitivity/responsiveness, but there was no conclusive evidence for insecure attachment. There was no conclusive evidence for CBT and counselling for parents of children on the edge of care. The GC decided to generate a consensus recommendation to address the families who either fail to respond to Video Feedback or Parental Education and Training, or they decline to part-take. The GC decided in the absence of evidence to say that these families should be given a multi-agency review if it is concluded that they need additional help, then consider a home visiting programme to improve parenting skills.
Trade-off between net health benefits and resource use	Limited existing economic evidence suggested that home visiting may be potentially cost-effective option in children on the edge of care. According to the economic analysis conducted for this guideline home visiting combined with parent–child psychotherapy was not cost-effective. Similarly there was no strong clinical evidence to support parent–child psychotherapy, psychotherapy, CBT and counselling for children on the edge of care. According to the GC these interventions are intensive, and when compared with video feedback would result in higher intervention costs.
Quality of evidence	For home visiting, the quality of the evidence ranged from low to moderate with only one outcome being graded as very low. Outcomes were downgraded for risk of bias due to a range of reasons including: unclear random sequence generation, unclear allocation concealment, high participant dropout rate and lack of blinding of outcome assessors. Some outcomes were downgraded for imprecision due to a low number of events (<300) or a low number of participants (<400) in the analysis, but most met this criteria and were not downgraded. Some outcomes were downgraded for substantial heterogeneity between the studies.

	For parent–child psychotherapy, the quality of the evidence ranged from low to very low, with the majority of outcomes being graded as very low. Several outcomes were downgraded twice for high risk of bias due to broken randomisation. Other reasons for downgrading included, unclear allocation concealment, use of non-validated assessment measures and selective outcome reporting. Most outcomes were downgraded for imprecision due to a low number of events (<300) or a low number of participants (<400) in the analysis. Some outcomes were downgraded for substantial heterogeneity between the studies. For home visiting combined with parent–child psychotherapy all outcomes were graded as low quality evidence. Outcomes were downgraded for risk of bias due to lack of blinding of outcome assessors and for imprecision due to low number of events (<300) in the analysis. For psychotherapy, CBT and counselling all outcomes were graded as low quality evidence. All outcomes were downgraded for some risk of bias. Reasons for downgrading included unclear allocation concealment and use of non-validated outcome measures. Outcomes were also downgraded for imprecision due to a low number of events (<300) or a low number of participants (<400) in the analysis.
Other considerations	To investigate heterogeneity, subgroups of age and duration of treatment were considered (see protocol for definitions). For parent–child psychotherapy compared with a control, in outcomes where substantial heterogeneity was observed, the subgroups were not applicable, that is, studies could not be divided according to the pre-defined categories. For home visiting compared with a control, for the outcome of secure attachment, there were larger effects for studies with a long duration of treatment compared with a medium duration, and 91% of the difference between subgroups could not be explained by random variation. These differences were not observed in any of the other outcomes that displayed substantial heterogeneity. An investigation of heterogeneity was not relevant for home visiting combined with parent–child psychotherapy, CBT and counselling outcomes, as each outcome in each comparison involved only one study. The GC identified children of families at a social disadvantage and parents with mental health problems as groups that needed special consideration. These two groups were included as factors that are likely to bring them to the edge of care, therefore the GC paid particular attention to studies that included children from these groups. Although children with disabilities were identified as a group requiring consideration, for the purpose of this review the GC decided that the focus of the intervention should be directed towards the parents. As such, children with disabilities were not included as a factor that would place them on the edge of care because the intervention would not have been relevant.

1

Recommendations	**Preschool-age children who are at risk of maltreatment** **40.** Consider parent–child psychotherapy for parents at risk of maltreating their child, ensuring that safeguarding concerns are addressed.

	41. Ensure parent–child psychotherapy: • is based on the Cicchetti and Toth model • consists of weekly sessions (lasting 45–60 minutes) over 1 year • is delivered in the parents' home by a therapist trained in the intervention • directly observes the child and the parent–child interaction • explores the parents' understanding of the child's behaviour • explores the relationship between the emotional reactions of the parents and perceptions of the child, and the parents' own childhood experiences.
Relative values of different outcomes	The GC discussed the importance and relevance of various outcomes when assessing the effectiveness of interventions aimed at promoting attachment in children on the edge of care. For this population, attachment (secure, insecure and disorganised) is of greatest concern. The GC also felt that maternal sensitivity/responsiveness is causally related to attachment and should be considered as a critical outcome. Outcomes used for this review also included a broader definition of attachment difficulties and parental sensitivity than the edge of care review. Although they may have included indirect measures of parental sensitivity or attachment difficulty, the CG felt it was important to incorporate as many relevant studies as possible for this review since maltreatment is strongly associated with attachment problems. Other outcomes of concern, which are of less importance to attachment but are important in relation to family cohesion, are the child's emotional/behavioural functioning (that is, internalising and externalising behaviour), the child's developmental status, specifically their mental and motor development, and the parent's attitudes towards parenting. Child-focused outcomes were chosen over and above parent-focused outcomes such as the parent's mental health, because the focus of the review was on improving outcomes for the child, therefore benefits for the parent were viewed as subsidiary and were not included in this review.
Trade-off between clinical benefits and harms	There was evidence that parent–child psychotherapy for preschool-aged children may promote secure attachment and reduce both insecure and disorganised attachment. This effect was also present at 12-months follow-up. There was also evidence to suggest that parent–child psychotherapy had some benefit over home visiting in increasing secure attachment and reducing disorganised attachment that was maintained at 12-months follow-up, although the precision in the estimate of this effect was poor. The GC discussed and agreed there were clinical benefits for parent-child psychotherapy, however noted that the evidence was based on only 2 studies with small sample sizes (N=50 and N=57), which they took into consideration when making recommendations. Evidence reviewed for home visiting was derived from a larger number of studies (K = 4), however there were no attachment outcomes, and although there was evidence that home visiting promoted parental sensitivity, the effect size was too small to be considered clinically effective, therefore the CG decided not to recommend home visiting. Video feedback and parental sensitivity and behavioural training were also

	reviewed and showed some benefits for promoting parental sensitivity and secure attachment. However, some of these results were inconclusive, and together with their clinical judgement, the CG decided that parent-child psychotherapy showed the greatest benefits to this group of children.
Trade-off between net health benefits and resource use	No economic evidence in this area is available. The interventions such as trauma-focused CBT and parent–child CBT are intensive and may incur high intervention costs. However, the GC judged that provision of such interventions may result in benefits that outweigh costs; the main benefit of such interventions is the development of secure attachment and lower probability of developing disorganised attachment. Improved outcomes are expected to lead to a reduction in costs associated with attachment difficulties, which can be substantial (for example, costs incurred by mental health services, social services, education and criminal justice sectors). The GC also expressed the opinion that such interventions are likely to improve outcomes for families and carers and may consequently reduce healthcare resource utilisation associated with mental and psychological health problems experienced by families and carers.
Quality of evidence	The quality of the evidence for parent-child psychotherapy ranged from low to very low, with the majority of outcomes being graded as very low. Outcomes were downgraded for risk of bias due in several domains, for imprecision due to a low number of events (<300) or a low number of participants (<400) in the analysis.
Other considerations	The CG highlighted that the population included in the studies were children living with their biological parents who are at risk of, or are already, maltreating their child. No evidence was found on children in care who had been abused by their carer. In making recommendations, the GC noted that the only evidence available for parent–child psychotherapy was from the studies by Cicchetti and Toth Therefore, the recommendation was based on their study design. The CG agreed that evidence on attachment-based interventions specifically targeting and measuring attachment difficulties and parental sensitivity was limited, and therefore decided to make a research recommendation to develop attachment-based interventions to promote secure attachment in children and young people who have been, or are at risk of being, maltreated.

1

Recommendations	**Primary and secondary school-age children and young people who have been maltreated** **42.** For children and young people who have been maltreated, and show signs of trauma or post-traumatic stress disorder, offer trauma-focused cognitive behavioural therapy, and other interventions in line with the NICE guideline on post-traumatic stress disorder,
Relative values of different outcomes	The GC discussed the importance and relevance of various outcomes when assessing the effectiveness of interventions aimed at promoting attachment in children on the edge of care. For this population attachment (secure, insecure and disorganised) is of greatest concern. The GC felt that maternal sensitivity/responsiveness is causally related to attachment and should be considered as a critical outcome.

	Outcomes used for this review also included a broader definition of attachment difficulties and parental sensitivity than the edge of care review. Although they may be unvalidated tools or indirect measures of parental sensitivity or attachment difficulty, the CG felt it was important to incorporate as many relevant studies as possible for this review since maltreatment is strongly associated with attachment problems. Other outcomes of concern, which are of less importance to attachment but are important in relation to family cohesion, are the child's emotional/behavioural functioning (that is, internalising and externalising behaviour), the child's developmental status, specifically their mental and motor development, and the parent's attitudes towards parenting. Child-focused outcomes were chosen over and above parent-focused outcomes such as the parent's mental health, because the focus of the review was on improving outcomes for the child, therefore benefits for the parent were viewed as subsidiary and were not included in this review.
Trade-off between clinical benefits and harms	There was evidence that trauma-focused CBT may promote parental sensitivity/responsiveness and reduce internalising and externalising behaviour in children aged 8-14 years compared with parent–child psychotherapy at the end of the intervention. However the effect was inconclusive at 12 months follow up. There were no outcomes for attachment difficulties. No harms were associated with this intervention.
Trade-off between net health benefits and resource use	No economic evidence in this area is available. Trauma-focused CBT is intensive and may incur high intervention costs. However, the GC judged that provision of such intervention may result in benefits that outweigh costs; the main benefits of such intervention are increased sensitivity/responsiveness, and reduced internalising and externalising behaviour. The GC expressed the view that such interventions may potentially promote the development of secure attachment and lower probability of developing disorganised attachment. Improved outcomes are expected to lead to a reduction in costs associated with attachment difficulties, which can be substantial (for example, costs incurred by mental health services, social services, education and criminal justice sectors).
Quality of evidence	The quality of the evidence was low to very low, with the majority of outcomes being graded as very low. Outcomes were downgraded for risk of bias due in several domains, for imprecision due to a low number of events (<300) or a low number of participants (<400) in the analysis and because the 95% CI crosses both the line of no effect and measure of appreciable benefit or harm (SMD -0.5/0.5 or RR 0.75/1.25) .
Other considerations	The CG discussed how the population considered in the studies were children living with their biological parents who are at risk of, or are, maltreating their child. No evidence was identified on children in care who are being abused by their carer. There was very little evidence on the very sizeable and important group of primary and secondary aged children who have been maltreated, and clearly need help, therefore the GC had to make recommendations with very little evidence. The GC drew on evidence from one study (Cohen 2004) which included 229 children (between the ages of 8-14 years) that provided evidence for a benefit of trauma-focused CBT (over parent–child psychotherapy) specifically for children who had been sexually maltreated. The GC extrapolated from this study to any child with trauma, which is in line with the PTSD guideline. In addition, the CG recognised that CBT has

	been shown in other settings and mental health conditions to be very effective so they felt comfortable extrapolating from these findings and using the limited evidence from this review to generate a recommendation. The GC agreed that there was a significant gap in the research for interventions for children over 12 years of age, and that these were an important group of children since maltreatment is strongly associated with children entering care, and the vast majority of adoption disruptions or numbers entering care are children over 12 years of age. Furthermore, the CG noted that adolescents were less likely to engage with interventions, especially with one-to one interventions. Therefore the CG decided to make a research recommendation to develop attachment-based interventions to promote secure attachment in children and young people who have been, or are at risk of being, maltreated, and made a specific note that evidence from children aged 11-17 years is limited, so age-appropriate interventions targeting this age group are needed. The GC also agreed that better understanding is needed on the relationship between complex trauma and attachment difficulties and attachment disorder. There is misunderstanding in the field on what the origins are of attachment difficulties and whether a child can be diagnosed with having all three, two or one of these conditions.

9.3 Research recommendation

4. **Develop attachment-based interventions to promote secure attachment in children and young people who have been, or are at risk of being, maltreated.**

5. **Evaluate currently unevaluated but extensively used interventions for attachment difficulties.**

6. **Cross-sectional study to look at the incidence and relationship between attachment difficulties, attachment disorder and complex trauma in looked-after children and edge of care population.**

10 Interventions for children and young people who are in care

10.1 Introduction

Previous chapters have discussed that children and young people in the care system are at higher risk for attachment difficulties than the general population. This does not mean that being in care in itself creates attachment difficulties. Removal from the family of origin may disrupt attachments that are already insecure or disorganised. Almost two thirds (62%) of children entering the care system have been exposed to neglect or abuse {Depatment for Education, 2013 #41586} and the types of maltreatment and disruption that are strongly associated with attachment difficulties. Disorganised attachment difficulties in particular have been linked with parental insensitivity and parental frightening behaviour, common behaviours in high risk, neglectful or abusive families (van IJzendoorn et al., 1999b).

For many children being in care is a very positive experience, enabling them to settle down and experience the stability and consistency of care that then enables them to develop positive attachments. For others who experience multiple disruptions such as changes of placement, carers, and/or school, attachment difficulties may be increased. Children and young people's views on their experience of the care system often focus on issues of loss: particularly of relationships as a result of moves from foster carers or children's homes, lack of positive contact with family of origin or siblings, and a sense of not belonging anywhere or being attached to anyone [Dickson et al. (2009), Biehal & Wade (1996), Ward, H and Skuse, P (2003), Schofield & Beek (2005)]. Unresolved and untreated attachment issues may continue to impact on adult life and relationships [Luke & Coyne (2008)].

It is also important to note that children in care may form attachments to peers, social workers, teachers, youth workers or even to organisations or corporate families. This may particularly be the case for children who feel torn between their family of origin and their foster family and resist forming strong relationships with foster carers that may then be disrupted. Placement changes, particularly for older children and adolescents may therefore involve multiple, or repeated losses.

The effect of decision-making processes on children's attachment discussed earlier highlights the need for professionals to make good decisions in a timely manner to try to prevent further adverse effects. Attachment needs may also be met by addressing relationships with siblings and extended family where available.

Despite numerous outcome studies involving the treatment of children and young people in care, most report placement stability and behavioural change as key outcomes and few studies have investigated attachment status as a specific outcome.

Practitioners seeking to address attachment difficulties in children and young people will generally try to first understand the nature of the difficulties, the child's individual need and importantly whether the context needs to change in order for any treatment interventions to be effective or even appropriate. Taking a whole systems approach to interventions for children and young people in care include developing a good collaborative relationship with the caring adult who may well be the focus of the intervention delivery and when developmentally appropriate with the child or young person. The context, and particularly the relational context of how specific interventions are delivered is crucial to maximising successful outcomes.

10.2 Review question: Clinical review on interventions aimed at preventing or treating attachment difficulties for children and young adults in the care system

The review protocol summary, including the review question(s) and the eligibility criteria used for this section of the guideline, can be found in Appendix F. A complete list of review questions can be found in Appendix F; further information about the search strategy can be found in Appendix H, the full review protocols can be found in Appendix F.

Studies were included if they measured at least 1 of the critical outcomes, they were: attachment difficulties, maternal sensitivity, maternal responsiveness and placement breakdown. Of the studies included in this review, different tools were used to measure the critical and important outcomes. To account for this, the difference in final scores between the intervention and control arms were reported as a standardised mean difference (SMD=difference between means/pooled standard deviation). For continuous outcomes, decisions on the effectiveness of the interventions were partly based on the size of the effect (the difference between means) using Cohen's interpretation: 0.2 represents a small effect, 0.5 represents a moderate effect and 0.8 represents a large effect. For dichotomous outcomes, decisions were partly based on the number of children who would benefit from the intervention compared with those in the control group (i.e. absolute difference).

A major limitation of the studies was that few investigators measured attachment difficulties at baseline, or if they did, they provided an average score (based on the results on a continuous scale) thus making it difficult to know how many children had attachment difficulties at baseline. For these reasons it was difficult to determine which studies aimed to prevent or treat attachment difficulties. As a result this review became an amalgamation of the 2 review questions on prevention and treatment and the objective became: "to review interventions that promote attachment between the child and young people with their carers".

In contrast to the review on children at risk of going into care, the carers, i.e. foster carers, may not be insensitive or a contributing cause of the child's attachment difficulties. Nevertheless the children in this review are likely to have attachment difficulties because they have been removed from their family of origin. Outcomes were measured at the end of the intervention and at various durations of follow-up (post intervention). If different time points were reported the longest follow-up measure was included in this review. The results were stratified according to the school age of the children recruited for each intervention (i.e. pre-school, primary school, secondary school). No systematic reviews were identified that met our inclusion criteria.

Interventions considered for this review include: video feedback, multidimensional treatment package, parent sensitivity and behavioural training, parent training, education and support programme, parent–child psychotherapy, parent psychotherapy or cognitive behavioural therapy A description of each intervention's aims, methods and intensity are described below.

Video feedback. Aim: to use attachment theory as a basis for helping carers re-interpret their child's behaviour, over-ride their own attachment issues and provide an environment that helps develop the child's regulatory abilities. The ultimate aim is to repair or regulate the parent–child interaction. Method: the program is delivered in individual sessions for carer–child dyads so that it is applied to the unique interaction between that particular carer and that particular child. The provider uses video footage of the carer and child to highlight where maternal sensitivity, responsiveness and communication could be improved and to help the carer interpret their child's behaviour and to behaviour in a way that's not frightening to children. It may also include other components such as parent education on how to deal with crying, sleeping problems and may be the focus of Attachment Behavioural Catch-up (ABC) interventions. Intensity: each visit usually lasts for 60-80 minutes, the health care worker

spends 20 minutes discussing with the parent any problems they have recently encountered, parents are then filmed for 5-15 minutes interacting with their child (i.e. bathing, playing with toys, during meal times) and 20 minutes of feedback is provided. Progress is then discussed and activities are recommended for the upcoming week. The program is typically delivered weekly or monthly over 4 to 12 weeks.

Home visiting. Aim: to provide parent training in the home. The aim is to educate the carers about their child's needs and provide the parents with emotional and practical support (such as how to care for infant, how to access appropriate health and social care services). Method: a structured series of home visits delivered during the post-natal period (typically not beyond the child's second birthday). The parents are visited by either a lay home visitor or health-care professional i.e. nurse. It is delivered in individual sessions and in contrast to other interventions in that it does not include video feedback. The visitor helps the mother focus on her concerns, offers alternatives to how they can solve or perceive their concerns, they observe the child with the carer and offers advice on how the carer can enhance their communication and relationship with their child. Small achievable goals may be put in place and they may encourage parents to use problem solving and coping skills to gain control over difficult situations. Education about the child's development is also provided. Practical support may include raising awareness of programs such as drug abuse prevention, income assistance, and family planning. Intensity: visits may be weekly or monthly for 30 minutes to 1.5 hours and continue longer than most interventions, i.e. around 18 months.

Multidimensional treatment program. Aim: to increase the child's secure behaviour and decrease resistant and avoidant behaviours. This is achieved by helping the carer to provide pro-social behaviour, non-abusive limit setting and close supervision of the child by the foster parent. Method: the carers receive pre-placement training, followed by post-placement support through weekly home visits, a weekly support group and 24-hour on-call crisis intervention. The children also attend therapeutic playgroup sessions where behavioural, social, and developmental progress is monitored and addressed. The theory behind this intervention is that multiple psychological interventions will produce a benefit over and above that which might be achieved by a single intervention alone. Intensity: carers and children attended weekly therapeutic sessions over 9-12 months.

Parent training, education and support. Aim: to enhance the carers' knowledge about psychological and physiological influences on behaviour, and to teach carers new parenting skills and to increase their social support. Method: in a group setting the facilitator teaches carers about their child's development and how to recognise their psychological and instrumental needs (i.e. basic needs). The classes help carers understand why specific patterns of behaviour arise in certain contexts, and helps them to recognise and avoid certain psychological or environmental triggers. New skills are taught in each class, such as how to give effective praise, how to manage emotions, how to be more sensitive to the child's expression of feelings and provide effective communication. The carers are asked to practice these strategies at home with their foster children and provide feedback the following week. Intensity: parents attend regular sessions, for instance for 3 hours once a week, over a 12 week period.

Parental sensitivity and behaviour training: Aim: to improve mother's sensitivity, attachment and communication skills with her infant. It teaches the mother how read and interpret the child's signals and how to respond sensitively to the child's cues. The focus is on the parent's behaviour and their own feelings of sensitivity. Method: Therapists may observe the mother play with the child in the same room or via a 1-way mirror and provide real-time feedback/advice via an ear-piece. Lay or professional health care visitors or therapists will coach parents on their child's behaviour and non-verbal communication cues, teach them how to respond quickly and lovingly to their child's needs, to understand their child's efforts to interact and what it is they're trying to communicate. In addition, they will help parents learn how to play with their child, how to assist children learn with age-appropriate limits and how to handle misbehaviour. They will then encourage parents

practice their suggestions and reinforce sensitive responsiveness whenever it occurs and praise success. Intensity: delivered in the home, or a group setting, and may be over a short period i.e. over 3 days or a 10 week period.

Cognitive behavioural therapy (CBT). Aim: to change the parent's unconscious or internal working patterns in order to improve their maternal sensitivity. Method: a psychologist will help carers establish links between their thoughts, feelings or actions with respect to the current or past symptoms, and/or functioning, and to re-evaluate their perceptions, beliefs or reasoning in relation to the child's behaviour. Treatment components may include psycho-education, behavioural activation, problem solving, identification of automatic thoughts and schemas, thought restructuring, and relapse prevention. Intensity: CBT typically consist of weekly 55 minute sessions. The duration of treatment can vary, it can range from 4 to 20 sessions depending on the severity and complexity of the problems.

Parent–child psychotherapy. Aim: to alter maternal representation, conflict and distortion in the mother's perceptions of their child. In other words, altering the mother's own attachment representations and focus on enhancing the parent–child attachment relationship. This is a psycho-analytic intervention where the therapist will aim to increase maternal understanding on the effects of prior relationships on current feelings and interactions During the sessions, the therapist listens to the mother's complaints, anxieties and narratives while remaining attentive to the interactions between parent and child. They will attempt to expand the mother's positive representations of themselves and in relation to others with the aim of improving maternal sensitivity, responsiveness and attachment to their child. They will observe the mother's response to their infant's signals and help them understand the link between their babies' behaviour and internal emotional needs and how their own states of mind and those of the babies are separate but may influence each other. Information is tailored to the child's individual style and stage of development. Intensity: mother and infant (more rarely both parents and infant) are typically seen once a week for 1 hour over 1 year or longer (i.e. 36 months). Alternatively it may be delivered in an intense program of 2 hours a week for 4 weeks. It may be delivered in individual or group settings.

Table 249: Clinical review protocol on interventions aimed at promoting attachment difficulties for children and young adults who are in the care system

Component	Promoting attachment in children and young adults in the care system.
Review question(s)	What interventions are effective in the prevention of attachment difficulties in children and young people in the early stages of being looked-after? What are the adverse effects associated with each intervention? What interventions are effective in the treatment of attachment difficulties in children and young people in the early stages of being looked-after? What are the adverse effects associated with each intervention?
Population	Infants, children and young people (aged 0–18 years) in the early stages of being looked after. Strata: Pre-school (≤4 years of age), primary school (>4 to 11 years), secondary school (>11 to 18 years)
Objective	To identify effective interventions for promoting attachment between children and young people and their carers.
Intervention(s)	• Video feedback (including attachment-based interventions) ▪ Parent training, education and support ▪ Parental sensitivity and behavioural training ▪ Multidimensional treatment programme

Component	Promoting attachment in children and young adults in the care system.
	▪ Foster care with parental support ▪ Home visiting ▪ Psychotherapy ▪ CBT Recipients may be: ▪ child ▪ carer ▪ carer–child
Comparison	▪ usual care
Critical outcomes	▪ disorganised attachment and/ or attachment difficulties ▪ maternal sensitivity ▪ maternal responsiveness ▪ placement breakdown
Study design	▪ Systematic reviews ▪ Randomised control trials
Note. The databases to be searched include: CDSR, CENTRAL, DARE, Embase, MEDLINE, PreMedline, PsycINFO Social Care Online, ChildData, PsycInfo, ASSIA, British Education Index and Social Services Abstracts	

10.2 Clinical evidence for interventions for promoting attachment in children and young adults who are in the care system

10.2.1 Studies considered

In total 14 RCTs (N = 1699) met the eligibility criteria for this review: Bick 2013 (Bick & Dozier, 2013), Briskman 2014 (Briskman et al., 2014), Dozier 2013(Dozier et al., 2009), Fisher 2007 (Fisher & Kim, 2007), Fisher 2005 (Fisher et al., 2005), Gavita 2012 (Gavita et al., 2012), Groeneveld 2011 (Groeneveld et al., 2011), Kim 2011 (Kim & Leve, 2011); MacDonald 2005 (Macdonald & Turner, 2005), Minnis 2001 (Minnis et al., 2001), Price 2008 (Price et al., 2008), Smyke 2010 (Smyke et al., 2010), Spieker 2012 (Spieker et al., 2012), Taussig 2012 (Taussig et al., 2012). Of these, 1 was a report published in 2014 (Briskman 2014) and 13 were published in peer-reviewed journals between 2007 and 2013. One RCT (Smyke 2010) had 2 follow-up papers that provided long-term data on the same population (but were not counted in final number of included studies): Almas 2012 (Almas et al., 2012) and Smyke 2012 (Smyke et al., 2012). In addition, 22 studies were excluded from the review because they did not meet the inclusions criteria, for example: they did not report a critical outcome or the children had conduct disorder. Further information about both included and excluded studies can be found in Appendix M.

Of the 14 eligible studies, 8 RCTs (n=833) measured attachment difficulties as an outcome. These included 4 RCTs comparing video feedback with usual care (Bick 2013, Dozier 2009, Groenevel 2011, Spieker 2012). One RCT compared parental sensitivity and behavioural training with usual care (Briskman 2014), 1 RCT compared multidimensional treatment program with usual care (Fisher 2007), 1 RCT was on Parental Education Training and Support (Minnis 2001), and 1 RCT randomised children in an institution to either Foster Care with Parent Training or to remain in the institution (Smyke 2010).

Six RCTs (n=866) did not measure attachment difficulties as an outcome, however they provided placement disruption as an outcome. This was considered a surrogate measure for attachment difficulties, since children in care are likely to have attachment difficulties by

being removed from their primary care taker and moving from place to place will make it harder for children to form an attachment. All of these 6 RCTs measured the effectiveness of parental sensitivity and behavioural training (Fisher 2005; Gativa 2012, Kim 2011, MacDonald 2005, Price 2008, Taussig 2012).

Table 250: Characteristics of the studies included in the review on interventions aimed at promoting attachment in children and young people who are in the care system

	Video feedback versus usual care	Parental education, training and support versus usual care	Multidimensional treatment foster care program versus usual care	Parental sensitivity and behavioural training versus usual care	Foster care with parent education versus remaining institutionalised
Total no. of studies (N)	4 RCTs (400)	1 RCTs (121)	1 RCTs (117)	1 RCT (77)	1 RCT (118)
Study ID	1) Bick 2013 2) Dozier 2009 3) Groeneveld 2011 4) Spieker 2012	1) Minnis 2001	1) Fisher 2007	1) Briskman 2014	1) Smyke 2010
Follow-up					1) Smyke 2012 2) Almas 2012
Country	1) USA 2) USA 3) Netherlands 4) USA	1) UK	1) USA	1) UK	1) USA
Year of publication	1) 2013 2) 2009 3) 2011 4) 2012	1) 2001	1) 2007	1) 2014	1) 2010
Diagnosis	1) Maternal sensitivity 2) Attachment difficulties 3) Maternal sensitivity 4) Secure attachment	1) Disorganised disorder	1) Secure attachment	1) Quality of attachment	1) Secure attachment
Age (mean)	1) 9.9 ± 6.05 months 2) 18.9 ± 1.8 months (SE) 3) < 4 years 4) 10-14 months	1) 10.9 to 11.6 years	1) 3-5 years	1) 2-12 years	1) 42.4 ± 0.3 months
Initially	1) 96	1) 121	1) 117	1) 77	1) 118

	Video feedback versus usual care	Parental education, training and support versus usual care	Multidimensional treatment foster care program versus usual care	Parental sensitivity and behavioural training versus usual care	Foster care with parent education versus remaining institutionalised
randomised	2) 46 3) 48 4) 210				
Name of intervention	1) Attachment and Bio behavioural Catch-up 2) Attachment and Bio behavioural Catch-up 3) Video-feedback + Book 4) Reflective video feedback	1) Save the children manual	1) Multidimensional Treatment Foster Care for Pre-schoolers (MTFC-P).	1) Fostering Changes Programme	1) Foster care with parent education
Control arm	1) Developmental education for families 2) Developmental education for families 3) Telephone calls only 4) Early education support	1) Standard services	1) Regular foster care	1) Waiting List	1) Institutionalised
Delivered by	1) Parent trainers 2) Social workers or psychologists 3) Graduate students 4) Trained providers	1) Social worker	1) Clinicians, psychologist	1) Trained facilitators	1) Social workers
Recipients of intervention	1) Foster carers 2) Foster carers 3) Foster carers 4) Foster carers	1) Foster carer + child	1) Foster carer + child	1) Foster carer	1) Foster carer
Frequency of treatment	1) Weekly 2) Weekly 3) Monthly 4) Weekly	1) Daily	1) Weekly	1) Weekly	1) Regular visits
Duration of each session	1) 1 hour 2) Unclear	1) 6 hours	1) Unclear	1) 3 hours	1) Unclear

	Video feedback versus usual care	Parental education, training and support versus usual care	Multidimensional treatment foster care program versus usual care	Parental sensitivity and behavioural training versus usual care	Foster care with parent education versus remaining institutionalised
	3) Unclear 4) 60-75 min				
Treatment length	1) 10 weeks 2) 10 weeks 3) 6 months 4) 10 weeks	1) 3 days	1) 9-12 months	1) 3 months	1) 11-36 months
Long-term follow-up	1) Yes, 1-12 months 2) No 3) No 4) Yes, 6 months	1) Yes, 9 months	1) No	1) No	1) Yes, 5.5-7.5 years
Aim	1) Promote sensitive behaviour 2) Help children develop regulatory capabilities 3) Promote positive child-care relationship 4) Identify possible miscues, and empathize with the child's underlying distress.	1) To improve communication skills and attachment	1) Increase secure attachment	1) Produce changes in children attachment security	1) To promote attachment after period of deprivation
Tool to measure attachment	1) NA 2) Parent attachment diary (Stovall,2009) 3) NA 4) Toddler attachment Sort-45 (Kirkland 2004)	1) Reactive attachment disorder scale (Minnis 1999)	1) Parent attachment diary (Stovall 2009)	1) Quality of attachment relationships questionnaire (QUARQ)	1) Ainsworth's strange situation procedure (Ainsworth et al 1978) Reactive attachment disorder: Interview (Smyke, unpublished instrument)
Tool used to	1) Observing 10 min play	1) NA	1) NA	1) NA	1) NA

	Video feedback versus usual care	Parental education, training and support versus usual care	Multidimensional treatment foster care program versus usual care	Parental sensitivity and behavioural training versus usual care	Foster care with parent education versus remaining institutionalised
measure sensitivity	interaction (used Ainsworth definition) 2) NA 3) Observing a 10-min play interaction (DeKruif 2007). 4) Nursing Child Assessment Teaching Scale (NCATS; Barnard, 1994)				
Tool to measure responsiveness	1) NA 2) NA 3) NA 4) NA	1) NA	1) NA	1) NA	1) NA
Note. N = Total number of participants. NA = not available 1 Table footnote. [delete if not needed]					

Table 251: Characteristics of the studies included in the review on interventions aimed at reducing placement disruption in children and young people who are in the care system

	Parental education, training and support versus usual care
Total no. of studies (N)	6 RCTs (n=866)
Study ID Follow-up	1) Fisher 2005 2) Gavita 2013 3) Kim 2011 4) MacDonald 2005 5) Price 2008 6) Taussig 2012
Country	1) USA 2) Romania and USA 3) USA 4) UK 5) USA 6) USA
Year of publication	1) 2005 2) 2013 3) 2011 4) 2005 5) 2008 6) 2012
Diagnosis	1) Children had been neglected and maltreated and were about to enter foster care. 2) Children with externalising behaviour 3) Children who were transitioning from elementary school to middle school and had been in care ~3 years. No diagnosis 4) Foster children and with potential behavioural problems 5) Not medically fragile (not severely physically or medically handicapped), but had on average 3.1 prior placements. 6) Majority of children (75%) had been neglected due to lack of supervision.

	Parental education, training and support versus usual care
Age (mean)	1) 4.35 years 2) 9.51 years (5-18 years) 3) 11.5 years 4) Age not reported 5) 8.8 years 6) 9-11 years
Initially randomised	1) 90 2) 79 3) 100 4) 100 5) 341 6) 156
Name of intervention	1) Early Intervention Foster Care Programme 2) Short Enhanced Cognitive-Behavioural Parent training (CEBPT) Video-feedback + Book 3) Middle School Transition intervention 4) Based on basic ABC approach – skills in analysing behaviour 5) KEEP (Keeping foster and kinship parents training and supported) 6) Fostering Healthy Futures
Control arm	1) Regular Foster care 2) Waiting List 3) Usual service 4) Control group 5) Control group 6) Usual Care
Delivered by	1) Clinicians with bachelor or master's degrees 2) Therapists trained in CBT 3) Facilitators 4) Unclear 5) Trained facilitator

	Parental education, training and support versus usual care
	6) Trained mentors (graduate students) and program staff
Recipients of intervention	1) Children + carers 2) Foster carer 3) Child and Foster carer 4) Foster parents 5) Foster parents 6) Child + Foster carer
Frequency of treatment	1) Weekly 2) 4 per week 3) 4 per week 4) 2 per week 5) Unclear 6) Weekly
Duration of each session	1) Unclear 2) Four hours 3) Unclear 4) Five hours 5) Unclear 6) Skills 1.5 hours mentoring 4 hours
Treatment length	1) 6 to 9 months 2) 3 months 3) 6 weeks + 9 months (1 year later) 4) 5 weeks 5) 16 weeks 6) 9 months
Long-term follow-up	1) 24 months 2) 3 months 3) 12 months 4) 6 months

	Parental education, training and support versus usual care
	5) No 6) 12 months
Aim	1) Placement success rates 2) Reducing externalising behaviour and increasing stability in placement 3) Reduce substance abuse. 4) Increase stability and address behavioural problems 5) Increase stability and understand children's histories 6) Address relationship between behavioural problems and placement stability.
Tool to measure attachment	1) NA 2) NA 3) NA 4) NA 5) NA 6) NA
Tool used to measure sensitivity	1) NA 2) NA 3) NA 4) NA 5) NA 6) NA
Tool to measure responsiveness	1) NA 2) NA 3) NA 4) NA 5) NA 6) NA

Table 252: Grade profiles of outcomes for the comparison of video feedback versus usual care in pre- and primary-school aged children in foster care

Video feedback compared with usual care					
Outcomes	**No of Participants (studies) Follow up**	**Quality of the evidence (GRADE)**	**Relative effect (95% CI)**	**Anticipated absolute effects**	
				Risk with usual care	**Risk difference with video feedback (95% CI)**
Secure attachment	221 (2 studies) 4–10 weeks	⨁⨁⊖⊖ LOW1,2 due to risk of bias, imprecision			The mean secure attachment in the intervention groups was 0.16 standard deviations higher (0.1 lower to 0.43 higher)
Secure attachment – Pre-school	175 (1 study) 10 weeks	⨁⨁⨁⊖ MODERATE2,3 due to imprecision			The mean secure attachment – pre-school in the intervention groups was 0.14 standard deviations higher (0.16 lower to 0.43 higher)
Secure attachment – Primary school	46 (1 study) 1 months	⨁⨁⊖⊖ LOW4,5 due to risk of bias, imprecision			The mean secure attachment – primary school in the intervention groups was 0.27 standard deviations higher (0.31 lower to 0.85 higher)
Sensitivity – Pre-school	319 (3 studies) 1 to 2.5 months	⨁⊖⊖⊖ VERY LOW5,6,7 due to risk of bias, inconsistency, imprecision			The mean sensitivity – pre-school in the intervention groups was 0.33 standard deviations higher (0.11 to 0.55 higher)
Attachment difficulties – Primary school	46 (1 study) 1 months	⨁⨁⨁⊖ MODERATE3,5 due to imprecision			The mean attachment difficulties – primary school in the intervention groups was 0.67 standard deviations lower (1.26 to 0.07 lower)
Parenting stress/mental wellbeing – Pre-school	175 (1 study)	⨁⨁⊖⊖ LOW2,4 due to risk of bias,			The mean parenting stress/mental wellbeing – pre-school in the intervention groups was 0.1 standard deviations higher

Video feedback compared with usual care					
	10 weeks	imprecision			(0.2 lower to 0.4 higher)
Parental attitude/knowledge/behaviour – Pre-school	223 (2 studies) 2.5-6 months	⊕⊕⊖⊖ LOW4,5 due to risk of bias, imprecision			The mean parental attitude/knowledge/behaviour – pre-school in the intervention groups was 0.36 standard deviations higher (0.1 to 0.63 higher)
Secure attachment _ Follow-up – Pre-school	129 (1 study) 6 months	⊕⊕⊖⊖ LOW2,4 due to risk of bias, imprecision			The mean secure attachment _ follow-up – pre-school in the intervention groups was 0.06 standard deviations lower (0.41 lower to 0.29 higher)
Sensitivity _ Follow-up – Pre-school	225 (2 studies) 6-12 months	⊕⊖⊖⊖ VERY LOW5,8,9 due to risk of bias, inconsistency, imprecision			The mean sensitivity _ follow-up – pre-school in the intervention groups was 0.61 standard deviations higher (0.34 to 0.89 higher)
Parenting stress/mental wellbeing – Follow-up – Pre school	129 (1 study) 6 months	⊕⊕⊖⊖ LOW2,4 due to risk of bias, imprecision			The mean parenting stress/mental wellbeing_follow-up – pre school in the intervention groups was 0.12 standard deviations higher (0.22 lower to 0.47 higher)
Parenting attitude/knowledge/behaviour – Follow-up – Pre school	129 (1 study) 6 months	⊕⊕⊖⊖ LOW4,5 due to risk of bias, imprecision			The mean parenting attitude/knowledge/behaviour_follow-up – pre school in the intervention groups was 0.32 standard deviations higher (0.03 lower to 0.67 higher)
Emotional/Behavioural problems – Follow-up – Pre-school	120 (1 study) 9 months	⊕⊕⊖⊖ LOW2,10 due to risk of bias, imprecision			The mean emotional/behavioural problems – follow-up – pre-school in the intervention groups was 0.08 standard deviations higher (0.27 lower to 0.42 higher)

*The basis for the assumed risk (for example, the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

CI: Confidence interval;

1 Unclear if allocation concealment was performed. Dozier was tripled blinded, but the other study only assessors were blinded.

Video feedback compared with usual care
2 For continuous outcomes, the optimal information size (that is a total number of 400 participants) was not met. 3 Study was tripled blinded. 4 Unclear if allocation concealment was performed. Assessors were blinded, but unclear if investigators or participants were blinded. 5 The 95% CI crossed 1 MID for continuous outcomes (-0.5 or 0.5). 6 Unclear if allocation concealment was performed. It was unclear if anyone was blinded in Bick, the other 2 studies had assessors blinded, but unclear if anyone else. 7 Heterogeneity was detected, I squared >50% 8 Unclear if allocation concealment was performed. Assessors were blinded in Spieker but not in other study and unclear if investigators or participants were blinded.. 9 Heterogeneity was detected, I squared >80% 10 Unclear if allocation concealment was performed. Investigators were blinded, but unclear if assessors or participants were blinded.

Table 253:Grade profile of outcomes for the comparison of parental education, training and support versus usual care in pre- and primary-school aged children in foster care.

Parent-training for attachment difficulties					
Outcomes	**No of Participants (studies) Follow up**	**Quality of the evidence (GRADE)**	**Relative effect (95% CI)**	**Anticipated absolute effects**	
				Risk with Control	**Risk difference with parental education training and support (95% CI)**
Reactive attachment disorder – Primary school	100 (1 study) 3 days	⨁⨁⊖⊖ LOW1,2 due to risk of bias, imprecision			The mean reactive attachment disorder – primary school in the intervention groups was 0.47 standard deviations higher (0.07 to 0.86 higher)
Reactive attachment disorder _Follow-up – Primary school	150 (1 study) 9 months	⨁⨁⊖⊖ LOW1,2 due to risk of bias, imprecision			The mean reactive attachment disorder _follow-up – primary school in the intervention groups was 0.35 standard deviations higher (0.02 to 0.67 higher)
Emotional/Behavioural problems – Follow-up – Primary school	150 (1 study) 9 months	⨁⨁⊖⊖ LOW2,3 due to risk of bias, imprecision			The mean emotional/behavioural problems – follow-up – primary school in the intervention groups was 0.12 standard deviations higher (0.2 lower to 0.45 higher)

Parent-training for attachment difficulties					
Child's wellbeing – follow-up – Primary school	150 (1 study) 9 months	⨁⨁⊖⊖ LOW1,2 due to risk of bias, imprecision			The mean child's wellbeing – follow-up – primary school in the intervention groups was 0.18 standard deviations lower (0.5 lower to 0.15 higher)
*The basis for the assumed risk (for example, the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI). CI: Confidence interval;					
1 Unclear if allocation concealment was performed. Investigators were blinded, but not the participants. It was unclear if the assessors were blinded. 2 For continuous outcomes, the 95% CI crossed 1 MID (-0.5 or 0.5). 3 Unclear if allocation concealment was performed. Participants were not blinded and some chose which group they preferred to attend. It was unclear if Investigator and outcome assessors were blinded.					

Table 254: Grade profile of outcomes for the comparison of multicomponent foster care versus usual care in pre-school aged children in care.

Multicomponent foster care treatment for attachment problems					
Outcomes	**No of Participants (studies) Follow up**	**Quality of the evidence (GRADE)**	**Relative effect (95% CI)**	**Anticipated absolute effects**	
				Risk with Control	**Risk difference with Multicomponent foster care treatment (95% CI)**
Secure attachment – Pre-school	117 (1 study) 12 months	⨁⨁⨁⊖ MODERATE1,2 due to imprecision	RR 1.05 (0.82 to 1.35)	667 per 1000	33 more per 1000 (from 120 fewer to 233 more)
Fewer attachment difficulties – Pre-school	117 (1 study) 12 months	⨁⨁⨁⊖ MODERATE1,2 due to imprecision	RR 1.13 (0.91 to 1.4)	300 per 1000	39 more per 1000 (from 27 fewer to 120 more)
*The basis for the assumed risk (for example, the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI). CI: Confidence interval; RR: Risk ratio;					
1 Unclear if allocation concealment was performed. But investigators and assessors were blinded, but unclear if participants, 2 The 95% CI crossed 1 MID (0.75 or 1.25).					

Table 255: Clinical/economic question: What is the cost effectiveness of Multicomponent foster care compared with regular foster care?

Economic evidence profile							
Study & country	Limitations	Applicability	Other comments	Incremental cost (£)[1]	Incremental effect	ICER (£/effect)[1]	Uncertainty[1]
Lynch., 2014 US	Minor limitations[2]	Partially applicable[3]	Primary measure of outcome: percentage of children with permanent placement Time horizon: 2 years Sub-groups: full sample and placement instability sample	Full sample: -£2,044 Placement instability sample: -£4,579	Full sample: 5.17% Placement instability sample: 35.24%	Intervention dominant	Incremental costs for full sample and placement instability sample statistically significant with $p < 0.05$ Incremental effect for full sample statistically not-significant; for placement stability sample statistically significant with p=0.002 If a decision-maker believes that an additional permanent placement is worth $10,000, the average net benefit for the full sample is $4,591 (95% CI: −596 to 9,779) and the average net benefit for the placement instability sample is $8,087 (95% CI: 188 to 15,987)

1 Costs converted and uplifted to 2013/2014 UK pounds – converted using PPP exchange rates (http://www.oecd.org/std/ppp) and UK PPS local authorities adults and children's services pay and prices inflation index (Curtis, 2014).
2 Conducted alongside an RCT, time horizon only 24 months
3 US study, public sector perspective (health and social care, and education); no QALYs estimated, but conclusions on cost-effectiveness were possible to make as intervention was dominant

Table 256: Grade profile of outcomes for the comparison of parental sensitivity and behavioural training versus usual care in pre- to secondary-school aged children in care

Parental sensitivity and behavioural training compared to usual care for children in foster care					
Outcomes	**No of Participants (studies)**	**Quality of the evidence (GRADE)**	**Relative effect (95% CI)**	**Anticipated absolute effects**	
				Risk with Usual	**Risk difference with parental sensitivity and behavioural training (95% CI)**

Parental sensitivity and behavioural training compared to usual care for children in foster care					
	Follow up			**Care**	
Attachment	63 (1 study) 12 weeks	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, indirectness, imprecision			The mean attachment in the intervention groups was 0.53 standard deviations higher (1.03 to 0.03 lower)
Behavioural and emotional problems	63 (1 study) 12 weeks	⊕⊕⊖⊖ LOW1,3 due to risk of bias, imprecision			The mean behavioural and emotional problems in the intervention groups was 0.03 standard deviations lower (0.53 lower to 0.47 higher)
Parenting attitude/knowledge/behaviour	55 (1 study) 12 weeks	⊕⊕⊖⊖ LOW1,3 due to risk of bias, imprecision			The mean parenting attitude/knowledge/behaviour in the intervention groups was 0.24 standard deviations lower (0.78 lower to 0.3 higher)
Child behavioural problems	61 (1 study) 12 weeks	⊕⊕⊖⊖ LOW1,3 due to risk of bias, imprecision			The mean child behavioural problems in the intervention groups was 0.74 standard deviations lower (1.26 to 0.22 lower)
Quality of life	63 (1 study) 12 weeks	⊕⊕⊖⊖ LOW1,3 due to risk of bias, imprecision			The mean quality of life in the intervention groups was 0.27 standard deviations lower (0.77 lower to 0.23 higher)

*The basis for the assumed risk (for example, the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

CI: Confidence interval;

1 Unclear methods of randomisation, but allocation concealment was performed. Neither the patients, investigator, or assessors were blinded.
2 They used an unvalidated tool to measure attachment.
3 The 95% CI crossed 1 MID for continuous variable (-0.5 to 0.5).

Table 257: Grade profile of outcomes for the comparison of Foster Care with Parent Education/Support versus Usual Care in pre- and primary-school aged children in care.

Foster Care and Parent education/support for attachment difficulties					
Outcomes	**No of Participants (studies) Follow up**	**Quality of the evidence (GRADE)**	**Relative effect (95% CI)**	**Anticipated absolute effects**	
				Risk with Control	**Risk difference with Foster Care and Parent education/support (95% CI)**
Secure attachment – Pre-school	118 (1 study) 13-36 months	⊕⊕⊖⊖ LOW1,2 due to risk of bias, imprecision	RR 2.8 (1.51 to 5.2)	175 per 1000	316 more per 1000 (from 89 more to 737 more)
Attachment difficulties – Pre-school	118 (1 study) 13-36 months	⊕⊕⊖⊖ LOW1,3 due to risk of bias, imprecision	RR 0.62 (0.47 to 0.81)	825 per 1000	313 fewer per 1000 (from 157 fewer to 437 fewer)
Reactive attachment disorder – Pre-school	136 (1 study) 11-36 months	⊕⊕⊖⊖ LOW1,4 due to risk of bias, imprecision			The mean reactive attachment disorder – pre-school in the intervention groups was 0.71 standard deviations lower (1.06 to 0.36 lower)
Reactive attachment disorder – Primary school	136 (1 study) 5.5-7.5 years	⊕⊕⊖⊖ LOW1,4 due to risk of bias, imprecision			The mean reactive attachment disorder – primary school in the intervention groups was 0.54 standard deviations lower (0.88 to 0.19 lower)
Social skills – Primary school	94 (1 study) 5.5-7.5 years	⊕⊕⊖⊖ LOW1,5 due to risk of bias, imprecision			The mean social skills – primary school in the intervention groups was 2.36 standard deviations higher (1.83 to 2.89 higher)
*The basis for the assumed risk (for example, the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI). CI: Confidence interval; RR: Risk ratio;					
1 Unclear if allocation concealment was performed. Unclear if participants, investigator and outcome assessor were blinded. 2 For dichotomous outcomes, the optimal information size (that is a total number of 300 events) was not met.					

Foster Care and Parent education/support for attachment difficulties
3 The 95% CI crossed 1 MID (0.75 or 1.25) 4 The 95% CI for continuous outcomes crossed 1 MID (-0.5 or 0.5). 5 For continuous outcomes, the optimal information size (that is a total of 400 participants) was not met.

Table 258: Grade profile of outcomes for the effects of Education, Training and Support for Carers in studies that measured placement disruption but not attachment.

Foster Carer Education, Training and Support.					
Outcomes	**No of Participants (studies) Follow up**	**Quality of the evidence (GRADE)**	**Relative effect (95% CI)**	**Anticipated absolute effects**	
				Risk with Control	**Risk difference with Intervention (95% CI)**
Placement disruptions	269 (3 studies) 1 – 9 months	⊕⊕⊖⊖ LOW1,2,3 due to risk of bias, inconsistency	RR 1.09 (1.01 to 1.18)	130 per 1000	12 more per 1000 (from 1 more to 23 more)
Placement disruptions – Primary school	190 (2 studies) 1 to 9 months	⊕⊕⊖⊖ LOW1,3 due to risk of bias, imprecision	RR 1.13 (1.02 to 1.25)	159 per 1000	21 more per 1000 (from 3 more to 40 more)
Placement disruptions – Primary – Secondary school	79 (1 study) 3 months	⊕⊕⊖⊖ LOW3,4 due to risk of bias, imprecision	RR 1.01 (0.91 to 1.12)	57 per 1000	1 more per 1000 (from 5 fewer to 7 more)
Placement disruption – Primary school	0 (1 study) 9 months	⊕⊕⊖⊖ LOW4,5 due to risk of bias, imprecision	Not estimable	See comment	-
Positive exits from care – Primary school	700 (1 study) 4 months	⊕⊕⊖⊖ LOW3,6 due to risk of bias, imprecision	RR 1.9 (1.27 to 2.85)	91 per 1000	82 more per 1000 (from 25 more to 168 more)

Foster Carer Education, Training and Support.					
Negative exits from care (Inverted) – Primary school	700 (1 study) 4 months	⨁⨁⊖⊖ LOW3,6 due to risk of bias, imprecision	RR 1.02 (0.97 to 1.09)	144 per 1000	3 more per 1000 (from 4 fewer to 13 more)
No change in placement – Primary school	700 (1 study) 4 months	⨁⨁⨁⊖ MODERATE6 due to risk of bias	RR 0.92 (0.84 to 1)	765 per 1000	61 fewer per 1000 (from 122 fewer to 0 more)
Placement disruptions – Secondary school	100 (1 study) 12 months	⨁⨁⊖⊖ LOW4,7 due to risk of bias, imprecision			The mean placement disruptions – secondary school in the intervention groups was 0.38 standard deviations lower (0.78 lower to 0.02 higher)
Quality of parenting	179 (2 studies) 1-3 months	⨁⨁⊖⊖ LOW4,8 due to risk of bias, imprecision			The mean quality of parenting in the intervention groups was 0.84 standard deviations higher (0.53 to 1.15 higher)
Quality of parenting – Primary school	100 (1 study) 5 weeks	⨁⨁⊖⊖ LOW4,7 due to risk of bias, imprecision			The mean quality of parenting – primary school in the intervention groups was 0.75 standard deviations higher (0.35 to 1.16 higher)
Quality of parenting – Primary to secondary school	79 (1 study) 3 months	⨁⨁⊖⊖ LOW4,7 due to risk of bias, imprecision			The mean quality of parenting – primary to secondary school in the intervention groups was 0.96 standard deviations higher (0.49 to 1.43 higher)
Delinquency – Secondary school	100 (1 study) 36 months	⨁⨁⊖⊖ LOW4,7 due to risk of bias, imprecision			The mean delinquency – secondary school in the intervention groups was 0.48 standard deviations lower (0.88 to 0.08 lower)
Internalising/Externalising symptoms – Primary school	46 (1 study) 5 weeks	⨁⨁⊖⊖ LOW4,7 due to risk of bias, imprecision			The mean internalising/externalising symptoms – primary school in the intervention groups was 0.02 standard deviations lower (0.6 lower to 0.57 higher)
Internalising/Externalising symptoms – Primary to secondary school	79 (1 study)	⨁⨁⊖⊖ LOW4,7			The mean internalising/externalising symptoms – primary to secondary school in the intervention

Foster Carer Education, Training and Support.					
	3 months	due to risk of bias, imprecision			groups was 0.67 standard deviations lower (1.13 to 0.22 lower)
Internalising/Externalising symptoms Secondary school	100 (1 study) 12-24 months	⊕⊕⊖⊖ LOW4,8 due to risk of bias, imprecision			The mean internalising/externalising symptoms secondary school in the intervention groups was 0.03 standard deviations higher (0.36 lower to 0.42 higher)
Fewer placement disruptions – Follow-up	199 (2 studies)	⊕⊕⊖⊖ LOW2, 4,5 due to risk of bias, imprecision, inconsistency	RR 1.13 (0.96 to 1.33)	229 per 1000	43 more per 1000 (from 13 fewer to 109 more)

*The basis for the assumed risk (for example, the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

CI: Confidence interval; RR: Risk ratio; OR: Odds ratio;

1 One study used unclear randomisation methods. Allocation concealment was unclear. Unclear and unlikely that participants and investigators were blind.
2 Heterogeneity was detected, I squared >50%
3 For dichotomous outcomes, the optimal information size (that is a total number of 300 events) was not met.
4 Adequate randomisation but unclear if performed allocation concealment. Participants and investigator were unlikely to be blinded.
5 The 95% CI crossed 1 MID (0.75 or 1.25),
6 Unclear randomisation methods and if performed allocation concealment. Participants and investigator were unlikely to be blinded.
7 The 95% CI crossed 1 MID (-0.5 to 0.5).
8 For continuous outcomes, the optimal information size (that is a total of 400 participants) was not met.

10.2.12 Economic evidence

10.2.221 Systematic literature review

The systematic search of the economic literature identified 1 US study that assessed the cost effectiveness of Multidimensional Treatment Foster Care for children in care (Lynch et al., 2014). Details on the methods used for the systematic review of the economic literature are described in Chapter 3; full references to the included studies and evidence tables for all economic evaluations included in the systematic literature review are provided in Appendix R. Completed methodology checklists of the studies are provided in Appendix Q. Economic evidence profile of the study considered during guideline development is presented in Table 255.

Lynch and colleagues (2014) evaluated the cost effectiveness of Multidimensional Treatment Foster Care (MTFC) compared with Regular foster care (RFC) alongside an RCT (Fisher 2007) (N=117) conducted in the USA. The study population comprised children aged 3-5 entering new foster placement (children new to foster care, children re-entering care, and children moving between placements). Foster carers in the intervention group completed 12 hours of training. After placement, the foster carers worked with a consultant and received support and supervision through daily telephone contacts, weekly support group meetings, and the availability of 24 hour on-call staff. Children in the intervention group received services from a behaviour specialist working in preschool/day care and home settings; they also attended weekly socialisation playgroup sessions. The time horizon of the analysis was 24 months and the perspective of public sector (that is, health, social care and education) was adopted. The study estimated intervention costs, health and social service costs and also foster care costs. The resource use estimates were based on the RCT, however data was available only for 90 cases. The unit costs were obtained from national sources. The measure of outcome for the economic analysis was the percentage of children with permanent placement at the end of the analysis. Permanent placement was defined as: re-uniting with biological parent, relative adoption, and non-relative adoption. Results were reported for the full sample and for a sub-sample of children with prior placement instability. The prior placement instability sample (N=52) was defined as a child having experienced 4 or more placements prior to study entry.

At 24 months MTFC resulted in a difference of 5.17% ($p = 0.787$) and 35.24% ($p = 0.002$) of children with permanent placement, in favour of the intervention, for a full and placement instability samples, respectively. When considering the full sample, the mean cost per child and foster parent dyad over 24 months was $27,204 for the intervention and $30,090 for the RFC group, a difference of $2,886 ($p < 0.005$) in favour of the intervention (in 2008 prices). Similarly, for the placement instability sub-sample the mean cost per child and foster carer dyad over 24 months was $29,595 for the intervention and $36,061 for the RFC group, a difference of $6,466 ($p < 0.05$) in favour of the intervention. Based on the above findings MTFC was dominant when compared with RFC.

The authors also calculated the net monetary benefit as the value of the incremental permanent placements achieved by MTFC in comparison to RFC less the incremental cost of MTFC compared to RFC. For example, if a decision-maker believes that an additional permanent placement is worth $10,000, the average the average net monetary benefit was $4,591 (95% CI: −$596 to $9,779) and $8,087 (95% CI: $188 to $15,987) for the full and placement instability samples, respectively.

Results suggest that MTFC is likely to be a cost-effective intervention in the USA. The analysis was judged by the GC to be partially applicable to this guideline review and the NICE reference case. The estimate of relative treatment effect was obtained from a single RCT conducted in the USA. Moreover, QALYs were not used, however the intervention was

found to be dominant. Overall, given the limited availability of data this was a well conducted study and was judged by the GC to have minor methodological limitations.

10.2.3 Clinical evidence statements

10.2.3.1 Video feedback versus usual care

- Moderate quality evidence from 2 studies (n=221) showed that video feedback over 10 weeks may increase secure attachment in preschool-aged children in care compared with usual care, but there was some uncertainty.
- Low quality evidence from 1 study (n=46) showed that video feedback over 1 month may increase secure attachment in primary school-aged children in care compared with usual care, but there was some uncertainty.
- Very low quality evidence from 3 studies (n=319) showed that video feedback over 1 to 2.5 months may increase maternal sensitivity in preschool-aged children in care compared with usual care, but there was some uncertainty.
- Moderate quality evidence from 1 study (n=46) showed that video feedback over 1 month may decrease attachment difficulties in primary-aged children in care compared with usual care, but there was some uncertainty.
- Low quality evidence from 1 study (n=176) showed that video feedback over 10 weeks has no effect on parental stress/mental wellbeing of carers may decrease attachment difficulties in primary-aged children in care compared with usual care, but there was some uncertainty.
- Low quality evidence from 2 studies (n=223) showed that video feedback over 2.5-6 months may increase parental attitudes/knowledge/behaviour of carers of preschool-aged children in care compared with usual care, but there was some uncertainty.
- Low quality evidence from 1 study (n=129) showed that video feedback over 6 months has no effect on secure attachment at long-term follow-up in preschool-aged children in care compared with usual care, but there was some uncertainty.
- Low quality evidence from 2 studies (n=225) showed that video feedback over 6-12 months increases maternal sensitivity at long-term follow-up in preschool-aged children in care compared with usual care, but there was some uncertainty.
- Low quality evidence from 2 studies (n=129) showed that video feedback over 6 months has no long-term effect on carer's stress/mental wellbeing compared with usual care for preschool-aged children in care, but there was some uncertainty.
- Low quality evidence from 2 studies (n=129) showed that video feedback over 6 months may increase the carer's knowledge/attitude/behaviour at long-term follow-up compared with usual care for preschool-aged children in care, but there was some uncertainty.
- Low quality evidence from 2 studies (n=120) showed that video feedback over 9 months has no effect on internalising/externalising behaviour of preschool-aged children in care compared with usual care but there was some imprecision.
- No adverse effects were detected.

10.2.3.2 Parental education and training and support versus usual care

- Low quality evidence from 1 study (N = 100) showed that 3 days of parental education, training and support for cares of primary school-aged children in care increases the risk of reactive attachment disorder compared with usual care, but there was some uncertainty.
- Low quality evidence from 1 study (N = 150) showed that 3 days of parental education, training and support for carer's of primary school-aged children in care increases the risk of reactive attachment disorder at 9 months follow-up compared with usual care, but there was some uncertainty.

- Low quality evidence from 1 study (n=150) showed that 3 days of parental education, training and support for carer's of primary school-aged children in care has no effect on externalising/internalising behaviour at 9 months follow-up compared with usual care, but there was some uncertainty.
- Low quality evidence from 1 study (n=150) showed that 3 days of parental education, training and support for carer's of primary school-aged children in care has no effect on the child's wellbeing at 9 months follow-up compared with usual care, but there was some uncertainty.

10.2.3.3 Multidimensional treatment foster care versus usual care

- Moderate quality evidence from 1 study (N=117) showed that 12 months of multidimensional treatment foster care for pre-schoolers in care has no effect on secure attachment compared with usual care attachment but there was some uncertainty.
- Moderate quality evidence from 1 study (N=117) showed that 12 months of multidimensional treatment foster care for pre-schoolers in care has no effect on attachment difficulties compared with usual care attachment but there was some uncertainty.

10.2.3.4 Parental sensitivity and behavioural training versus usual care

- Very low quality evidence from 1 study (N=63) showed that 12 weeks of parental sensitivity and behavioural training may improve secure attachment in preschool to secondary school-aged children in care compared with usual care but there was some uncertainty.
- Low quality evidence from 1 study (N=63) showed that 12 weeks of parental sensitivity and behavioural training has no effect on behavioural and emotional problems in preschool to secondary school-aged children in care compared with usual care but there was some uncertainty.
- Low quality evidence from 1 study (N=55) showed that 12 weeks of parental sensitivity and behavioural training may improve parental attitude/knowledge/behaviour in carer's of preschool to secondary school-aged children in care compared with usual care but there was some uncertainty.
- Low quality evidence from 1 study (N=55) showed that 12 weeks of parental sensitivity and behavioural training improves behavioural problems in preschool to secondary school-aged children in care compared with usual care but there was some uncertainty.
- Low quality evidence from 1 study (N=63) showed that 12 weeks of parental sensitivity and behavioural training may decrease the quality of life for the carers compared with usual care but there was some uncertainty.

10.2.3.5 Foster care with educational training and support versus institutionalised

- Low quality evidence from 1 study (N = 118) showed that preschool-aged children who enter foster care and their parents are provided educational training and support have greater a secure attachment after 13 to 36 months compared with children who remain in an institution but there was some uncertainty.
- Low quality evidence from 1 study (N = 118) showed that preschool-aged children who enter foster care and their parents are provided educational training and support have fewer attachment difficulties after 11 to 36 months compared with children who remain in an institution but there was some uncertainty.
- Low quality evidence from 1 study (N = 136) showed that preschool-aged children who enter foster care and their parents are provided educational training and support have a lower risk of reactive attachment disorder after 11 to 36 months compared with children who remain in an institution but there was some uncertainty.

- Low quality evidence from 1 study (N = 136) showed that preschool-aged children who enter foster care and their parents are provided educational training and support have a lower risk of reactive attachment disorder after 5.5 to 7.5 years compared with children who remain in an institution but there was some uncertainty.
- Low quality evidence from 1 study (N = 94) showed that preschool-aged children who enter foster care and their parents are provided educational training and support have better social skills after 5.5 to 7.5 years compared with children who remain in an institution but there was some uncertainty.

10.2.396 Parental education, training and support for interventions that reported on placement disruption (attachment was not measured)

- Low quality evidence from 3 studies (n=269) showed that parental education, training and support over 1 to 9 months is associated with fewer placements disruptions compared with usual care for primary to secondary school-aged children in care, but there was some uncertainty.
- Low quality evidence from 2 studies (n=190) showed that parental education, training and support over 1 to 9 months is associated with fewer placements disruptions compared with usual care for primary school-aged children in care, but there was some uncertainty
- Low quality evidence from 1 study (n=79) showed that Parental Education, Training and Support over 3 months is not associated with fewer placements disruptions compared with usual care for primary to secondary school-aged children in care, but there was some uncertainty.
- Low quality evidence from 1 study (n=700) showed that parental education, training and support over 4 months is associated with more positive exits from care compared with usual care for primary school-aged children in care, but there was some uncertainty.
- Moderate quality evidence from 1 study (n=700) showed that parental education, training and support over 4 months has no effect on negative exits from care compared with usual care for primary school-aged children in care, but there was some uncertainty.
- Low quality evidence from 1 study (n=100) showed that parental education, training and support over 12 months is associated with fewer placement disruptions in secondary school-aged children compared with usual care in care, but there was some uncertainty.
- Low quality evidence from 1 study (n=100) showed that parental education, training and support over 5 weeks is associated with improved quality of parenting compared with usual care in primary school-aged children in care but there was some uncertainty.
- Low quality evidence from 1 study (n=79) showed that parental education, training and support over 3 months is associated with improved quality of parenting compared with usual care in primary to secondary school-aged children in care but there was some uncertainty.
- Low quality evidence from 1 study (n=100) showed that parental education, training and support over 36 months is associated with reduced delinquent behaviour compared with usual care in secondary school-aged children in care but there was some uncertainty.
- Low quality evidence from 1 study (n=46) showed that parental education, training and support over 5 weeks has no effect on internalising/externalising symptoms compared with usual care in primary school-aged children in care but there was considerable uncertainty.
- Low quality evidence from 1 study (n=79) showed that parental education, training and support over 3 months reduces internalising/externalising symptoms compared with usual care in primary to secondary school-aged children in care but there was some uncertainty.
- Low quality evidence from 1 study (n=100) showed that parental education, training and support over 12-24 months has no effect on internalising/externalising symptoms compared with usual care in secondary school-aged children in care but there was some uncertainty.

- Very low quality evidence from 2 studies (n=199) showed that a 12 months follow-up of parental education, training and support may decrease placement disruption in primary school-aged children in care compared with usual care but there was some uncertainty.

10.2.4 Economic evidence statements

10.2.4.1 Multidimensional treatment foster care versus usual care

- Evidence from 1 US study (N=117) showed that MTFC was the dominant intervention when compared with RFC at 24 months using placement stability as an outcome measure in the economic analysis. Economic outcomes were based only on 90 cases. The analysis is only partially applicable to this guideline review and the NICE reference case and is characterised by minor methodological limitations.

10.3 Recommendations and link to evidence

Recommendation	
	Preschool-age children 43. Health and social care professionals should offer a video feedback programme to foster carers and adoptive parents, as described in recommendation 32. 44. If there is little improvement to parental sensitivity and the child's attachment after 10 sessions of a video feedback programme, arrange a multi-agency review before going ahead with more sessions or other interventions. 45. If foster carers or adoptive parents do not want to take part in a video feedback programme, offer parental sensitivity and behaviour training as described in recommendation 35. **Children and young people in residential care** 46. Professionals with expertise in attachment difficulties should: • work with the residential staff group and identify any key attachment figures to work specifically with the child or young people in residential care • offer parental sensitivity and behaviour training adapted for professional carers in residential care. 47. Ensure parental sensitivity and behaviour training for professional carers: • first consists of a single session with the carers followed by at least 5 (and up to 15) weekly or fortnightly carer–child sessions (lasting 60 minutes) over 6 months • is delivered by a trained health or social care professional

	• includes: o coaching the residential carers in behavioural management (for children aged 0–18 months) and limit setting o reinforcing sensitive responsiveness o ways to improve caring quality o homework to practise applying new skills. 48. Modify interventions for young people when needed to allow for: • physical and sexual development • transition to adolescence • re-awakening of emotions about their birth parents or original family. Take into account that these factors can complicate therapeutic interventions and relationships with professional carers. Discuss making contact with their birth parents or original family sensitively.
Relative values of different outcomes	The GC discussed the importance and relevance of various outcomes for identifying and predicting children with attachment difficulties. For this population secure attachment and attachment difficulties – insecure and disorganised – are of greatest concern. The GC agreed that in terms of decision making disorganised attachment is the most important outcome since it best reflects the poor long-term outcomes of children. The GC felt that disorganised and insecure attachment best reflect the quality of care children receive; more so than reactive attachment disorder (RAD). Nevertheless, RAD was included as a critical outcome. RAD can be categorised as either inhibited or disinhibited and may be resolved in children if they are placed into a secure environment. RAD is a controversial outcome since it medicalises the child with a condition rather than suggesting their behaviour is a result of their environment and can be prevented. The diagnostic criteria outlined in the DSM-IV and ICD-10 fail to describe the full range of observed behavioural difficulties. The definition also suggests children experience attachment difficulty across all relationships, this is not necessarily the case since some children may have attachment difficulties with their primary caregiver but not with other adults or peers. It is also unclear if attachment disorder is a clinical problem requiring treatment. The definition does not extend beyond the age of 5, thus it is unclear whether the disorder may continue in older children or adulthood. The GC felt that maternal sensitivity/responsiveness is causally related to attachment and should be considered as a critical outcome. They acknowledged it is not as useful as attachment but it should still be included. Systematic reviews have shown a strong link between attachment and sensitivity and can be measured using validated scales such as the Ainsworth Maternal Sensitivity Scale. Number of placements was also considered a critical outcome since

	the GC agreed that children placed in care are likely to have attachment difficulties. Placement instability is also a major risk factor for attachment difficulties and can be an indicator that the caregiver system is breaking down. Other outcomes of concern for children in care that are of lesser importance to attachment but clearly important outcomes for family coherence are the child's emotional/behavioural functioning, parental attitude/knowledge/behaviour, parent stress and wellbeing and the child's wellbeing/quality of life. Criminal outcomes and developmental status were also considered important outcomes. They are clearly undesirable and would impact on quality of life.
Trade-off between clinical benefits and harms	*Interventions to promote attachment in adopted children – Preschool-aged children* Video feedback over 6 months for adoptive parents with preschool-aged infants may promote a secure attachment, maternal sensitivity and reduce the likelihood of having disorganised attachment in adopted children compared with usual care. Video feedback was also associated with improvements in parenting behaviour but no effect was found in the child's behavioural functioning compared with usual care. Parental sensitivity and behaviour training (without the video feedback) over 6 months for adoptive parents with preschool-aged infants had no benefit on secure attachment or maternal sensitivity or disorganised attachment compared with usual care. Parenting behaviour and behavioural functioning in the infant were similar between the intervention and control arm at the end of the study. No harms were detected. *Interventions to promote attachment for children in care – preschool-aged children* For children in care, video feedback for carers with preschool-aged children may improve maternal sensitivity and parental attitude/knowledge/behaviour. This benefit was maintained after the treatment had finished. No harms were associated with this treatment. No effect of treatment was detected on all other outcomes at the end of the intervention, including secure attachment, parental stress/mental wellbeing and emotional/behavioural problems. No difference in secure attachment or attachment difficulties was detected between Multidimensional Foster Treatment Program for pre-schoolers and Usual Care. No harms were detected in the treatment group. Foster care in addition to Parent Education and Training showed a clear benefit on secure attachment, attachment difficulties, reactive attachment disorder compared with the preschool-aged children who remained institutionalised. Years after being placed into care the benefit on reactive attachment disorder was still evident and on the child's self-esteem compared with those who did not go into care. No harms were detected in the treatment group. Another intervention in primary school-age children provided Education and Training programs for the foster carers. It taught them how to understand patterns of behaviour and the importance of

	knowing the child's attachment history and how it impact upon the child's relationship. It showed a trend to reduce the number of placement breakdown but had a great effect on the quality of parenting.
Trade-off between net health benefits and resource use	The GC noted that there is a lack of evidence on the effectiveness and cost effectiveness of interventions for children and young people in care. Consequently, the GC extrapolated the cost effectiveness of interventions from the economic analysis done for this guideline for children on the edge of care. According to the analysis video feedback is the most cost-effective option when compared with parental sensitivity and behaviour training, home visiting and parent-child psychotherapy, and standard care only. Consequently, the GC judged that video feedback should be offered as the first line treatment for preschool-aged children. The GC noted that because treatment options are very limited parental sensitivity and behaviour training should be an option where foster parents decline the offer of video feedback programme. According to the guideline economic analysis for children on the edge of care parental sensitivity and behaviour training resulted in the cost per QALY that was just below NICE upper cost-effectiveness threshold of £30,000 per QALY. Moreover the costs associated with attachment difficulties in children (such as costs incurred by health professional contacts, need for special education, placements, offending) were not taken into account in the guideline economic model, as a result it is very likely that the cost effectiveness of all interventions has been underestimated (including parental sensitivity and behaviour training); there is a high potential that parental sensitivity and behaviour training under different plausible scenario could result in a cost per QALY that is below NICEs lower cost-effectiveness threshold. Consequently the GC judged that parental sensitivity and behaviour training should be available treatment option.
Quality of the evidence	For the review on adopted children the quality of the evidence was very low quality. The outcomes were downgraded in quality because it was unclear if some of the studies performed allocation concealment or how they generated the randomised number sequence. There was imprecision for all outcomes because there was both a low number of events (< 300) and a low number of participants (<400). None of the outcomes could be meta-analysed. The studies on video feedback and parental sensitivity and behaviour training were downgraded for indirectness since they recruited families with adopted infants 6 months of age, yet most children within the UK are adopted at 3 years and 8 months of age. However, the participants and assessors were blinded. The study on Parental Education, Training and Support was downgraded for reporting bias since they combined 2 intervention groups into 1. The participants were not blinded and secure attachment was parentally assessed so there is a risk of reporting bias. Allocation concealment was performed. The GC discussed how the population was a low-risk population, since they were adopted from abroad and at a young age. They also highlighted that is it the quality of the placement and relationship with the carers, not adoption per se that places the child at risk of attachment difficulties. The GC felt the intervention was promising since despite the small sample size the effects of the intervention

were significant.

The GC acknowledged there is a lack of evidence for interventions to be conducted in educational settings. They also highlighted there are few outcomes related to education, i.e. school attendance, school performance.

For the review on children in care, the quality of the evidence ranged from moderate to very low, the majority of the outcomes were low quality.

The outcomes were downgraded in quality because it was unclear if the studies performed allocation concealment or how they generated the randomised number sequence. There was imprecision for most outcomes because there was either a low number of events (< 300) or a low number of participants (<400) included in the meta-analysis. Some outcomes were downgraded because of heterogeneity between the studies, but equally there were few instances were studies could be meta-analysed.

A high number of studies failed to report attachment at baseline and only provided measurements at follow-up. It was therefore difficult to know whether the interventions aimed to prevent or treat attachment difficulties in the children. Consequently 2 of the original review questions were amalgamated into 1 review and the question became: what interventions are effective at promoting attachment in children and young people in foster care?

The GC agreed that the evidence on children who were randomised into Foster Care from an institution will not be used to make a recommendation. Instead the findings will provide background evidence that foster care and parental training may improve secure attachments in young children.

The GC queried the validity of the Parent Attachment Diary to measure attachment in the study by Dozier 2009 for video feedback and Fisher 2007 for multidimensional treatment foster care for pre-schoolers. This tool, however, has been validated against the Strange Situation Procedure and showed reasonable correlation for avoidant and security scores.

The GC highlighted a limitation that there were no studies that assessed the attachment of the children to other adults, such as social workers or teachers. The GC agreed this outcome could be included in any research recommendations. No studies provided data on criminal outcomes, parent stress and wellbeing, and the child's wellbeing/quality of life. The results from studies that measured placement breakdown are discussed in the following recommendations table.

In conclusion, the GC agreed from the 2 reviews on children who were adopted or in care that video feedback was the most promising of all interventions. They felt that although the results were from a small number of studies the benefits are replicated in studies that used the same intervention for children on the edge-of care. For this reason, video feedback was recommended for preschool-aged children in care or adopted.

The GC developed a consensus based recommendation that if there

	is a limited response to video feedback programmes, a multi-agency review should be arranged before proceeding with further sessions or other interventions. They acknowledged it is not known if repeating a video feedback intervention may give better results than trying a new type of intervention. For this reason it was felt that a review is needed before a decision is made. Parental sensitivity and behaviour training was found to be beneficial for children on the edge of care and foster children across a wide range of ages (birth to 12 years of age). Therefore, the GC felt that it was worth recommending since there may be some parents who do not wish to take part in a video feedback intervention. The GC also considered that this intervention was appropriate for children and young people in residential care, alongside identifying any key attachment figures to work specifically with children and young people in residential care.
Other considerations	The GC discussed whether the recommendations for those on the edge of care could apply to those children in care (including residential care). It was argued that it isn't repairing a relationship that is broken but focusing on a new relationship. Thus, although the interventions are the same, the context would be quite different for families that were on the edge of care versus foster carer or adoptive parents. The interventions for parents who are maltreating would be different for parents who were receiving children who are troubled. Overall however, the principles of parenting would be the same across the board. For this reason, despite the low quality data for children in care, the GC felt more confident making the recommendations above since they complemented those found in the larger review for children on the edge of care. The GC highlighted the absence of interventions that can be delivered in educational settings. They also highlighted there are few education-relevant outcomes reported in the literature, that is school attendance, school performance. But they also acknowledged there is no way directly linking school attendance to attachment and hence is a limitation of the reviews. The GC generally made decisions based on the following criteria: Cohen's effect size 0.2 = small effect, 0.5= moderate effect, 0.8 = large effect. If the 95% confidence interval suggested a positive effect size but just crossed the line of no effect, the GC agreed it was a trend for a benefit. If the outcome showed a benefit but the quality of the study was very low quality, the GC agreed the intervention showed a benefit but with caution. A GC member noted that quality of parenting relates more to the use of validated scales, whereas parenting behaviour links to observational measures.

1

Recommendation	**Primary school-age children** 49. Consider intensive training and support for foster carers and adoptive parents (see recommendations 50 and 51) before the placement and for 9–12 months after, combined with group cognitive and interpersonal skills sessions for the child for the same duration (see recommendation 52). 50. Ensure intensive training for foster carers and adoptive parents

	includes: • behavioural management methods • help with peer relationships for the child • support for schoolwork • help to defuse conflict. 51. Ensure intensive support for foster carers and adoptive parents includes: • supervision by daily telephone contact • weekly support group meetings • a 24-hour crisis intervention telephone line. 52. Ensure group cognitive and interpersonal skills sessions for children after placement: • consist of weekly sessions (lasting 60–90 minutes) over the 9–12-month period • are delivered by a trained health and social care professional • include monitoring of behavioural, social and developmental progress.
Relative values of different outcomes	The GC discussed the importance and relevance of various outcomes for identifying and predicting children with attachment difficulties. For this population secure attachment and attachment difficulties – insecure and disorganised – are of greatest concern. The GC agreed that in terms of decision making disorganised attachment is the most important outcome since it best reflects the poor long-term outcomes of children. The GC felt that disorganised and insecure attachment best reflect the quality of care children receive; more so than reactive attachment disorder (RAD). Nevertheless, RAD was included as a critical outcome. RAD can be categorised as either inhibited or disinhibited and may be resolved in children if they are placed into a secure environment. The GC felt that maternal sensitivity/responsiveness is causally related to attachment and should be considered as a critical outcome. They acknowledged it is not as useful as attachment but it should still be included. Systematic reviews have shown a strong link between attachment and sensitivity and can be measured using validated scales such as the Ainsworth sensitivity scale. Number of placements or placement breakdown was also considered a critical outcome since the GC agreed that children placed in care are likely to have attachment difficulties. Placement instability is also a major risk factor for attachment difficulties and can be an indicator that the caregiver system is breaking down. Other outcomes of concern for children in care that are of lesser importance to attachment but clearly important outcomes for family coherence are the child's emotional/behavioural functioning, parental attitude/knowledge/behaviour, parent stress and wellbeing and the child's wellbeing/quality of life. Criminal outcomes and developmental status were also considered important outcomes. They are clearly undesirable and would impact on

	quality of life.
Trade off benefits and harms	*Interventions to prevent placement breakdown– Primary school-aged children* One RCT that targeted the parents of foster children (3 to 6 years of age) before they received the child was identified (Fisher 2005). The authors measured placement breakdown but did not measure attachment or maternal sensitivity. The aim of the intervention was to provide intense training to ensure the carers were prepared to take on the foster child and to continue to support the carers via a 24-hour telephone support help line for 9-12 months. During this time the child participated in group cognitive and interpersonal skills sessions. The results clearly showed a reduction in placement breakdown compared with usual treatment, however no other relevant outcomes were reported. A regression analysis presented in the study did show the number of prior placements was a predictor of placement breakdown, thus highlighting the importance of minimising more failed placements. *Interventions to promote attachment in adopted children – Primary school-aged children* Parental Education, Training and Support for adoptive parents of preschool and primary school-aged children (3 to 7 years) had no effect on secure attachment, behavioural/emotional difficulties in the child, placement problems, or the quality of parenting compared with usual care. No harms were detected. A 6 month follow-up showed that Parental Education, Training and Support, continued to have no effect on behavioural/emotional problems in the child, placement problems or the quality of parenting compared with usual care. *Interventions to promote attachment for children in care – primary school-aged children* Parental Education and Training for the foster carers of children in primary school appeared to have a negative effect on reactive attachment disorder in the short and long-term compared with the control group. No difference in emotional/behavioural problems or the child's wellbeing/self-esteem were detected between the Sensitivity and Behaviour Training and control group. The Parental Education and Training intervention by Price 2008 was aimed at helping the foster parents focus on positive parenting techniques such as non-harsh discipline methods, avoiding power struggles and teaching parents the importance of monitoring the child's whereabouts and how to improve success at school. The results showed it increased the number of positive exits (including reunion with parent, another relative or adoption) from care but it made no impact on negative exits from care compared with usual care. Another Parental Education and Training intervention (Taussig 2012) addressed topics with the parents such as emotional recognition, anger management, cultural identity, change and loss, abuse prevention, and future orientation. For the child, mentoring was provided to help them engage in extracurricular, educational, social, cultural, and recreational activities; and promoted a positive outlook. Over the 9 months fewer placement disruptions were detected, but not other relevant outcomes were reported

	Video feedback for carers with primary school-aged children may improve maternal sensitivity, decreased attachment difficulties. No long-term effects were measured. No harms were identified. *For children in care – Preschool to secondary school-aged children* Parental sensitivity and behaviour training for foster carers was associated with an improvement in attachment between pre-school to secondary school-aged children in care and their carers. A reduction in child behavioural problems was detected in the treatment group. No effect of treatment was detected on the child's emotional/behavioural problems or on the carer's behaviour or quality of life. *For adopted children – Preschool to secondary school-aged children* 10 weeks of parental sensitivity and behaviour training improved parental empathy and decreased behavioural problems in adopted primary school-aged (2 to 10 years of age, mean of 5.8 years) children compared with a control group.
Trade-off between net health benefits and resource use	There was no economic evidence in this area. Clinical evidence showed that intensive training for foster carers combined with group cognitive and interpersonal skills sessions for children after placement has the potential to reduce care placement instability and consequently has important resource implications. The GC judged that the provision of such interventions is very likely to lead to cost savings since it allows better placement of children and young people, timely and effective management, and potentially prevention of attachment difficulties (and costly short-term multiple placement changes). The GC considered high costs associated with unstable placements including the additional social worker time needed to make placement moves (in particular since these children and young people are expected to have multiple placements in any one year), unstable placements are associated with poorer mental health, behavioural problems, and early exit from care. Also these effects persist into adulthood. For example as adults these children have poorer employment and education outcomes, and higher involvement with the criminal justice sector. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice sector costs, and society as a whole. The GC judged the costs of such interventions to be far outweighed by the potential benefits.
Quality of evidence	*Quality of the evidence for studies that measured placement breakdown* The quality of the evidence from was low and downgraded for the following reasons: i) potential risk of bias because it was unclear if they performed allocation concealment and, ii) it is unlikely that the participants, assessor and the investigator were blind to group allocation. There was also uncertainty around the effect size mostly likely due to a small sample size (n=90) and few events (<300). The GC agreed that the results from this paper showed promising results for reducing the number of placements. It is also unique in that it prepares the foster carers before they receive the child, teaching them behavioural management methods, encourage prosocial behaviour, close supervision of the child, and creating the optimal environmental to enhance maturational development. In addition the child receives individual therapy. The GC discussed that cognitive behavioural therapy has been shown to be an effective form of therapy for children with other mental health problems. Although there was little evidence identified in our target population, the results from children on the edge of care and from children with other condition, they felt confident recommending this intervention.

	Quality of the evidence for primary school-aged children in care The quality of the evidence ranged from moderate to very low, the majority of the outcomes were low quality. The outcomes were downgraded in quality because it was unclear if the studies performed allocation concealment or how they generated the randomised number sequence. There was imprecision for most outcomes because there was either a low number of events (< 300) or a low number of participants (<400) included in the meta-analysis. Some outcomes were downgraded because of heterogeneity between the studies, but equally there were few instances were studies could be meta-analysed. A high number of studies failed to report attachment at baseline and only provided measurements at follow-up. It was therefore difficult to know whether the interventions aimed to prevent or treat attachment difficulties in the children. Consequently 2 of the original review questions were amalgamated into 1 review and the question became: what interventions are effective at promoting attachment in children and young people in foster care? The data on parental sensitivity and behaviour training is promising since it included children from 2 to 12 years of age and showed positive effects on attachment. However, the GC queried the measure of attachment since it was developed in-house and has not been validated against a gold standard measure of attachment. They also queried the potential bias in the parent's measure of the child's behaviour compared with an objective measure by the investigators. The results were also from 1 small study of only 77 participants *Quality of the evidence for adopted primary school-aged children* The quality of the evidence was very low. The results were downgraded because of indirectness in the tool used to measure maternal sensitivity. The authors used an empathy scale that has not been validated against attachment so it is unclear how relevant the findings are to our population. Nevertheless, the GC wanted to consider this study given the scarcity of results for adopted children. Although it included very small numbers, n=37, the results show promising results as a pilot study for a 10 week sensitivity and behavioural intervention that included weekly filming of the interaction between the parents and children. In addition to weekly support group sessions. The GC supported a recommendation for a larger study to confirm the results.
Other considerations	The GC suggested a research recommendation for collecting more evidence on the effectiveness of pre-placement training and cognitive behavioural therapy for carers or adopted parents and their children. They also highlighted the importance of measuring attachment in future studies since it was not measured in any of the studies used to generate this recommendation.

10.32 Research recommendation

7. Develop attachment-focused interventions to treat attachment difficulties in children aged over 5 years and young people who have been adopted or are in the care system.

Recommendations	**Late primary and early secondary school-age children who are in transition to a new school** 53. Consider a group-based training and education programme for foster carers and adoptive parents to maintain stability in the home and help transition to a new school environment (see recommendation 52), combined with a group-based training and education programme for children and young people to improve social skills and maintain positive peer relationships (see recommendation 53). 54. Ensure group-based training and education programmes for foster carers and adoptive parents: • consist of twice-weekly sessions (lasting 60–90 minutes) for the first 3 weeks then weekly sessions over the remaining school year • are delivered by a trained facilitator • have a behavioural reinforcement system to encourage adaptive behaviours across home, school, and community settings • provide weekly telephone support if needed • give homework to practise applying new skills. 55. Ensure training and education programmes for children and young people: • consist of weekly sessions (lasting 60–90 minutes) over the school year • are delivered by trained mentors, which may include graduate level workers • teach skills to help reduce involvement with peers who may encourage misbehaviour, and to increase their levels of self-confidence • encourage them to get involved in a range of educational, social, cultural and recreational activities • help them develop a positive outlook. 56. Modify interventions for young people when needed to allow for: • physical and sexual development • transition to adolescence • re-awakening of emotions about their birth parents or original family. Take into account that these factors can complicate therapeutic interventions and relationships with foster carers and adoptive parents. Discuss making contact with their birth parents or original family sensitively.
Relative values of different outcomes	The GC discussed the importance and relevance of various outcomes for identifying and predicting children with attachment difficulties. For this population secure attachment and attachment difficulties – insecure and disorganised – are of greatest concern. The GC agreed that in terms of decision making disorganised attachment is the most important outcome since it best reflects the poor long-term outcomes of children. The GC felt that disorganised and insecure attachment best reflect the quality of care children receive; more so than reactive attachment disorder (RAD). Nevertheless, RAD was included as a critical outcome. RAD can be categorised as either inhibited or disinhibited and may be resolved in children if they are placed into a secure environment. The GC felt that maternal sensitivity/responsiveness is causally related to attachment and should be considered as a critical outcome. They acknowledged it is not as useful as attachment but it should still be included. Systematic reviews have shown a strong link between attachment and sensitivity and can be measured using validated scales such as the Ainsworth sensitivity scale.

	Number of placements was also considered a critical outcome since the GC agreed that children placed in care are likely to have attachment difficulties. Placement instability is also a major risk factor for attachment difficulties and can be an indicator that the caregiver system is breaking down. Other outcomes of concern for children in care that are of lesser importance to attachment but clearly important outcomes for family coherence are the child's emotional/behavioural functioning, parental attitude/knowledge/behaviour, parent stress and wellbeing and the child's wellbeing/quality of life. Criminal outcomes and developmental status were also considered important outcomes. They are clearly undesirable and would impact on quality of life.
Trade-off between clinical benefits and harms	One RCT in secondary school-aged children was identified (Kim 2011) that improved the transition to a new school for children in care. The intervention targeted both the foster carers and their children (girls 11.5 years of age). Placement breakdown was measured but attachment or sensitivity-related outcomes were not. The aim of the study was to maintain stability in the foster home and help prepare the girls for secondary school. For the carers, group sessions were provided to teach them how to encourage adaptive behaviours in the home, school and in the community. Telephone support was also provided if needed. For the girls, the programme aimed to increase their social skills and self-confidence. The programme was initially twice a week for 3 weeks but continued for another 9 months over the following school year. The results showed a decrease in placement disruptions, a decrease in composite delinquency, but no effect on emotional or behavioural problems in the children compared with the control group. No harms were identified. The GC drew on their expertise and experience to develop the recommendation on modifying interventions for young people to allow for physical and sexual development, transition to adolescence and re-awakening of emotions about birth parents. The care leavers and carers in particular were concerned that these factors might complicate the delivery of interventions, and based on review conducted in Chapter 6, judged that making contact with birth parents should be broached sensitively.
Trade-off between net health benefits and resource use:	There was no economic evidence in this area. Clinical evidence showed that group-based training and education programmes for foster carers combined with training and education programmes for children and young people has the potential to reduce placement instability and consequently has important resource implications. The GC judged that the provision of such interventions is very likely to lead to cost savings since it allows better placement of children and young people, timely and effective management, and potentially prevention of attachment difficulties (and costly short-term multiple placement changes). The GC considered high costs associated with unstable placements including the additional social worker time needed to make placement moves (in particular since these children and young people are expected to have multiple placements in any one year), unstable placements are associated with poorer mental health, behavioural problems, and early exit from care. Also these effects persist into adulthood. For example as adults these children have poorer employment and education outcomes, and higher involvement with the criminal justice sector. This would require very costly support and would have a substantial impact on NHS and PSS, education and criminal justice sector costs, and society as a whole. The GC judged the costs of such interventions to be far

	outweighed by the potential benefits.
Quality of evidence	The quality of the evidence from was low and downgraded for the following reasons: i) potential risk of bias because it was unclear if they performed allocation concealment and, ii) it is unlikely that the participants, assessor and the investigator were blind to group allocation. There was also uncertainty around the effect size mostly likely due to a small sample size (<400) and few events (<300). The study only included girls, but the nature of the intervention was not considered gender specific. The GC discussed how little evidence there was for children in care making the transition to a new school. They felt it is an important time to offer help to both the carers and the children because creating additional instability to the child could be detrimental to their home life and adjusted at school. This is regardless of whether the child has been in the foster care's home for some time or it if it is a new placement. In the study by Kim 2006 the children had been in their current placement for 3 years.
Other considerations	The GC agreed that outcomes relating to performance at school are important to capture in future studies.

11 Interventions for children and young people who have been adopted

11.1 Introduction

Until the late 1960s unmarried women who became pregnant were subject to substantial social and economic pressures to relinquish their babies for adoption immediately after the birth. Studies of these children, who are now in late middle age, show favourable psychosocial outcomes and low disruption rates (Selwyn et al., 2006).

The majority of children placed for adoption currently in the UK have had very different experiences from their predecessors. Most UK adoptions now involve children from care, and many of these children have had extensive experience of abuse and neglect while living with their birth families, followed by lengthy periods in temporary and sometimes unstable foster care before a final permanence decision is made and an adoptive placement found (Depatment for Education, 2013). Such children have often experienced the double jeopardy of becoming attached first to birth parents who cannot meet their needs, and then to foster carers, who eventually relinquish them (Ward et al., 2012). Age at placement is a significant factor in successful adoption (Howe, 2001; van den Dries et al., 2009). Delayed decisions concerning adoptions from care (see para 6.1) can mean that children are older when placed with less likelihood of forming secure attachments with adoptive carers (Brown & Ward, in press).

Children who have been adopted from care have been found to experience confusion over identity and poor self-esteem (Neil, 2012), as did those who were relinquished by birth parents in the 1950s and 60s (Howe et al., 2001a). However, they also display the types of problems that have been associated with abuse and neglect in early childhood, such as emotional and behavioural difficulties, problems with peer relationships, attachment difficulties, conduct disorder and poor concentration (Biehal et al., 2010; Selwyn et al., 2014). Biehal and colleagues (2010) compared psycho-social outcomes for adopted children with those in long-term foster care, and found no significant difference in average scores on the Strengths and Difficulties Questionnaire between adopted children and those in long-term foster care, although both groups had higher scores than the general population. The most recent British research (Selwyn et al., 2014) has identified a high prevalence of challenging behaviours including cruelty to other children and pets and child to parent violence that place exceptional stresses on placements.

Disruption rates for adoptions after the order has been made are substantially lower than those for other out-of-home placements. Selwyn and colleagues (2014) calculated that about 0.7% of adoptions disrupt within 5 years – a substantially lower rate than disruptions following Special Guardianship Orders (3.6%) or Residence Orders (14.7%) (op.cit., p.222). However about 1 in 4 adoptive parents describe major challenges and inadequate support in caring for a child with multiple and overlapping difficulties, and many of these young people

informally leave the adoptive home before they reach adulthood. There are greater risks in adoption for children with behavioural problems (Dance & Rushton, 2005; Selwyn et al., 2014), children who have experienced preferential rejection (Dance & Rushton, 2005), sibling groups and children with additional needs (Rushton, 2004).

11.2 Clinical review on interventions aimed at promoting attachment in children and young adults who have been adopted

The review protocol summary, including the review question and the eligibility criteria used for this section of the guideline, can be found in Table 259. A complete list of review questions can be found in Appendix F; further information about the search strategy can be found in Appendix H; the full review protocols can be found in Appendix F.

Interventions considered for this review included: video feedback, multidimensional treatment package, parental sensitivity and behavioural training, parent training, education and support programme, parent–child psychotherapy, parent psychotherapy or cognitive behavioural therapy. A description of each intervention's aims, methods and intensity are described in the chapter subsection for interventions aimed at promoting attachment in children and young adults in care.

Table 259: Protocol for the review question on: What interventions are effective at promoting attachment in children and young adults who have been adopted?

Review question(s)	What interventions are effective at promoting attachment in children and young people who have been adopted? What are the adverse effects associated with each intervention?
Population	Infants, children and young people (aged 0–18 years) who have been adopted. Strata: Pre-school, primary school, secondary school
Objective	To identify effective interventions for promoting attachment between children and young people and their adopted parents.
Intervention(s)	• Video feedback (including attachment-based interventions) • Parent training, education and support • Parental sensitivity and behavioural training • Multidimensional treatment programme • Foster care with parental support • Home visiting • Psychotherapy • Cognitive behavioural therapy

Review question(s)	What interventions are effective at promoting attachment in children and young people who have been adopted? What are the adverse effects associated with each intervention?
	Recipients may be: • child • carer • carer–child
Comparison	usual care
Critical outcomes	disorganised attachment and/ or attachment difficulties maternal sensitivity or maternal responsiveness number of placements/disruption
Electronic databases	The databases to be searched include: CDSR, CENTRAL, DARE, Embase, MEDLINE, PreMEDLINE, PsycINFO
Study design	Systematic reviews Randomised control trials

11.2.11 Clinical evidence

11.2.12.1 Studies considered

In total, 3 RCTs met the eligibility criteria for this review: Juffer 1997 (Juffer et al., 1997), Carnes-Holt 2014 (Carnes-Holt & Bratton, 2014) and Rushton 2010 (Rushton et al., 2010). In addition, 6 studies were excluded from the review. A summary of the studies included in this review can be found in Table 260. Further information about excluded studies can be found in Appendix M.

Of the 3 eligible trials, 1 study provided a combined parental education, training and support intervention (Rushton 2010). Two studies were published by the same investigators, the first study consisted of 90 families with their first adopted child (Juffer 1997), and the second study included an additional 40 families with their own birth children who were added to the control group (Juffer 2005). They also re-assessed the data to provide disorganised attachment (Juffer 2005). Twenty were assigned to a control group, 20 to a Video Feedback group (that included an educational book) and 20 to a Parental Sensitivity and Behaviour Training group (education book). There was a long-term follow-up on this population, 6 years post the end of the intervention when the children were 7 years of age Stams 2001 (Stams et al., 2001). However, no raw data on each group was available, only a summary of the results in the text. One study was a pilot study that did not measure attachment, sensitivity or disruption (Carnes-Holt 2014). They used a measure that could be likened to maternal responsiveness, which was empathy. Because of the paucity of data, this study was included.

Studies were included if they measured at least 1 of the critical outcomes, including: attachment difficulties, maternal sensitivity, maternal responsiveness and placement disruption. None of the studies could be meta-analysed.

A major limitation in this review was that few studies measured attachment difficulties (or variations of) at baseline, they only measured it at follow-up. If they measure attachment difficulties at baseline, they only provided a mean score based on a continuous scale making it difficult to know how many children had attachment difficulties. For these reasons we were unable to determine which studies aimed to prevent or treat attachment difficulties. As a result, this review became an amalgamation of the 2 review questions on prevention and treatment and the review question became 'to review interventions that promote attachment between the child and young people with their adopted parents'.

In contrast to the review on children at risk of going into care, the adopted parents may not be insensitive or a contributing cause of the child's attachment difficulties, nevertheless the children in this review are unlikely to have developed a secure attachment with their adopted parents. Outcomes were measured at the end of the intervention and at various durations of follow-up (post intervention). If different time points were reported, the longest follow-up was included in this review. The results were stratified according to the school age of the children (that is, pre-school, primary school, secondary school). No systematic reviews were identified that met our inclusion criteria.

For dichotomous outcomes where only a few events were recorded (that is, less than 40% of the population) the results were inverted or changed from the number of children who had an event to those who did not (non-event). This correction adjusts the relative risk and provides a more conservative estimate of the effectiveness of the intervention (or effect size).

For a description of the interventions refer to the chapter subsection for interventions aimed at promoting attachment in children and young adults' in care.

Summary of findings for results that could be meta-analysed can be found in **Table 261**, **Table 262** and **Error! Reference source not found.**. The forest plots can be found in Appendix O, full GRADE evidence profiles be found in Appendix N. See also the study selection flow chart in Appendix P, excluded studies in Appendix M.

Table 260: Study information table for trials included in the meta-analysis of interventions for promoting attachment in children and young adults who have been adopted

	Video feedback versus usual care	Parental sensitivity/behavioural training versus usual care	Parental educat versus usual ca
Total no. of studies (N)	1) 1 RCTs (60)1	1) 2 RCTs (60)	1 RCTs (37)
Study ID	1) Juffer 1997	1) Juffer 1997 2) Carnes-Holt 2014	1) Rushton 201
Follow-up	Juffer 2005 Stams 2001	Juffer 2005 Stams 2001	
Country	1) Netherlands	1) Netherlands 2) USA	1) UK
Year of publication	1) 1997	1) 1997 2) 2014	1) 2010
Diagnosis	1) Maternal sensitivity Disorganised attachment	1) Maternal sensitivity: Disorganised attachment 2) Maternal empathy: Measurement of Empathy in Adult-Child Interaction	1) Attachment
Age (mean)	1) 6 months of age	1) 6 months of age 2) 2 to 10 years (5.8 years)	1) 3-7 years
Initially randomised	1) 60	1) 60 2) 39	1) 38
Name of intervention	1) Personal book on sensitivity & video	1) Personal book on sensitivity & video 2) Child Parent Relationship Therapy	1) CBT and edu
Treatment length	1) 6 months	1) 6 months 2) 10 weeks	1) 10 weeks
Control arm	1) Booklet on adoption issues	1) Booklet on adoption issues 2) Waiting list	1) Usual treatm
Delivered by	1) Masters students	1) Masters students 2) Graduate counselling students	1) Social worke
Recipients of intervention	1) Parents	1) Parents 2) Parents	1) Parents
Frequency of treatment	1) 3 home visits	1) once only. 2) weekly	1) weekly
Duration of each session	1) NA	1) NA 2) 20 minute play session. 2 hour group sessions	1) NA
Treatment length	1) 6 months	1) 6 months	1) 10 weeks

	Video feedback versus usual care	Parental sensitivity/behavioural training versus usual care	Parental educat versus usual ca
		2) 10 weeks	
Long-term follow-up	1) Yes, 6.5 years	1) Yes, 6.5 years 2) No.	1) Yes, 6 month
Aim	1) aimed to support parental sensitive responsiveness, with the ultimate goal of promoting secure infant-parent attachment relationships.	1) support parental sensitive responsiveness, with the ultimate goal of promoting secure infant-parent attachment relationships. 2) to reduce the children's behaviour problems and increase observed parental empathy.	1) control of diff the child with parenting env
Tool to measure attachment	1) Strange-Situation procedure (Ainsworth 1978)	1) Strange-Situation procedure (Ainsworth 1978) 2) NA	1) Visual Analo how far the c
Tool to measure sensitivity	1) Filmed 8 minutes of play at home. Used rating scale for Sensitivity and Competence (Ainsworth, 1974)	1) Filmed 8 minutes of play at home. Used rating scale for Sensitivity and Competence (Ainsworth, 1974) 2) NA	1) NA
Tool to measure responsiveness	1) NA	1) NA 2) Measurement of Empathy in Adult-Child Interaction (MEACI, Stover, 1971)	1) NA

Table 261: GRADE profile for video feedback versus control for adoptive parents

Video feedback for attachment difficulties in adopted children					
Outcomes	**No of Participants (studies) Follow up**	**Quality of the evidence (GRADE)**	**Relative effect (95% CI)**	**Anticipated absol**	
				Risk with control	**Risk fee**
Secure attachment – Pre-school	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, indirectness, imprecision	RR 1.29 (0.99 to 1.67)	700 per 1000	203 (fro
Maternal sensitivity – Pre-school	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW1,2,4 due to risk of bias, indirectness, imprecision			The pre-grou 0.39 (0.1
Less likely to have disorganised attachment – Pre-school	98 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW2,3,5 due to risk of bias, indirectness, imprecision	RR 1.21 (1.02 to 1.43)	776 per 1000	163 (fro
Parental behaviour – Pre-school	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW1,2,4 due to risk of bias, indirectness, imprecision			The pre-grou 0.86

Video feedback for attachment difficulties in adopted children					
					(0.3
Behavioural functioning – Pre-school	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW1,2,4 due to risk of bias, indirectness, imprecision			The – pr grou 0.34 (0.8

*The basis for the assumed risk (for example, the median control group risk across studies) is provided in footnotes. The cor confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its

CI: Confidence interval; RR: Risk ratio;

1 Unclear methods for randomisation and unclear if performed allocation concealment. Participants and assessor were howe
2 Children in the UK are rarely adopted during infancy, the mean age is 3 years and 8 months.
3 95% CI crossed 1 MID (0.75 or 1.25)
4 95% CI crossed 1 MID (-0.5 or 0.5)
5 Unclear methods for randomisation and unclear if performed allocation concealment. Participants and assessor were howe additional group from another RCT.

Table 262: GRADE profile for parental sensitivity and behaviour training versus usual care for adopted children

Parental sensitivity training for attachment difficulties in adopted children					
Outcomes	**No of Participants (studies) Follow up**	**Quality of the evidence (GRADE)**	**Relative effect (95% CI)**	**Anticipated absolu**	
				Risk with control	**Risk c sensit (95% C**
Secure attachment – Pre-school	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW1,2 due to risk of bias, indirectness, imprecision	RR 1.14 (0.85 to 1.53)	700 per 1000	98 mo (from
Maternal sensitivity – Pre-school	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW1,3,4 due to risk of bias, indirectness, imprecision			The m schoo was 0.12 s (0.39 l
Less likely to have disorganised attachment – Pre-school	79 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW1,2,3 due to risk of bias, indirectness, imprecision	RR 1.03 (0.82 to 1.3)	776 per 1000	23 mo (from
Parental behaviour – Pre-school	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW1,3,4 due to risk of bias, indirectness, imprecision			The m schoo was 0.26 s (0.25 l
Behavioural/Emotional problems- Pre-school	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW1,3,4 due to risk of bias, indirectness, imprecision			The m proble interve 0.29 s (0.79 l
Empathy	58 (1 study) 10 weeks	⊕⊖⊖⊖ VERY LOW 5 due to risk of bias, imprecision indirectness			The m interve 1.67 s (2.28 t
Total Child Behaviour Check List	61	⊕⊕⊖⊖			The m

Parental sensitivity training for attachment difficulties in adopted children					
	(1 study) 10 weeks	LOW 6,7 due to risk of bias, imprecision			check was 1.67 s (2.28 t

*The basis for the assumed risk (for example, the median control group risk across studies) is provided in footnotes. The co confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its

CI: Confidence interval; RR: Risk ratio;

1 Children in the UK are rarely adopted during infancy, the mean age is 3 years and 8 months.
2 The 95% CI crossed 1 MID (0.75 or 1.25).
3 Unclear methods for randomisation and unclear if performed allocation concealment. Participants and assessor were blind
4 The 95% CI crossed 1 MID (-0.5 or 0.5)
5 Maternal empathy tool is not a direct measure of attachment, sensitivity or responsiveness.
6 Unclear randomisation methods and if allocation concealment was performed. Assessors were blinded to participants assi wait list
7 Study did not include the optimal study size of n=400 participants for a continuous outcome.

Table 263: Clinical/economic question: What is the cost effectiveness of parental education, training and support programme compared with standard care?

Economic evidence profile						
Study & country	Limitations	Applicability	Other comments	Incremental cost (£)[1]	Incremental effect	ICER (£/effect)[1]
Sharac., 2011 UK	Potentially serious limitations[2]	Partially applicable[3]	Primary measure of outcome: the Strengths and Difficulties Questionnaire (SDQ); Parental Satisfaction Questionnaire Time horizon: 6 months	£1,921	SDQ scores: 0.79 (in favour of SC) Parental Satisfaction Questionnaire: 4.90 (in favour of the intervention)	SC dominant with SDQ scores as an outcome £392 per unit of improvement on the satisfaction with parenting scale

1 Costs uplifted to 2013/2014 UK pounds using the hospital & community health services (HCHS) pay and prices inflation inc
2 Conducted alongside small RCT (n=37); time horizon only 6 months; SDQ measure partially captures health outcomes
3 UK study, public sector perspective (health and social care, and education), no discounting needed, no QALYs but interver the outcomes (SDQ); cost effectiveness difficult to judge when using the other outcome (parental satisfaction questionnaire).

11.2.2 Economic evidence

11.2.2.1 Systematic literature review

The systematic search of the economic literature identified 1 study that assessed the cost effectiveness of parental education, training and support programme for children and young people adopted from care (Sharac et al., 2011). Details on the methods used for the systematic review of the economic literature are described in Chapter 3; full references to the included studies and evidence tables for all economic evaluations included in the systematic literature review are provided in Appendix R. Completed methodology checklists of the studies are provided in Appendix Q. Economic evidence profile of the study considered during guideline development is presented in Table 263.

Sharac and colleagues (2011) evaluated the cost effectiveness of a parental education, training and support programme compared with standard care, defined as locally available services, provided to 37 adoptive parents of children aged between 3 and 8 years. This was an economic evaluation undertaken alongside an RCT (Rushton 2010) conducted in the UK. The intervention was a home-based parenting programme delivered by trained family social workers. The intervention comprised 10 consecutive, weekly sessions, lasting one hour each, based either on CBT or educational approach. The time horizon of the analysis was 6 months and the perspective of public sector was adopted. The study estimated NHS and PSS costs (educational psychologist, A&E, hospital outpatient care, hospital operations, school nurse, health visitor, dentist, optician, GP, paediatrician, child development centre, Child and Adolescent Mental Health Services (CAMHS), speech/hearing therapist, other therapist, home care worker, day care centre, other support and social worker) and also included costs to education sector (classroom assistant, after school club and welfare officer). The resource use estimates were based on the RCT (n=36). The unit costs were obtained from national sources. The RCT collected a range of outcome measures including the Strengths and Difficulties Questionnaire (SDQ), the Expression of Feelings Questionnaire, Parenting Sense of Competence Scale, Daily Hassles and the Parental Satisfaction Questionnaire. However, only the significant outcome measures were utilised in the economic analysis, which included improvement in the SDQ and Parental Satisfaction Questionnaire scores. At 6 months the intervention resulted in a difference of 0.79 points in the SDQ score ($p = 0.025$) in favour of usual care and a difference of 4.90 points in Parental Satisfaction Questionnaire scores ($p < 0.007$) in favour of the intervention. The mean cost per person over 6 months was £5,043 (SD £3,309) for the intervention and £3,378 (SD £5,285) for the standard care group, a difference of £1,652 (95% CI, -£1,709 to £4,268) in 2006/07 prices. Based on the above findings usual care was dominant when SDQ scores were used as an outcome in the economic analysis. When Parental Satisfaction Questionnaire was used as an outcome, the intervention resulted in an ICER of £337 per unit of improvement on the satisfaction with parenting scale.

Results suggest that the parental education, training and support programme is unlikely to be cost effective in terms of child mental health in the UK. However, outcomes for parents were improved in terms of increased satisfaction with parenting at long-term follow up. The analysis was judged by the GC to be partially applicable to this guideline review and the NICE reference case. The estimate of relative treatment effect was obtained from a single small RCT. The time frame of the analysis was just 6 months and may not be sufficiently long enough to reflect all important differences in costs and clinical outcomes. Moreover, QALYs were not used, which made it difficult to judge the cost effectiveness of the intervention. The study sample was very small and it is very likely that it was not powered to detect a difference costs. As a result this study was judged by the GC to have potentially serious methodological limitations.

11.2.3 Clinical evidence statements

11.2.3.1 Effects of video feedback versus usual care

- Very low quality evidence from 1 study (n=60) showed that 6 months of video feedback increases secure attachment in adopted pre-school aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=60) showed that 6 months of video feedback increases maternal sensitivity in adopted pre-school aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=60) showed that 6 months of video feedback decreases the likelihood of having disorganised attachment in adopted pre-school aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=60) showed that 6 months of video feedback improves parental behaviour in parents of adopted pre-school aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=60) showed that 6 months of video feedback improves the behaviour of adopted pre-school aged children, but there was some uncertainty.

11.2.3.2 Parental sensitivity and behaviour training

- Very low quality evidence from 1 study (n=60) showed that 6 months of parental sensitivity and behaviour training improves secure attachment in adopted pre-school aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=60) showed that 6 months of parental sensitivity and behaviour training has no effect on maternal sensitivity in the parents of adopted pre-school aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=60) showed that 6 months of parental sensitivity and behaviour training has no effect on disorganised attachment of adopted pre-school aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=60) showed that 6 months of parental sensitivity and behaviour training has no effect on parental behaviour in the parents of adopted pre-school aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=60) showed that 6 months of parental sensitivity and behaviour training has no effect on the internalising/externalising behaviour in adopted pre-school aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=58) showed that 10 weeks of parental sensitivity and behaviour training improved parental empathy compared with the control group in adopted primary school-aged children, but there was some uncertainty.
- Low quality evidence from 1 study (n=58) showed that 10 weeks of parental sensitivity and behaviour training decreased behavioural problems in adopted primary school-aged children compared with the control group, but there was some uncertainty.

11.2.3.3 Parental education, training and support

- Very low quality evidence from 1 study (n=37) showed that 2.5 months of parental education, training and support has no effect on attachment in adopted primary school-aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=37) showed that 2.5 months of parental education, training and support has no effect on internalising/externalising behaviour in adopted primary school-aged children, but there was some uncertainty.

- Very low quality evidence from 1 study (n=37) showed that 2.5 months of parental sensitivity and behaviour training decreases placement problems in adopted primary school-aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=37) showed that 2.5 months of parental education, training and support increases quality of parenting in adopted primary school-aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=37) showed that 2.5 months of parental education, training and support decreases internalising/externalising behaviour at 6 months of follow-up in adopted primary school-aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=37) showed that 2.5 months of parental education, training and support increases quality of parenting at 6 months of follow-up in adopted primary school-aged children, but there was some uncertainty.
- Very low quality evidence from 1 study (n=37) showed that 2.5 months of parental education, training and support decreases placement problems at 6 months of follow-up in adopted primary school-aged children, but there was some uncertainty.

11.2.4 Economic evidence statements

11.2.4.1 Parental education, training and support programme versus standard care

- One small study (N=37) showed that parental education, training and support programme was not a cost-effective intervention in terms of child mental health in the UK (it resulted in higher cost and worse SDQ scores). However, outcomes for parents were improved in terms of increased satisfaction with parenting at 6 month follow-up. The analysis is partially applicable to this guideline review and the NICE reference case; and is characterised by potentially serious methodological limitations.

11.3 Recommendations and link to evidence

See Chapter 10, Section 10.3, which presents the recommendations for interventions for promoting attachment in children and young people in care, which cover those adopted from care.

12 Pharmacological interventions

12.1 Introduction

Pharmacological interventions are not the mainstay of interventions for attachment difficulties. It is difficult to conceive of medication that would enhance a child's expression of their distress or alarm or which would increase the child's capacity to receive and accept comfort. Arguably, it will be more difficult for a caregiver to respond sensitively and benignly to a child with difficult temperament; medication might be used to calm an irritable or aroused child. However, for this to affect caregiving and, consequently, attachment patterns, medication would have to be administered early and continuously in a child's life.

There is medication that ameliorates some of the emotional and behavioural difficulties which are associated with attachment difficulties, such as ADHD or depression but there is no theoretical explanation why this should affect attachment.

Regarding caregiver sensitivity, this could in theory be enhanced by the administration of oxytocin. To date, there have been no studies showing any increase in attachment security in children.

12.2 Review question: what pharmacological interventions are effective in the treatment of children and young people with attachment difficulties? What are the adverse effects associated with each intervention?

The review protocol summary including the review question and the eligibility criteria used for this section of the guideline can be found in Table 264. A complete list of review questions can be found in Appendix F; further information about the search strategy can be found in Appendix H; the full review protocols can be found in Appendix F.

Table 264: Clinical review protocol

Component	Description
Review question(s)	What pharmacological interventions are effective in the treatment of children and young people with attachment difficulties? What are the adverse effects associated with each intervention?
Population	Infants, children and young people (aged 0–18 years) with insecure/disorganised attachment or attachment difficulties Carers of children with attachment difficulties. Strata • Pre-school (≤4 years), • primary school (>4 to 11 years) • secondary school (>11 to 18 years)
Intervention(s)	Pharmacological intervention • fluoxetine • paroxetine • methylphenidate, • melatonin, • oxytocin.

Component	Description
	Recipients may be: • child • carer • carer–child
Comparison	Placebo or 1 of the other drugs
Critical outcomes	• Disorganised attachment and/ or attachment difficulties • Maternal sensitivity • Maternal responsiveness
Study design	Systematic reviews RCTs

12.2.1 Clinical evidence

No RCTs met the eligibility criteria for this review. In addition, 34 studies were excluded from the review because of various reasons including: a pharmaceutical intervention was not provided or they did not measure any relevant outcomes. Further information about excluded studies can be found in Appendix F.

Seven RCTs provided indirect data because they either did not include children with attachment difficulties or they did not measure attachment-related outcomes. The GC requested this information be presented not to make recommendations but to generate discussion around the topic. All studies except 1 compared the effects of a single dose of oxytocin versus placebo on attachment related outcomes. The indirect populations included: first, healthy males who had children with secure attachment: Weisman 2012 (Weisman et al., 2012); Weisman 2013 (Weisman et al., 2013); Nabera 2010 (Nabera et al., 2010); second, healthy males who did not have children: Bartz 2010 (Bartz et al., 2010); De Dreu 2012 (De Dreu, 2012); third, adult males with attachment difficulties but without children Buccheim 2009 (Buchheim et al., 2009); and fourth, adults with borderline personality disorder for whom it was unclear if they had children: Bartz 2011 (Bartz et al., 2011). One RCT compared the effects of methylphenidate versus placebo on learning tasks in children who were institutionalised because of behavioural problems or in foster care: Conners 1964 (Conners et al., 1964).

Bartz 2010 showed in health adult males' oxytocin improves childhood memories of maternal care and closeness, but only in less anxiously attached individuals' not in highly anxious individuals. De Dreu 2012 found oxytocin improves feelings of secure attachment in healthy adult males and increases feeling at ease, trust and cooperation in individuals with higher attachment avoidance (fear dependency and closeness in interpersonal relations) but not in individuals with lower attachment avoidance. In insecure men without children Bucchein 2009 showed oxytocin increases feelings of secure attachment with other adults.

In healthy men with children, Weisman 2012 found a single dose of oxytocin increased the duration of skin to skin contact between the father and child, social reciprocity and increased the duration of social gazing in the infant towards their father. This study suggests that oxytocin given to the father may also increase the child's feelings of attachment. Another study on fathers showed that oxytocin is associated with increased responsiveness and reduced hostility in fathers towards their child (Naber 2010). However, no difference in sensitivity was detected.

All the papers discussed above, except Buccheim 2009, were in healthy adults. A study by Bartz 2011 was on adults with borderline personality disorder and they found oxytocin may

have a negative effect on trust and cooperation in adults with borderline personality disorder, but it may improve these outcomes in healthy individuals.

One study by Conners 1964 gave a pharmaceutical intervention to children who were awaiting foster care placement or in psychiatric institutions who were not psychotic but had emotional problems. They found giving methylphenidate to children for 10 days resulted in a small improvement on learning in children who were more disturbed.

Since the studies described above were considered indirect, a summary table was generated and was used as a point of discussion, rather than being meta-analysed and formally assessed for quality via GRADE. Summary findings can be found in Table 265 and Table 266 below.

See also the study selection flow chart in Appendix P, study evidence tables in Appendix L, and exclusion list in Appendix M.

Table 265: Summary of study characteristics for studies included in the review on what pharmacological interventions are effective in the treatment of children and young people with attachment difficulties? What are the adverse effects associated with each intervention

	Oxytocin versus placebo **Healthy males without children**	**Oxytocin versus placebo** **Insecure males without children**	**Oxytocin versus placebo** **Healthy fathers with infants**	**Oxytocin versus placebo.** **Borderline personality disorder**	**Methylphenidate versus placebo**
Total no. of studies (N)	2 RCTs (108)	1 RCTs (26)	2 RCTs (52)	1RCT (27)	1 RCT (81)
Study ID	**1)** Bartz 2010 **2)** DeDreu 2012	**1)** Buccheim 2009	1) Naber 2010 **2)** Weisman 2012	**1)** Bartz 2011	**1)** Conners 1964
Follow-up data			**1)** Weisman 2013		
Country	**1)** USA **2)** Netherlands	**1)** Austria	**1)** Netherlands **2)** Israel	**1)** USA	**1)** USA
Year of publication	**1)** 2010 **2)** 2011	**1)** 2009	**1)** 2010 **2)** 2012	**1)** 2011	**1)** 1964
Diagnosis	1) Mentally and physically healthy **2)** Healthy males	**1)** Insecure attachment	**1)** Healthy fathers **2)** Healthy fathers	**1)** DSM-IV Personality Disorders + healthy adults	**1)** Deprived or emotionally disturbed children awaiting foster placement or in a psychiatric institution with emotional problems (that is, aggressive behaviour or adjustment reactions of childhood. Not psychotic)
Children (yes, no)	**1)** Unclear **2)** Unclear	**1)** Unclear	**1)** Yes, 1.5 to 5 years **2)** Yes, 4-8 months	**1)** Unclear	**1)** No
Age (mean)	**1)** 19-45 years	**1)** 21-33 years	**1)** 31-45 years	**1)** 23-53 years	**1)** 7-15 years

	Oxytocin versus placebo **Healthy males without children**	**Oxytocin versus placebo** **Insecure males without children**	**Oxytocin versus placebo** **Healthy fathers with infants**	**Oxytocin versus placebo.** **Borderline personality disorder**	**Methylphenidate versus placebo**
	2) 20.81 years		**2)** 22-38 years		
Sex (% Female)	**1)** 100% Male **2)** 100% Male	**1)** 100% Male	**1)** 100% Male **2)** 100% Male	**1)** 40% Male	**1)** 63% Male
Initially randomised	**1)** 31 **2)** 77	**1)** 26	1) 17 **2)** 35	**1)** 27	**1)** 84
Treatment	**1)** 24 IU intranasal oxytocin **2)** 24 IU intranasal oxytocin	**1)** 24 IU intranasal oxytocin	**1)** 24 IU intranasal **2)** oxytocin **3)** 24 IU intranasal oxytocin	**1)** 40 IU intranasal oxytocin	**1)** Methylphenidate (methylphenidate, 20 to 60 mg/day)
Control arm	**1)** Placebo **2)** Placebo	**1)** Placebo	**1)** Placebo **2)** Placebo	**1)** Placebo	**1)** Placebo
Cross over	**1)** Yes 3-4 weeks apart **2)** No	**1)** Yes, 2-3 weeks apart	**1)** Yes, 1 week **2)** Yes, 1 week	**1)** No	**1)** No
Duration of treatment	**1)** Single dose **2)** Single dose	**1)** Single dose	**1)** Single dose **2)** Single dose	**1)** Single dose	**1)** 10 days
Long-term follow-up	**1)** No **2)** No	**1)** No.	**1)** No **2)** No.	**1)** No	**1)** No
Hypothesis/Aim	**1)** oxytocin would positively bias recollections of maternal care and closeness for less anxiously attached individuals because it should bring to mind their positive caregiving experiences. **2)** Oxytocin increases cooperation, trust and	**1)** that oxytocin might also promote the experience of secure attachment in humans.	**1)** oxytocin is expected to lead to increased paternal responsiveness to the child during play since oxytocin enhances sensitivity for the child's cues. **1)** OXT would enhance	1) OXT should facilitate trust and cooperation in both healthy control and BPD participants. And differences In attachment anxiety/avoidance moderate The effects of	**1)** The drug would be of greatest benefit to those most impaired on low IQ.

	Oxytocin versus placebo Healthy males without children	Oxytocin versus placebo Insecure males without children	Oxytocin versus placebo Healthy fathers with infants	Oxytocin versus placebo. Borderline personality disorder	Methylphenidate versus placebo
	lowers betrayal aversion and strengthens affiliation tendencies especially among those with high attachment avoidance.		the father's peripheral OT, RSA response, and father-typical social behaviour.	OXT on trust and pro-social behaviour	
Tool to measure attachment at baseline (anxiety, sensitivity or responsiveness)	**1)** Experience in Close Relationships scale (ECR) **2)** Adult Attachment Style (AAS; Collins 1996) baseline.	**1)** Adult Attachment Projective Picture System (AAP; George and West, 2001)	**1)** The Emotional Availability Scales (EAS; Biringen et al., 1998) assess paternal sensitivity. **2)** Interactions were videotaped using Flip Mino HD digital camcorder (Cisco, Irvine, California) for offline coding.	**1)** Experience in Close Relationship Scale (ECR, Brennan 1998) measured attachment anxiety and avoidance.	**1)** Not measured
Tools used to measure outcome.	1) Recollections of maternal care with the Parental Bonding Instrument (PBI) and Relationship Questionnaire (RQ) **2)** Incentivised social dilemma. Paired up with another participant	**1)** Adult Attachment Projective Picture System (AAP; George and West, 2001)	**1)** Interactions were videotaped using Flip Mino HD digital camcorder (Cisco, Irvine, California) for offline coding. **2)** The Emotional Availability Scales (EAS; Biringen et al., 1998) assess paternal sensitivity.	**1)** Assurance Game (AG, Kollack, 1998). Each player should only cooperate if he/she trusts that the other player will cooperate.	**1)** Learning task. Digit letter and oscillation

	Oxytocin versus placebo Healthy males without children	Oxytocin versus placebo Insecure males without children	Oxytocin versus placebo Healthy fathers with infants	Oxytocin versus placebo. Borderline personality disorder	Methylphenidate versus placebo
Result	**1)** OXT had no effect on maternal care ratings or maternal closeness. However, less anxiously attached individuals remembered being closer to their mother when they received OXT. **2)** OXT leads individuals to select secure attachment scenarios more. In individuals high in attachment avoidance, OXT was associated with reduced betrayal aversion, and increased feelings of trust, feeling at ease and cooperation.	**1)** 69% showed an increase in secure attachment (18/26). 31% showed a decrease in secure attachment (8/26).	**1)** OXT was associated with a higher responsiveness than in placebo ($p=0.01$). Fathers given OXT showed less hostility ($p<0.10$). No differences were detected for sensitivity (NS) **2)** OXT was associated with a longer duration of the father touching their child and showing social reciprocity. The infant showed longer durations of social gazing towards father and object manipulation ($p<0.05$).	**1)** OXT had no effect on cooperation or trust healthy individuals OXT decreased cooperation and trust in BPD individuals OXT reduced trust and cooperation in anxiously attached/rejection sensitive individuals OXT had no effect on trust and cooperation in less anxiously attached	**1)** No difference in learning was detected between methylphenidate and placebo treated groups. However, in more emotionally disturbed children (in institution) methylphenidate was associated with greater improvements in learning (digit symbol error) ($p<0.05$), but it had a non-significant effect in another learning task.
Conclusion	**1)** OXT may improve memories of maternal care and closeness in less anxiously attached individuals. **2)** OXT leads individual's to	**1)** OXT may increase the rankings of attachment security and decrease insecurity rankings..	**1)** OXT increased the time fathers spent stimulating their child's exploration and they tended to show less hostility.	**1)** OXT does not facilitate trust and pro-social behaviour OXT may reduce	**1)** Little support for methylphenidate to improve learning, only among the more disturbed children.

	Oxytocin versus placebo Healthy males without children	Oxytocin versus placebo Insecure males without children	Oxytocin versus placebo Healthy fathers with infants	Oxytocin versus placebo. Borderline personality disorder	Methylphenidate versus placebo
	select secure attachment scenarios more, and insecure attachment less, than placebo.		**2)** OXT enhances behaviours that underpin parent-infant bonding	trust and pro-social behaviour in anxiously attached/rejection sensitive individuals.	
Note. N = Total number of participants. 1 Table footnote. [delete if not needed]					

Table 266: Summary of results from studies that gave a single dose of oxytocin or placebo to healthy male adult populations (except for 1 that gave it to adults with BPD). Results from sub-group analysis on adults who were anxiously attached or insecure avoidant are also presented

	Memories of maternal care and closeness	Select secure scenarios	Cooperation	Trust	Betrayal aversion e.g. tried to minimise losses/worried being exploited	Responsiveness	Sensitivity	Reduced hostility	Skin-to-skin	Infant social gazing
Whole sample										
OXT	NS k=1 with another adult	√ k=2 with another adult/pictures	√ k=1 with another adult	NS k=1 with another adult	NS k=1 with another adult	√ k=1 With infant	NS k=1 with infant	√ k=1 with infant	√ k=1 with infant	√ k=1 with father
Subgroup analysis in different populations										
OXT positive effect	Less anxiously attached		High attachment avoidance	High attachment avoidance	High attachment avoidance					
OXT			Lower in	BPD						

	Memories of maternal care and closeness	Select secure scenarios	Cooperation	Trust	Betrayal aversion e.g. tried to minimise losses/worried being exploited	Responsiveness	Sensitivity	Reduced hostility	Skin-to-skin	Infant social gazing
negative effect			attachment avoidance BPD anxiously attached/rejection sensitive	anxiously attached/ rejection sensitive						
OXT no effect			Healthy adults less anxiously attached	Lower in attachment avoidance Healthy adults less anxiously attached	Lower in attachment avoidance					

Key
√ = significant result
K= number of studies
OXT = oxytocin
NS= non-significant main effect
BPD= borderline personality disorder

12.2.2 Economic evidence

No economic evidence on pharmacological interventions for the treatment of children and young people with attachment difficulties was identified by the systematic search of the economic literature undertaken for this guideline. Details on the methods used for the systematic search of the economic literature are described in Chapter 3.

12.2.3 Clinical evidence statements

Quality of the evidence was not assessed using GRADE software since it was all derived from indirect studies. The evidence was only used as a source of discussion.

12.2.3.1 Oxytocin versus placebo: Healthy adult males without children

One RCT (n=31) showed in healthy adult males a single dose of oxytocin (24 IU) had no effect on their memories of maternal care or maternal closeness compared with placebo. However, less anxiously attached individuals remembered their mother being more caring and being closer to their mother when they received OXT compared with placebo.

One RCT (n=77) showed in healthy males without children that a single dose of oxytocin (24 IU) leads individuals to select more secure attachment scenarios during an incentivised activity based around a social dilemma with a stranger than insecure scenarios compared with placebo. In individuals high in attachment avoidance, OXT was associated with reduced betrayal aversion, and increased feelings of trust, feeling at ease and cooperation.

12.2.3.2 Oxytocin versus placebo: Insecure males without children

One randomised controlled trial (N=26) showed in insecure males without children that a single dose of oxytocin (24 IU) was associated with a greater selection of secure attachment phrases during a picture system activity compared with placebo and a decrease in insecure attachment phrases.

12.2.3.3 Oxytocin versus placebo: Healthy males with children

One RCT (n=17) showed during a 15 minute play session with healthy fathers and their infants that a single dose of oxytocin (24 IU) is associated with an increase in responsiveness and reduced hostility compared with placebo, but there was no effect on sensitivity.

One RCT (n=35) showed during a filmed play sessions with healthy fathers and their infants that a single dose of oxytocin (24 IU) is associated with an increased duration of skin-to-skin contact and social reciprocity compared with placebo. Oxytocin was also associated with an increase in social gazing from the infant towards their father and exploratory play.

12.2.3.4 Oxytocin versus placebo: males with borderline personality disorder versus males without a mental health problem

One RCT showed in males with BPD (n=14) that a single dose of oxytocin (24 IU) had a negative effect since it decreased cooperation and trust compared with placebo, but it had no effect in healthy males (n=13). Subgroup analysis showed oxytocin reduced trust and cooperation in anxiously attached/rejection sensitive individuals but had no effect in less anxiously attached individuals.

12.2.315 Methylphenidate versus placebo – emotionally disturbed children in psychiatric 2 institution, awaiting foster care

3 One RCT (n=84) showed in children aged 6-15 years that 10 days of methylphenidate (20 to
4 60 mg/day) had no effect on learning tasks (digit-symbol or oscillations) compared with
5 placebo. However, in more emotionally disturbed children (in an institution) methylphenidate
6 was associated with greater improvements in a learning task (digit symbol) compared with
7 placebo. However this finding was only found in 1 of the 2 learning tasks.

12.2.84 Economic evidence statements

9 There is no economic evidence on pharmacological interventions for the treatment of
10 attachment difficulties in children and young people.

12.3 Recommendations and link to evidence

Recommendations	**57.** Do not treat attachment difficulties with pharmacological interventions. For the use of pharmacological interventions for coexisting mental health problems, see for example, antisocial behaviour and conduct disorders in children and young people, attention deficit hyperactivity disorder, depression in children and young people and alcohol-use disorders.
Relative values of different outcomes	The GC discussed the importance and relevance of various outcomes for assessing the effects of a pharmacological intervention on children with attachment difficulties. For this population secure attachment and attachment difficulties – insecure and disorganised – are of greatest concern. The GC agreed that in terms of decision making disorganised attachment is the most important outcome since it best reflects the poor long-term outcomes of children. The GC felt that disorganised and insecure attachment best reflect the quality of care children receive; more so than reactive attachment disorder (RAD). Nevertheless, RAD was included as a critical outcome. RAD can be categorised as either inhibited or disinhibited and may be resolved in children if they are placed into a secure environment. RAD is a controversial outcome since it medicalises the child with a condition rather than suggesting their behaviour is a result of their environment and can be prevented. The diagnostic criteria outlined in the DSM-IV and ICD-10 fail to describe the full range of observed behavioural difficulties. The definition also suggests children experience attachment difficulty across all relationships; this is not necessarily the case since some children may have attachment difficulties with their primary caregiver but not with other adults or peers. It is also unclear if attachment disorder is a clinical problem requiring treatment. The definition does not extend beyond the age of 5, thus it is unclear whether the disorder may continue in older children or adulthood. The GC felt that maternal sensitivity and maternal responsiveness are causally related to attachment and should be considered as critical outcomes. It is acknowledged they are not as useful as attachment but should still be included. Systematic reviews have shown a strong association between attachment and sensitivity and that it can be measured using validated scales such as the Ainsworth Sensitivity Scale.

	Number of placements was also considered a critical outcome since the GC agreed that children placed in care are likely to have attachment difficulties. Placement instability is also a major risk factor for attachment difficulties and can be an indicator that the caregiver system is breaking down. Other outcomes of concern for children but are of lesser importance to attachment but clearly important outcomes for family coherence are the child's emotional/behavioural functioning, parental attitude/knowledge/behaviour, parent stress and well-being and the child's well-being/quality of life. Criminal outcomes and developmental status were also considered important outcomes. They are clearly undesirable and would impact on quality of life.
Trade-off between clinical benefits and harms	The recommendation was the result of finding no evidence to support the use of a pharmacological intervention in children. Some indirect evidence was found that showed varying effects of a single dose of oxytocin compared with placebo in adult males. Although the GC did not wish to make a recommendation on the results on providing oxytocin to parents, they asked for the data to be presented in in order to generate a discussion around the topic. These results showed no significant effects of a single dose of oxytocin in adult males on memories of maternal care or closeness, trust with another adult or betrayal aversion with another adult (for example, minimise losses or avoid being exploited). However, positive effects of oxytocin were detected on cooperation with another adult, skin-to-skin contact with infant and it reduced hostility of the father towards their own infant. Interestingly it appeared to increase the amount of social gazing from the infant towards their fathers. Some harms were detected when sub-group analysis was performed. Oxytocin was shown to decrease cooperation and trust in males with BPD and anxiously attached males. It was also shown to decrease cooperation in insecure-avoidant adult males. One study found 10 days of methylphenidate treatment given to children had no effect on the performance of learning tasks when compared with placebo. Some evidence, however, was found in a sub-group analysis that showed the more disturbed children showed greater learning given methylphenidate compared with those who were less disturbed. However this finding was only found for 1 of the 2 learning tasks.
Trade-off between net health benefits and resource use	No economic evidence on pharmacological interventions for the treatment of attachment difficulties in children and young people is available. Given the lack of clinical evidence on efficacy the GC judged that pharmacological treatment is not likely to be cost effective in the management of attachment difficulties in children and young people.
Quality of evidence	No studies were identified that provided a pharmacological intervention to children with attachment difficulties. Nor were any studies identified that measured any of the critical or important outcomes in children. All of the studies found were on indirect populations. For this reason the quality of the evidence was not formally assessed, rather a narrative was presented to the GC. Seven of the studies were on adult males, some of whom had children and some had BPD. The studies only provided 1 single dose of oxytocin and not all were cross-over study

	designs were each participant received the drug and placebo on different occasions. The sample sizes were also considerably small, ranging from 17 to 77 participants. The 1 study on children included institutionalised children with emotional and behavioural difficulties and provided 10 days of methylphenidate treatment. The study was a reasonable size, n=84, but attachment difficulties were not measured in these children. The findings were generally not significant and the only time they found a benefit from treatment on the performance of a learning task it was not detected in another.
Other considerations	The GC agreed that pharmacological interventions for children with attachment difficulties and coexisting conditions (for example, conduct disorder, ADHD, depression and alcohol misuse) should refer to the relevant NICE guidelines. For some other mental health problems pharmacological intervention for children may be considered effective. To date, however, there is no evidence to suggest pharmacological interventions should be given to children with attachment difficulties alone. The GC agreed that more evidence is needed before pharmacological interventions can be recommended for children with attachment difficulties. However, the GC did not feel it was a research priority.

1

13 References

Abram K, Teplin L, Charles D, Longworth S, McClelland G, Dulcan M. Posttraumatic stress disorder and trauma in youth in juvenile detention. Archives of General Psychiatry. 2004;61:403-10.

AGREE Collaboration. Development and validation of an international appraisal instrument for assessing the quality of clinical practice guidelines: the AGREE project. Quality and Safety in Health Care. 2003;12:18-23.

Ainsworth M, Wittig B. Attachment and exploratory behavior of one-year-olds in a strange situation. In: Foss B, ed. Determinants of Infant Behavior. London: Methuen; 1969a. p. 113-36.

Ainsworth MD, Blehar MC, Waters E, Wall S. Patterns of attachment: A psychological study of the strange situation. 1978;391.

Ainsworth MDS, Wittig BA. Attachment and exploratory behavior of one-year-olds in a strange situation. In: B.M.Foss, ed. Determinants of infant behavior. London: Methuen; 1969b. p. 113-36.

Akai CE, Guttentag CL, Baggett KM, Noria CC. Enhancing parenting practices of at-risk mothers. The Journal of Primary Prevention. 2008;29:223-42.

Akin BA. Predictors of foster care exits to permancy: A competing risks analysis of reunificaiton, guardianship, and adoption. Children and Youth Services Review. 2011;13:990-1011.

Allen J, Hauser S, Borman-Spurrell E. Attachment theory as a framework for understanding sequelae of severe adolescent psychopathology: an 11-year follow-up study. Journal of Consulting & Clinical Psychology. 1996;64:254-63.

Almas AN, Degnan KA, Radulescu A, Nelson CA, Zeanah CH, Fox NA. Effects of early intervention and the moderating effects of brain activity on institutionalized children's social skills at age 8. Proceedings of the National Academy of Sciences of the United States of America. 2012;109 Suppl 2:17228-31.

Altenhofen S, Clyman R, Little C, Baker M, Biringen Z. Attachment security in three-year-olds who entered substitute care in infancy. Infant Mental Health Journal. 2013;34:435-45.

American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-5). 5 edn. Washington, DC: American Psychiatric Association; 2013.

Ammaniti M, Speranza AM, Tambelli R, Muscetta S, Lucarelli L, Vismara L, et al. A prevention and promotion intervention program in the field of mother-infant relationship. Infant Mental Health Journal. 2006;27:70-90.

Armstrong KL, Fraser JA, Dadds MR, Morris J. A randomized, controlled trial of nurse home visiting to vulnerable families with newborns. Journal of Paediatrics and Child Health. 1999;35:237-44.

Atkinson L, Paglia A, Coolbear J, Niccols A, Parker KCH, Guger S. Attachment security: A meta-analysis of maternal mental health correlates. Clinical Psychology Review. 2000;20:1019-40.

Bailey HN, Moran G, Pederson DR, Bento S. Understanding the transmission of attachment using variable- and relationship-centered approaches. Development and Psychopathology. 2007;19:313-43.

Bakermans- Kranenburg M, Van Ijzendoorn M. integrating temperament and attachment: the differential susceptibility paradigm. In: Zenter M, Shiner RL, eds. Handbook of Temperament. New York: The Guilford Press; 2012. p. 403-24.

Bakermans-Kranenburg MJ, Dobrova-Krol N, Van IM. Impact of institutional care on attachment disorganisation and insecurity ofUkranian preschoolers: Protective effect on the long varient of the serotonin transporter gene (5HTT). International Journal of Behavioral Development. 2012;36:11-18.

Bakermans-Kranenburg MJ, Juffer F, van Ijzendoorn MH. Interventions with video feedback and attachment discussions: Does type of maternal insecurity make a difference? Infant Mental Health Journal. 1998;19:202-19.

Bakermans-Kranenburg MJ, Van Ijzendoorn MH, Bokhorst CL, Schuengel C. The importance of shared environment in infant-father attachment: A behavioral genetic study of the attachment Q-Sort. Journal of Family Psychology. 2004;18:545-49.

Bakermans-Kranenburg MJ, van Ijzendoorn MH, Juffer F. Less is more: meta-analyses of sensitivity and attachment interventions in early childhood. Psychological Bulletin. 2003;129:195-215.

Bar-Haim Y, Sutton D, Fox N, Marvin R. Stability and change of attachment at 14, 24, and 58 months of age: behavior, representation, and life events. Journal of Child Psychology and Psychiatry. 2000;41:381-8.

Barlow A, Mullany B, Neault N, Compton S, Carter A, Hastings R, et al. Effect of a paraprofessional home-visiting intervention on American Indian teen mothers? and infants? behavioral risks: a randomized controlled trial. The American Journal of Psychiatry. 2013;170:83-93.

Barlow J, Davis H, McIntosh E, Jarrett P, Mockford C, Stewart-Brown S. Role of home visiting in improving parenting and health in families at risk of abuse and neglect: results of a multicentre randomised controlled trial and economic evaluation. Archives of Disease in Childhood. 2007a;92:229-33.

Barlow J, Davis H, McIntosh E, Jarrett P, Mockford C, Stewart-Brown S. Role of home visiting in improving parenting and health in families at risk of abuse and neglect: results of a multicentre randomised controlled trial and economic evaluation. Archives of Disease in Childhood. 2007b;92:229-33.

Barnett B, Blignault I, Holmes S, Payne A, Parker G. Quality of attachment in a sample of 1-year-old Australian children. Journal of the American Academy of Child and Adolescent Psychiatry. 1987;26:303-7.

Barry RA, Kochanska G, Philibert RA. G x E interaction in the organization of attachment: mothers' responsiveness as a moderator of children's genotypes. Journal of child psychology and psychiatry, and allied disciplines. 2008;49:1313-20.

Barth RP, Weigensberg EC, Fisher AP, Fetrow B, Green RL. Reentry of elementary aged children following reunification from foster care. Children and Youth Services Review. 2008;30:353-64.

Barton S, Gonzalez R, Tomlinson P. Therapeutic Residential Care for Children and Young People: An Attachment and Trauma-Informed Model for Practice. London: JKP Books; 2011.

Bartz JA, Zaki J, Ochsner K, Bolger N, Kolevzon A, Ludwig N, et al. Effects of oxytocin on recollections of maternal care and closeness. Biological Psychiatry. 2011;1):86S-87S.

Bartz JA, Zaki J, Ochsner KN, Bolger N, Kolevzon A, Ludwig N, et al. Effects of oxytocin on recollections of maternal care and closeness. Proceedings of the National Academy of Sciences of the United States of America. 2010;107:21371-75.

Becker MA, Jordan N, Larsen R. Predictors of successful permanency planning and length of stay in foster care: The role of race, diagnosis and place of residence. Children and Youth Services Review. 2007;29:1102-13.

Behrens KY, Hart SL, Parker AC. Maternal sensitivity: Evidence of stability across time, contexts, and measurement instruments. Infant and Child Development. 2012;21:348-55.

Behrens KY, Parker AC, Haltigan JD. Maternal sensitivity assessed during the strange situation procedure predicts child's attachment quality and reunion behaviors. Infant Behav Dev. 2011;34:378-81.

Beijersbergen MD, Juffer F, Bakermans-Kranenburg MJ, van IMH. Remaining or becoming secure: parental sensitive support predicts attachment continuity from infancy to adolescence in a longitudinal adoption study. Developmental Psychology. 2012;48:1277-82.

Belsky J, Fearon RMP. Precursors of attachment security. Handbook of attachment: Theory, research, and clinical applications. 2nd edn. New York, NY: Guilford Press; US; 2008. p. 295-316.

Bergin C, Bergin D. Attachment in the classroom. Educational Psychology Review. 2009;21:141-70.

Berlin J. Does blinding of readers affect the results of meta-analyses? The Lancet. 2001;350:185−86.

Bernard K, Dozier M, Bick J, Lewis-Morrarty E, Lindhiem O, Carlson E. Enhancing attachment organization among maltreated children: results of a randomized clinical trial. Child Development. 2012;83:623-36.

Bick J, Dozier M. The Effectiveness of an Attachment-Based Intervention in Promoting Foster Mothers' Sensitivity toward Foster Infants. Infant Ment Health J. 2013;34:95-103.

Biehal N, Ellison S, Baker C, Sinclair I. Belonging and Permanence: Outcomes in Long-term Foster Care and Adoption. : British Association for Adoption and Fostering; 2010.

Black MM, Nair P, Kight C, Wachtel R, Roby P, Schuler M. Parenting and early development among children of drug-abusing women: effects of home intervention. Pediatrics. 1994;94:440-8.

Bokhorst CL, Bakermans-Kranenburg MJ, Fearon RMP, van IMH, Fonagy P, Schuengel C. The importance of shared environment in mother-infant attachment security: a behavioral genetic study. Child Development. 2003a;74:1769-82.

Bokhorst CL, Bakermans-Kranenburg MJ, Fearon RMP, Van IMH, Fonagy P, Schuengel C. The Importance of Shared Environment in Mother-Infant Attachment Security: A Behavioral Genetic Study. Child Development. 2003b;74:1769-82.

Booth CL, Mitchell SK, Barnard KW, Spieker SJ. Development of maternal social skills in multi-problem families: effects on the mother-child relationship. Devlopmental Psychology. 1989;25:403-12.

Boris NW, Hinshaw-Fuselier SS, Smyke AT, Scheeringa MS, Heller SS, Zeanah CH. Comparing criteria for attachment disorders: establishing reliability and validity in high-risk samples. J Am Acad Child Adolesc Psychiatry. 2004;43:568-77.

Bosquet Enlow M, Egeland B, Carlson E, Blood E, Wright RJ. Mother-infant attachment and the intergenerational transmission of posttraumatic stress disorder. Development & Psychopathology. 2014;26:41-65.

Bowlby J. Attachment and Loss, Volume 2: Separation: Anxiety and Anger. London: Hogarth Press and Institute of Psycho-Analysis; 1973.

Brazier J. Measuring and valuing health benefits for economic evaluation: Oxford University Press; 2007.

Brecht CJ, Shaw RJ, St. John NH, Horwitz SM. Effectiveness of therapeutic and behavioral interventions for parents of low-birth-weight premature infants: A review. Infant Mental Health Journal. 2012;33:651-65.

Bretherton I, Ridgeway D, Cassidy J. Assessing Internal Working Models of the Attachment Relationship: An Attachment Story Completion Task for 3-Year-Olds. In: Greenberg M, Cicchetti D, Cummings EM, eds. Attachment during the Preschool Years. Chicago: University of Chicago Press; 1990. p. 272-308.

Briggs A, Sculpher M, Claxton K. Decision Modelling for Health Economic Evaluation. New York2006.

Briskman J, Castle J, Blakeby K, Bengo C, Slack K, Stebbens C, et al. Randomised controlled trail of the fostering changes programme: King's College of London, Research NAfP 2014.

Britt GC, Myers BJ. Testing the effectiveness of BNAS intervention with a substance-using population. Infant Mental Health Journal. 1994;15:293-304.

Brooks D, James S, Barth RP. Preferred characteristics of children in need of adoption: is there a demand for available foster children? Social Service Review. 2002;76:575-602.

Brooks R. EuroQol: the current state of play. Health Policy. 1996;37:53-72.

Brown GL, Schoppe-Sullivan SJ, Mangelsdorf SC, Neff C. Observed and reported supportive coparenting as predictors of infant-mother and infant-father attachment security. Early Child Development and Care. 2010;180:121-37.

Brown R, Ward H. Cumulative jeopardy: How professional responses to evidence of abuse and neglect further jeopardise children's life chances by being out of kilter with timeframes for early childhood development. Children and Youth Services Review. 2014;47, Part 3:260-67.

Brown R, Ward H. Cumulative jeopardy: how professional responses to evidence of abuse and neglect further jeopardise children’s life chances by being out of kilter with timeframes for early childhood development. Children and Youth Services Review. in press.

Brownell MD, Chartier M, Santos R, Au W, Roos NP, Girard D. Evaluation of a newborn screen for predicting out-of-home placement. Child Maltreatment. 2011;16:239-49.

Buchheim A, Heinrichs M, George C, Pokorny D, Koops E, Henningsen P, et al. Oxytocin enhances the experience of attachment security. Psychoneuroendocrinology. 2009;34:1417-22.

Caldera D, Burrell L, Rodriguez K, Crowne SS, Rohde C, Duggan A. Impact of a Statewide Home Visiting Program on Parenting and on Child Health and Development. Child Abuse & Neglect: The International Journal. 2007;31:829-52.

Campbell SB, Brownell CA, Hungerford A, Spieker SI, Mohan R, Blessing JS. The course of maternal depressive symptoms and maternal sensitivity as predictors of attachment security at 36 months. Development and Psychopathology. 2004;16:231-52.

Candelaria M, Teti DM, Black MM. Multi-risk infants: predicting attachment security from sociodemographic, psychosocial, and health risk among African-American preterm infants. Journal of child psychology and psychiatry, and allied disciplines. 2011;52:870-77.

Carlson EA. A prospective longitudinal study of attachment disorganization/disorientation. Child Development. 1998;69:1107-28.

Carlson V, Cicchetti D, Barnett D, Braunwald K. Disorganized/disoriented attachment relationships in maltreated infant. Developmental Psychology. 1989a;25:525.

Carlson V, Cicchetti D, Barnett D, Braunwald K. Disorganized/disoriented attachment relationships in maltreated infants. Developmental Psychology. 1989b;25:525-31.

Carnes-Holt K, Bratton SC. The efficacy of child parent relationship therapy for adopted children with attachment disruptions. Journal of Counseling & Development. 2014;92:328-37.

Casanueva C, Dozier M, Tueller S, Dolan M, Smith K, Webb MB, et al. Caregiver instability and early life changes among infants reported to the child welfare system. Child abuse & neglect. 2014;38:498-509.

Caspers KM, Paradiso S, Yucuis R, Troutman B, Arndt S, Philibert R. Association Between the Serotonin Transporter Promoter Polymorphism (5-HTTLPR) and Adult Unresolved Attachment. Developmental Psychology. 2009;45:64-76.

Cassidy J, Marvin RS. A system for coding the organisation of attahcment behaviour in 3- and 4 year old children. . Washington DC: University of Virginia; 1988.

Chaffin M, Silovsky JF, Funderburk B, Valle LA, Brestan EV, Balachova T, et al. Parent-Child Interaction Therapy with Physically Abusive Parents: Efficacy for Reducing Future Abuse Reports. Journal of Consulting and Clinical Psychology. 2004;72:500-10.

Chamberlain P, Price JB, Reid JB, Landsverk J, Fisher PA, Stoolmiller M. Who disrupts from placement in foster and kinship care? Child Abuse and Neglect. 2006;30:409-24.

Cheng TC. Factors associated with reunification: A longitudinal analysis of long-term foster care. Children and Youth Services Review. 2010;32:1311-16.

Chitsabesan P, Bailey S. Mental health, educational and social needs of young offenders in custody and in the community. Current Opinion in Psychiatry. 2006;19:355–60.

Chitsabesan P, Kroll L, Bailey S, Kenning C, Sneider S, MacDonald W, et al. Mental health needs of young offenders in custody and in the community. British Journal of Psychiatry. 2006;188:534-40.

Cicchetti D, Rogosch FA, Toth SL. Fostering secure attachment in infants in maltreating families through preventive interventions. Development and Psychopathology. 2006;18:623-49.

Cicchetti D, Rogosch FA, Toth SL. The effects of child maltreatment and polymorphisms of the serotonin transporter and dopamine D4 receptor genes on infant attachment and intervention efficacy. Development and Psychopathology. 2011;23:357-72.

Cicchetti D, Toth SL, Rogosch FA. The efficacy of toddler-parent psychotherapy to increase attachment security in offspring of depressed mothers. Attachment & human development. 1999;1:34-66.

Cicchetti D, Valentino K. An Ecological Transactional Perspective on Child Maltreatment: Failure of the Average Expectable Environment and Its Influence Upon Child Development. In: Cicchetti D CD, editors, ed. Developmental Psychopathology 2nd ed Vol 3: Risk, Disorder, and Adaptation New York
Wiley; 2006. p. 129-201.

Cochrane Collaboration. Review Manager (RevMan) [Computer programme]. Version 5.1. Copenhagen: The Nordic Cochrane Centre, The Cochrane Collaboration; 2011.

Cohen JA, Deblinger E, Mannarino AP, Steer RA. A multisite, randomized controlled trial for children with sexual abuse-related PTSD symptoms. J Am Acad Child Adolesc Psychiatry. 2004;43:393-402.

Cohen NJ, Farnia F. Children adopted from China: Attachment security two years later. Children and Youth Services Review. 2011;33:2342-46.

Cole SA. Foster Caregiver Motivation and Infant Attachment: How do Reasons for Fostering Affect Relationships? Child & Adolescent Social Work Journal. 2005a;22:441-57.

Cole SA. Infants in foster care: Relational and environmental factors affecting attachment. Journal of Reproductive and Infant Psychology. 2005b;23:43-61.

Connell CM, Katz KH, Saunders L, Tebes JK. Leaving foster care - the influence of child and case characteristics on foster care exit rates. Children and Youth Services Review. 2006;28:780-98.

Connell CM, Katz KH, Saunders L, Tebes JK. Leaving foster care--The influence of child and case characteristics on foster care exit rates. Children and Youth Services Review. 2006b;28:780-98.

Conners C, Eisenberg L, Sharpe L. Effects of methylphenidate (ritalin) on paired-associate learning and porteus maze performance in emotionally disturbed children. Journal of Consulting Psychology. 1964;28:14-22.

Constantinou M, Binka-Kowalska A, Borkowska E, Zajac E, Jalmuzna P, Matych J, et al. Application of multiplex FISH, CGH and MSSCP techniques for cytogenetic and molecular analysis of transitional cell carcinoma (TCC) cells in voided urine specimens. J Appl Genet. 2006;47:273-5.

Cooper PJ, Tomlinson M, Swartz L, Landman M, Molteno C, Stein A, et al. Improving quality of mother-infant relationship and infant attachment in socioeconomically deprived community in South Africa: Randomised controlled trial. BMJ (Online). 2009;338:997.

Courtney ME. Reentry to foster care of children retuned to their families. Social Service Review. 1995;69:226-41.

Courtney ME, Barth RP. Pathways of older adolescents out of foster care: implications for independent living services. Social Work. 1996;41:75-83.

Courtney ME, Wong Y-LI. Comparing the timing of exits from substitute care. Children and Youth Services Review. 1996b;18:307-34.

Crittenden P, Kozlowska K, Landini A. Assessing attachment in school-age children. Clinical Child Psychology and Psychiatry. 2010;15:185-208.

Crittenden PM. Relationships at risk. In: Belsky J, Nezworski T, eds. Clinical implications of attachment. New Jersey: Lawrence Erlbaum Associatiates; 1988. p. 136-73.

Crittenden PM. Quality of attachment in the preschool years. Development & Psychopathology. 1992;4:209- 41.

Crittenden PM, Claussen AH, Kozlowska K. Choosing a valid assessment for attachment for a clinical use: A comparative study. ANZJFT Australian and New Zealand Journal of Family Therapy. 2007;28:78-87.

Cummings E, George MR, Koss KJ, Davies PT. Parental depressive symptoms and adolescent adjustment: Responses to children's distress and representations of attachment as explanatory mechanisms. Parenting: Science and Practice. 2013;13:213-32.

Curtis L. Unit costs of Health and Social Care 2014. Canterbury 2014.

Cyr C, Euser E, Bakermans-Kranenburg M, van IJzendoorn M. Attachment security and disorganization in maltreating and high-risk families: a series of meta-analyses. Development and Psychopathology. 2010a;22:27-108.

Cyr C, Euser EM, Bakermans-Kranenburg MJ, Van Ijzendoorn MH. Attachment security and disorganization in maltreating and high-risk families: a series of meta-analyses. Development and Psychopathology. 2010b;22:87-108.

Cyr C, Euser EM, Bakermans-Kranenburg MJ, Van Ijzendoorn MH. Attachment security and disorganization in maltreating and high-risk families: a series of meta-analyses. Dev Psychopathol. 2010c;22:87-108.

Dance C, Rushton A. Predictors of outcome for unrelated adoptive placements made during middle childhood. Child & Family Social Work. 2005;10:269-80.

Dance C, Rushton A, Quinton D. Emotional abuse in early childhood: Relationships with progress in subsequent family placement. Journal of Child Psychology and Psychiatry and Allied Disciplines. 2002;43:395-407.

Dance C, Rusthon A, Quinton D. Emotional abuse in early childhood: relationships with progress in subsequent family placement. Journal of Child Psychology and Psychiatry. 2007;43:395-407.

Davis IP, Landsverk J, Newton R, Ganger W. Parental visiting and foster care reunification. Children and Youth Services Review. 1996;18:363-82.

De Dreu CK. Oxytocin modulates the link between adult attachment and cooperation through reduced betrayal aversion. Psychoneuroendocrinology. 2012;37:871-80.

De Schipper JC, Oosterman M, Schuengel C. Temperament, disordered attachment, and parental sensitivity in foster care: differential findings on attachment security for shy children. Attachment & human development. 2012;14:349-65.

De Wolff M, van Ijzendoorn MH. Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. Child Development. 1997a;68:571-91.

De Wolff MS, van Ijzendoorn MH. Sensitivity and attachment: a meta-analysis on parental antecedents of infant attachment. Child Development. 1997b;68:571-91.

Deblinger E, Mannarino AP, Cohen JA, Steer RA. A follow-up study of a multisite, randomized, controlled trial for children with sexual abuse-related PTSD symptoms. J Am Acad Child Adolesc Psychiatry. 2006;45:1474-84.

Denby R, Rindfleisch N, Bean G. Predictors of foster parents' satisfaction and intent to continue to foster. Child Abuse & Neglect. 1999;23:287-303.

Department for Education and Skills. Children in need in England: results of a survey of activity and expenditure as reported by Local Authority Social Services' Children and Families Teams for a survey week in February 2005. Issue No. vweb-02 - 2006. London: Department for Education and Skills; 2005.

Department of Health. National Service Framework for Mental Health: Modern Standards and Service Models. London: Department of Health; 1999.

Depatment for Education. Statistics: National statistics: Outcomes for children looked after by local authorities. SFR50/2013. London: Department for Education; 2013.

Dolan P. Modeling valuations for EuroQol health states. Med Care. 1997;35:1095-108.

Dozier M, Lindhiem O, Lewis E, Bick J, Bernard K, Peloso E. Effects of a foster parent training program on young children's attachment behaviors: Preliminary evidence from a randomized clinical trial. Child & Adolescent Social Work Journal. 2009;26:321-32.

Drury SS, Gleason MM, Theall KP, Smyke AT, Nelson CA, Fox NA, et al. Genetic sensitivity to the caregiving context: The influence of 5httlpr and BDNF val66met on indiscriminate social behavior. Physiology and Behavior. 2012;106:728-35.

Duggan A, Fuddy L, Burrell L, Higman SM, McFarlane E, Windham A, et al. Randomized trial of a statewide home visiting program to prevent child abuse: impact in reducing parental risk factors. Child Abuse & Neglect. 2004;28:623-43.

Eccles M, Freemantle N, Mason J. North of England evidence based guideline development project: methods of developing guidelines for efficient drug use in primary care. Bmj. 1998;316:1232−35.

Equit M, Paulus F, Fuhrmann P, Niemczyk J, von Gontard A. Comparison of ICD-10 and DC: 0-3R diagnoses in infants, toddlers and preschoolers. Child Psychiatry Hum Dev. 2011;42:623-33.

Fagot BI, Pears KC. Changes in attachment during the third year: Consequences and predictions. Development and Psychopathology. 1996;8:325-44.

Farmer E, Lipscombe J, Moyers S. Foster Carer Strain and its Impact on Parenting and Placement Outcomes for Adolescents. British Journal of Social Work. 2005;35:237-53.

Fearon P, Shmueli-Goetz Y, Viding E, Fonagy P, Plomin R. Genetic and environmental influences on adolescent attachment. Journal of Child Psychology and Psychiatry. 2014;55:1033-41.

Fearon RP, Bakermans-Kranenburg MJ, van IMH, Lapsley AM, Roisman GI. The significance of insecure attachment and disorganization in the development of children's externalizing behavior: A meta-analytic study. Child Development. 2010;81:435-56.

Fearson R, Bakermans-Kranenburg M, van Ijendoorn M, Lapsley A, Roisman G. The significance of insecure attachment and disorganization in the development of children's externalizing behavior: a meta-analytic study. Child Development. 2010;8:435-56.

Feeny D, Furlong W, Torrance GW, Goldsmith CH, Zhu Z, DePauw S, et al. Multiattribute and single-attribute utility functions for the health utilities index mark 3 system. Med Care. 2002;40:113-28.

Fergusson DM, Grant H, Horwood LJ, Ridder EM. Randomized trial of the Early Start program of home visitation. Pediatrics. 2005;116:e803-9.

Fernandez E, Lee J-S. Accomplishing family reunification for children in care: An Australian study. Children and Youth Services Review. 2013;35:1374-84.

Finkel D, Wille DE, Matheny AP, Jr. Preliminary results from a twin study of infant--caregiver attachment. Behav Genet. 1998;28:1-8.

Fisher PA, Burraston B, Pears K. The early intervention foster care program: permanent placement outcomes from a randomized trial. Child Maltreatment. 2005;10:61-71.

Fisher PA, Kim HK. Intervention effects on foster preschoolers' attachment-related behaviors from a randomized trial. Prevention science : the official journal of the Society for Prevention Research. 2007;8:161-70.

Fonagy P, Gergely G, Jurist E, Target M. Affect Regulation, Mentalization, and the Development of the Self. Other Press: New York, NY; 2002.

Fonagy P, Steele M, Steele H, Leigh T, Kennedy R, Mattoon G, et al. The predictive validity of Mary Main's Adult Attachment Interview: a psychoanalytic and developmental perspective on the transgenerational transmission of attachment and borderline states. In: Goldberg S, Muir R, Kerr J, eds. Attachment Theory: Social, Developmental and Clinical Perspectives. Hillsdale, NJ: The Analytic Press; 1995. p. 233-78.

Frame L. Maltreatment reports and placement outcomes for infants and toddlers in out-of-home care. Infant Mental Health Journal. 2002;23:517-40.

Frigerio A, Ceppi E, Rusconi M, Giorda R, Raggi ME, Fearon P. The role played by the interaction between genetic factors and attachment in the stress response in infancy. Journal of Child Psychology and Psychiatry and Allied Disciplines. 2009;50:1513-22.

Frosch CA, Mangelsdorf SC, McHale JL. Marital behavior and the security of preschooler-parent attachment relationships. Journal of family psychology : JFP : journal of the Division of Family Psychology of the American Psychological Association (Division 43). 2000;14:144-61.

Fuertes M, Lopes-dos-Santos P, Beeghly M, Tronick E. Infant coping and maternal interactive behavior predict attachment in a Portuguese sample of healthy preterm infants. European Psychologist. 2009;14:320-31.

Furukawa T, Barbui C, Cipriani A, Brambilla P, Watanabe N. Imputing missing standard deviations in meta-analyses can provide accurate results. Journal of Clinical Epidemiology. 2006;59:7−10.

Gabler S, Bovenschen I, Lang K, Zimmermann J, Nowacki K, Kliewer J, et al. Foster children's attachment security and behavior problems in the first six months of placement: Associations with foster parents' stress and sensitivity. Attachment & human development. 2014;16:479-98.

Gavita OA, David D, Bujoreanu S, Tiba A, Ionutiu DR. The efficacy of a short cognitive-behavioral parent program in the treatment of externalizing behavior disorders in Romanian foster care children: Building parental emotion-regulation through unconditional self- and child-acceptance strategies. Children and Youth Services Review. 2012;34:1290-97.

George C, Kaplan N, Main M. The adult attachment interview. University of California, Berkeley: Unpublished manuscript; 1985.

Gervai J, Nemoda Z, Lakatos K, Ronai Z, Toth I, Ney K, et al. Transmission disequilibrium tests confirm the link between DRD4 gene polymorphism and infant attachment. Am J Med Genet B Neuropsychiatr Genet. 2005;132B:126-30.

Gleason MM, Fox NA, Drury S, Smyke A, Egger HL, Nelson CA, et al. Validity of evidence-derived criteria for reactive attachment disorder: Indiscriminately social/disinhibited and emotionally withdrawn/inhibited types. Journal of the American Academy of Child and Adolescent Psychiatry. 2011;50:216-31.

Goldberg S, Benoit D, Blokland K, Madigan S. Atypical maternal behavior, maternal representations, and infant disorganized attachment. Development and Psychopathology. 2003;15:239-57.

Goldwyn R, Stanley C, Smith V, Green J. The Manchester Child Attachment Story Task: relationship with parental AAI, SAT and child behaviour. Attach Hum Dev. 2000;2:71-84.

Goodman G, Aber J, Berlin L, Brooks-Gunn J. The relations between maternal behaviors and urban preschool children's internal working models of attachment security. Infant Mental Health Journal. 1998;19:378-93.

Goodson BD, Layzer JI, Pierre RG, Bernstein LS, Lopez M. Effectiveness of a comprehensive. five-year family support program for low-income children and their families: findings from the comprehensive child development program. Early Childhood Research Quarterly. 2000;15:5-39.

Green J, Stanley C, Smith V, Goldwyn R. A new method of evaluating attachment representations in young school-age children: the Manchester Child Attachment Story Task. Attach Hum Dev. 2000;2:48-70.

Grienenberger J, Kelly K, Slade A. Maternal reflective functioning, mother-infant affective communication, and infant attachment: Exploring the link between mental states and

observed caregiving behavior in the intergenerational transmission of attachment. Attachment & human development. 2005;7:299-311.

Groeneveld MG, Vermeer HJ, Ijzendoorn MH, Linting M. Enhancing home-based child care quality through video-feedback intervention: a randomized controlled trial. Journal of family psychology : JFP : journal of the Division of Family Psychology of the American Psychological Association (Division 43). 2011;25:86-96.

Groh A, Roisman G, Booth-LaForce C, Fraley R, Owen M, Cox M, et al. IV. Stability of attachment security infancy to late adolescence. Monographs of the Society for Research in Child Development. 2014a;79:51-66.

Groh AM, Fearon RP, Bakermans-Kranenburg MJ, van Ijzendoorn MH, Steele RD, Roisman GI. The significance of attachment security for children's social competence with peers: a meta-analytic study. Attachment & human development. 2014b;16:103-36.

Groh AM, Roisman GI, van Ijzendoorn MH, Bakermans-Kranenburg MJ, Fearon R. The significance of insecure and disorganized attachment for children's internalizing symptoms: A meta-analytic study. Child Development. 2012;83:591-610.

Guttentag CL, Landry SH, Williams JM, Baggett KM, Noria CW, Borkowski JG, et al. "My Baby & Me": Effects of an Early, Comprehensive Parenting Intervention on At-Risk Mothers and Their Children. Developmental Psychology Jan. 2014:No Pagination Specified.

Guyatt G, Oxman A, Akl E, Kunz R, Vist G, Brozek J, et al. GRADE guidelines: 1. Introduction-GRADE evidence profiles and summary of findings tables. Journal of Clinical Epidemiology. 2011;64:383-94.

Hannon C, Wood C, Bazalgette L. To deliver the best for looked after children the state must be a confident parent. London: Demos; 2010.

Hansburg H. Adolescent Separation Anxiety: A Method for the Study of Adolescent Separation Problems. . Springfield, IL: Thomas, C. C.; 1972.

Harden B. Safety and stability for foster children: A developmental perspective. Future of Children. 2004;14:31-47.

Harker R, Heath S. Children in Care in England: Statistics. Report No.: Standard Note SN/SG/4470. England 2014.

Harrington R, Kroll L, Rothwell J, McCarthy K, Bradley D, Bailey S. Psychosocial needs of boys in secure care for serious or persistent offending. Journal of Child Psychology and Psychiatry. 2005;46:859-66.

Havlicek J. Patterns of movement in foster care: An optimal matching analysis. Social Service Review. 2010;84:403-35.

Health SCfM. The chance of a lifetime. Preventing early conduct problems and reducing crime. London: Sainsbury Centre for Mental Health; 2009.

Heinicke C, Fineman, N.R., Ponce, V.A., & Guthrie, D. Relation-based intervention with at-risk mothers: Outcome in the second year of life. Infant Mental Health Journal. 2001;22:431-62.

Higgins J, Green S, eds. Cochrane Handbook for Systematic Reviews of Interventions. Version 5.1.0: The Cochrane Collaboration. Available from: www.cochrane-handbook.org; 2011.

Hodges J, Steele M, Hillman S, Henderson K, Kaniuk J. Changes in attachment representations over the first year of adoptive placement: Narratives of maltreated children. Clinical Child Psychology and Psychiatry. 2003;8:351-67.

Hodges J, Steele M, Hillman S, Henderson K, Kaniuk J. Change and Continuity in Mental Representations of Attachment after Adoption. Psychological issues in adoption: Research and practice. Westport, CT: Praeger Publishers/Greenwood Publishing Group; US; 2005. p. 93-116.

Holmes L, Westlake D, Ward H. Calculating and Comparing the Costs of Multidimensional Treatment Foster Care,England (MTFCE). Report to the Department for Children, Schools and Families. Loughborough: Centre for Child and Family Research, Loughborough University. ; 2008.

Holtan A, Handegard BH, Thornblad R, Vis SA. Placement disruption in long-term kinship and nonkinship foster care. Children and Youth Services Review. 2013;35:1087-94.

Horowitz JA, Bell M, Trybulski J, Munro BH, Moser D, Hartz SA, et al. Promoting responsiveness between mothers with depressive symptoms and their infants. Journal of nursing scholarship : an official publication of Sigma Theta Tau International Honor Society of Nursing / Sigma Theta Tau. 2001;33:323-9.

Horowitz JA, Murphy CA, Gregory K, Wojcik J, Pulcini J, Solon L. Nurse home visits improve maternal/infant interaction and decrease severity of postpartum depression. JOGNN - Journal of Obstetric, Gynecologic, and Neonatal Nursing. 2013;42:287-300.

Horwitz SM, Hurlburt MS, Cohen SD, Zhang J, Landsverk J. Predictors of placement for children who initially remained in their homes after an investigation for abuse or neglect. Child Abuse & Neglect. 2011;35:188-98.

Howe D. Age at placement, adoption experience and adult adopted people's contact with their adoptive and birth mothers: an attachment perspective. Attach Hum Dev. 2001;3:222-37.

Howe D, Shemmings D, Feast J. Age at placement and adult adopted people's experience of being adopted. Child and Family Social Work. 2001a;6:337-49.

Howe D, Shemmings D, Feast J. Age at placement and adult adopted people's experience of being adopted. Child and Family Social Work. 2001b;6:337-49.

Hughes JR, Gottlieb LN. The effects of the Webster-Stratton parenting program on maltreating families: fostering strengths. Child Abuse & Neglect. 2004;28:1081-97.

Hunter WM, Coulter ML, Runyan DK, Everson MD. Determinants of placement for sexually abused children. Child Abuse and Neglect. 1990;14:407-17.

Hurlburt MS, Chamberlain P, DeGarmo D, Zhang J, Price JM. Advancing prediction of foster placement disruption using Brief Behavioral Screening. Child Abuse and Neglect. 2010;34:917-26.

Iglehart AP. Kinship foster care - placement, service, and outcome issues. Children and Youth Services Review. 1994;16:107-22.

Infante-Rivard C, Filion G, Baumgarten M, Bourassa M, Labelle J, Messier M. A public health home intervention among families of low socioeconomic status. Children's Health Care. 1989;18:102-07.

Jacobson SW, Frye KF. Effect of maternal social support on attachment: experimental evidence. Child Development. 1991;62:572-82.

Jacobvitz D, Leon K, Hazen N. Does expectant mothers' unresolved trauma predict frightened/frightening maternal behavior? Risk and protective factors. Development and Psychopathology. 2006;18:363-79.

Jadad A, Moore R, Carroll D, Jenkinson C, Reynolds D, Gavaghan D, et al. Assessing the quality of reports of randomised clinical trials: is blinding necessary? Controlled clinical trials. 1996;7:1-12.

James S. Why Do Foster Care Placements Disrupt? An Investigation of Reasons for Placement Change in Foster Care. Social Service Review. 2004;78:601-27.

Johnson K, Wagner D. Evaluation of Michigan's Foster Care Case Management System. Research on Social Work Practice. 2005;15:372-80.

Jonson-Reid M. Foster care and future risk of maltreatment. Children and Youth Services Review. 2003;25:271-94.

Joseph MA, O'Connor TG, Briskman JA, Maughan B, Scott S. The formation of secure new attachments by children who were maltreated: An observational study of adolescents in foster care. Development and Psychopathology. 2014;26:67-80.

Juffer F, Hoksbergen RA, Riksen-Walraven JM, Kohnstamm GA. Early intervention in adoptive families: supporting maternal sensitive responsiveness, infant-mother attachment, and infant competence. Journal of child psychology and psychiatry, and allied disciplines. 1997;38:1039-50.

Kay C, Green J. Reactive attachment disorder following early maltreatment: Systematic evidence beyond the institution. Journal of Abnormal Child Psychology. 2013;41:571-81.

Kemp L, Harris E, McMahon C, Matthey S, Vimpani G, Anderson T, et al. Child and family outcomes of a long-term nurse home visitation programme: a randomised controlled trial. Archives of Disease in Childhood. 2011;96:533-40.

Kennedy JH. Is maternal behavior in the strange situation related to infant attachment? Journal of Early Childhood and Infant Psychology. 2008;4:83-92.

Kim ES, Kim BS. The structural relationships of social support, mother's psychological status, and maternal sensitivity to attachment security in children with disabilities. Asia Pacific Education Review. 2009;10:561-73.

Kim HK, Leve LD. Substance use and delinquency among middle school girls in foster care: a three-year follow-up of a randomized controlled trial. Journal of Consulting and Clinical Psychology. 2011;79:740-50.

Kitzman H, Olds, D.L, Henderson Jr C.R., Hanks, C., Cole, R.,Tatelbaum, R., McConnochie, K.M., Sidora, K., Luckey, D.W., Shaver, D., Engelhardt, K., James, D., Barnard, K. Effect of Prenatal and Infancy Home Visitation by Nurses on Pregnancy Outcomes, Childhood

Injuries, and Repeated Childbearing A Randomized Controlled Trial. JAMA. 1997;278:644-52.

Klein Velderman M, Bakermans-Kranenburg MJ, Juffer F, Van Ijzendoorn MH, Mangelsdorf SC, Zevalkink J. Preventing preschool externalizing behavior problems through video-feedback intervention in infancy. Infant Mental Health Journal. 2006;27:466-93.

Knoche LL, Sheridan SM, Clarke BL, Edwards CP, Marvin CA, Cline KD, et al. Getting ready: Results of a randomized trial of a relationship-focused intervention on the parent-infant relationship in rural early head start. Infant Mental Health Journal. 2012;33:439-58.

Kochanska G, Philibert RA, Barry RA. Interplay of genes and early mother-child relationship in the development of self-regulation from toddler to preschool age. Journal of Child Psychology and Psychiatry and Allied Disciplines. 2009;50:1331-38.

Koh E, Rolock N, Cross TP, Eblen-Manning J. What explains instability in foster care? Comparison of a matched sample of children with stable and unstable placements. Children and Youth Services Review. 2014;37:36-45.

Koh E, Testa ME. Propensity score matching of children in kinship and nonkinship foster care: Do permanency outcomes differ? Social Work Research. 2008;32:105-16.

Koniak-Griffin D, Verzemnieks, I., Cahill, D. Using videotape instruction and feedback to improve adolescents' mothering behaviors. Journal of Adolescent Health. 1992;13:570-75.

Kunster AK, Fegert JM, Ziegenhain U. Assessing parent--child interaction in the preschool years: A pilot study on the psychometric properties of the toddler CARE-Index. Clinical Child Psychology and Psychiatry. 2010;15:379-89.

Lakatos K, Nemoda Z, Birkas E, Ronai Z, Kovacs E, Ney K, et al. Association of D4 dopamine receptor gene and serotonin transporter promoter polymorphisms with infants' response to novelty. Molecular Psychiatry. 2003;8:90-97.

Lakatos K, Nemoda Z, Toth I, Ronai Z, Ney K, Sasvari-Szekely M, et al. Further evidence for the role of the dopamine D4 receptor (DRD4) gene in attachment disorganization: Interaction of the exon III 48-bp repeat and the -521 C/T promoter polymorphisms. Molecular Psychiatry. 2002;7:27-31.

Lakatos K, Toth I, Nemoda Z, Ney K, Sasvari-Szekely M, Gervai J. Dopamine D4 receptor (DRD4) gene polymorphism is associated with attachment disorganization in infants. Molecular Psychiatry. 2000;5:633-37.

LASPO. Legal aid, sentencing and punishment of offenders act 2012: The new youth remand framework and amendments to adult remand provisions. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/219974/circular-06-12-youth-remand-adult-bail.pdf. 2012.[cited:Available from.

Leathers SJ. Foster Children’s Behavioural Disturbance and Detachment from Caregivers and Community Institutions. Children and Youth Services Review. 2002;24:239-68.

Leathers SJ. Separation from siblings: Associations with placement adaptation and outcomes among adolescents in long-term foster care. Children and Youth Services Review. 2005;27:793-819.

Leathers SJ, Falconnier L, Spielfogel JE. Predicting family reunification, adoption, and subsidized guardianship among adolescents in foster care. American Journal of Orthopsychiatry. 2010;80:422-31.

Lee S, Jonson-Reid M, Drake B. Foster care re-entry: Exploring the role of foster care characteristics, in-home child welfare services and cross-sector services. Children and Youth Services Review. 2012;34:1825-33.

Lehmann S, Havik OE, Havik T, Heiervant ER. Mental disorders in foster children: a study of prevalence, comorbidity and risk factors. Child & Adolescent Psychiatry and Mental Health. 2013;7:1-12.

Lieberman AF, Weston DR, Pawl JH. Preventive intervention and outcome with anxiously attached dyads. Child Development. 1991;62:199-209.

Lindhiem O, Bernard K, Dozier M. Maternal sensitivity: within-person variability and the utility of multiple assessments. Child Maltreat. 2011;16:41-50.

Love JM, Kisker EE, Ross C, Raikes H, Constantine J, Boller K, et al. The effectiveness of early head start for 3-year-old children and their parents: lessons for policy and programs. Developmental Psychology. 2005;41:885-901.

Luijk MP, Roisman GI, Haltigan JD, Tiemeier H, Booth-Laforce C, van Ijzendoorn MH, et al. Dopaminergic, serotonergic, and oxytonergic candidate genes associated with infant attachment security and disorganization? In search of main and interaction effects. Journal of child psychology and psychiatry, and allied disciplines. 2011a;52:1295-307.

Luijk MPCM, Tharner A, Bakermans-Kranenburg MJ, van Ijzendoorn MH, Jaddoe VWV, Hofman A, et al. The association between parenting and attachment security is moderated by a polymorphism in the mineralocorticoid receptor gene: Evidence for differential susceptibility. Biological Psychology. 2011b;88:37-40.

Lynch F, Dickerson J, Saldana L, Fisher P. Incremental net benefit of early intervention for preschool-aged children with emotional and behavioural problems in foster care. Children and Youth Services Review. 2014;36:213-19.

Lyons-Ruth K, Jacobvitz D. Attachment disorganization: Genetic factors, parenting contexts, and developmental transformation from infancy to adulthood. Handbook of attachment: Theory, research, and clinical applications. 2nd edn. New York, NY: Guilford Press; US; 2008. p. 666-97.

Macdonald G, Turner W. An experiment in helping foster-carers manage challenging behaviour. British Journal of Social Work. 2005;35:1265-82.

Madigan S, Bakermans-Kranenburg MJ, Van Ijzendoorn MH, Moran G, Pederson DR, Benoit D. Unresolved states of mind, anomalous parental behavior, and disorganized attachment: A review and meta-analysis of a transmission gap. Attachment and Human Development. 2006a;8:89-111.

Madigan S, Moran G, Pederson DR. Unresolved states of mind, disorganized attachment relationships, and disrupted interactions of adolescent mothers and their infants. Developmental Psychology. 2006b;42:293-304.

Mangelsdorf SC, Plunkett JW, Dedrick CF, Berlin M, Meisels SJ, McHale JL, et al. Attachment security in very low birth weight infants. Developmental Psychology. 1996;32:914-20.

Mann T. Clinical Guidelines: Using Clinical Guidelines to Improve Patient Care Within the NHS. London: NHS Executive; 1996.

Martins C, Gaffan EA. Effects of early maternal depression on patterns of infant-mother attachment: A meta-analytic investigation. Journal of Child Psychology and Psychiatry and Allied Disciplines. 2000;41:737-46.

McCabe C, Stevens K, Roberts J, Brazier J. Health state values for the HUI 2 descriptive system: results from a UK survey. Health Econ. 2005;14:231-44.

McDonald G, Millen S. Therapeutic approaches to social work in residential child care settings: literature review. London: Social Care Institute for Excellence; 2012.

McDonald TP, Poertner J, Jennings M. Permanency for children in foster care. Journal of Social Services Research. 2007;33:45-56.

McIntosh E, Barlow J, Davis H, Stewart-Brown S. Economic evaluation of an intensive home visiting programme for vulnerable families: a cost-effectiveness analysis of a public health intervention. Journal of public health (Oxford, England). 2009;31:423-33.

McLaughlin A, Espie C, Minnis H. Development of a brief waiting room observation for behaviours typical of reactive attachment disorder. Child and Adolescent Mental Health. 2010 15:73-99.

McMahon CA, Barnett B, Kowalenko NM, Tennant CC. Maternal attachment state of mind moderates the impact of postnatal depression on infant attachment. Journal of Child Psychology and Psychiatry and Allied Disciplines. 2006;47:660-69.

McNamara P, Belsky J, Fearon P. Infant Sleep Disorders and Attachment: Sleep Problems in Infants with Insecure-Resistant Versus Insecure-avoidant Attachments to Mother. Sleep and Hypnosis. 2003;5:7-16.

Meins E, Fernyhough C, Fradley E, Tuckey M. Rethinking maternal sensitivity: mothers' comments on infants' mental processes predict security of attachment at 12 months. Journal of Child Psychology & Psychiatry & Allied Disciplines. 2001;42:637-48.

Mesman J, Emmen RA. Mary Ainsworth's legacy: A systematic review of observational instruments measuring parental sensitivity. Attachment & human development. 2013a;15:485-506.

Mesman J, Emmen RAG. Mary Ainsworth's legacy: a systematic review of observational instruments measuring parental sensitivity. Attachment & human development. 2013b;15:485-506.

Miljkovitch R, Moran G, Roy C, Jaunin L, Forcada-Guex M, Pierrehumbert B, et al. Maternal interactive behaviour as a predictor of preschoolers' attachment representations among full term and premature samples. Early Human Development. 2013;89:349-54.

Minnis H, Green J, O'Connor TG, Liew A, Glaser D, Taylor E, et al. An exploratory study of the association between reactive attachment disorder and attachment narratives in early school-age children. Journal of child psychology and psychiatry, and allied disciplines. 2009;50:931-42.

Minnis H, Pelosi AJ, Knapp M, Dunn J. Mental health and foster carer training. Archives of Disease in Childhood. 2001;84:302-6.

Minnis H, Read W, Connolly B, Burston A, Schumm T, Putter-Lareman S, et al. The Computerised Manchester Child Attachment Story Task: A novel medium for assessing attachment patterns. International Journal of Methods in Psychiatric Research. 2010;19:233-42.

Minnis H, Reekie J, Young D, O'Connor T, Ronald A, Gray A, et al. Genetic, environmental and gender influences on attachment disorder behaviours. British Journal of Psychiatry. 2007;190:490-95.

Moran G, Pederson DR, Pettit P, Krupka A. Maternal sensitivity and infant-mother attachment in a developmentally delayed sample. Infant Behavior & Development. 1992;15:427-42.

Moss E, Bureau JF, Cyr C, Mongeau C, St-Laurent D. Correlates of attachment at age 3: Construct validity of the preschool attachment classification system. Developmental Psychology. 2004;40:323-34.

Moss E, Dubois-Comtois K, Cyr C, Tarabulsy GM, St-Laurent D, Bernier A. Efficacy of a home-visiting intervention aimed at improving maternal sensitivity, child attachment, and behavioral outcomes for maltreated children: a randomized control trial. Development and Psychopathology. 2011;23:195-210.

Murray L. The impact of postnatal depression on infant development. J Child Psychol Psychiatry. 1992;33:543-61.

Murray L, Cooper PJ, Wilson A, Romaniuk H. Controlled trial of the short- and long-term effect of psychological treatment of post-partum depression. 2. Impact on the mother--child relationship and child outcome. The British Journal of Psychiatry. 2003;182:420-27.

Mustafa R, Santesso N, Brozek J, Akl E, Walter S, Norman G, et al. The GRADE approach is reproducible in assessing the quality of evidence of quantitative evidence syntheses. Journal of Clinical Epidemiology. 2013;66:736-42.

Nabera F, van IJzendoorna M, Deschampsb P, van Engelandb H, Bakermans-Kranenburga M. Intranasal oxytocin increases fathers' observed responsiveness during play with their children: A double-blind within-subject experiment. Psychoneuroendocrinology. 2010;35:1583-86.

Negrao M, Pereira M, Soares I, Mesman J. Enhancing positive parent-child interactions and family functioning in a poverty sample: A randomized control trial. Attachment & human development. 2014;16:315-28.

Neil E. Making sense of adoption: Integration and differentiation from the perspective of adopted children in middle childhood. Children and Youth Services Review. 2012:409-16.

Newton R, Litrownik A, Landsverk J. Children and youth in foster care: disentangling the relationship between problem behaviors and number of placements. Child Abuse and Neglect. 2000;24:1363–74.

NICE. Guide to the methods of technology appraisal 2008. London: National Institute for Health and Care Excellence; 2008a.

NICE. Social Value Judgements. Principles for the development of NICE guidance. London: National Institute for Health and Care Excellence; 2008b.

NICE. The Guidelines Manual. London: NICE; 2012.

NICE. Process and methods guides. Guide to the methods of technology appraisal 2013. London: National Institute for Health and Care Excellence; 2013.

Norr KF, Crittenden KS, Lehrer EL, Reyes O, Boyd CB, Nacion KW, et al. Maternal and infant outcomes at one year for a nurse-health advocate home visiting program serving African Americans and Mexican Americans. Public health nursing (Boston, Mass). 2003;20:190-203.

O'Conner TG, Marvin RS, Rutter M, Olrick JT, Britner PA. Child-parent attachment following early institutional deprivation. Development and Psychopathology. 2003;15:19-38.

O'Connor TG, Croft CM. A twin study of attachment in preschool children. Child Development. 2001;72:1501-11.

O'Connor TG, Rutter M. Attachment Disorder Behavior Following Early Severe Deprivation: Extension and Longitudinal Follow-up Journal of the American Academy of Child & Adolescent Psychiatry. 2000;39:703-12.

Office NA. The cost of a cohort of young offenders to the criminal justice system. Technical Paper. 2011.

Olds DL, Henderson CR, Kitzman H. Does prenatal and infancy nurse home visitation have enduring effects on qualities of parental caregiving and child health at 25 to 50 months of life? Pediatrics. 1994;93:89-98.

Olds DL, Robinson J, O'Brien R, Luckey DW, Pettitt LM, Henderson CR, et al. Home visiting by paraprofessionals and by nurses: a randomized, controlled trial. Pediatrics. 2002;110:486-96.

Out D, Bakermans-Kranenburg MJ, van IJzendoorn MH. The role of disconnected and extremely insensitive parenting in the development of disorganized attachment: Validation of a new measure. Attachment & human development. 2009;11:419-43.

Owen M, Easterbrooks M, Chase-Lansdale L, Goldberg W. The relation between maternal employment status and the stability of attachments to mother and to father. Child Development. 1984:1894-901.

Palmer SE. Placement stability and inclusive practice in foster care: An empirical study. Children and Youth Services Review. 1996;18:589-601.

Pardeck JT. Multiple placement of children in foster family care: an empirical analysis. Social Work. 1984;29:506-9.

Park JM, Ryan JP. Placement and permanency outcomes for children in out-of-home care by prior inpatient mental health treatment. Research on Social Work Practice. 2009;19:42-51.

Pauli-Pott U, Friedl S, Hinney A, Hebebrand J. Serotonin transporter gene polymorphism (5-HTTLPR), environmental conditions, and developing negative emotionality and fear in early childhood. Journal of Neural Transmission. 2009;116:503-12.

Pears K, Bruce J, Fisher P, Kim H. Indiscriminate friendliness in maltreated foster children. Child Maltreatment. 2010;15:64–75.

Pederson DR, Bailey HN, Tarabulsy GM, Bento S, Moran G. Understanding sensitivity: lessons learned from the legacy of Mary Ainsworth. Attach Hum Dev. 2014;16:261-70.

Pederson DR, Moran G. A categorical description of infant-mother relationships in the home and its relation to Q-sort measures of infant-mother interaction. Monographs of the Society for Research in Child Development. 1995;60:111-32.

Pederson DR, Moran G, Sitko C, Campbell K, Ghesquire K, Acton H. Maternal sensitivity and the security of infant-mother attachment: a Q-sort study. Child Development. 1990;61:1974-83.

Petrou S, Johnson S, Wolke D, Hollis C, Kochhar P, Marlow N. Economic costs and preference-based health-related quality of life outcomes associated with childhood psychiatric disorders. 2010;197:395-404.

Petrou S, Kupek E. Estimating Preference-Based Health Utilities Index Mark 3 Utility Scores for Childhood Conditions in England and Scotland. Medical Decision Making. 2009;29:291-303.

Ponciano L. Attachment in foster care: The role of maternal sensitivity, adoption, and foster mother experience. Child & Adolescent Social Work Journal. 2010;27:97-114.

Posada G. Assessing Attachment Security at Age Three: Q-sort Home Observations and the MacArthur Strange Situation Adaptation. . Social Development. 2006 15:644-58.

Posada G, Jacobs A, Carbonell OA, Alzate G, Bustamante MR, Arenas A. Maternal care and attachment security in ordinary and emergency contexts. Developmental Psychology. 1999;35:1379-88.

Posada G, Kaloustian G, Richmond MK, Moreno AJ. Maternal secure base support and preschoolers' secure base behavior in natural environments. Attachment and Human Development. 2007;9:393-411.

Price JM, Chamberlain p, Landsverk J, Reid JB, Leve LD, Laurent H. Effects of a foster parent training intervention on placement changes of children in foster care. Child Maltreatment. 2008;13:64-75.

Raby KL, Cicchetti D, Carlson EA, Cutuli JJ, Englund MM, Egeland B. Genetic and Caregiving-Based Contributions to Infant Attachment: Unique Associations With Distress Reactivity and Attachment Security. Psychological Science. 2012;23:1016-23.

Raby KL, Cicchetti D, Carlson EA, Egeland B, Collins WA. Genetic contributions to continuity and change in attachment security: a prospective, longitudinal investigation from infancy to young adulthood. Journal of Child Psychology & Psychiatry & Allied Disciplines. 2013;54:1223-30.

Rivard JC, Bloom SL, McCorkle D, Abramovitz R. Preliminary results of a study examining the implementation and effects of a trauma recovery framework for youths in residential treatment. Therapeutic Communities. 2005;26:79-92.

Roisman GI, Fraley RC. A Behavior-Genetic Study of Parenting Quality, Infant Attachment Security, and Their Covariation in a Nationally Representative Sample. Developmental Psychology. 2008;44:831-39.

Roman M, Palacios J, Moreno C, Lopez A. Attachment representations in internationally adopted children. Attachment & human development. 2012;14:585-600.

Rubin D, M., Alessandrini E, A., Feudner C, Mandell D, S., Localio A, R., Hadley T. Placement stability and mental health costs of children in foster care. Pediatrics. 2004;113:1336–41.

Rubin D, M., O'Reilly A, L., Luan X, Localio A, R. . The impact of placement stability on behavioral well-being for children in foster care. Pediatrics. 2007;119:336–44.

Rushton A. A Scoping and Scanning Review of Research on the Adoption of Children Placed from Public Care. Clinical Child Psychology and Psychiatry. 2004;9:89-106.

Rushton A. Outcomes of adoption from public care: research and practice issues. Advances in Psychiatric Treatment. 2007;13:305-11.

Rushton A, Monck E, Leese M, McCrone P, Sharac J. Enhancing adoptive parenting: a randomized controlled trial. Clinical Child Psychology and Psychiatry. 2010;15:529-42.

Rutter M, Kreppner J, Sonuga-Barke E. Emanuel Miller lecture: Attachment insecurity, disinhibited attachment, and attachment disorders: Where do research findings leave the concepts? Journal of Child Psychology and Psychiatry. 2009;50:529-43.

Sadler LS, Slade A, Close N, Webb DL, Simpson T, Fennie K, et al. Minding the baby: Enhancing reflectiveness to improve early health and relationship outcomes in an interdisciplinary home-visiting program. Infant Mental Health Journal. 2013;34:391-405.

Sallnas M, Vinnerljung B, Westermark PK. Breakdown of teenage placements in Swedish foster and residential care. Child & Family Social Work. 2004;9:141-52.

Schaffer H. The onset of fear of strangers and the incongruity hypothesis. Journal of Child Psychology and Psychiatry. 1966;7:95-106.

Schuler ME, Nair P, Black MM, Kettinger L. Mother-infant interaction: effects of a home intervention and ongoing maternal drug use. Journal of Clinical Child Psychology. 2000;29:424-31.

Schünemann H, Best D, Vist G, Oxman A, for The GRADE Working Group. Letters, numbers, symbols and words: how to communicate grades of evidence and recommendations. Canadian Medical Association Journal. 2003;169:677–80.

Schünemann H, Brożek J, Oxman A, eds. GRADE handbook for grading quality of evidence and strength of recommendation. Version 3.2: The GRADE Working Group. Available from http://www.cc-ims.net/gradepro; 2009.

Seifer R, Schiller M, Sameroff AJ, Resnick S, Riordan K. Attachment, maternal sensitivity, and infant temperament during the first year of life. Developmental Psychology. 1996;32:12-25.

Selwyn J, Sturgess W, Quinton D, Baxter C. Costs and Outcomes of Non-infant Adoption. London: British Association for Adoption and Fostering; 2006.

Selwyn J, Wijedasa D, Meakings S. Beyond the Adoption Order: Challenges, Interventions and Adoption Disruptions. Research Report 336. London: Department for Education; 2014.

Shah PE, Clements M, Poehlmann J. Maternal resolution of grief after preterm birth: Implications for infant attachment security. Pediatrics. 2011;127:284-92.

Sharac J, McCrone P, Rushton A, Monck E. Enhancing Adoptive Parenting: A Cost-Effectiveness Analysis. Child and Adolescent Mental Health. 2011;16:110-15.

Shmueli-Goetz Y, Target M, Fonagy P, Datta A. The Child Attachment Interview: a psychometric study of reliability and discriminant validity. Dev Psychol. 2008;44:939-56.

Sinclair I. Fostering Now: Messages from Research. London: Jessica Kingsley; 2005.

Sleed M, Baradon T, Fonagy P. New beginnings for mothers and babies in prison: A cluster randomized controlled trial. Attachment & human development. 2013;15:349-67.

Smeekens S, Riksen-Walraven J, Van-Bakel HJ. The predictive value of different infant attachment measures for socioemotional development at age 5 years. Infant Mental Health Journal. 2009 30:366-83.

Smith BD. After Parental Rights are Terminated: Factors Associated with Exiting Foster Care. Children and Youth Services Review. 2003;25:965-85.

Smith DK, Stormshak E, Chamberlain P, Bridges Whaley R. Placement disruption in treatment foster care. Journal of Emotional and Behavioral Disorders. 2001;9:200-05.

Smyke AT, Zeanah CH, Fox NA, Nelson CA, Guthrie D. Placement in foster care enhances quality of attachment among young institutionalized children. Child Development. 2010;81:212-23.

Smyke AT, Zeanah CH, Gleason MM, Drury SS, Fox NA, Nelson CA, et al. A randomized controlled trial comparing foster care ad institutional care for children with signs of reactive attachment disorder. The American Journal of Psychiatry. 2012;169:508-14.

Solomon J, George C. Disorganized Attachment and Caregiving. New York, NY: Guilford Press; 2011.

Spangler G, Johann M, Ronai Z, Zimmermann P. Genetic and environmental influence on attachment disorganization. Journal of child psychology and psychiatry, and allied disciplines. 2009;50:952-61.

Spieker S, Crittenden PM. Comparing two attachment classification methods applied to preschool strange situations. Clinical Child Psychology and Psychiatry. 2010;15:97-120.

Spieker SJ, Oxford ML, Kelly JF, Nelson EM, Fleming CB. Promoting first relationships: randomized trial of a relationship-based intervention for toddlers in child welfare. Child Maltreatment. 2012;17:271-86.

Stams GJM, Juffer F, Van Ijzendoorn MH, Hoksbergen RAC. Attachment-based intervention in adoptive families in infancy and children's development at age 7: two follow-up studies. British Journal of Developmental Psychology. 2001;19:159-80.

Starr LR, Hammen C, Brennan PA, Najman JM. Relational security moderates the effect of serotonin transporter gene polymorphism (5-HTTLPR) on stress generation and depression among adolescents. Journal of Abnormal Child Psychology. 2013;41:379-88.

Stein A, Woolley H, Senior R, Hertzmann L, Lovel M, Lee J, et al. Treating disturbances in the relationship between mothers with bulimic eating disorders and their infants: a randomized, controlled trial of video feedback. The American Journal of Psychiatry. 2006;163:899-906.

Stiles AS. Measuring maternal sensitivity in teen mothers: reliability and feasibility of two instruments. Journal of Nursing Measurement. 2004;12:195-214.

Suchman NE, DeCoste C, Castiglioni N, McMahon TJ, Rounsaville B, Mayes L. The Mothers and Toddlers Program, an attachment-based parenting intervention for substance using women: post-treatment results from a randomized clinical pilot. Attachment & human development. 2010;12:483-504.

Tarabulsy GM, Moran G. Similarities and differences in mothers' and observers' descriptions of attachment behaviors. International Journal of Behavioral Development. 1997;21:599-619.

Tarabulsy GM, Provost MA, Bordeleau S, Trudel-Fitzgerald C, Moran G, Pederson DR, et al. Validation of a short version of the maternal behavior Q-set applied to a brief video record of mother-infant interaction. Infant Behavior & Development. 2009;32:132-36.

Taussig HN, Culhane SE, Garrido E, Knudtson MD. RCT of a mentoring and skills group program: placement and permanency outcomes for foster youth. Pediatrics. 2012;130:e33-9.

Testa MF. Kinship care and permanency. Journal of Social Service Research. 2001;28:25-43.

Teti DM, Gelfand DM, Messinger DS, Isabella R. Maternal depression and the quality of early attachment: An examination of infants, preschoolers, and their mothers. Developmental Psychology. 1995;31:364-76.

Thomas R, Zimmer-Gembeck MJ. Accumulating Evidence for Parent-Child Interaction Therapy in the Prevention of Child Maltreatment. Child Development. 2011;82:177-92.

Thomas R, Zimmer-Gembeck MJ. Parent–Child Interaction Therapy: An Evidence-Based Treatment for Child Maltreatment. Child Maltreatment. 2012;17:253-66.

Torrance G, Furlong W, Feeny D, Boyle M. Multiattribute preference functions: health utilities index. 1995;7:503-20.

Toth SL, Maughan A, Manly JT, Spagnola M, Cicchetti D. The relative efficacy of two interventions in altering maltreated preschool children's representational models: implications for attachment theory. Development and Psychopathology. 2002;14:877-908.

Toth SL, Rogosch FA, Manly JT, Cicchetti D. The efficacy of toddler-parent psychotherapy to reorganize attachment in the young offspring of mothers with major depressive disorder: a randomized preventive trial. Journal of Consulting and Clinical Psychology. 2006;74:1006-16.

Touris M, Kromelow S, Harding C. Mother-firstborn attachment and the birth of a sibling. Am J Orthopsychiatry. 1995;65:293-7.

Valenzuela M. Maternal sensitivity in a developing society: the context of urban poverty and infant chronic undernutrition. Developmental Psychology. 1997;33:845-55.

Van Dam M, Van IJzendoorn MH. Measuring attachment security: Concurrent and predictive validity of the Parental Attachment Q-set. The Journal of Genetic Psychology: Research and Theory on Human Development. 1988 149:447-57.

van den Dries L, Juffer F, van Ijzendoorn MH, Bakermans-Kranenburg MJ. Fostering security? A meta-analysis of attachment in adopted children. Children and Youth Services Review. 2009;31:410-21.

van Doesum KTM, Riksen-Walraven JM, Hosman CMH, Hoefnagels C. A randomized controlled trial of a home-visiting intervention aimed at preventing relationship problems in depressed mothers and their infants. Child Development. 2008;79:547-61.

van Ijzendoorn M. Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. Psychological Bulletin. 1995;117:387-403.

van IJzendoorn M, Schuengel C, Bakermans-Kranenburg M. Disorganized attachment in early childhood: Meta-analysis of precursors, concomitants, and sequelae. Development and Psychopathology. 1999a;11:225-49.

Van Ijzendoorn MH, Bakermans-Kranenburg MJ. DRD4 7-repeat polymorphism moderates the association between maternal unresolved loss or trauma and infant disorganization. Attachment and Human Development. 2006;8:291-307.

Van Ijzendoorn MH, Kroonenberg PM. Cross-cultural patterns of attachment: A meta-analysis of the strange situation. Child Development. 1988;59:147-56.

van Ijzendoorn MH, Moran G, Belsky J, Pederson D, Bakermans-Kranenburg MJ, Kneppers K. The similarity of siblings' attachments to their mother. Child Development. 2000;71:1086-98.

van IJzendoorn MH, Schuengel C, Bakermans-Kranenburg MJ. Disorganized attachment in early childhood: Meta-analysis of precursors, concomitants, and sequelae. Development and Psychopathology. 1999b;11:225-49.

Vaughn BE, Waters E. Attachment behavior at home and in the laboratory: Q-sort observations and strange situation classifications of one-year-olds. Child Development. 1990;61:1965-73.

Vogel CA. Using administrative databases to examine factors affecting length of stay in substitute care. Children and Youth Services Review. 1999;21:677-90.

Wagner M, Spiker D, Linn MI. The effectiveness of the Parents as Teachers program with low-income parents and children. Topics in Early Childhood Special Education. 2002;22:67-81.

Walkup JT, Barlow A, Mullany BC, Pan W, Goklish N, Hasting R, et al. Randomized controlled trial of a paraprofessional-delivered in-home intervention for young reservation-based American Indian mothers. Journal of the American Academy of Child and Adolescent Psychiatry. 2009;48:591-601.

Ward H, Brown R, Westlake D. Safeguarding Babies and Very Young Children from Abuse and Neglect. London: Jssica Kingsley Publishers; 2012.

Ward H, Brown R, Westlake D. Safeguarding Babies and Very Young Children from Abuse and Neglect. London: Jessica Kingsley Publishers. 2012a.

Ward H, Skuse T. Performance targets and stability of placements for children long looked after away from home. Children and Society. 2001;15:333-46.

Ward MJ, Carlson EA. Associations among adult attachment representations, maternal sensitivity, and infant-mother attachment in a sample of adolescent mothers. Child Development. 1995;66:69-79.

Ward MJ, Vaughn BE, Robb MD. Social-emotional adaptation and infant-mother attachment in siblings: role of the mother in cross-sibling consistency. Child Dev. 1988;59:643-51.

Waters E, Deane K. Defining and Assessing Individual Differences in Attachment Relationships: Q-Methodology and the Organisation of Behaviour in Infancy and Early Childhood. In: Bretherton IW, E., ed. Growing points of attachment theory and research. Monographs of the Society for Research in Child Development1985. p. 41-65.

Weinfield NS, Whaley GJL, Egeland B. Continuity, discontinuity, and coherence in attachment from infancy to late adolescence: Sequelae of organization and disorganization. Attachment and Human Development. 2004;6:73-97.

Weisman O, Zagoory-Sharon O, Feldman R. Oxytocin administration to parent enhances infant physiological and behavioral readiness for social engagement. Biological Psychiatry. 2012;72:982-89.

Weisman O, Zagoory-Sharon O, Feldman R. Oxytocin administration alters hpa reactivity in the context of parent-infant interaction. European Neuropsychopharmacology. 2013:No Pagination Specified.

Wells K, Guo S. Reunification and reentry of foster children. Children and Youth Services Review. 1999;21:273-94.

Wells M, Correia M. Reentry into Out-of-Home Care: Implications of Child Welfare Workers' Assessments of Risk and Safety. Social Work Research. 2012;36:181-95.

Whipple N, Bernier A, Mageau GA. Broadening the study of infant security of attachment: Maternal autonomy-support in the context of infant exploration. Social Development. 2011;20:17-32.

World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines. 10 edn. Geneva: World Health Organization; 2010.

Wrigth B, Barry M, Hughes E, Trepel D, Ali S, Allgar V. A systematic review and meta-analysis of the clinical and cost-effectiveness of parenting interventions for children with 'severe attachment problems' Contract No.: 10/45/04: NIHR Health Technology Assessment; unpublished.

Zeanah CH, Gleason MM. Annual Research Review: Attachment disorders in early childhood - clinical presentation, causes, correlates, and treatment. Journal of Child Psychology and Psychiatry. 2014.

Zullo R. Private contracting of out-of-home placements and child protection case management outcomes. Children and Youth Services Review. 2002;24:583-600.