National Collaborating Centre for Mental Health

Children's Attachment

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

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Methods, evidence and recommendations

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1 Preface

This guideline has been developed to advise on attachment difficulties in children and young people who are adopted from care, in care or at high risk of going into care. Children's attachment and its impact, particularly where children are looked after or for whom being adopted from care is the long-term plan for them, is poorly understood among a range of professionals. The purpose of this guideline is to help professionals ensure that children presenting with characteristics that suggest difficulties with attachment are diagnosed accurately and that their needs are addressed quickly. 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, 3 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 4 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 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 in any setting in which healthcare, social care and educational professionals have contact with children and young people with attachment difficulties who are in care, adopted from care or on the edge of care, and their families and carers. This includes a range of community settings, primary and secondary care settings, secure settings and all educational settings in which children and young people who are in care, adopted from care or on the edge of care are educated.

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

- occupational health 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 3 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. 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). All appendices are available as separate files on the NICE and NCCMH websites.

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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.

2 Introduction to children's attachment

2.1 What is attachment?

Infants are born 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 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, or following with their gaze 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. Seeking 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 attachment figures (their parents, children and life partners). 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 (Crittenden, 1999; Perry, 2009; Siegel, 2001; Van der Kolk et al., 1991). Although some researchers express scepticism about whether attachment is an innate mechanism, the majority of the field (considered broadly) accept that children have a basic, biologically rooted, need to form a lasting bond with their carers. Even if this relationship is strained for reasons such as poverty or domestic abuse, the child can form 'attachment-like' relationships with other adults, for example their teachers (Bergin & Bergin, 2009).

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 their 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 psychological states and those of others (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 their surroundings. Ainsworth and others also highlight the importance of parental sensitivity for a child to form a secure base (Ainsworth, 1993). Sensitivity is measured as the parent's ability to respond to the particular needs and cues of an individual child. The parent's capacity to do this takes place, or is influenced by, the systemic context (that is, contextual stressors, personal history, couple relationship and so on).

In response to parenting behaviour, the child creates a set of mental models of itself 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 later social relationships, the acquisition of capacities for emotional and stress regulation, self-control, mentalisation and emotional maturity. Therefore, a child who develops insecure or disorganised attachments, possibly due to neglect or being placed in numerous foster

care homes, is more likely to struggle in these areas and to experience emotional and behavioural difficulties.

It is worth noting that attachment may not be responsible for all interpersonal interactions with primary caregivers. For instance, Trevarthen and colleagues have demonstrated the importance of the intersubjective relationship experience between the infant and their carer, and that this complements, but is different from, their attachment relationship experience (Trevarthen & Aitken, 2001).

Attachment is a developmental process, for which behavioural and affectional aspects have their counterpart in brain development. However, far less is known about the latter than the former (Coan, 2008). One aspect which has been studied is the association between secure attachment and lower stress reactivity.

2.2 Terminology used in this guideline

This guideline covers children (defined as aged 0–12 years) and young people (defined as aged 13–17 years) who are adopted from care (and those adopted in England who are from overseas), in special guardianship, looked after by local authorities in foster homes (including kinship foster care), residential settings and other accommodation, or on the edge of care.

The term 'attachment difficulties' refers to an insecure or disorganised attachment 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*, fifth edition (DSM-5) (American Psychiatric Association, 2013).

Disorganised attachment and attachment disorder largely do not overlap (Boris et al., 2004). Disorganised attachment (as assessed by Ainsworth's Strange Situation Procedure [SSP] by a trained, reliable coder) and an attachment disorder (as diagnosed by a psychiatric assessment) are very different phenomena. Nonetheless, in this guideline, the term 'attachment difficulties' is used to refer to children who have either a diagnosis of an attachment disorder or who have been placed by a reliable coder in the disorganised attachment classification.

2.3 Types of attachment difficulties

Four attachment behavioural patterns have been defined in young children:

- secure
- insecure avoidant
- insecure resistant (also called ambivalent)
- disorganised.

These patterns 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 insecure avoidant and resistant patterns, while less optimal, are organised attachment patterns for retaining some proximity to the attachment figure and adapted to the anticipated response of the attachment figure. In contrast, children who are classified as disorganised, appear to lack an organised strategy for achieving closeness with their attachment figure when distressed.

Although particular types of attachment pattern, especially disorganised attachment, may indicate a risk for later problems (see Section 2.9), they do not represent a disorder. Furthermore, these categories of attachment are referred to as the ABCD model, however

there are other approaches that are important, and not necessarily in opposition with this framework, such as the dynamic maturational model (Farnfield, 2009).

Disorders related to attachment have been described in the literature and are defined in the DSM and *The International Classification of Diseases and Related Health Problems*, 10th edition (ICD-10) for Mental and Behavioural Disorders: reactive attachment disorder and disinhibited attachment disorder or disinhibited social engagement disorder.

2.3.1.1 Secure attachment

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.

2.3.1.2 Insecure avoidant attachment

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 caregiver after a brief separation, these children may be quite distant, and tend to avoid contact with the caregiver. It is worth noting that these behaviours are observed during the SSP when the child is exposed to a stressful situation (separation-reunion procedure) and avoidant children are not necessarily avoidant all the time. Nevertheless, avoidant behaviour can be observed in the home using the Attachment Q-Set tool.

2.3.1.3 Insecure resistant (ambivalent) attachment

Children who have a resistant (ambivalent) attachment pattern are thought to maintain proximity to their caregiver by 'up-regulating' their attachment behaviour: when they are separated from a caregiver, they may become very distressed and may be angry, and resist contact when the caregiver 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.

2.3.1.4 Disorganised attachment

In addition to children being classified as secure or insecure, infants under 20 months can also be rated in terms of the extent to which observable behaviour suggests a disruption at the level of the attachment system, using the Main and Solomon (1990) indices of disorganisation and disorientation (Main, 1990). Examples of this behaviour include the infant approaching 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). Such a disruption is understood to mean that the infant is not able to resolve their distress within the context of their relationship either by signalling their anxiety to their caregiver, or by directing their attention away from them. Where the unresolved disruption of the attachment system is regarded as substantial and/or pervasive, the coder gives a higher rating, and considers the infant for inclusion within the disorganised attachment classification. With increasing age, these children's disorganised behavioural pattern may evolve into compulsive caregiving or coercive controlling behaviours towards their primary carers.

It is important to note that behaviours reflecting disorganised attachment are only observed during an assessment, like the SSP, and may not be displayed by the child in their home (unlike insecure attachment), and that disorganised attachment may only be short-lived and can be resolved once the child is reunited and in a stable relationship with their primary caregiver. Neither the behaviour described by the Main and Solomon indices, nor a

classification of disorganised attachment in the SSP, can be used in any valid way to assess a child for maltreatment. Although correlated with it, maltreatment cannot be inferred from infant disorganised attachment. Conversely, it is possible for children who are abused not to show disorganised attachment (for example, if the abuse is less severe and less frequent).

Other children, such as those on the autistic spectrum, can also exhibit disorganised attachment in the absence of maltreatment. Finally, some children will show disorganised attachment when they are frightened *for* their carer, for example when a parent is terminally ill or subjected to violence from another individual (typically, domestic abuse).

2.3.1.5 Attachment disorder

The term 'attachment disorder' refers to a highly atypical constellation of behaviours indicative of children who find it extremely difficult to form close attachments.

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 pathogenic 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 before the age of 5.

Disinhibited attachment disorder (currently in ICD-10) (World Health Organization, 2010), which has more recently been relabelled as 'disinhibited social engagement disorder' (DSED) in DSM-5 (American Psychiatric Association, 2013), refers to 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 pathogenic 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 and there are different ways of assessing attachment that are appropriate to different ages on the basis of observed behaviour, representation of attachment relationships and coherence of the child's account regarding their attachment relationships. Based on longitudinal studies and concurrent assessments using different methods, there is an assumption that the different methods are measuring the same concept.

The SSP, which is used between the ages of 12 and 24 months approximately, 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 preschool-age children. Another observational method uses Q-sort to assess attachment behaviour during a more prolonged observation period. Representations of 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 their parents (MacArthur Story Stem Battery [MSSB]; Manchester Child Attachment Story Task [MCAST]). For older school-age children, attachment is assessed by verbal and non-verbal responses using 2 different procedures. In

the dynamic maturational model of attachment 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 young person is invited to describe their relationships with their caregivers in various stressful situations. In this procedure, the focus of assessment is the coherence of the child or young person's account, as well as their demeanour during the interview.

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 have addressed the factors that cause them.

A recent observational measure of attachment disorganisation has been introduced that is coded from a 15 minute interaction between parent and adolescent (Goal-Corrected Partnership in Adolescence Coding System [GPACS]; Obsuth et al., 2014). The GPACS has shown promise as a measure of attachment among at-risk adolescents, in that it is related to disorganisation in infancy, as well as to current unresolved Adult Attachment Interview (AAI) states of mind. The GPACS has also been robustly related to current maladaptation in adolescence, including increased depressive symptoms, dissociative symptoms, borderline personality disorder features, suicidality, and overall psychopathology on a standard psychiatric diagnostic interview(Obsuth et al., 2014) (Lyons-Ruth et al., 2014; Vulliez-Coady et al., 2013) It also relates significantly to abusive behaviour in romantic relationships. However, further work is needed in other samples to be sure these results will replicate broadly.

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, because 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 or young person's behaviour.

2.5 How common are attachment difficulties?

It is estimated that around two-thirds of children in population samples have a secure pattern of attachment across cultures (Van Ijzendoorn & Kroonenberg, 1988; van IJzendoorn et al., 1999), although this falls rapidly to around one-third in disadvantaged populations (Carlson, 1998; Weinfield et al., 2004) and less in maltreated populations.

Estimates suggest that around 8–10% of children are insecure-ambivalent (van IJzendoorn et al., 1999) and around 9% of children are insecure-avoidant (van IJzendoorn et al., 1999).

Around 15–19% of population samples (De Wolff & van Ijzendoorn, 1997) to 40% of disadvantaged populations (Carlson, 1998; Weinfield et al., 2004) and as many as 80% of maltreated populations (Carlson et al., 1989; Cyr et al., 2010) are thought to have a disorganised attachment.

The prevalence of attachment disorders in the general population is not well established, but is likely to be low (Minnis et al., 2013; Skovgaard et al., 2007). RAD and DSED are seen at substantially higher rates among young children raised in institutional care or exposed to severe abuse or neglect.

2.6 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). Each of these is considered separately below.

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 have addressed the factors that cause them.

It seems clear from the research literature, however, 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 attention deficit hyperactivity disorder (ADHD) and autism usually have secure attachments to their parents.

There is a growing literature on the neurobiological effects of child abuse and neglect. Child maltreatment is stressful, often repetitive or persistent and may be traumatogenic. The abusers or those neglecting the child are most often also primary attachment persons. Given the strong causal association between child maltreatment and attachment difficulties, it is likely that the neurobiological changes associated with maltreatment will be found in children with attachment difficulties. However, these changes are not explanations of the attachment difficulties.

2.6.1.1 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 caregiver), 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., 2003; 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 (1969) identified variation in parental *sensitivity* in particular as a critical variable in determining the child's attachment security as assessed in procedures like the SSP. Broadly speaking, parental sensitivity 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, to accurately imagine what the child's feelings, thoughts and focus of attention might be and to respond appropriately. It is generally *not* considered to be equivalent to warmth, and in research studies these 2 constructs may or may not be correlated, depending on the way they are measured and the populations concerned (Mesman & Emmen, 2013). Parental sensitivity can only be measured properly by direct observation of interactions, ideally over a significant period of time, and in more than 1 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, 1997), 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).

2.6.1.2 Disorganised attachment

A substantial number of studies have found that standard assessments of sensitivity do not reliably predict disorganised attachment (van IJzendoorn et al., 1999). Instead, existing studies indicate that disorganised attachment is associated with a cluster of parenting behaviours that include 'frightening/frightened', extreme intrusiveness, unmarked frightening facial expressions, unusual vocal tone and 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 high rates in samples of infants and young children who have been exposed to maltreatment (Cyr et al., 2010; van IJzendoorn et al., 1999a) and, to a lesser extent, 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.

2.6.1.3 Attachment disorders

Attachment disorders are observed almost exclusively in conditions that represent extreme departures from normative care, including extreme neglect and institutional care. In particular, a diagnosis of RAD (according to the DSM-5) is only given when children have experienced pathogenic 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). DSED, although not currently defined as a disorder of attachment in the DSM-5, has been associated with a similar set of highly disturbed early caregiving experiences, and requires the same pathogenic care criteria to be met as RAD. Both of these disorders are observed at relatively high rates in children within institutions, children adopted out of institutions and in some children in foster care, although 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. There is some suggestion that the effects of harsh or negative parenting on the development of RAD may be mediated by gene expression (Minnis et al., 2007). Although DSED is no longer defined as an attachment disorder in DSM-5, there is some disagreement in the literature about this (and for the purposes of this guideline, it is included in the definition of attachment disorders).

2.7 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 (for example, 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 SSP) 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 1 year of age, although it is not straightforward to conclude that they are not present earlier, and the parent–infant 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, diagnosis of RAD requires that signs of RAD must have been present before the age of 5 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 and parental wellbeing; see Groh and colleagues (2014).

RAD shows relatively high stability in the short-term (a requirement for diagnosis) 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, for example 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 or RAD in the context of children who entered foster care, or were adopted, from non-institutional circumstances. An example of the work that has been conducted on children in foster care, the children showed high levels of indiscriminate friendliness, a symptom or RAD, but they had experienced serious maltreatment and numerous placements (Pears et al., 2010). Thus, it is still unclear how likely symptoms of RAD or DSED are found in children living in a stable, loving foster care placement or who were adopted.

2.8 What mental health problems and behaviours are associated with attachment difficulties?

In people with 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, drug misuse and promiscuity. 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 4 specific patterns associated with severe neglect/privation: a quasi-autistic syndrome, ADHD, social disinhibition similar to DSED, and impaired cognitive ability (O'Connor & Rutter, 2000). Thus, a child with the disinhibited attachment picture could have any or all of the other 3 mental health problems.

The association of insecure attachment patterns with mental health problems is more complex. Here an insecure attachment pattern will be taken to include a disorganised attachment as well as avoidant and ambivalent patterns. A meta-analysis of a large number of studies found 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) among children displaying disorganised attachment (Solomon & George, 2011). Children with earlier disorganised attachment frequently develop coercive controlling or compulsive caregiving behaviour.

One particular mental health problem that seems to have a higher prevalence than the others is oppositional defiant disorder/conduct disorder. Meta-analyses suggest that around 55% of children with oppositional defiant disorder/conduct disorder have any pattern of insecure attachment (compared with around 30 to 40% in controls), of whom about 30% have disorganised attachment (compared with 15% in controls); thus in children with oppositional defiant disorder/conduct disorder, the odds ratio (OR) of having disorganised attachment is nearly 4-fold.

Disorganised attachment, and to a lesser extent avoidant and resistant attachment patterns, are associated with externalising problems (anger, aggression), more so in boys. Avoidant attachments are associated with internalising problems (depression, anxiety, social withdrawal, somatic complaints) in both boys and girls. Disorganised, insecure avoidant and resistant attachment patterns in both boys and girls are associated with later poor social competence with peers.

Perhaps because of the overlap with maltreatment, it is not uncommon for professionals to use the term 'attachment difficulties' 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 or adopted from care. 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.

Also, the apparent overlap in the behaviour of a child with attachment difficulties and a child with a different neurological condition, may lead to a child being misdiagnosed (with conditions such as ADHD or Williams syndrome), before the extent of the attachment and trauma issues have been recognised. Thus it is important that healthcare professionals take

into account all manner of explanations and causes during an assessment that may lead to a single or dual diagnosis.

In conclusion, for insecure attachment patterns, any mental health problem is likely to be more common, but particularly among children with disorganised attachment. However, this is not to say that the attachment difficulty has led to the behaviour problem; rather, it is much more likely that the disturbed parenting has had effects on making the child more anxious, more frustrated and aggressive, less able to comfort themselves and more emotionally dysregulated, and physiologically more prone to become rapidly emotionally aroused and to take longer to calm down and return to a more normal physiological and mood state. More severe neglect may also affect a child's neurological configuration (and continue to affect it into adolescence) and their attention span and ability to make social relationships (Cozolino, 2014; Siegel, 2001; Van der Kolk et al., 1991).

2.9 How do attachment difficulties manifest in education, healthcare, social care and criminal justice settings?

2.9.1 Education

Attachment may be an important influence on pupils' academic success and wellbeing at school. First, 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.

Data from the Department for Education for the success of looked-after children in education – many of whom will have attachment difficulties – show a very significant gap between their outcomes and those of non-looked-after children. In 2013 only 15.3% of looked-after children achieved 5 or more A* to C grade GCSEs (General Certificates of Secondary Education) including English and maths, compared with 58% of non-looked-after children (Depatment for Education, 2013) and the attainment gap in 2014 for the percentage achieving 5 or more GCSEs or equivalent at A* to C grade including English and maths is 40 percentage points (Department for Education, 2014). Nationally, in English and maths, approximately 70% of all children make 3 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 3 times more likely to have a fixed-term exclusion than all children. Unsurprisingly, around half of all looked-after children aged 5–16 years were considered to be 'borderline' (12.8%) or 'cause for concern' (36.7%) in relation to their emotional and behavioural health based on their Strengths and Difficulties Questionnaire (SDQ) scores in 2014 (Department for Education, 2014).

Behaviours associated with attachment difficulties, such as disruptive behaviour in the classroom, difficulties forming relationships with teachers or positive peers, and difficulty in establishing a moral code (linked to their value of an authority figure), are commonly seen in schools. Some children may display clinginess to teachers; older children may have difficulties with boundaries. Other children may be quiet and not engage because they are internalising their issues, and because they appear to be coping they could be overlooked.

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.

2.9.2 Healthcare

Healthcare settings cover a wide range of care provision, including primary, secondary and more specialised settings, for both mental and 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 that may be observed is a child's indiscriminate friendliness and approach to strangers, as might occur in an inpatient healthcare setting.

Attachment difficulties are also correlated with a range of emotional and behavioural problems, which will be noted in healthcare settings or for which the child may be referred, especially to child and adolescent mental health services (CAMHS). These difficulties include both internalising (such as anxiety, depression, social withdrawal and somatic complaints) and externalising problems (such as difficult and challenging behaviour or 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 healthcare 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. Thus, it could be said that attachment difficulties are markers of some form of maltreatment within the family and that the child's behaviour is a survival response that, if left untreated, will become a hardwired, stress reaction (that is, an attachment difficulty is an indicator not an end diagnosis).

2.9.3 Social care

Within social care settings, children and young people may be placed in a variety of placement types (that is, adopted home, foster care, residential care or kinship care) 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 1 of 2 patterns of relationships with their carers that may be a cause of concern. One group consists of children who 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 a way (albeit short-term) of being noticed. Consequently, these children externalise their behaviour and tend to be aggressive, demanding and hostile. The second group consists of children who 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 in, for instance, an adoptive home. 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). Adoptive parents, special guardians, foster carers, kinship carers, residential staff and birth parents may all need additional support to help them understand these behaviours and to prevent them from jeopardising placements.

2.9.4 Criminal justice system

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, 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 (Legal Aid, Sentencing and Punishment of Offenders Act 2012; (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 caregivers, and the sheer number of professionals with whom they have had contact, means that young people within the justice system often have difficulty in trusting professionals they meet. As a result professionals may find that these 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 these young people (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 the section on social care above).

2.10 Perspectives and experiences of care-leavers and carers: 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., 2001a). 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).

For those who have lived in the care system, 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 experience 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 (Sinclair, 2005), this is particularly important if the care is short-term, or there are plans for the child to return to their birth family. However older children tend to make their own decisions and arrangement about the amount and type of contact they want with their birth families (Selwyn, 2004). 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., 2013b), 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. If parents do not receive consistent support and education to be sensitive to their child’s attachment needs, adopted children can – and often do – present with challenging behaviours (Selwyn et al., 2014); and even when adoptive parents are sensitive to the child’s needs, the child may still go on to develop those behaviours.

2.11 Treatment and management of attachment difficulties in England and Wales

2.11.1 Psychological interventions

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 difficulty has arisen, the first line of treatment is to improve the relationship between carer and child. The largest number of randomised controlled trials (RCTs) have been conducted in infancy, and in the meta-analysis by Bakermans-Kranengburg 2003 (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 an RCT.

There is much less evidence for later developmental periods, including middle childhood and adolescence. The recently published naturalistic National Institute of Child Health and Human Development longitudinal study found that children who moved from insecure attachment to secure attachment as they grow up experienced an associated improvement in their parenting they received and in their 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 placed into foster care, 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 and colleagues (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, especially when transitioning from late childhood to adolescence (Hodges et al., 2003; Hodges et al., 2005).

Additionally, there are a number of approaches with looked-after children that aim to improve parenting, and which may also improve attachment security. Standard parenting programmes such as the incredible years have been shown to improve sensitive responding, which is likely to lead to more attachment security. Other parenting programmes 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 an RCT. Some are widely used within the UK and may promote secure attachment in children on the edge of care or in care. Others are abusive, not therapeutic and make unsubstantiated claims about improving brain function. Any form of 'therapy' involving physical restraint, coercion, the child lying or sitting on the therapist or any form of aversive stimulation (for example, 'holding therapy') not only has no evidence base, but is

associated with harm to children and should be considered malpractice (see the Report of the APSAC Task Force on Attachment Therapy, Reactive Attachment Disorder, and Attachment Problems).

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 school-age children in terms of addressing attachment difficulties. The evidence available shows parent–child psychotherapy or trauma-focused cognitive therapy for both the child and parent may improve parental sensitivity or attachment security in children and young people who have been maltreated with related trauma (Cicchetti et al., 2006; Cohen et al., 2004).

It is important for healthcare professionals to understand that a child's behaviour in care can be very complex and may be due to a past trauma, not necessarily the result of poor parenting provided by the foster carers or adoptive parents. Thus, complex trauma (in the presence of attachment difficulties) should be identified and addressed separately to an intervention that aims to improve the attachment between the child and their foster carer or adoptive parents.

With respect to the associated problems (such as complex trauma), standard evidence-based treatments should be offered to children with attachment difficulties, just as they should be with children who do not have attachment difficulties. Thus, with older children therapeutic techniques such as cognitive behavioural therapy (CBT), interpersonal therapy, eye movement desensitisation and reprocessing, dialectical behaviour therapy, cognitive analytic therapy, 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. It is important to note that these interventions have primarily been assessed in children without attachment difficulties. Thus, future research should focus on how to better adapt these interventions for this population.

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

There is evidence that respite as part of an overall parent training and support package is effective with looked-after children who have previously been traumatised, showing good effects both on reducing the likelihood of placement disruption and potentially increasing attachment security (Hudson & Levasseur, 2002; Redding et al., 2000; Rhodes et al., 2001; Triseliotis, 1997). Brief periods of time out, in the context of a loving relationship, are unlikely to recreate traumatic experiences and provide temporary relief for foster parents to rejuvenate from the stress of fostering

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 looked-after children, which should be within a family wherever possible (Winokur et al., 2014). It is often hard for families and carers to access therapeutic support due to the pressures in the public sector to limit CAMHS 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 interventions

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. However, 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 that ameliorate some of the emotional and behavioural difficulties 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 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), and as many as 80% of children who have experienced maltreatment have a disorganised attachment (Carlson et al., 1989; Cyr et al., 2010).

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 weekly cost per child is £2,995 for a local authority care home (2013/14 prices), £2,947 for a non-statutory care home (that is, voluntary and private sector care homes) and £700 for local authority foster care (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 looked-after children (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). This estimate includes adoption allowances paid and other staff and overhead costs associated with adoption including the costs of social workers seeking new and supporting existing adoptive parents.

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 1 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 and colleagues (2010)

explored the consequences associated with 2 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' and £56,225 for 'Child B') 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 the possible costs to the state up to the age of 30. It was assumed that 'Child A' leaves care at the age of 18 following a stable placement, with good qualifications. 'Child B' 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 they go on to university and secure a graduate job. 'Child B' may cost the state £111,924 if they experience unemployment, underemployment and mental health problems. Between the age of 16 and 30 there is a difference between the costs of 'Child A' and 'Child B' 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* [d] = 0.31, 95% confidence interval [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) (National Audit 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).

The authors of a recent Health Technology Assessment (HTA) report (Wright et al., unpublished) estimated the expected budget impact of screening strategies and treatment for disorganised attachment within the context of a clinical commissioning group (CCG). The authors assessed budget impact of screening and treating disorganised attachment by various target populations (for example, general population, middle class children, born into poverty, alternative caregiver [that is, adopted or fostered], 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. This suggests that the total cost to screen the general population and change disorganised attachment would approximate to £313,860 per year (2011/12 prices). The above estimates assume use of the SSP at a cost

of £29 per case, average treatment cost of £2,265 per case, and expected prevalence of 3%.

Attachment difficulties and associated mental health problems during childhood therefore place a considerable financial burden on health and social care services, the criminal justice system and society. As such, it is important to identify cost-effective interventions that can help to reduce the burden to service users, their families and carers 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 healthcare 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 7 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 2 care leavers and 2 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 1 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 1 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	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, 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
- British Education Index
- Cochrane Central Register of Controlled Trials
- Cochrane Database of Abstracts of Reviews of Effects
- Cochrane Database of Systematic Reviews
- Cumulative Index to Nursing and Allied Health Literature

- Excerpta Medica Database (Embase)
- Education Resources Information Center
- HTA database (technology assessments)
- International Bibliography of the Social Sciences
- 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.

3.5.1.3 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.

3.5.1.4 Search filters

To aid retrieval of relevant and sound studies, filters were used to limit a number of searches to systematic reviews, RCTs and observational studies. The search filters for systematic reviews and RCTs 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).

3.5.1.5 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.

3.5.1.6 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.

3.5.1.7 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 1 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).

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 were not downgraded for indirectness. Rather, when the GC generated recommendations (for instance, on interventions to treat attachment difficulties, such as home visiting programmes) the detail included on the number of sessions, frequency, duration and so on were mostly extracted from UK studies.

3.5.1.7.1 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 and colleagues (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 (HRs) 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 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 1 reviewer and cross-checked with the existing dataset. Where possible, 2 independent reviewers extracted data from new studies. Where double data extraction was not possible, data extracted by 1 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 5 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 1 of 4 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

Note.
[1] Optimal information size (OIS) (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
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 CIs around the estimate of the effect.	If either of the following 2 situations were met: • the optimal information size (for dichotomous outcomes, OIS = 300 events; for continuous outcomes, OIS = 400 participants) was not achieved • the 95% CI 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.

3.5.5 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.

3.5.5.1 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 SD** 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 SD 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 SD lower** (0.67 to 0.01 lower)		988 (5 studies)	⊕⊕⊕⊕ HIGH

Note.
* 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% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).
** SD = standard deviation.
[1] OIS (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.

3.5.6 Extrapolation

When answering review questions, if there is no direct evidence from a primary dataset,[1] 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 1 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 healthcare 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 4 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

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

- 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.

3.5.7 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.

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

3.6.1.2 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 HTA reports, and conducted in the following databases:

- American Economic Association's electronic bibliography
- Embase
- HTA database (technology assessments)
- MEDLINE/MEDLINE In-Process
- NHS Economic Evaluation 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 Economic Evaluation Database) 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.

3.6.1.3 Reference management

Citations from each search were downloaded into EndNote 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.

3.6.1.4 Search filters

The search filter for health economics is an adaptation of a pre-tested strategy designed by the Centre for Reviews and Dissemination 2015). 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.

3.6.1.5 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.

3.6.1.6 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 1 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[2], 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 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.

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

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 supported this idea. Findings have been extremely inconsistent, and few now consider attachment insecurity to merely reflect temperament (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 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 allowed the inclusions of RCT, 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 factors are associated with the development of attachment difficulties in children and young people?

Topic	Familial 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: Preschool (≤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, short short/short long allele carrier variants [SS/SL] versus long long allele carrier variant [LL] 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	Familial biological factors associated with the development of attachment difficulties
	• adjusted OR, RR, HR (dichotomous variables) • adjusted Poisson regression • adjusted Cox regression (RR) • analysis of covariance (type of multiple regression). Single risk factors (unadjusted) – use if no adjusted data: • correlation coefficient, r^2 (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 for familial biological factors associated with the development of attachment difficulties in children and young people

There were 28 cross-sectional and cohort studies (total number of participants [N] = 13,686) that met the eligibility criteria for this review: Bakermans-Kranenburg 2004 (Bakermans-Kranenburg et al., 2004), Bakermans-Kranenburg 2012 (Bakermans-Kranenburg et al., 2012), Barry 2008 (Barry et al., 2008), Bokhorst 2003 (Bokhorst et al., 2003), Constantino 2006 (Constantino 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), Finkel 2000 (Finkel & Matheny, 2000), 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 2011a (Luijk et al., 2011a), Luijk 2011b (Luijk et al., 2011b), 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) and Van Ijzendoorn 2006 (Van Ijzendoorn & Bakermans-Kranenburg, 2006).

Of the 28 eligible studies, 16 (N = 1742) provided data that could be meta-analysed, the remaining 12 studies are presented as a narrative in Table 9 and Table 10. All of the studies measured attachment difficulties, however not all of them were in a high-risk population (that is, 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 versus LL 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-HTTLPR is associated with brain development, mood and emotional regulation. The long variant (LL) polymorphism has 2 to 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, while

GABA plays a role in neurotransmission and in the stress response. Some data were available on the glucocorticoid receptor and mineralocorticoid receptor (involved in stress activity) genes, and on oxytocin (OXT), however raw data were not available so they are presented in 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 (MZ) twins is approximately 100% similar, while for dizygotic (DZ) 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 11and 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 and list of excluded studies in Appendix M.

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

	Genetic
Total no. of studies	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) Finkel 2000 (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 2011b (18) Frigerio 2009 (19) Drury 2012 (20) Luijk 2011a (21) Kochanska 2009 (22) Barry 2008 (23) Bakermans-Kranenburg 2012 (24) Pauli-Pott 2009 (25) Raby 2013 (26) Starr 2013 (27) Fearon 2014 (28) Minnis 2007
Country	(1, 2, 3, 11) Hungary

	Genetic
	(4, 5, 6, 17, 20, 23) Netherlands (7, 8, 9, 12, 14, 16, 19, 21, 22, 25, 26) USA (10, 18, 27, 28) UK (13, 24) Germany (15) Canada
Type of publication	(1–18, 20–26) Cohort study (19) RCT (27–28) Cross-sectional
Number of participants	(1, 2, 3) 90 (4) 56 (5) 63 (6) 157 (7) 207 twins (8) 47 twins (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

	Genetic
	(28) 9180
Diagnosis	(1–3, 6, 9–11, 13–16, 18, 20–25) SSP (4) Attachment Q-Sort (AQS) (5) Adult Attachment Interview (AAI) and SSP (7–8) AAI (12, 17) SSP and maternal responsiveness based on Ainsworth Maternal Sensitivity Scale (19) Disturbances of Attachment Interview (DAI) (26) The Bartholomew Relationship Questionnaire (Bartholomew & Horowitz, 1991) (27) CAI (28) Relationship Problems Questionnaire (RPQ)
Population	(1, 2, 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 (versus mother and infant in Bokhorst 2003) (5) Mothers who had experienced a significant death (6) Middle class and had twins (7) Randomly selected from a database. Same sex-twins that reached 18 or 24 months were invited to participate (8) MZ female twins reared together; with and without a history of conduct disorder, were randomly selected 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 (12) Mothers were below the poverty line and 63% were single (13) Healthy German low-risk infants, representing a wide range of socioeconomic status infants (14) 65 families drawn from larger group of woman and firstborns who also had a second child aged 2 years (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

	Genetic
	(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 (Dutch study following children from fetal life to young adulthood) and Study of Early Child Care and Youth Development (followed children from the USA from birth to age 17.5 years) (21) Responded to advertisements; 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; had been in an institution for 12–64 months (24–25) Healthy firstborn infants, with a homogenous sample in respect to health and family characteristics (26) Participants were oversampled for maternal depression assessed during pregnancy, postpartum, and 6 months and 5 years after birth (27–28) Recruited from larger Twin Early Development study
Control	(1–3, 5, 11–15, 17–18, 20–26) No controls (4, 6-–10, 27–28) MZ versus DZ twins (16) Non-maltreated controls (19) Institutional care
Outcome	(1–3, 5) Disorganised attachment (4) Secure attachment (6) Attachment concordance (disorganised attachment, avoidant, secure, resistant) (7–9) Attachment concordance (secure and insecure) (10) Attachment concordance (secure, insecure, disorganised) (11) Disorganised and secure attachment (12) Secure attachment and maternal responsiveness (13) Attachment security and disorganisation (14) Secure and insecure attachment (15–16, 18, 20, 23, 25–26) Attachment security, insecure and disorganisation (17) Attachment security (19) Indiscriminate behaviour (21) Attachment security, insecure and disorganisation + self-regulation (22) Attachment security, insecure and disorganisation + maternal responsiveness (24) Attachment security, insecure (avoidant and resistant) and disorganisation

	Genetic
	(27) Attachment security, insecure(28) Attachment disorder (inhibited and disinhibited)
Measure of outcome	(1–3, 13, 16, 18, 22) N and *p* values (4) χ^2, *p* value. – captured as descriptive (5) χ^2, r, *p* value (6, 7–10, 24) 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 (14–15) % presented in table only (17) Regression and 95% CI, *p* value (19) Graphical presentation (20) Mean and SD across different allele expression (21) Regression analysis. No raw numbers available (23) Divided into groups of institution versus family reared. Percentage provided (25–26) Linear regression (bivariate – unadjusted) (27) Modelled data (28) Percentage presented in table only
Adjusted outcome	(1–4, 7–16, 18–19, 22, 25–28) 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 (17) Yes, results were adjusted for covariates. Unclear which ones (20) Conducted various adjusted analysis. However, results presented are unadjusted (21) Conducted step wise regression (23) Adjusted various results for care factors and intelligence quotient (IQ)
Age	(1–4) 12 to 75 months (5) 14–15 months (6) 12–14 months (7) 24 months (8) 13–26 years (9) 19 and 24 months (10) 42 to 45 months (11, 13) 12 months

	Genetic
	(12) 6, 12 and 18 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 age 15 months (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 (27) 13.9 to 16.4 years (28) Mean 7.9 years
Sex	(1–4, 7) Mixed (5) 46% girls (6) Same-sex twins and different gender (9, 15) Unclear (8) 100% female (10) 58% female (11) 43% girls (12) 52% girls (13, 21–22) 50% girls (14) 43% girls (16) 53.4% girls (17) 48.8% girls (18) 45% girls (19) 51% girls (20) 49.5% girls (23) 54% girls (24) 50.7% girls

	Genetic
	(25) 52% girls (26) 61.3% girls (27) 55% girls (28) 51.2% girls
Ethnicity	(1–3) Various (4, 6) Leiden and London (7) 80% European (5, 8-10, 14–15, 20) Unclear (11, 13, 26) 100% white (12) 67% white (16) 42% maternal minority (17) Dutch (18) Italian (19) Romanian (21) 91% white (22) 90% white (23) Ukrainian (24) European origin (25) 67% 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 polymerase chain reaction) (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 (7–10) 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 6 months predicting outcome of secure attachment at age 12 or 18 months (13, 16) DRD4-7 repeat allele, 521 C/T, 5-HTTLPR

	Genetic
	(14–15) Sibling similarity for attachment classification (17) Mineralocortical receptor gene and alleles. (18) 5-HTT, COMT, GABA Subunit A Receptor Alpha 6 (GABRA6), DRD4, DRD4/-521 (19) 5-HTTLPR and brain-derived neurotrophic factor (20) DRD4, DRD2, COMT, 5-HTT, oxytocin receptor (OXTR) (21–23) 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	(1–3) None. Low-risk population (4, 6) None. Mostly middle class and educated (5) Mothers were recruited because of a loss experience; no other risk factors identified (8–11, 14–15) Unclear (12) Below poverty line (7, 13, 18) None (16) Maltreatment. (17) 54.2% drank during pregnancy (19) Foster care versus institutional care (20-22) No additional risk factors (23) Adjusted for IQ and institutional care (24–25) No (26) Depression (27–28) Low risk
Notes	(1–3, 11, 16, 18, 22) Absolute numbers of those with gene in different categories of attachment (4, 6, 7) 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 (8–10) Absolute numbers in RevMan (12) No exact *p* values provided and could not calculate SE of SMD so data captured in text only

	Genetic
	(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 (14–15) Percentage presented in table only; could not be meta-analysed (17) Regression analysis was provided, no numbers so data could only be extracted as text in table (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 (23) Looked at interaction between rearing environment and attachment and genetic status. Presented results in table. Also presented means (24–26) Narrative only (27–28) Percentage 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 2004	Recruited MZ and DZ twin pairs and their parents through the Netherlands Twin Registry. Most families were middle class. N = 56.	AQS. 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.	DAI (unvalidated).	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 brain-derived neurotrophic 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 venues. Low risk population. N = 89.	Attachment security assessed using SSP. Self-regulation. Battery of tasks to assess the child's capacity to suppress a dominant response and instead perform a sub-dominant response.	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 may put them at risk of self-control deficiencies.

Study	Sample	Measures of attachment	Positive results	Negative results	Conclusion
Luijk 2011b	Age of 14 months and their mothers for 502 infants. Subjects recruited from Generation R Study from Netherlands. N = 302.	Attachment security assessed using SSP. Sensitive-responsive assessed using Ainsworth Sensitivity Scale (Ainsworth 1974(Ainsworth et al., 1974)).	To predict attachment security: infants carrying the minor mineralocorticoid receptor allele were more secure during their SSP test if their mother's caregiving was sensitive-responsive (sensitive x mineralocorticoid receptor predicts attachment security, p <0.001).	No genetic main effect of mineralocorticoid receptor gene (involved in stress activity) or glucocorticoid receptor gene on secure attachment.	No main effect of mineralocorticoid receptor or glucocorticoid receptor on secure attachment, but there appears to be interaction with sensitivity. Infants with the G alleles of the mineralocorticoid receptor gene may be faster and better processors of information related to maternal responsiveness in stressful circumstances.
Luijk 2011a	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, in USA following children from birth to 17.5 years. N = 1069.	Attachment security assessed using SSP.	One significant effect for disorganisation with the COMT gene. Infants with the valine/methionine (Val/Met) alleles (heterozygous) received significantly higher disorganisation ratings (p <0.001).	None of the following genes tested predicted SSP security ratings: DRD4, 5-HTTLPR, 2 OXTR 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.
Raby 2012	Longitudinal study of infants	SSP. Observations of 2x 30-minute	Each S-allele of the 5-HTTLPR increased 2-fold the probability of	Variation in the 5-HTTLPR gene did not predict	5-HTTLPR does not appear to be linked to

Study	Sample	Measures of attachment	Positive results	Negative results	Conclusion
	at age 12 and 18 months (154 participants and their mothers) N = 115.	feeding situations and 1x 20-minute play situation. Maternal responsiveness was rated on Ainsworth Sensitivity Scale (Ainsworth 1974).	the carrier being categorised in the high-distress category at age 12 months. The same effect was present at age 18 months, but only for infants categorised as insecurely attached.	attachment security at age 12 and 18 months.	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 age 12 and 18 months (154 participants) and again at age 19 and 26 years. N = 143.	SSP. Observations of 2 30-minute feeding situations and a 20-minute play situation. AAI when participants were aged 19 and 26 years. DRD4, OXTR, 5-HTTLPR.		Infant attachment security was not associated with OXTR, DRD4, 5-HTTLPR.	Infant attachment security and genetic variation could be considered independent factors.
Starr 2013	White adolescents aged 15 years 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 & 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 MZ (~100% genetic similarity) and 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 2001)	64% (secure versus insecure)
MZ twins (O'Connor 2001)	70% (secure versus insecure)
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 2000)	62.6% (secure versus insecure)
Model of fit genetic versus environmental (Minnis 2007) MZ+DZ twins (male versus female) (Minnis 2007)	Male 63.5% (inhibited + disinhibited) genetic versus 36.5% environmental Female 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

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 LOW[1,2,3] 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 LOW[4,5,6,7] 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 LOW[7,8,9] due to risk of bias, indirectness, imprecision	OR 0.46 (0.17 to 1.26)	249 per 1000	116 fewer per 1000 (from 195 fewer to 46 more)
Disorganised + DRD4/5-HTTLPR LL	245 (2 studies)	⊕⊖⊖⊖ VERY LOW[2,4,6] 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 LOW[4,5,6,7] 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 LOW[7,9,10] 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 LOW[7,9,10] 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 genotype (GG)	114 (1 study)	⊕⊖⊖⊖ VERY LOW[2,11] 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 LOW[7,11] 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 LOW[4,5,7,9] 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 LOW[7,9] 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 + 5-HTTLPR LL	292 (3 studies)	⊕⊖⊖⊖ VERY LOW[5,7,9,12] 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)

Secure attachment + 5-HTTLPR SS/SL	199 (2 studies)	⊕⊖⊖⊖ VERY LOW[7,9,12,13] 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 LOW[7,9,14] 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 LOW[7,9,10] 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 LOW[7,9,10] 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 LOW[7,9,11] 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 – COMT GG	115 (1 study)	⊕⊖⊖⊖ VERY LOW[7,9,11] 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)

Note.

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% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

[1] Controlled only for maternal frightening behaviour.
[2] 95% CI crossed 1 minimal important difference (MID).
[3] Large effect OR >2.
[4] Did not adjust for potential confounders. Only Frigerio 2009 attempted to adjust for other gene effects, but the raw data is not adjusted.
[5] Heterogeneity, I^2 >55%.
[6] Cicchetti 2011 was the only study in an at risk population.
[7] 95% CI crosses 2 MIDs.
[8] Did not adjust for potential confounders. Frigerio 2009 attempted to adjust for other gene effects, but the raw data is not adjusted.
[9] Not in an at risk population.
[10] Did not adjust for potential confounders.
[11] Frigerio 2009 attempted to adjust for other gene effects, but the raw data is not adjusted.
[12] Only Barry 2008 was a cohort study but they provided only cross-sectional data. Only Frigerio 2009 adjusted for potential confounders but the raw data were not adjusted.

[13] Heterogeneity, I^2 >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

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 concordance (95% CI)
Concordance	844 (4 studies)	⨁⊖⊖⊖ VERY LOW[1,2,3] 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)

Note.
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% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

[1] O'Connor 2001 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.

4.2.2 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.

4.2.3 Clinical evidence statements

4.2.3.1 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.

DRD4/5-HTTLPR LL

- Very low-quality evidence from 2 studies (n = 245) showed that DRD4/5-HTTLPR 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-HTTLPR 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 (that is, 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 and glucocorticoid receptor

- Very low-quality evidence from 1 study showed (n = 302) that mineralocorticoid receptor and glucocorticoid receptor genes 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

- 1 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 an association between genetic background and attachment disorder (inhibited and disinhibited) in boys but less so in girls.
- 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).

4.2.4 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 (including attachment disorder). For this review secure attachment and attachment difficulties – insecure and disorganised – were of greatest concern. The GC agreed that in terms of decision making, disorganised attachment and attachment disorder are the most important outcomes since they best reflect the poor 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. Maternal unresolved loss or trauma is associated with disorganised attachment, but only in the presence of the DRD4-7-repeat allele, which suggests that the DRD4 gene may mediate the response to loss or trauma. 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-HTTLPR LL but again there was some imprecision in the results. If 5-HTTLPR is expressed in children, there was no evidence to show it is associated with secure attachment. However, if 5-HTTLPR is expressed with the 2 long alleles, LL, it may be associated with secure attachment, but the results are inconclusive. If 5-HTTLPR is expressed with 1 or 2 short 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 while -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 and glucocorticoid receptor 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. One study showed attachment disorder may be mediated by genetics, but only in males not in females. No results were found for 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 system. This would require very costly support and would have a substantial impact on NHS and personal social services (PSS), education and criminal justice system costs, and society as a whole. The GC also noted that timely identification and assessment would have consequences for parents' mental and emotional wellbeing too (for example, development of depression and anxiety). 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). A number of 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 difficulties. 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 ongoing 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 as the results were not convincingly clear, and there was no evidence of cost effectiveness, it was 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 and young people.

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, 1997)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 and colleagues (Ainsworth et al., 1979). 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 quality of care provided to the child by the carer (Belsky & Fearon, 2008). However, exposure to some stressors (e.g. marital conflict or domestic violence), may have direct effects on the child's attachment, although relatively little work has examined this systematically.

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 one 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) • Used 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:: o analysis of covariance (type of multiple regression) o adjusted OR, RR, HR (dichotomous variables) o correlation coefficient, r^2 (continuous variables)

Component	Description
	○ χ^2 (categorical variables) ○ Multiple regression co-efficient β (continuous variables) **Excluded analyses** Univariate analyses (unadjusted results)
Study design	• Systematic reviews • Prospective cohort studies that conducted a multivariate analysis

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

5.2.1.1 Studies considered

For this review 6 relevant systematic reviews were identified: Atkinson 2000 (Atkinson et al., 2000), Cyr 2010 (Cyr et al., 2010), Martins 2000 (Martins & Gaffan, 2000), Madigan 2006a (Madigan et al., 2006a), Van Ijzendoorn 1995 (van Ijzendoorn, 1995) and Van Ijzendoorn 1999 (van IJzendoorn et al., 1999). 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) and 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.

The 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: low income, low education, ethnic minority, single mothers and adolescent mothers)
c. parents with mental health problems (this factor was further divided by: depression, post-traumatic stress disorder [PTSD])
d. marital discord
e. parents with unresolved trauma or loss
f. frightening or fearful behaviour by the caregiver
g. parents who have attachment difficulties or who have been in care
h. parents who have been maltreated
i. 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 an association between attachment and parental sensitivity (De Wolff & van Ijzendoorn, 1997). However, many of the risk factors reviewed are generally assumed to have an effect on attachment because of their impact 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 are presented together

For ease of presentation, in addition to the risk factors the evidence is further categorised according to the source of evidence (that is, 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 2006a (2) Van Ijzendoorn 1995	(1) Madigan 2006a (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	Not reported (NR)	NR	(1–3) Any	(1–2) Any	(1–2) Any	(1–2) Any
Dates searched	NR	NR	(1) From 1970 (2–3) NR	(1) From 1970 (2) NR	(1–2) NR	(1–2) NR

	Maltreatment	Social disadvantage	Mental health problems	Marital discord	Unresolved loss	Frightening/ fearful behaviour
Electronic databases	PsycINFO; Dissertation Abstracts; MEDLINE	PsycINFO; Dissertation Abstracts; MEDLINE	(1) Psychological Abstracts, MEDLINE, and Dissertation Abstracts International databases (2) PsycLIT[1] and the Institute for Scientific Information 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)	55 (4729)	55 (4729)	(1) 15 (NR) (2) 7 (NR) (3) 80 (6283)	(1) 15 (NR) (2) 80 (6283)	(1) 12 (851) (2) 22 (NR)	(1) 12 (851) (2) 80 (6283)
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 attachment	(1) Attachment security (2) Disorganised attachment	(1) Disorganised attachment (2) Quality of infant–parent attachments	(1) Disorganised attachment (2) Disorganised attachment
Overall review quality	Very low	Very low	(1–3) Very low	(1–2) Very low	(1–2) Very low	(1–2) Very low

Note.
[1] PsycLIT = American Psychological Association database covering articles, chapters and books in the fields of psychology and behaviour.

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 2013 (5) McMahon 2006 (6) Murray 1992 (7) Seifer 1996 (8) Teti 1995	(1) Goldberg 2003 (2) Grienenberger 2005 (3) Madigan 2006b (4) Shah 2011	(1) Brown 2010 (2) Frosch 2000
Country	(1–4, 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 (5–6) Postnatal depression (7) Maternal psychopathology (results for major depression) (8) Maternal 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
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	(1–2) Low risk (3) Adolescent mothers (4) Preterm, high-risk infants	(1–2) Low risk

	Parents with mental health problems	Parents with unresolved and early loss or trauma	Marital discord
	(4) Low risk (5) Infant settling and feeding difficulties (6–8) Low risk (other than depression status)		
Infant/child age (mean months)	(1) 27 (2) 28 (3) 8 (4, 7) NR (5) 4 (6) 18 (8) 7	(1, 3) NR (2) 10–14 (4) Less than 36 weeks	(1) 3.5 (2) 3.1 years (at 3-year follow-up)
Infant sex (% female)	(1) 44% (2) 49% (3) 52% (4) 51% (5) 47% (6–7) 51% (7) 42%	(1) 47% (2) NR (3) 55% (4) 49%	(1) 51% (2) %45
Parental ethnicity (% white)	(1) 35.6% (2–3, 6) NR (4) 72.8% (5) 93% (7) 90% (8) 95%	(1) NR (2) 94% (3) 81% (4) 70%	(1) 82% (2) 92%
Type of publication	(1) Prospective cohort (6 months) (2) Prospective cohort (1–36 months) (3) Prospective cohort (8–12 months) (4) Prospective cohort (years)	(1) Prospective cohort (AAI administered prenatally and SSP at 12 months)	(1) Prospective cohort (3.5–12 months) (2) Prospective cohort (6 months–3 years)

	Parents with mental health problems	Parents with unresolved and early loss or trauma	Marital discord
	(5) Prospective cohort (3–11 months) (6) Prospective cohort (15 months) (7) Prospective cohort (7–11 months) (8) Prospective cohort (13 months)	(2) Prospective cohort (AII administered at 10 months and SSP at 14 months) (3) Prospective cohort (AII administered at 6 months and SSP at 12 months) (4) Prospective cohort (Reaction to Preterm Birth Interview administered at 9 months and SSP at 16 months)	
Time between measurements (months)	(1) 6 (2) 1–36 (3) 8–12 (4) NR (5) 3–11 (6) 15 (7) 7–11 (8) 13	(1) 12 (2) 4 (3) 6 (4) 7	(1) 8.5 (2) 30
Number of participants	(1) 45 (2) 1077 (3) 112 (4) 320 (5) 111 (6) 113 (7) 123 (8) 50	(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
Control	(1) Non-elevated PTSD symptoms (n = 33) (2–4, 5, 7–8) 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 (CES-D) (3) Census Bureau's measurement of poverty threshold; Maternal Self-Efficacy Scale; Parenting Stress Index–Short Form; Beck Depression Inventory (BDI) (4) Centre for Epidemiological Studies Depression Scale; Coping with Children's Negative Emotions Scale (5) DSM fourth edition (DSM-IV), Composite International Diagnostic Interview (CIDI), CES-D (6) Edinburgh Postnatal Depression Scale and Standardised Psychiatric Interview (7) Clinical Interview for DSM third edition, revised (DSM-III-R) (8) Beck's Depression Inventory	(1) AAI (2) The Parent Development Interview; Addendum to the Reflective Functioning Scoring Manual (3) AAI (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 (3) 0–4 (4) Kindergarten	(1) Prenatal (third trimester) (2) 10 (3) 6 (4) Discharge from hospital	(1) 3.5 (2) 6

	Parents with mental health problems	Parents with unresolved and early loss or trauma	Marital discord
	(5) 4–12 (6) 2–3 (7) 4–8 (8) Unclear		
Outcome	(1) Attachment insecurity; attachment disorganisation (2–8) Attachment insecurity	(1, 3) Attachment disorganisation (2, 4) Attachment status	(1–2) Attachment security
Outcome measure	(1–2) SSP (3) AQS (4) MSSB (5–8) SSP	(1–4) SSP	(1) SSP (2) AQS
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 (mother), 13 (father) (2) 26
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)	(1) Multivariate analysis of covariance: β (2) Linear regression: partial r (3) Hierarchical regression analysis: r^2/ β	(1) Hierarchical linear regression: β (2) Hierarchical regression analysis

	Parents with mental health problems	Parents with unresolved and early loss or trauma	Marital discord
	(5) Logistic regression (Wald χ^2) (6) Hierarchical logistic regression model (7) r^2 (8) Wald χ^2	(4) Hierarchical logistic regression model	
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 Instrument for Assessment and Classification (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
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 2006b	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 (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) that 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) that 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 1 of the identified factors with a set of children from low-risk backgrounds.

The review included 59 studies (N = 4336) that 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) that 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 that 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 and 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 1992, Seifer 1996, Teti 1995. Three studies with 1240 infants and children (Campbell 2004, Murray 1992, Teti 1995) 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 1996 found that the simple correlation for depression status is significant, but not in the hierarchical regression (controlling for anxiety and risk status). One 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. One 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 <0.05). 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 <0.001).

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 an overall significant association between marital discord and disorganised attachment, the combined effect size was r = 0.05. However, in the two studies which used the Main and Solomon (1990) coding system, the combined effect size was statistically significant, r = 0.25 (p = 0.007).

Two prospective cohort studies met the eligibility criteria for this review: Frosch 2000 and Brown 2010. Frosch 2000 showed that interparental hostility during family play at 6 months predicted less secure attachment between preschool-age children and mothers 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 AAI. 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 and 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 2006a 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 <0.01) from 6 studies (N = 495).

Four prospective cohort studies were identified for this review: Goldberg 2003, Grienenberger 2005, Madigan 2006b and 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, Grienenberger 2005 and Madigan 2006b 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 a term coined by Main and Hesse (1990), who proposed 'these behaviours shown by a caregiver as one contributor to disorganised attachment.' There are two main systems for measuring frightening or fearful behaviour. The first is a focused assessment of frightened, threatening, and dissociative parental behaviour was developed by Main and Hesse (1991, 2006) referred to as the 'FR coding system.' A second system is the AMBIANCE assessment (Bronfman, Parsons, and Lyons-Ruth 1992; Bronfman, Madigan and Lyons-Ruth 2007) which is broader than the Main and Hesse assessment, but also assesses withdrawing parental behaviours and contradictory parental communications, as well as a broader spectrum of role-confused behaviours.

Two systematic reviews were identified for the review: Van Ijzendoorn 1999 and Madigan 2006a. Madigan 2006a investigated 'anomalous parental behaviour' and attachment disorganisation in 9 studies (n = 644) and found a significant association, r = 0.34, p <0.01. There was no difference between the FR coding system and the AMBIANCE system in terms of predicting attachment disorganisation. Van Ijzendoorn 1999 included 2 observational studies (n = 119) which 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 of 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 (Posttraumatic Stress Disorder Checklist—Civilian Version)	Attachment insecurity (maternal)	Depression symptomatology, Maternal parity	β = 1.56, p = 0.12	β = 1.56, p = 0.04 (without covariates)
			Attachment disorganisation (maternal)	Depression symptomatology, Maternal parity	β = 3.10, p = 0.02	β = 2.58, p = 0.005 (without covariates)
Campbell 2004 MODERATE QUALITY	1077	Depression (CES-D)	Attachment status (maternal)	Income to needs, maternal education, partner status, child gender, maternal sensitivity	χ^2 = 22.38, p <0.01	χ^2 = 66.41, p <0.0001 (without covariates)
Candelaria 2011 LOW QUALITY	112	Psychopathology (Maternal Self-Efficacy Scale; Parental Stress Index- Short Form; BDI)	Attachment insecurity (maternal)	Intervention status, infant gender, maternal age, parity	β = 0.11 p = 0.18	β = -0.18, 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 = 0.20, p <0.05	p <0.05 (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 = 0.06	χ^2 = NS (p >0.025) (without maternal sensitivity)
		Chronic depression (CIDI and CES-D)	Attachment insecurity (maternal)	Maternal education and non-Education speaking background	β = 2.62, p = 0.16	χ^2 = 5.11, p <0.01 (without covariates)

Study	N	Risk factor (measure)	Attachment outcome (figure)	Controlled for	Association (Adjusted)	Association (without covariate)
		Any depression (CIDI and CES-D)	Attachment disorganisation (maternal)	Maternal education and non-Education speaking background	β = NS	β = NS (without covariates)
Teti 1995 LOW QUALITY	50	Depression group (BDI)	Attachment insecurity (maternal)	Maternal education, family income, mothers' marital status	χ^2 = 12.83, p <0.001	p <0.001 (without covariates)
Murray 1992 MODERATE QUALITY	113	Depression group (Postnatal depression-Psychiatric interview)	Attachment insecurity (maternal)	Marital friction, infant gender	p <0.05	χ^2 = 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	r^2 = NS	p <0.05 (without covariates)
Note. df = degrees of freedom; NS = not significant.						

Table 18: Summary of 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 = 0.26, p < 0.05	p <0.05
				Child gender	B = NS	
Frosch 2000 LOW QUALITY	57	Observed Inter-parental hostility	Attachment insecurity (maternal)	Concurrent assessment	F = 4.31, p <0.05	p <0.05

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

Study	N	Measures	Outcome	Controlled for	Adjusted result	Unadjusted result
Goldberg 2002 LOW QUALITY	197	Unresolved maternal attachment (AAI)	Attachment disorganisation (maternal)	Atypical maternal behaviour	β = 0.14, p <0.04	β = 0.19, p <0.01
Grienenberger 2005 LOW QUALITY	45	Maternal reflective functioning (PDI)	Attachment (maternal)	Atypical maternal behaviour	Partial r = -0.217, p = 0.087	r = -0.345, p = 0.009
Madigan 2006b LOW QUALITY	82	Unresolved status (AAI)	Attachment disorganisation (maternal)	Atypical maternal behaviour	β = 0.19, p <0.06	r = 0.31, p <0.01
Shah 2011 LOW QUALITY	74	Unresolved grief (Reaction to Preterm Birth Interview)	Attachment insecurity (maternal)	Neonatal health risks, family socio-economic risks, maternal vocabulary, maternal depression	Adjusted OR = 2.94, p = 0.46	RR = 1.59, p < 0.01

5.2.2 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.

5.2.3 Clinical evidence statements

5.2.3.1 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.

5.2.3.2 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.

5.2.3.3 Mental health problems in parents

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.

Depression

- Very low-quality evidence from a single systematic review (total number of studies [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.

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.

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.

5.2.3.4 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.

5.2.3.5 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.

5.2.3.6 Frightening or fearful behaviour

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

5.2.4 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 teenage parents) that together are associated with an increased risk of attachment difficulties • recognising and assessing other difficulties, including coexisting mental health problems and the consequences of maltreatment, including trauma • knowing when and how to refer for evidence-based interventions for attachment difficulties (see Sections 9.3, 10.3 and 11.3). 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, including: • personal factors, including the child or young person's 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), parental drug and alcohol misuse or mental health problems, and parents' and carers' experiences of maltreatment and trauma in their own childhood • 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), depression, alcohol misuse and emotional dysregulation. 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 • works with other services, including mental health services for children and young people, 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 agreed that in terms of decision making disorganised attachment and attachment disorder are the most important outcome since they best reflect the poor long-term outcomes of the child. 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 (that include a mixture of study designs), and supplement this with higher 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 (teenage) 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 therefore 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 1 study showed an association between maternal PTSD and attachment difficulties, however the GC felt that this evidence could be generalised to other forms of mental health problems and also to fathers. The GC wished to recommend that parental mental health problems and substance misuse were considered and addressed 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 misuse problems (Cheng, 2010) reviewed in Section 6.2) showed that they are more likely to be 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. The same data set showed no association between parents with mental health problems and the likelihood of children 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 a history of attachment difficulties 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, that is 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 was also mindful that families are not stigmatised (that is, 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 the 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, the 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 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	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 (Cheng, 2010) from the process and arrangement review in Section 6.2. The statistical analysis performed in each study often varied (OR, RR, HR, beta-co-efficient, χ^2, zero-order gamma), in addition to the number and type of adjustments, therefore the data could not be meta-analysed. For this reason, GRADE software was not used to assess the quality of the evidence. The criteria set out below were used instead. 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 ○ 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 • 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 tools such as the Ainsworth Maternal 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 or 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 predisposing 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 Chapters 7 and 8 for which assessment tools should be used). While the GC did not feel that there was strong enough evidence to single out any of the socioeconomic factors as independently associated with attachment difficulties, 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 (in Chapters 6 and 8), to consider other important factors to include in the overall assessment (recommendation 3). These included personal factors (attachment pattern and relationships), placement factors, educational factors, and physical and mental health problems. 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 features (see Chapter 6) identified the impact that some mental health problems can have on a child's experience in care. 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 studies on the impact of disabilities on a child's experience in care were identified in the review on process and arrangement features (see Chapter 6). Because the results from the review of process and arrangement risk factors associated with attachment difficulties for children in care were also considered when developing these recommendations, risk factors associated with not only parents but also the child's carers are also included. 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 providing training to key workers on how to recognise and assess attachment difficulties and associated risk factors. They also raised the importance of children and young people with attachment difficulties being involved with staff training programmes so 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.

5.3.1 Research recommendation

1. **Develop reliable and valid screening assessment tools for attachment and sensitivity that can be made available and used in routine health, social care and education settings. (See Appendix G.)**

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., 2001b; 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., 2012). 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 the age of 12 months 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. (2001b) 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., 2012). In such instances, the attachments are not always given the priority or the acknowledgement the child needs, particularly when he or she is very young and unable to articulate their feelings of loss or distress. 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 and increasing their likelihood of having attachment difficulties (Pears et al., 2010; Ward et al., 2006).

Some of the factors that influence placement stability of a child in care include whether they are placed with their siblings, whether they are placed in kinship care or in foster care, the age at first placement, if they are living close to and are able to visit their biological parents and the total duration they have been in care (Jones et al., 2011). For the carers, a number of factors influence how well they can provide a stable environment for the foster child, including how much support they receive from case-workers, if they are offered training on how to care for a child with attachment difficulties and their motivation for providing foster care (such as concern for the community or their desire to ultimate adopt) (Denby et al., 1999). A number of these factors also influence whether the child in care can be successfully reunited with their biological parents, however before this occurs the risk of additional neglect or maltreatment must be taken into account

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 were 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 healthcare 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:** Preschool (≤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	

6.2.1 Clinical evidence for 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

6.2.1.1 Studies considered

Sixty-two studies met the eligibility criteria for this review: Akin 2011 (Akin, 2011), Altenhofen 2013 (Altenhofen et al., 2013), Barth 2008 (Moran et al., 2008), Bausch 2006 (Bausch, 2006), Becker 2007 (Becker et al., 2007), Beijersbergen 2012 (Beijersbergen et al., 2012), Brooks 2002 (Farmer & Lutman, 2012), Brownell 2011 (Brownell et al., 2011), Casanueva 2014 (Casanueva et al., 2014), Chamberlain 2006 (Chamberlain et al., 2006), Cheng 2010 (Cheng, 2010), Church 2006 (Church, 2006) Cohen 2011 (Cohen & Farnia, 2011), Cole 2005 (Cole, 2005a), Cole 2007 (Cole, 2005b; Cole, 2007), Connell 2006a (Connell et al., 2006), Connell 2006b (Connell et al., 2006b), Courtney 1995 (Courtney, 1995), Courtney 1996a (Courtney & Barth, 1996), Courtney 1996b (Courtney & Wong, 1996), Dance 2002 (Dance et al., 2002), Dance 2005 (Dance & Rushton, 2005), Dance 2007 (Ward et al., 2006), Davis 1996 (Davis et al., 1996), De Schipper 2012 (De Schipper et al., 2012), Denby 1999 (Denby et al., 1999), Farmer 2013 (Farmer & Wijedasa, 2013) , Fernandez 2013 (Fernandez & Lee, 2013), Fisher 2005 (Fisher et al., 2005), Frame 2002 (Frame, 2002), Gabler 2014 (Gabler et al., 2014), Harder 2012 (Harder 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 2005 (Leathers, 2005), Leathers 2010 (Leathers et al., 2010), Lehmann 2013 (Schmid et al., 2013a), McDonald 2007 (Sinclair 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 2006 (Wells & Guo, 2006), Wells 2012 (Wells & Correia, 2012) and 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 reunited 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 126

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 list of excluded studies 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 (EAS)	
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		

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
Bausch 2006	USA	Adoptive and non-adoptive parents	232	NA	Willingness to adopt foster children	Cross-sectional	Same time	Age, employment 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 – 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	

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
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 separation, no prenatal care before 6th month		
Casanueva 2014	USA	Children were placed into care due to maltreatment – abuse or neglect	1196	Infants (aged 12 months or younger) at time of investigation and followed until age 5–7 years	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	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
		had multiple previous placements and were being moved from 1 foster care to another								
Cheng 2010	USA	Long-term foster care (min 3 years)	411	Children (unclear age)	Entry into adoption, reunification	Retrospective cohort (database)	3 years	Placement duration, need of housing services, need of financial assistance, needed services unobtained, caseworker engagement with family, age		
Church 2006	USA	Hispanic children in Family Services	16581	8.6±5.1 years	Duration in state care	Retrospective cohort (data base)	2 years	Age, economic level		
Cohen 2011	Canada	Children adopted from China compared with non-	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

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
		adopted Canadian girls of similar age, family and background								
Cole 2005	USA	Caregivers and their children. Children without severe developmental, neurological or developmental problems at the time.	46	12.57 (1.61) months	Secure attachment	Cross-sectional	Same time	Financial gain, desire to adopt, replace grown up children, social responsibility	SSP	
Cole 2007	USA	Infants placed in foster home. Infant placed within the first 3 months of child's life and who had been In their care continuously	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	

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
		for 6 months prior to participating in study								
Connell 2006a	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		
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		

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
Courtney 1996a	USA	Aged at least 17 years at exit, and 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, 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	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.

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
		fosters. Focused on those with the intention for adoption								
Dance 2005	UK	Children spent almost 4 years in temporary care before permanent placement Average 76 months since adopted. 66 children had experienced some form of abuse	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
Dance 2007	UK	Children late placed from care into unrelated families with the intention of permanence, following adverse circumstance	63	5–11 years	Poor placement	Prospective cohort	12 months	Maternal sensitivity	Behaviour, tone and answers in an interview	

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
		s in early childhood								
Davis 1996	USA	Included children who entered foster care were aged 12 years 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 2012	USA	Foster care sample Almost all experienced 1 out-of-home placement, ranging between 0 to 5. Foster children had lived with their current foster family for 3–76	59	57 months (16.4)	Security rating	Cross-sectional	Same time	Parental sensitivity x child shyness,	SSP	There were no effects of age, time in placement and age at out of home placement on attachment quality and secure rating

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
		months. The sample was selected for long term (3 or more) non-kinship placement.								
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 included in the analysis	180	0–14 years	Return stability	Prospective cohort	1 year	Service needs of parents: adequate support upon return; 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 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
								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. Living for 2.5 months in foster families	48	30.6 months (17.69)	Attachment	Prospective cohort	6 months	Parenting stress, supportive presence	AQS	
Harder 2012	Netherlands	Adolescents in secure residential care	135	16 years (11.6 to 20)	Adolescent-teacher – Relationship perceived by adolescents and staff.	Prospective cohort	8 weeks (at admission and 8 weeks later)	Adolescent measure of skills of teacher or care workers (including giving positive	The Psychological Availability and Reliance on Adult questionnaire (Schuengel 2003)	Unclear how this tool is used to measure attachment

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
					Adolescent – care worker relationship			feedback, commitment, clarity, being respectful)		
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 a non-significant impact on placement stability: foster parents having their own children, single versus married/ cohabiting, education

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
										(<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 Keeping Foster and Kinship Parents Trained and Supported programme. Included children at least 1	292 foster children	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
		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,

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, county care.
Koh 2014	USA	Foster care children who have been in stable and unstable homes.	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		

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
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 2013	Norway	Children in foster care. 68% had at least 1 prior placement	54	8.9±2.0	RAD	Cross-sectional	Same time	Age at first placement, number of placements		
McDonald 2007	USA	Children who entered foster care	24551	NA	Adoption, reunification	Retrospective cohort	3 years	Age at referral, number of prior placements		
O'Connor 2000	UK	Children adopted from Romania	165 + 52 adoptees 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	184	4+ years	Predicting number of placements at 18-month follow-up	Prospective cohort	18 months	Preparing child for placement by 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
		previous 18 months								
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 were placed in out-of-home care for the first time	5978	3–18 years	Permanence (reunification, adoption or subsidised guardianship)	Retrospective cohort (data base)	4–8 years	length of time 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	Attachment	Cross-sectional	same time	Maternal sensitivity. Less experienced foster mother	AQS	only adjusted for 1 other confounder
Romàn 2012	Spain	40 internationally adopted children after an average	158	4–7 years	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
		of 40 months since their adoption. Children were compared with 58 children living with their birth families and to 50 children living in Spanish institutions. No child adopted <12 months of 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	90	2–12 years	Disruption	Prospective cohort	6 to 9 months	Number of placements		

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
		consecutively referred to child welfare								

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
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 (database)	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 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

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
Vogel 1999	USA	Children in foster care, caregiver, 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 years	Reunification	Prospective cohort	12 months	Setting of 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	1397	Unclear – children	Permanent placement	Retrospective cohort (data base)	4 years	Child age, private agency, paid		

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
		a first time out-of-home placement						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	Foster children	Single variables: parental sensitivity and shyness	β = 0.82* (children who were more shy and had more sensitive foster parents had greater attachment)

Study	N	Risk factor	Population Age	Controlled for	Outcome
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*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

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)

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

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

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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

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

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
Cole 2007 MODERATE QUALITY	46	Stress	Foster children 10–15 months	Carer's childhood trauma, caregiving environment, sensitivity, support	β = -0.051 NS
		Support (need for support and needs met)			β = -0.044 NS
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*

Note.

Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

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 QUALITY	46	Carer's childhood trauma (emotional, physical, sexual, neglect)	Foster children 10–15 months	Carer's sensitivity, caregiving environment, stress, support	β = -0.063*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

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

Study	N	Risk factor	Population Age	Controlled for	Outcome
Romàn 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*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

** p <0.05 to <0.001.*

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

Study	N	Risk factor	Population Age	Controlled for	Outcome
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*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

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 6 months to 42 months)

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

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 to 2.29)*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05.*

Table 33: Risk factor: motivating factors. Outcome: secure attachment with carer

Study	N	Risk factor	Age	Controlled for	Outcome
Cole 2005 MODERATE QUALITY	46	Financial gain	Foster care 12.6 months	Rescue abuse/neglect child, increasing family size, social concern, social concern for community, helping special needs children, spiritual expression, adoption, replace grown children, companionship for only child	β=-0.816 NS
	46	Social concern for community		Rescue abuse/neglect child, increasing family size, social concern, financial gain, helping special needs children, spiritual expression, adoption, replace grown children, companionship for only child	β=1.939*
	46	Replace grown children		Rescue abuse/neglect child, increasing family size, social concern, financial gain, helping special needs children, spiritual expression, adoption, social concern for community, companionship for only child	β=-1.405*
	46	Adoption		Rescue abuse/neglect child, increasing family size, social concern, financial gain, helping special needs children, spiritual expression, replace grown children, social concern for community, companionship for only child	β=-0.794*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
**p <0.05 to <0.001.*

6.2.1.3 Factor: Siblings being placed together in care

Table 34: Risk factor: siblings together. Outcome: enter adoption

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
Akin 2011 HIGH QUALITY	3351	Siblings together	Foster care 0–18 years	Age, race, reason for removal, placement stability, mental health 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 35: Risk factor: siblings together. Outcome: reunification

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
Akin 2011 MODERATE QUALITY	3351	Siblings together	Foster care 0–18 years	Age, race, reason for removal, placement stability, mental health 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)

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

** p <0.05 to <0.001.*

Table 36: 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)

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 37: 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)

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 38: 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*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

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

Table 39: Risk factor: age or duration in adoption. Outcome: placement disruption

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
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)*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 40: 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 HIGH QUALITY	7807	Foster care 0–18 years	Successful exit	Gender, race, district (location, Medicaid eligibility, substance use, mental disorder, developmental disability, therapeutic foster care, psychiatric evaluation	0–5 versus 13–18 NS
					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*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 41: Risk factor: older age at placement. Outcome: reunification

Study	N	Population	Factor	Controlled for	Outcome
		Age			
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 2006b 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 1996b MODERATE QUALITY	8625	In care 0–16 years	Reunification (with family or guardian)	Gender, ethnicity, health, poverty, parents home, removal reason, regions, placement setting	RR 1.39 to 1.26* Versus <1 years
Fernandez 2013 LOW QUALITY	168	In care 0–12 years	Reunification	Mother's 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 mental health problems, misuse, working hours, income	HR 0.8 to 1.1 NS
Frame 2002	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*

Study	N	Population Age	Factor	Controlled for	Outcome
MODERATE QUALITY					Less likely to be reunited than newborns

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 42: 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 children, non-kin care, gender, ethnicity of foster parent	β = -0.10 NS
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)*

Study	N	Population Age	Factor	Controlled for	Outcome
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*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 43: Risk factor: older age at placement Outcome: duration in care

Study	N	Population Age	Factor	Controlled for	Outcome
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*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 44: 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

Study	N	Age	Factor	Controlled for	Outcome
Connell 2006a 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 45: 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, socioeconomic status, placement setting, stability, time in care	1–6 and 13–16 versus <1 NS
				7–12 versus <1 RR 0.74*

Study	N	Population Age	Controlled for	Outcome
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, child welfare system	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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 46: 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 47: 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 versus infant versus 0–18 years versus infant	Adoptive parents Children 0–18 years	Ethnicity, drug-exposed + siblings, special needs	OR 2.74* 0–12 versus infant OR 4.60* 0–18 versus infant

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

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

Table 48: 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, mental health 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 2006b 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 49: Risk factor: foster care versus kinship care. Outcome: placement disruption

Study	N	Population Age	Controlled for	Outcome
Chamberlain 2006 LOW QUALITY	246	Foster care versus kinship care 5–12 years	Number of children, age, gender, ethnicity, baseline displacement	RR 3.18* Foster care ↑
Hurlburt 2010 MODERATE QUALITY	292	Foster care versus kinship care 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 2006a 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 ↑

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 50: 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, mental health problem, initial placement type, disability.	HR 2.25* ↑ adopted
Connell 2006b 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)

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 51: 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 52: 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 ↑

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

** p <0.05 to <0.001.*

Table 53: Risk factor: therapeutic versus not in foster care. Outcome: successful exit from care

Study	N	Population Age	Controlled for	Outcome
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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 54: 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*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 55: 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	1357	Kinship care versus foster care	Race, gender, age, siblings in care, removal from, health, source of referral, duration.	NS

Study	N	Population Age	Controlled for	Outcome
MODERATE QUALITY		0–2.5 years		
Wells 2006 MODERATE QUALITY	398	Kinship care versus foster care 0–16 years	Gender, ethnicity, age at entry, health, reason for placement, mother mental health problems, substance misuse, working hours, income	HR 0.7112 NS

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 56: 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 57: 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, education of caregivers	OR 0.55 (0.18–1.66) NS

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 58: 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

6.2.1.6 Factor: relationship or proximity to biological parents

Table 59: 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
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	↑*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 60: 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

** p <0.05 to <0.001.*

Table 61: 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 visits, enhanced foster care rate	OR 1.13*
	195	Visits with parents		Ethnicity, years in foster care, foster care integration, sibling placement patterns, placed alone	OR 1.09*
	203	Attachment to mother		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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 62: 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
	195			Ethnicity, years in foster care, foster care integration, sibling placement patterns, placed alone	OR 0.91 NS

Study	N	Risk factor	Population Age	Controlled for	Outcome
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
			In care 20–21 years	Age, ethnicity, abuse, educational needs, depression, foster care integration, duration in care, visits to parents	OR 0.81 NS

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

6.2.1.7 Factor: duration of placement

Table 63: 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	OR 1.20 NS
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

Study	N	Population Age	Risk factor	Controlled for	Outcome
					(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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 64: Risk factor: placement duration. Outcome: risk of re-entry

Study	N	Population Age	Risk factor	Controlled for	Outcome
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 2002 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

Study	N	Population Age	Risk factor	Controlled for	Outcome
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* 6 months–1 year versus <6 months
					RR 0.76 NS >1 year versus < 6 months

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

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

Study	N	Population Age	Risk factor	Controlled for	Outcome
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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 66: 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

Note.

Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 67: 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, mental health 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)
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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

6.2.1.8 Factor: number of places

Table 68: Risk factor: number of places. Outcome: failed placement

Study	N	Population Age	Controlled for	Outcome
Fisher 2005 (RCT) MODERATE QUALITY	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)*

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, relationship problems, assessed by specialist, court order placement, distance from home	NS
	158	Residential care 13–16 years		↑

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 69: Risk factor: number of places. Outcome: adoption

Study	N	Population Age	Controlled for	Outcome
Connell 2006a 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 70: 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*

Note.

Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 71: 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 HIGH QUALITY	6783	Biological 0–16 years	Age in care, ethnicity, health problems, income assistance, placement setting, duration of care	RR 1.104*
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 MODERATE QUALITY	24551	In care NA	Ethnicity, age at entry, family structure, reason for removal, gender	OR 0.781

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 72: Risk factor: number of places. Outcome: permanency.

Study	N	Population Age	Controlled for	Outcome
Courtney 1996a MODERATE QUALITY	2653	In care 17+ years	Duration in care, placement setting.	OR 0.825 (versus unsuccessful exit)

Study	N	Population Age	Controlled for	Outcome
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 2006a 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)

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 73: Risk factor: number of routine placement moves. Outcome: behavioural-related placement change

Study	N	Risk factor	Population Age	Controlled for	Outcome
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*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

6.2.1.9 Factors associated with the environment or experience in care

Table 74: Risk factor: maternal (carer) sensitivity + placement problems

Study	N	Risk factor	Population Age	Controlled for	Outcome
Dance 2002 LOW QUALITY	71	Sensitivity	Foster children 6.9 years	Child's psychosocial 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)

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 75: Risk factor: age of carer. Outcome: placement stability

Study	N	Risk factor	Population Age	Controlled for	Outcome
Casanueva 2014 MODERATE QUALITY	1196	Age of carers >40 years versus <40	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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 76: 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	Gender, education, employment status, infertility, genetic background, concerns about	β -0.023 NS

Study	N	Risk factor	Population Age	Controlled for	Outcome
			23–85 years	adoption, importance of biological ties, adoptive parenting is inferior, pronatalist beliefs	

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 77: 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 78: Risk factor: characteristics in care. Outcome: successful reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Leathers 2010 LOW QUALITY	146	Attachment to mother	In care (12–13 years)	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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 79: Risk factor: prepare the child for placement. Outcome: placement disruption

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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 80: Risk factor: maternal support for sexually abused child. Outcome: number of placements

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 81: Risk factor: source of referral. Outcome: reunification

Study	N	Risk factor	Population	Controlled for	Outcome
			Age		
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)

Study	N	Risk factor	Population Age	Controlled for	Outcome
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)

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 82: 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
	240		Foster care		NS

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 83: 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*

Study	N	Risk factor	Population Age	Controlled for	Outcome
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*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 84: Risk factor: needs of biological parents. Outcome: adoption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Cheng 2010 HIGH QUALITY	441	Parents need housing services	Foster care	Caseworker engagement, services needs of parents (8), maltreatment types (8), child's characteristics (6)	OR 0.11*
			Unclear		
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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 85: 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 86: Risk factor: child welfare services. Outcome: re-entry into care

Study	N	Risk factor	Population Age	Controlled for	Outcome
Lee 2012 MODERATE QUALITY	397	Child welfare services during and after foster care	Biological parents 5–15 years	Age, race, gender, caregiver risk, abuse, number of placements, mental health needs, duration of placement,	HR 0.67*
		After exit 1–25 months			HR 0.46*
Barth 2008 LOW QUALITY	273	No prior child welfare involvement versus 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 87: 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 88: Risk factor: caseworker characteristics. Outcome: multiple placements

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*
		Educational level			Zero-order gamma 0.00 NS
		Years of experience			Zero-order gamma 0.07 NS

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 89: 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 90: 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 13–16 years		NS

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 91: 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*

Note.

Pink = negative association.
** p <0.05 to <0.001.*

Table 92: 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)

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 93: 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	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

Study	N	Risk factor	Population Age	Controlled for	Outcome
MODERATE QUALITY					

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 94: 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 95: Risk factor: reasons for taking children on or experience with care system. Outcome: foster carers satisfaction

Study	N	Population Age	Factor	Controlled for	Outcome
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

Study	N	Population Age	Factor	Controlled for	Outcome
			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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 96: 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 97: Risk factor: employment status. Outcome: willingness to adopt

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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Grey = non-significant association **Table 98: 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

Note
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 99: 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 23–85 years	Gender, education, employment status, age of carer, genetic background, concerns about adoption, importance of biological ties, adoptive parenting is inferior, pronatalist beliefs	B 0.192 – 0.330*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.01.*

Table 100: Risk factor: ethnicity. Outcome: adoption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Akin 20111 HIGH QUALITY	3351	African-American versus white	Foster care 0–18 years	Age, gender, reason for removal, disability, placement stability, mental health problem,	HR 0.62 ** weak

Study	N	Risk factor	Population Age	Controlled for	Outcome
				initial placement type, sibling placement, early stability	
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, mental health, placements, family of origin, reason for removal, gender	B = 0.583 p <0.001
		Hispanic			B = 0.780 NS

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 101: 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

Study	N	Risk factor	Population Age	Controlled for	Outcome
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, mental health 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 102: Risk factor: ethnicity. Outcome: kinship placement

Study	N	Risk factor	Population Age	Controlled for	Outcome
Havlicek 2010 HIGH QUALITY	474	African-American versus 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)

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 103: Risk factor: ethnicity. Outcome: reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Akin 2011 MODERATE QUALITY	3351	African-American versus white	Foster care 0–18 years	Age, gender, reason for removal, disability, placement stability, mental health problem, initial placement type, sibling placement, early stability	HR 1.47 significant

Study	N	Risk factor	Population Age	Controlled for	Outcome
Cheng 2010 MODERATE QUALITY	441	African-American versus white	Long term foster care unclear age	Caseworker characteristics, maltreatment type, gender, age, chronic problems, duration	OR 1.09 NS
Courtney 1996a MODERATE QUALITY	2896	African-American versus 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 2006a HIGH QUALITY	5901	African-American	Foster care 0–20 years	Age, gender, disability, mental health 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 2002 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
McDonald 2007 MODERATE QUALITY	1473	African-American	Children enter foster care. NA age	Age, physically disabled, mental health, placements, family of origin, reason for removal, gender	OR 1.070 NS

Study	N	Risk factor	Population Age	Controlled for	Outcome
Wells 1999 MODERATE QUALITY	2616	African-American	Foster care and kinship care 0–15 year	Cohort, gender, age, health status, number of parents, reason for care, placement type	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	χ^2 -1.577 NS

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 104: 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, socioeconomic status, 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) NS

Study	N	Risk factor	Population Age	Controlled for	Outcome
Jonson-Reid 2003 HIGH QUALITY	200	Non-white versus 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 versus white	Children experienced abuse 5–16 years	Age, gender, carer risk, maltreatment, duration of care, number of placements, child welfare system	HR 1.96 NS
Wells 2012 MODERATE QUALITY	398	White versus black	In foster care 0–12 years	Gender, age, risk assessment, care giver characteristics, reason	RR 0.73 (0.41–1.29) NS

Note:
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 105: Risk factor: ethnicity. Outcome: placement disruption

Study	N	Risk factor	Population Age	Controlled for	Outcome
Chamberlain 2006 LOW QUALITY	246	Child, black versus white	Children entering foster care first time 5–12 years	Number of children, non-kin care, gender, ethnicity of foster parent	B = 0.22 NS
Connell 2006a 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 versus 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

Study	N	Risk factor	Population Age	Controlled for	Outcome
Leathers 2005 MODERATE QUALITY	196	African-American	Children in care 12–13 years	Age, years in foster care, foster care integration, sibling placement patterns, placed alone	OR 2.42 p <0.05
Pardeck 1984 HIGH QUALITY	4288	Ethnicity	Children in care Unclear	Problems in child care, foster care integration, sibling placement patterns, place	Q = 0.22 p <0.05
Sallnas 2004 HIGH QUALITY	240	Immigrant background	Foster care	Gender, run-away, abuse, mental health child, behaviour, reason for breakdown, assessment, court order, distance from home	NS

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 106: Risk factor: ethnicity Outcome: negative placement outcome

Study	N	Risk factor	Population Age	Controlled for	Outcome
Hurlburt 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 107: Risk factor: ethnicity. Outcome: exit from care

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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 108: Risk factor: ethnicity. Outcome: placement duration

Study	N	Risk factor	Population Age	Controlled for	Outcome
Church 2006 MODERATE QUALITY	16,581	Hispanic versus 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 109: 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, mental health 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

Study	N	Risk factor	Population Age	Controlled for	Outcome
McDonald 2007 MODERATE QUALITY	1473	Physically disabled	Children enter foster care. NA age	Age, physically disabled, mental health, placements, family of origin, reason for removal, gender	HR 1.080 NS

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 110: Risk factor: disability. Outcome: reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Akin 20111 MODERATE QUALITY	3351	Has disability	Foster care 0–18 years	Age, gender, reason for removal, ethnicity, placement stability, mental health problem, initial placement type, sibling placement, early stability	HR 0.32 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 2007 MODERATE QUALITY	14583	Physically disabled	Children enter foster care. NA age	Age, physically disabled, mental health, placements, family of origin, reason for removal, gender	HR 0.598 Small effect

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 111: Risk factor: disability. Outcome: change in placement

Study	N	Risk factor	Population Age	Controlled for	Outcome
Connell 2006a MODERATE QUALITY	5901	Disability (no definition)	In foster care 0–20 years	Age, gender, race, mental health problems, number of placements, reason, setting.	RR 0.94 NS
Pardeck 1984 HIGH QUALITY	4288	Physical handicap	Children in care Unclear	Problems in the child's birth family, interaction with the child's brith family, time in care, ethnicity.	Q = -0.06 NS

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 112: Risk factor: disability. Outcome: re-entry into care

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, socioeconomic status, placement setting, stability, time in care	RR 1.395 p <0.05

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 113: 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)

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 114: 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

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	χ^2 0.219 NS

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 116: 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	χ^2 0.219 NS

Note.

Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 117: 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 QUALITY	398	Any caregiver substance abuse (yes versus no)	In Foster care 0–12+ years	Gender, age, risk assessment, care giver characteristics, reason	RR 0.81 (0.49–1.33) NS

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 118: 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*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 119: 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,	HR 0.55*

Study	N	Risk factor	Population Age	Controlled for	Outcome
				initial placement type, sibling placement, early stability	
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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 120: Risk factor: mental health of child. Outcome: reunification

Study	N	Risk factor	Population Age	Controlled for	Outcome
Lee 2012 LOW QUALITY	397	Child received mental health services	Children experienced abuse 5–16 years	Age, gender, carer risk, maltreatment, duration of care, number of placements, child welfare system, 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 121: Risk factor: mental health of child. Outcome: kinship care

Study	N	Risk factor	Population Age	Controlled for	Outcome
Iglehart 1994	812	Mental health problem	Out of care	Age, mental health problem, gender, number of placements	OR 0.54

Study	N	Risk factor	Population Age	Controlled for	Outcome
HIGH QUALITY			16 years+		p <0.01

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 122: Risk factor: mental health of child. Outcome: change in placement

Study	N	Risk factor	Population Age	Controlled for	Outcome
Connell 2006a 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 mental health problem			RR 0.78 NS
		Group home and mental health problem			RR 0.47 p <0.001
		Emergency shelter and mental health problem			RR 0.56 p <0.001
Pardeck 1984 HIGH QUALITY	4288	Mental retardation	Discharged from first time in care 0–16 years	Age, health problems, socioeconomic status, placement setting, stability, time in care, ethnicity	Q = 0.05 NS
Sallnas 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 123: 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 versus 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)*

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.
** p <0.05 to <0.001.*

Table 124: 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 mental health care	First time in care 3–18 years	Age, gender, reason for care, duration, instability, sibling placement, run-away, ethnicity	HR 1.13 NS

Note:
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 125: 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

Note:

Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

Table 126: 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

Note.
Outcome: Green = positive association; Pink = negative association; Grey = non-significant association.

6.2.2 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 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 (MTFC) 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 does not 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 (2007; Rubin et al., 2004) 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.

6.2.3 Clinical evidence statements

6.2.3.1 Outcome: attachment

- Moderate-quality evidence from 1 study (n = 217) showed a longer duration of deprivation before 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 aged 10–15 months, but less stress and being more supportive is associated with greater attachment at 26–88 months.
- Moderate-quality evidence from 1 study (n = 46) showed if the carer had experience childhood trauma, they were less likely to develop a secure attachment with the foster child.
- Moderate-quality evidence from 1 study (n = 46) showed financial gain of foster carers is not associated with secure attachment between the child and the foster carer.
- 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 carer.
- 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 carer.
- Moderate-quality evidence from 1 study (n = 46) showed a desire to adopt is associated with poor secure attachment between the child and the foster carer.
- Moderate-quality evidence from 1 study (n = 158) showed the older age at adoption (older than 12 months) 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 RAD in primary school-age 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 RAD in primary school-age children.
- Moderate-quality evidence from 1 study (n = 46) showed foster carers who have age-appropriate learning materials for their child are more likely to have a secure attachment with their foster child.

6.2.3.2 Outcome: number of placements

- 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.

- 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.

6.2.3.3 Outcome: placement disruption

- Low to high-quality evidence from 8 studies (n = 8973) showed an unclear association between older age at placement and placement disruption.
- Moderate quality evidence from 1 study (n = 90) showed longer placement duration is associated with placing children when they are younger than 12 months compared with placing children when they are aged 1–4 years.
- 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 while 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 while 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 2 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 = 12,508) suggest that African-American children in care are no more likely to experience placement disruption than white 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.

6.2.3.4 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 while 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 while 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 African-American children in care are no more likely to re-enter the care system than white children.
- Moderate-quality evidence from 1 study (n = 292) showed no association between African-American or Hispanic children in care and the likelihood of having a negative placement outcome from care compared with white 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 were not exposed.

6.2.3.5 Outcome: entering 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 = 37,784) showed in 4 studies older children placed in care are less likely to enter adoption, 1 study found no association.
- Moderate-quality evidence from 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, while 1 study found a non-significant association.
- Moderate to high-quality evidence from 2 studies (n = 30,452) 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 (that is, 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 = 27,506) showed inconsistent findings regarding whether African-American children in care are less likely to be adopted compared with white children.
- Moderate to high-quality evidence from 3 studies (n = 13,449) 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 were not 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.

6.2.3.6 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 and 2 studies showed a non-significant effect.
- Low to high-quality evidence from 8 studies (n = 18,934) showed a trend for older children entering care being 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 = 11,863) 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 = 10,380) 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, while 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 (that is, 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 = 20,441) showed there may be no association between African-American children in care and the likelihood of them being reunited with their biological parents compared with white children. However, the findings are inconsistent
- Moderate quality from 4 studies (n = 27,916) showed children in care who are disabled are less likely to be reunited 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 were not exposed to substance abuse.
- Moderate to low-quality evidence from 2 studies (n = 14,980) 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.

6.2.3.7 Outcome: exiting care

- High-quality evidence from 1 study (n = 985) showed no association between African-American children in care and the likelihood of exiting care compared with white children.
- Moderate-quality evidence from 1 study (n = 16,581) 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.

6.2.3.8 Outcome: permanent placement

- Moderate-quality evidence from 4 studies (n = 11,428) 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 = 12,874) showed an unclear association between kinship care and risk of permanent placement or being adopted, 2 studies showed a positive association, while 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 = 16,174) showed a higher number of placements is associated with a decreased risk of permanency, 3 studies showed a significant association, while 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 African-American children in care may be less likely to receive a permanent placement compared with white children.

6.2.3.9 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.

6.2.3.10 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.

6.2.4 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. Use this guideline in conjunction with the NICE public health guideline on looked-after children and young people and the NICE clinical guideline on when to suspect child maltreatment. 7. Ensure that all children, young people and their parents or carers get equal access to interventions for attachment difficulties, regardless of whether they: • are on the edge of care, accommodated under Section 20 of the Children Act 1989, subject to a care order, under special guardianship or adopted from care • are placed with birth parents, foster carers (including kinship carers), special guardians or in residential care • are from a minority ethnic group • have a disability or a mental health problem • are from the UK or overseas. 8. Assess all children and young people who enter the UK as unaccompanied asylum-seeking children 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 asylum-seeking children 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 attachment disorder) 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 care 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 and developmental status, criminal outcomes, parenting attitude, knowledge and behaviour, and parental stress and mental wellbeing.
Trade-off between clinical benefits and harms	Evidence was identified on potential difficulties encountered by children from minority ethnic groups who are in care. The results showed children who are African-American or Hispanic may be less likely to receive a permanent placement compared with white children. No difference was found on the likelihood of being adopted, receiving a 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 with a disability who are in care 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 was found regarding the likelihood of being adopted, experiencing 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. 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 from a minority ethnic group, have a disability, or have a mental health problem) are provided equal access to the care they need. The GC also discussed how it is often incorrectly assumed that once a child has been adopted that they and/or their adoptive parents no longer need access to services. It was also discussed how unaccompanied asylum-seeking children 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 or conflict and have PTSD, anxiety and/or depression. For these reasons, the GC felt that it is important that all children and young people who enter the UK as unaccompanied asylum-seeking children 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. In addition, 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 system costs, and society as a whole.
Quality of evidence	The evidence on children who need special consideration (that is, children in care who are from a minority ethnic group, have a disability, or have a 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 such as placement disruption or being adopted. Nevertheless, the GC considered the outcomes to be important with regard to 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 analyses 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	The GC discussed concerns about placing children and young people with families that are culturally matched to their background. The GC understood that in the past a cautious approach to cultural matching has been taken, with an emphasis on achieving the same or partial ethnic matching. This was based on the assumption that transracially adopted children's needs may not be met and that there was a risk that they may not develop 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. Adoption agencies now no longer have to give due consideration to religious persuasion, racial origin and cultural background when matching them with prospective adopters. 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, or cultural background, for example celebrating cultural or religious festivals.

Ensuring equal access to consistent care (continued)

Recommendations	9. 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, personal adviser or key person in school throughout the period the child or young person is in the care system 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 attachment disorder) 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 care 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 and developmental status, criminal outcomes, parenting attitude, knowledge and behaviour, and parental stress and mental wellbeing.
Trade-off between clinical benefits and harms	The evidence for 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 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 parents and carers' 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, personal adviser or key person in school throughout the period the child or young person is in the care system, adopted from care 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 changes (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 carers' 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 studies 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, χ^2, 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. The criteria set out below were used instead.
	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
	  ○ appropriate statistics were used.
	High-quality evidence was used to generate the part of the recommendation to use a case management system to coordinate care and treatment since it included more than 441 participants, 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 part of the recommendation to have 'the same key worker, social worker or personal advisor' since the retrospective cohort study included 4288 participants, adjusted for confounders and had no risk of bias or indirectness. However, the study only controlled for 1 covariate (time in care). This recommendation was also generated from consensus using the GC's experience and expertise.
Other considerations	None.

Improving the stability of placements

Recommendations	10. Ensure that, whenever possible, children and young people enter the care system in a planned manner rather than in response to a crisis. 11. Ensure that carers are ready to accept the child or young person's need to be in a loving relationship and are able and, whenever possible, willing to think about providing longer-term care or involvement if needed. 12. Help arrange kinship placements, if safe and in the best interest of the child or young person. 13. 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. 14. Provide ongoing support and advice, either by telephone or in person, and 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. If a placement breaks down, aim to maintain the relationship between the child or young person and the foster carers (including kinship carers), adoptive parents or special guardians, whenever possible and if it is in the best interests of the child or young person. 16. 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 attachment disorder) 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 care 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 and developmental status, criminal outcomes, parenting attitude, knowledge and behaviour, and parental stress and mental wellbeing.
Trade-off between clinical benefits and harms	Evidence from 1 study found that 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 showed that 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 that 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 in Chapter 10) 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 and 1 prospective cohort) that showed less stress and greater support of carers are associated with greater attachment security in children aged 26 –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 recommendation 14, the information was extracted from the descriptions of the RCTs that showed parental education and training (see Chapter 10) 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 having attachment difficulties was also reported in a study that found the longer the duration a child had been deprived of good care (before adoption), the more the likelihood of having attachment difficulties increases. Recommendation 16 was derived from the GC's expertise and experience. They felt it was important that children from any setting, including those who have been adopted, should have equal 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 been reunited with their 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 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 and the likely impact on them and their families, may improve 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 changes (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. 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 derived from 1 cross-sectional study was used to generate recommendation 11 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. The study included 468 foster carers, adjusted for confounders, carried a low risk of bias and included a direct population. Low to moderate-quality evidence from 5 studies (n = 389) also showed that more sensitive carers will result in more secure attachment in foster children. The data were downgraded because of heterogeneity in the results and just fewer than 400 participants. Moderate to high-quality evidence was used to generate recommendation 12 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 more than 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 recommendations 13 and 14. The evidence was derived from RCTs presented in the review on interventions for children in care (see Chapter 10). 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 were all adjusted). Mostly moderate-quality evidence showed that more sensitive 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 (fewer than 400 participants). These findings supported recommendations 13 and 14. 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 and developmental status, criminal outcomes, or parental stress and 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. They felt that 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: (a) teachers who give positive feedback and are respectful; (b) the carer having social concern for the community; (c) older age at adoption (older than 12 months); (d) longer duration in adoption; (e) having appropriate learning materials in home; and (f) younger age of carers. The following factors were associated with poorer attachment outcomes in foster children: (a) carers having experienced childhood trauma; (b) carers wishing to replace grown-up children; and (c) a desire to adopt (because of fear of losing the child in care). The following factors were not found to be associated with attachment: (a) carer's education; and (b) the family being 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 (see Chapter 5). The GC found some of these factors do not translate well to recommendations and some need more evidence before they can be used with confidence. The GC acknowledged that although placement stability is generally important for enabling children and young people to form attachments and to develop a stable relationship with their carers, there are times when placement changes are sometimes necessary to respond to the wishes and feelings of the child, or to remedy problems posed by the current placement.

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

Recommendations	17. 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, such as face-to-face meetings, telephone conversations and other appropriate methods of communication • making sure the child or young person has the opportunity to ask questions and make choices whenever appropriate and possible • supporting the child or young person in maintaining relationships with their parents or previous carers unless this would not be in the child or young person's best interests • 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 attachment disorder) 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 care 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 and developmental status, criminal outcomes, parenting attitude, knowledge and behaviour, and parental stress and 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 involved parents who accompanied their children on the pre-placement visit and the placement itself.

	Evidence for providing ongoing support during transitions 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-age children. The intervention on secondary school-age children also decreased the likelihood of delinquent behaviour but had no effect on emotional/behavioural problems. The part of the recommendation about giving children and young people the opportunity to ask questions and taking account of their needs at different ages and developmental stages was 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. They also recognised that visiting or reuniting with parents or carers could be harmful if they had been abusive. The GC referred to the evidence showing that vulnerable groups may be at a greater risk of having poor outcomes when in care when recommending that professionals should take into account the needs of children with physical disabilities and mental health problems. The GC noted they may need additional support when in care to address their needs, for example wheelchair access or support to access to mental health services. 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 that 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 child or 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 changes (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 sharing 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 parents 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 (fewer than 400). Low to moderate-quality evidence (1 retrospective, 1 prospective 4–5 years) showed visiting parents increases the 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 (that is, 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 part of the recommendation that professionals should take account of the needs of children at different ages and developmental stages was derived from GC consensus. They discussed that 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 studies were of a reasonable size (more than 400 participants) and used good measures of the risk factors, but none measured attachment difficulties in these vulnerable children. The part of 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 and the other provided continuous data.
Other considerations	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. Long-term follow-up is also needed from the RCTs to see if the benefit of ongoing support to carers on placement disruption is maintained.

Improving the likelihood of a more permanent placement, including adoption

Recommendations	18. If a return to the birth parents or original family is not an option, keep siblings together if it is possible and in the best interests of all the children or young people. 19. Offer 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, or • if there have been frequent changes of placement, or • if there is more than one child with attachment difficulties in the placement. 20. When adoption is considered the best outcome for the child or young person ensure that: • their wishes are taken into account • they are offered information that is appropriate to their developmental level about the implications that adoption may have for future contact with their birth parents, siblings, wider family members and others • a full assessment of need is conducted before adoption • an assessment of attachment difficulties is offered at any stage after adoption • they are offered support (based on the assessment of need and attachment difficulties) before, during and after adoption.
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 attachment disorder) 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 and developmental status, criminal outcomes, parenting attitude, knowledge and behaviour, and parental stress and mental wellbeing.
Trade-off between clinical benefits and harms	There were 3 prospective studies which 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 (see Chapter 10) 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 aged from 3 to 11 years (mostly primary-school age children). One of the studies showed a positive effect on behavioural problems, measured by a delinquency score, but it had no effect on externalising or internalising symptoms. The GC felt it was important to consider the particular difficulties adopted children experience when separated from their birth parents. The GC developed a consensus recommendation based on the Department of Education's Statutory Guidance on Adoption (2013) and their own expertise and experience. The GC felt it was important that children's wishes regarding adoption were taken into account and that they are offered developmentally appropriate information on what the implications may be for their future contact with their birth parents. They also felt it was important that a needs assessment is conducted before adoption and an attachment assessment is offered at any stage after the adoption if needed. Recommendation 20 highlights how in response to these assessments, adopted children and their parents are offered the support they need. 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 changes (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 were 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 the review on interventions for children in care in Chapter 10). 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 (that is, 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 (for example, school and 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, while 1 study showed it had no effect. The authors suggested that living more than 100 km from biological parents may reduce the acute conflicts that lead to instant rejection and placement breakdown. Nevertheless, the GC was 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 beliefs (that is, the belief in the benefit of promoting human reproduction) 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 to be relevant for developing a recommendation. The GC agreed that careful consideration needs to be made when deciding to place siblings together in care. The evidence showed that keeping siblings together resulted in either a better outcome or it had no effect on being reunited with their parents, entering adoption, the number of placements or re-entry into care. Nevertheless, the GC acknowledged there are circumstances when placing siblings together in care, when they have attachment difficulties, may make it more difficult for one or both of them to form an attachment to their primary carer, since they may use their sibling as a 'crutch'. In such cases, it may be better to wait until one of them forms a healthy attachment to a primary career before reuniting them with their sibling. The GC discussed the potential cost implications surrounding the recommendation to address the particular needs of adopted children. They discussed potential costs relating to assessment of applicant adopters, training of applicant and approval adopters, sharing key information on a child's attachment style and post-adoption support packages and whether these are different from the support CAMHS provides for families.

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

Recommendations	21. Social care workers should offer children and young people in the care system, in special guardianship or adopted from care, accurate, comprehensive, up-to-date 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). 22. Social care workers should keep a record of the significant people and places in the child or young person's life while they are in the care system. 23. Ensure safeguarding is maintained during any intervention for a child or young person with attachment difficulties.
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 attachment disorder) 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 care 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 and developmental status, criminal outcomes, parenting attitude, knowledge and behaviour, and parental stress and mental wellbeing.
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, through, for example, 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. A 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 their adoptive parents. Children in care often do not have events or experiences recorded in the way that other children growing up in the same household throughout their lives often do. Children in care can 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. A 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 they are old enough, 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 that the NICE guideline complies with UK safeguarding legislation and government guidance, which states that (a) children are protected from maltreatment; (b) impairment of children's health or development is prevented; (c) children should grow up in circumstances consistent with the provision of safe and effective care; and (d) action should be taken to enable all children and young people to have the best outcomes.
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 from care with accurate and comprehensive information about their history and family 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 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. Consequently, it is essential that children and young people grow up in circumstances consistent with the provision of safe and effective care.
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	There were no other considerations.

Supporting children and young people with attachment difficulties in schools, early years and other education providers settings (including early years)

Recommendations	
	24. Schools and other education providers should ensure that all staff who may come into contact with children and young people with attachment difficulties receive appropriate training on attachment difficulties, as set out in recommendation 25. 25. 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 • how attachment difficulties affect learning, education and social development • understanding the consequences of maltreatment, including trauma • how they can support children and young people with attachment difficulties. Children and young people with attachment difficulties, and their parents or carers, should be involved in the design of the training courses, wherever possible. 26. Staff in schools and other education settings and health and social care professionals should work together to ensure that children and young people with attachment difficulties: • can access mental health services for children and young people and education psychology services for interventions • are supported at school while they are taking part in interventions following advice from mental health services for children and young people and education psychology services. 27. When providing support for interventions in schools and education settings, staff should: • be aware of the possibility of stigma, bullying and labelling as a result of any absences from school • take into account the child or young person's preferences for the setting of the intervention. 28. Schools and other education providers should ensure that the designated teacher: • has had specialist training: o to recognise and understand attachment difficulties and mental health problems o in data protection and confidentiality • 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

	○ have been adopted or subject to special guardianship orders ○ 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 or young person and to whom the child or young person 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 • maintains an effective referral system with other agencies. 29. Social care professionals, schools and other education providers should ensure that changes or gaps in the education of children and 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. 30. Schools and other education providers should avoid using permanent and fixed-term school exclusion as far as possible for children and young people in the care system with identified 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 cross-sectional study was identified that provided evidence for these recommendations. It showed that teachers' skills and approach, including giving positive feedback, demonstrating commitment and clarity and being respectful, is associated with better adolescent-adult relationships for children in care. They also found that for some young people in care, teachers and care workers can become 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. For both 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, including the consequences of maltreatment. Following stakeholder consultation, the GC added that children and young people with attachment difficulties, and their parents or carers, should be involved in the design of the training courses, wherever possible. 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 mental health services for children and young people and education psychology services and support them while they are taking part in any intervention following guidance from mental health services for children and young people 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. Following stakeholder consultation, the GC added that the designated teachers should have specialist training to recognise and understand attachment difficulties and mental health problems and in data protection and confidentiality and should maintain an effective referral system with other agencies. 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 a conducive environment for the promotion of secure attachment. The GC considered the costs of specialist training to be negligible given 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 ensures continuity in education. The GC 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 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. The GC judged that the costs associated with the provision of such interventions will be significantly outweighed by the potential benefits.

Quality of evidence	Only 1 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 young people used the teachers as a secure base or not, but they did not measure attachment per se, nor was the outcome validated for the measure of attachment difficulties. However, they did find that care workers and teachers can become secure attachment figures for young people, which highlights 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, therefore 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. The GC discussed the difficulty of managing a child with an attachment difficulty who displays disruptive behaviour in the classroom. Their behaviour can interrupt teaching and have negative effects on other students. The GC highlighted how important behaviour support and management is in such cases, however they recognised that this is can present a challenge in the education system. In response to stakeholder consultation comments, the GC added a recommendation. One stakeholder felt that consideration should be given to the preferences and feelings of children receiving school-based interventions for attachment difficulties, which 'may mark them out as 'difficult' or 'special'. The GC agreed and recommended that school staff should be aware of the possibility of stigma, bullying and labelling as a result of any absences from school and take into account the child or young person's preferences for the setting of the intervention.

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. (See Appendix G.)

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 RAD (Boris et al., 2004).

Maternal insensitivity is one of the strongest precursors of children developing attachment difficulties (Ainsworth et al., 1979). 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 Maternal 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 et al., 1974). It was developed within the attachment framework and aimed at explaining individual differences in the SSP (Ainsworth et al., 1979; Ainwsorth et al., 1971).

Ainsworth's Baltimore study showed that maternal sensitivity was indeed related to attachment security (Ainsworth et al., 1979), 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 et al., 2003). A number of new observational instruments have been designed to measure parental sensitivity and 2 are included in this review: the CARE-Index (a dyadic procedure that assesses adult sensitivity in a dyadic context) and the Maternal Behaviour Q-Sort (MBQS).

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 MBQS. 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 (MBQS). 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 ability to perceive the infant's signals accurately and to 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 (that is, 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 from 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 its use has been 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 CARE-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. Following the 3–5 minutes that it takes to film, it then takes 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; 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 MBQS is typically used to measure the sensitivity of mothers of infants aged 8 months up to 3.5 years. A standard version of the MBQS 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 and 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 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 127. 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 Section 8.2.2.

Table 127: 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. The population included children who are: • Adopted, including those adopted from abroad • Looked-after in the care system • On the edge of care Strata: • Preschool (≤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) • 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

7.2.1 Clinical evidence for validity and reliability of measurements and tools used to predict children and young people at risk of developing attachment difficulties

For this review question, a relevant review published by Mesman and colleagues in 2013 was identified (Mesman & Emmen, 2013). The review conducted a systematic search of the literature for 2 of the 3 tools the GC was 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 MBQS.

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., 1979), 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, 1997), 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) and 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 128.

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 discriminant 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%, χ^2 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 129, Table 130, Table 131, Table 132 and Table 133. Summary of findings for the CARE-Index can be found in Table 134, Table 135, Table 136, Table 137 and Table 138. Summary of findings for MBQS can be found in Table 139, Table 140, Table 141 and Table 142.

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 SSP. 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 Quality Assessment of Diagnostic Accuracy Studies checklist 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 list of excluded studies in Appendix M.

Table 128: Study information table for trials included in the meta-analysis

	Ainsworth Maternal Sensitivity Scale	CARE-Index	MBQS
Total no. of studies (N*)	7 (1313)	6 (612)	14 (949)
Study ID	(1) De Wolff 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) Lindhiem 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, 4–5) Cross-sectional (3, 6–7) Prospective cohort	(1, 4–5, 7) Prospective cohort (2–3, 6) Cross-sectional	(1–11) Cross-sectional (12–14) Prospective cohort
Country	(1) Netherlands (2, 5, 7) USA (3) UK (4) Canada (6) Chile (8) France	(1–3, 5) USA (4) Germany (6) Chile (7) France	(1) Canada (2–3, 5, 10–11) USA (4) South Korea (6–9, 12–14) Canada
No. of children	(1) 837 (16 studies) (2) 72 (3, 8) 71 (4) 19 (5) 10 (6) 127 (7) 106	(1) 121 (2) 48 (3) 93 (4) 64 (5) 88 (6) 127 (7) 71	(1) 99 (2, 14) 71 (3) 72 (4) 141 (5) 25 (6) 19 (7) 40 (8) 89 (9) 64 (10) 41 (11) 50 (12) 127 (13) 40
Risk of the population of having poor maternal sensitivity	(1) Unclear (2–7) Low risk (3–6, 8) High risk	(1, 3–7) High risk (2) Low risk	(1, 4–5, 7, 10, 12–13) High risk (2–3, 6, 8–9, 11, 14) Low risk

	Ainsworth Maternal Sensitivity Scale	CARE-Index	MBQS
or secure attachment			
Child age mean (SD)	(1) NR (2) 14.9 months (3.6) (3, 8) 6 months (23–28 weeks) (4) 20 months (10–31). Mental age = 12 months (4.5–22) (5) 3–24 months (6) 17–21 months (7) 3–51 weeks	(1) 24 months (2–48 months) (2) 9 months (12) (3) 3.9 years (0.5) (4) 2.3–5.8 years (5) 3–9 months (6) 17–21 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 year ± 2 weeks 8) 8 and 12 months 9) 10–13 months 10) 12.6 months (8–19) 11) 52 months 12) 6 10 months 13) 6 months 14) 12 months
Child gender (% female)	(1) NR (2) 58% (3, 8) 50% (4, 5) Unclear (6) 51% (7) 43%	(1–7) 50% (2) 39.60% (3) 55.9 (4) 53.1 (5) Unclear (6) 51%	(1–2, 9, 11–12, 14) 50% (3) 41% (4) 25.50% (5–8) Unclear (10) 54% (13) 41%
Ethnicity of child (% white)	(1, 3–4, 8) NR (2, 5) See mother (6) NR (likely to all be Latin American) (7) 100%	(1, 4, 7) NR (2) Primarily white (3) 100% African-American (5) Unclear (6) NR (likely to all be Latin American)	(1–2, 5, 8, 12–14) See mother (3, 6–7) Unclear (4) Unclear, all likely to be Asian (9) NR (10) Unclear, all likely to be Hispanic (11) 78%
Carer age mean (SD/range)	(1, 7) 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 (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

	Ainsworth Maternal Sensitivity Scale	CARE-Index	MBQS
			(14) 31 (4.7) (20 and 45) years
Carer gender (% female)	(1) NR (2–8) 100% mothers	(1–7) 100% mothers	(1–14) 100% mothers
Carer ethnicity (% white)	(1, 3–4, 8) NR (2) 77% (5) 50% (6) NR (all likely to be Latin-American) (7) 100%	(1) 58% (2) Primarily white (3) 100% African-American (4, 7) NR (5) 5% (6) NR (all likely to be Latin-American)	(1) 81% (2) 84% (3) 83% (4) Unclear, all likely to be Asian (5) 6 (24%) were European American (6–7) Unclear (8) White all but 2 (9) NR (10) Unclear all likely to be Hispanic (11) See children (12) 100% (13) 99% (14) 79%
Tool used (index test)	(1–8) Ainsworth Maternal Sensitivity Scale	(1–3, 5–7) CARE-Index (4) Toddler CARE-Index	(1–2, 4–10, 13–14) MBQS (3) Contingency Sensitivity (10) MBPQS – Pre-schoolers Q-Sort (11) MBQS – Short form
Comparison test (reference tool)	(1) Mostly SSP (2–3) 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, 5–6) SSP (3, 7) Attachment Story Completion Task (4) Preschool Assessment of Attachment (PAA)	(1) SSP + AAI (2, 9) SSP (3) Contingency based measure (4, 8, 10–11) AQS (5, 14) AAI (6) Ainsworth Maternal Sensitivity Scale and AQS (7) AQS + Mother versus observer MBQS (12) AQS + Short- versus long-form MBQS (13) AQS
Setting	(1) Laboratory and home (2–3, 7–8) Laboratory (4–6) Home	(1, 3, 6) Home (2, 7) Laboratory (4) University (5) Unclear	(1, 5–10, 12–14) Home (2–4) Laboratory (11) Home and playground

	Ainsworth Maternal Sensitivity Scale	CARE-Index	MBQS
Time to measure	(1–2, 7) Unclear (3) 25 minutes video + coding (4) Part of 90-minute visit (5) 2 hours, including 59 minutes' coding versus 5 minutes coding for MBQS (6) 4 hours (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	(1) 2-hour observation + plus coding (2) Used recording from SSP (3) 6 episodes, 4x 1 minutes 2x undefined: floor play and structured play (4) Unclear (5) 1 hour video + coding (6) Part of a 90-minute 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 (13) 2–3 hour observation + coding (14) 1.5-hour observation + coding
Measure (classification)	(1–8) Maternal Sensitivity	(1) Adult Behaviour: Sensitive, Controlling, Unresponsive. Infant items: Cooperative, Difficult, Passive, Compulsive (2–6) Maternal Sensitivity (7) Reported Unresponsive and controlling only (excluded sensitivity because measured in MSS)	(1–14) Maternal Sensitivity
Time between reference and index tool	(1, 7) NR (2) Same footage as SSP (3) +6 months (4) Same visit (5) +1 week (6) Unclear, similar (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

	Ainsworth Maternal Sensitivity Scale	CARE-Index	MBQS
			(14) -4 months prior
Validity outcomes	1) Convergent validity 2) Convergent validity 3) Predictive validity (6 months) 4) Concurrent and convergent validity 5) No validity measure 6) Convergent validity 7) No validity measure 8) Predictive validity	(1) Convergent and discerning validity (2–6) Convergent validity (7) Predictive validity	(1–2, 4–5, 7–11, 14) Convergent validity (3) None reported (6) Convergent + concurrent (12) Concurrent + predictive validity (13) Predictive validity
Reliability outcomes	(1, 4, 8) NR (2–3) Inter-rater (5) Inter-rater (ICC) (6) Inter-rater and for CARE-Index (7) Inter-rater, test-re-test	(1–3, 5) Inter-rater (4) Inter-rater (including Ainsworth Maternal Sensitivity Scale) (6) Inter- and intra-rater reliability (7) NR (previous testing)	(1–4, 6–7, 9–12, 14) Inter-rater (5, 8, 13) Inter-tester + test re-test Inter-rater

7.2.1.1 Summary of findings for the Ainsworth Maternal Sensitivity Scale

Table 129: Ainsworth Maternal Sensitivity Scale versus attachment: convergent validity

	Sensitivity versus attachment SSP	Sensitivity versus MBQS
De Wolff 1997 (Systematic review) Secure vs. insecure MODERATE QUALITY	r = 0.24 (0.18-0.27)[1,]* k = 16, n = 837	
Kennedy 2008 Disorganised/disorientated behaviour MODERATE QUALITY	r = -0.48[2,]* k = 1, n = 72	
Moran 1992 Secure attachment MODERATE QUALITY		r = 0.43* k = 1, n = 19
Valenzuela 1997 Secure/anxious attachment LOW QUALITY	F(1,38) = 5.31, p <0.05 k = 1, n = 127	

Note.
[1] Mostly used SSP. Showed results were independent of other attachment tools used, age of children, if testing was conducted in the home or laboratory.
[2] Negative association expected because it is between sensitivity and disorganised attachment.
F = results of analysis of variance, r = correlation.
Green = strong association between tool and sensitivity. Yellow = significant but moderate association between tool and sensitivity.
** p <0.05 to <0.001.*

Table 130: 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

Note.
*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 131: 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

Note.
F = results of analysis of variance, r = correlation.
Green = strong difference.

Table 132: Ainsworth Maternal Sensitivity Scale: predictive validity

	Predictive validity of attachment	Predictive tool
Meins 2001 Secure and insecure MODERATE QUALITY	χ^2 = 8.30 p <0.005 K = 1, n = 71	Attachment: SSP 6 months later
Miljkovitch 2013 Predicting disorganised attachment	β = -0.27, p <0.05 K = 1, n = 71	Attachment: Attachment Story Completion Task

Note.
Green = strong association between tool and sensitivity.

Table 133: 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 = 81	
Ainsworth 1978 LOW QUALITY	96% agreement on Group A classification, 92% for Group B, and 75% in Group C k = 1, n = 12	57% (2 weeks apart) K = 1, n = 12

Note.
n = number of participants used for reliability measure.
** p <0.05 to <0.001.*
Green = strong association. Yellow = significant but moderate association.

7.2.1.2 Summary of evidence tables for CARE-Index

Table 134: CARE-Index versus attachment: convergent validity

	Sensitivity versus attachment SSP	Sensitivity versus attachment Attachment Story Completion Task
Crittenden 1988 Attachment Secure; anxious avoidant; anxious ambivalent; avoidant-ambivalent 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 Secure, Avoidant, Resistant LOW QUALITY	Likelihood ratio = 42.18* k = 1, n = 48	

	Sensitivity versus attachment SSP	Sensitivity versus attachment Attachment Story Completion Task
Goodman 1998 Secure attachment MODERATE QUALITY		Co-efficient = 0.21* k = 1, n = 93
Künster 2010 Secure and insecure MODERATE QUALITY		r = 0.523* k = 1, n = 64

Note.
A,B,C, A/C = attachment categories.
Green = strong association. Yellow = significant but moderate association.
** p <0.05 to <0.001.*

Table 135: CARE-Index versus Ainsworth Maternal Sensitivity Scale: concurrent validity

	Sensitivity versus sensitivity (Ainsworth)
Valenzuela 1997 LOW QUALITY	NS correlations k = 1, n = 127

Table 136: CARE-Index: construct validity

	CARE-Index Abused and non-abused
Crittenden 1988 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

Note.
Green = strongly able to distinguish.

Table 137: CARE-Index: predictive validity

	Predictive validityDisorganised attachment
Milijkovitch 2013 Disorganised attachment MODERATE QUALITY	β = 0.03 NS k = 1, n = 71 Maternal unresponsiveness at 6 months and disorganised attachment 42 months
	β = 0.27 p<0.05 k = 1, n = 71 Maternal sensitivity at 18 months and disorganised attachment 42 months

Table 138: CARE-Index: inter and intra-rater reliability

	Agreement between observers	Intra-rater reliability Within same person
Crittenden 1988 LOW QUALITY	82%* k = 1, N = 13	
Fuertes 2009 LOW QUALITY	κ = 0.87* k = 1, N = 16	
Goodman 1998 MODERATE QUALITY	r = 0.81 to 0.90* 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

Note.
N = number of observations (sub-sample) κ= kappa.
** p <0.05 to <0.001.*

7.2.1.3 Maternal Behaviour Q-Sort

Table 139: MBQS versus attachment score: convergent validity

	MBQS versus SSP attachment (SSP)	MBQS versus Attachment Q-Sort
Bailey 2007 Disorganised vs. secure or avoidant LOW QUALITY	√ p <0.01	
Kim 2009 Secure attachment LOW QUALITY		r^2 = 0.417*
Moran 1992 Secure attachment MODERATE QUALITY		r = 0.49*
Pederson 1990 Secure attachment LOW QUALITY		r = 0.52*
Pederson 1995 + 4 months MODERATE QUALITY		r = 0.61* (observer) r = 0.30* (mother)
Pederson 2014 Secure versus insecure LOW QUALITY		r = 0.65*
Posada 1997 Secure versus insecure VERY LOW QUALITY		r = 0.48*
Posada 2007 Global security score LOW QUALITY		r = 0.31*

Note.
[1] √ = significant result.
[2] r = correlation.

Green = strong association between tool and sensitivity; Yellow = significant but moderate association between tool and sensitivity.
** p <0.05 to <0.001.*

Table 140: MBQS (full version) versus ASS, MBQS short version versus full version: 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

Note.
r = correlation.
Green = strong association between tool and sensitivity. Yellow = significant but moderate association between tool and sensitivity.
** p <0.05 to <0.001.*

Table 141: MBQS: predictive validity

	Sensitivity	Future outcome
Tarabulsy 2009 MODERATE QUALITY	r = 0.34* k = 1, n = 40	Attachment security 5 months later (15 months)
Tarabulsy 2009 MODERATE QUALITY	r = 0.48* k = 1, n = 40 Short form	Developmental status Bayley 10+15 months
Tarabulsy 2008 MODERATE QUALITY	r = 0.31* k = 1, n = 127	Attachment security 5 to 9 months later (AQS) 15 months

Note.
r = correlation.
Green = strong association between tool and sensitivity. Yellow = significant but moderate association between tool and sensitivity.
** p <0.05 to <0.001.*

Table 142: MBQS: reliability

	Inter-rater	Mother versus observer	Test–re-test over time
Bailey 2007 LOW QUALITY	r = 0.67 (SD 0.20)* n = 36		
Behrens 2011 LOW QUALITY	r = 0.89* n = 26		
Kim 2009 LOW QUALITY		r = 0.76 n = 20	
Lindhiem 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	r = 0.94 (8 m) r = 0.95 (12 months)		r = 0.71* n = 89

	Inter-rater	Mother versus observer	Test–re-test over time
MODERATE QUALITY			
Pederson 2014 LOW QUALITY	ICC = 0.82* n = 12		
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		
Tarabulsy 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		

Note.
r = correlation.
Green = strong association between tool and sensitivity. Yellow = significant but moderate association between tool and sensitivity.
** p <0.05 to <0.001.*

7.2.2 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.

7.2.3 Clinical evidence statements

7.2.3.1 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 SSP 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 AQS 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, the MBQS. 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 do not

make appropriate weight gains compared with mothers of infants who are of normal weight (all infants were anxious attached). Thus, the Ainsworth Sensitivity Scale demonstrates 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 SSP. Thus, the Ainsworth Maternal Sensitivity Scale demonstrates 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 demonstrates 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.

7.2.3.2 CARE-Index

- Low-quality evidence from 2 studies (n = 169) showed CARE-Index is strongly to moderately associated with SSP 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 the Attachment Story Completion Task attachment scores. Thus, the CARE-Index demonstrates convergent validity with the 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 does not 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 demonstrates construct validity.
- Moderate-quality evidence from 1 study (n = 71) showed the maternal unresponsiveness measured by the CARE-Index is not associated with disorganised attachment measured 36 months later using the Attachment Story Completion Task. However, maternal sensitivity at 18 months measured by the CARE-Index is associated with disorganised attachment at 42 months. Thus, the CARE-Index does 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.

7.2.3.3 Maternal Behaviour Q-Sort

- Low-quality evidence from 1 studies (n = 99) showed the MBQS is associated with SSP attachment scores. Thus, the MBQS demonstrates convergent validity with SSP.
- Very low to moderate-quality evidence from 7 studies (n = 380) showed the MBQS is moderately associated with AQS scores. Thus, the MBQS demonstrates convergent validity with the AQS.
- 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 5 to 9 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 MBQS. 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 MBQS. 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.

7.2.4 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	31. Consider using a parental sensitivity tool (for example the Ainsworth Maternal Sensitivity Scale) and a parenting quality tool with parents and carers to help guide decisions on interventions and to monitor progress.
Relative values of different outcomes	The GC agreed that maternal (or paternal) insensitivity is a strong predisposing risk factor for the development of attachment difficulties. The GC selected 3 key tools that measured sensitivity to review: Ainsworth Maternal Sensitivity Scale, CARE-Index and the MBQS. To capture the validity and reliability of these tools, the GC agreed that sensitivity (of the tool) and specificity were of critical importance. Other outcomes of lesser importance but still relevant were: concurrent, convergent, construct, content, predictive 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 (for example, normal versus low birth weight). The Ainsworth Maternal Sensitivity Scale is only moderately associated with another sensitivity scale, the MBQS, but is not associated with the CARE-Index. However, a strength of this tool is that it predicts disorganised attachment 6 months later, thus showing that maternal sensitivity at 1 time-point is able to predict future difficulties in the relationship between the mother and child. The results of the Ainsworth Maternal Sensitivity Scale are also replicated 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 subscales of the CARE-Index are related to attachment scores (measured by the SSP) if the child is aged under 24 months, but less well if the child is older than 24 months. 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. Maternal sensitivity measured by the CARE-Index was able to predict disorganised attachment in children 24 months later. However, maternal unresponsiveness measured by the CARE-Index was not able to predict disorganised attachment 42 months later. 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 and within the same observer was very good. The MBQS showed a strong association with attachment scores using the SSP, but less so with the AAI and the AQS. 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 to complete, the short version may be a good alternative. The strength of the MBQS is that it reasonably predicts long-term behaviour of the child, showing good predictive validity for secure attachment 5 to 9 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. The results from the mother correlated reasonably well with a trained observer, suggesting that mothers may be able to assess their relationship with their child objectively. The tool is also reasonably stable showing similar results in the mother's sensitivity over time.

	In summary, all 3 tools 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 with the parents of children and young people who are on the edge of care). The GC also considered the 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 system 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 mothers' and children's 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 of sensitivity and specificity. These measures are critical for knowing the likelihood that 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 socioeconomic status. The 3 sensitivity tools were applicable to parents of children aged up to 6 years. 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 preschool- and primary school-age 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. None of the studies validated the use of the tools in other carers, 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 and social care workers may want to consider measuring maternal sensitivity because: (a) maternal insensitivity is a risk factor for attachment difficulties; (b) it is difficult to encourage people to use attachment tools because they are labour intensive, therefore sensitivity tools are more likely to be used in practice; (c) it may be easier to detect improvements in maternal sensitivity compared with attachment difficulties; (d) sensitivity may be a useful measure for the courts; (e) the timing required to train healthcare workers is no more intensive than the tools used to measure attachment; and (f) 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 MBQS The GC discussed the importance of training before using any sensitivity tool and concluded that 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 professionals may also wish to consider measuring maternal sensitivity. The GC discussed the limitation in the data that maternal sensitivity does not predict the critical outcomes of disorganised attachment or insecure attachment. Nevertheless, they felt that measuring sensitivity is important since it is predictive of secure attachment and it was agreed that promoting secure attachment is a helpful goal for children in foster care or on the edge of care. It was also discussed that reducing frightened/frightening parenting, and helping the child development an organised (if not necessarily secure) attachment is also a sound goal clinically. It is important to note also that although sensitivity does not strongly predict disorganised attachment, sensitivity based-interventions (that is, designed to improve sensitivity) do reduce disorganised attachment rates. Promoting sensitivity is clearly helpful, but attention to frightened/frightening or highly atypical parenting is also important. The GC suggested that more research is needed to develop a new or existing tool that is both practical and has strong psychometric qualities (see Section 5.3). 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 carer 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 its 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 SSP). No data on this were 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 MBQS. It is used in children aged 8 months to 4 years, however it is unclear if it is equally effective across all ages. The length of time to administer it 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 while 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 (RAD and DSED) and ICD-10 (RAD and disinhibited attachment disorder). There is some evidence that the behavioural pattern described as disorganised in infancy and early childhood evolves into coercive controlling or compulsive caregiving patterns in preschool and middle childhood, even in low-risk settings (Crittenden, 1992; van IJzendoorn et al., 1999).

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 disorganised attachment (Cicchetti & 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 143. 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 143: 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** • SSP • AQS • Cassidy–Marvin preschool attachment coding system (C-M) • PAA • MCAST • MSSB • Story Stem Assessment Profile (SSAP) • CAI • Separation Anxiety Test (SAT) • School-age Assessment of Attachment (SAA) • AAI **Tools considered for identifying attachment disorders** • DAI-RAD • Preschool Age Psychiatric Assessment (PAPA) – research diagnostic criteria (RDC) • 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:

- SSP
- C-M
- PAA
- AQS
- MCAST
- MSSB
- SSAP
- CAI
- SAT
- SAA
- AAI.

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 older. Further details about the characteristics and psychometric properties of each instrument can be found in Table 144.

8.2.1.1 Children aged 1-4 years

8.2.1.1.1 The Strange Situation Procedure

The SSP (Ainsworth & Wittig, 1969) 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 fourth, disorganised/disoriented classification was later added by Main and Solomon (1990). This classification, running orthogonal to Ainsworth's three, is used for infants whose behaviour suggests a substantial or pervasive disruption of the attachment system. There are seven indices of behaviours which can be used to code disorganised/disoriented attachment, and it is assessed on a 1-9 scale where 5 or more is sufficient for assignment of the classification as an addition to a best-fit Ainsworth classification.

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

The PAA (Crittenden, 1992) is a modification of the SSP 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–Marvin preschool attachment coding system

The C-M (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 and Controlling General Classifications.

8.2.1.1.2 Attachment Q-Sort

The AQS (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 aged between 12 and 48 months. 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. AQS 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 caregiver may be subject to more response-biases because of their own involvement in the attachment relationship

8.2.1.2 Children aged 5-7 years

8.2.1.2.1 Manchester Child Attachment Story Task

The MCAST (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 while 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 SSP and AAI 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.

8.2.1.2.2 MacArthur Story Stem Battery

The MSSB (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.

8.2.1.2.3 Story Stem Assessment Profile

The SSAP (Hodges, 2004) is a clinical and research assessment tool used specifically within both clinical and maltreated populations and is a non-intrusive tool for examining young children's mental representations of attachment and relationships. It is normally used with children aged between about 4 and 9 years. The tool asks the child to respond to a set of narrative story stems where they are given the beginning of a story highlighting everyday

scenarios with an inherent dilemma and children are asked to show and tell what happens next. This technique allows the child's attachment representations to be evidenced in a displaced way which is not experienced as threatening.

8.2.1.3 Children aged 7-15 years

8.2.1.3.1 The Child Attachment Interview

The CAI (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 AAI 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

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 Klagbrun and Bowlby (1976) for use with children aged 4 to 7 years, and Slough and Greenberg (1990) to score the SAT based on 4 attachment scales.

8.2.1.3.3 The School-age Assessment of Attachment

The SAA (Crittenden et al., 2010) consists of cards, such as those used by the SAT, which address threats that school-age 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 AAI (Crittenden, 1999a) and adapted to fit the speech patterns of school-age children.

8.2.1.4 Children aged 15 years and older

8.2.1.4.1 Adult Attachment Interview

The AAI (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, it is 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 ≥ = 0.70 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 ≥ = 0.70 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 ≥ = 0.70 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 HTA report (Wright 2014) as the basis of this review. The HTA report focused 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 with each other. The review excluded studies that had single measures of attachment difficulties without comparison with other instruments. If raw data were available in a comparison between a reference standard and another instrument concurrently, sensitivity and specificity were calculated.

The following tools relevant to the current review were included in the HTA report:

- SSP
- AQS
- PAA
- C-M
- MCAST
- CAI.

The following tools relevant to the current review were not included in the HTA report:

- SAA
- MSSB
- SSAP
- AAI.

The SAA, the MSSB and the SSAP were not included in the HTA report as no studies were identified which included a comparison tool. The AAI 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 that met their inclusion criteria; of these there were 14 studies that 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), Minnis 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) (Van Dam & Van IJzendoorn, 1988) and Vaughn 1990 (Vaughn & Waters, 1990). Sixteen studies from the HTA report were excluded from the current review. The main reason was because the study did not compare 2 tools which were 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 145. An assessment of the quality of included studies can be found in Table 146.

Table 144: Characteristics of included tools used to identify attachment difficulties

	SSP	**AQS**	PAA	C-M	MCAST	MSSB
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

	SSAP	**SAT**	**CAI**	**SAA**	**AAI**
Age range	4-7	7–15	7–15	6–12	>18 years, however has been validated for use in adolescents
Format	Stories with child response procedure	Stories with child response procedure	Semi-structured interview	Picture cards used to elicit fantasy stories and recalled episodes	Quasi-clinical semi-structured interview
Administrator	Researcher-clinician	Interviewer-researcher/clinician	Interviewer-researcher/clinician	Interviewer-researcher/clinician	Interviewer-researcher/clinician
Setting	Not specified	Not specified	Any quiet area	Any quiet area	Any quiet area
Time taken to administer	Approximately 1 hour	Not reported	20–80 minutes (Shmueli-Goetz 2008)	30–45 minutes 1 to 2 hours to code	45–60 minutes

	SSAP	SAT	CAI	SAA	AAI
Training needed for administration	Yes	Yes	Yes 4 days (£600–£900)	Yes	Yes 18 day training course (£2,100)

Table 145: Study information table for studies included in the analysis

	AQS	SSP	PAA	C-M	MCAST	CAI	SAT
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) Fagot 1996 (3) Spieker 2010	(1) Crittenden 2007 (2) Posada 2006 (3) Spieker 2010	(1) Goldwyn 2000 (2) Minnis 2009 (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	(1) 69 (2) 175 (3) 100 (completed = 74; clinical = 34, normative = 40) (4) 129 (complete data for 111)	(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

	AQS	SSP	PAA	C-M	MCAST	CAI	SAT
	(4) 129 (complete data for 111) (5) 79 (6) 39 (7) 58	(5) 306 (6) 79 (7) 39 (8) 58					
Child age mean (range)	(1) 13–49 months (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	(1) 13–49 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	(1) 2.5–4 (2) 18 and 30 months at first and second visit (3) 15–36 months at first and second visit	(1) 2.5–4 (2) 36–43 months (3) 15 and 36 months at first and second visit	(1) NR (2) Clinical: 6.57, normative: 6.44 (3) 5–8 years	Mean clinical: 10.4 years, mean normative: 10.9 years	(1) NR (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

	AQS	SSP	PAA	C-M	MCAST	CAI	SAT
Ethnicity (% white)	(1) NR (2) Clinical = 89.2 Normative = 95.1 (3) 97.7% (4) NR (5–7) NR	(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%
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 SSP	(1–3) PAA	(1–3) C-M 1992	(1–2) MCAST (3) MCAST; Computerised MCAST (CMCAST)	CAI	(1-2) SAT
Index or reference	(1) Index (2) Reference (3) Index (4) Reference (5–6) Index (7) Reference	(1) Index (2) Reference (3–4) Index (5–7) Reference (8) Index	(1) Reference (2-3Index	(1–2) Reference (3) Index	(1) Index (2) Reference (3) Index/reference	Index	(1–2) Reference

	AQS	SSP	PAA	C-M	MCAST	CAI	SAT
Comparison with another tool	(1) SSP and DSM) (2) SSP (3) C-M (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) Child and Adolescent Psychiatric Assessment RAD (3) 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 146: 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
Crittenden 2007	?	✓	?	UNCLEAR	✓	N/A	LOW	MODERATE
Fagot 1996	?	✓	✓	UNCLEAR	✓	N/A	LOW	MODERATE
Goldwyn 2000	?	?	?	UNCLEAR	?	N/A	UNCLEAR	LOW
Mangelsdorf 1996	?	×	?	HIGH	✓	N/A	LOW	LOW
Minnis 2009	?	×	?	HIGH	?	N/A	UNCLEAR	VERY LOW
Minnis 2010	?	×	✓	HIGH	✓	N/A	LOW	LOW
Posada 2006	?	✓	?	UNCLEAR	?	N/A	UNCLEAR	LOW
Shmueli-Goetz 2008	?	×	?	HIGH	✓	✓	LOW	LOW
Smeekens 2009	?	✓	?	UNCLEAR	?	N/A	UNCLEAR	LOW
Spieker 2010	?	✓	?	UNCLEAR	?	N/A	UNCLEAR	LOW
Tarabulsy 1997	?	×	?	HIGH	?	N/A	UNCLEAR	VERY 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
Van Dam 1988	?	✓	?	UNCLEAR	?	N/A	UNCLEAR	LOW
Vaughn 1990	?	✓	?	UNCLEAR	x	N/A	HIGH	VERY LOW
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.

8.2.3.2 Tools for infants and toddlers aged 1–4 years

8.2.3.2.1 The Strange Situation Procedure

The HTA report identified 8 studies that compared the SSP with another tool, which were 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 with the AQS (Boris 2004; Mangelsdorf 1996; Smeekens 2009; Tarabulsy 1997; Van Dam 1988; Vaughn 1990) and 2 studies compared the SSP with the PAA (Fagot 1996; Spieker, 2010). 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 147, Table 148, Table 149 and Table 150, 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 ($\chi^2 = 5.55$, $p = 0.018$), however children classified as disorganised were not more likely to be diagnosed with any type of attachment disorder.

Mangelsdorf 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, $F(3,53) = 4.79$, $p < 0.005$; 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, $p < 0.001$ and 0.01, respectively. The anxious-resistant versus anxious-avoidant comparison was not significant ($F < 1.0$). R was 0.50, $F(4,46) = 3.83$, $p < 0.01$, indicating that SSP reunion behaviours are a significant predictor of home-based attachment security assessment.

Smeekens 2009 (N = 111) used a shortened version of the SSP (SSSP) and examined the association with the AQS as the reference tool. Inter-correlations between the infant attachment measures were $r = 0.34$, $p < 0.01$ for AQS security and SSSP security, $r = -0.30$, $p < 0.01$ for AQS security and SSSP disorganised attachment.

Table 147: Strange Situation Procedure: convergent validity

Study ID	Population (age range)	Convergent validity measure	Association
Van Dam 1988 LOW QUALITY	Low risk (mean 18 months)	Mothers responsiveness in free-play situation	Less resistant behaviour (statistic not reported)
Note. Yellow = moderate association; Grey = non-significant association.			

Table 148: 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	$\chi^2 = 6.34$ (2, N = 74), p <0.05
		Distinguish between preterm birth at 14 months	Non-significant
Note. Yellow = moderate association; Grey = non-significant association.			

Table 149: 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 <0.05 were found to significantly and independently contribute to the prediction of the security of the children's attachment representation, $r^2 = 0.13$, F = 7.34, p <0.001.
			SSSP disorganisation was a significant contributor to the prediction of the children's peer social competence, $r^2 = 0.05$, F = 5.76, p <0.05; β = −0.22, p <0.05.
			SSSP disorganisation was a significant contributor to the prediction of externalising behaviour, $r^2 = 0.20$, F = 27.28, p <0.00.
Note. Green = strong association.			

Table 150: Strange Situation Procedure: reliability

Study ID	Population (age range)	Inter-rater reliability (% agreement)	Internal stability (% agreement)
SSP as the index tool			
Boris 2004 VERY LOW QUALITY	High risk (13–49 months)	71% agreement	
Mangelsdorf 1996	46% VLBW	90% agreement	60% (VLBW)

Study ID	Population (age range)	Inter-rater reliability (% agreement)	Internal stability (% agreement)
LOW QUALITY	(14–19 months)		65% (Full term)
Smeekens2009 LOW QUALITY	Low risk (15 months)	95% agreement	
Vaughn 1990 VERY LOW QUALITY	Low risk (12–18 months)	86% agreement	
SSP as the reference tool			
Fagot 1996 MODERATE QUALITY	Low risk (18–30 months)	88% agreement	
Spieker 2010 LOW QUALITY	Low risk (15 months)	82% agreement Kappa = 0.70	
Tarabulsy 1997 VERY LOW QUALITY	52% preterm (15–36 months)	91% agreement	
Van Dam 1988 LOW QUALITY	Low risk (mean 18 months)	100% agreement	
Note. Green = strong association: Yellow = moderate association; Grey = non-significant association.			

8.2.3.2.2 Attachment Q-Sort

The HTA report identified 7 studies comparing the AQS with another tool: Boris 2004, Mangelsdorf 1996, Posada 2006, Smeekens 2009, Tarabulsy 1997, Van Dam 1988 and 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 (Mangelsdorf 1996, Tarabulsy 1997, Taughn 1990) and in 1 study DSM criteria (Boris 2004) 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 152, Table 153, Table 154, Table 155 and Table 155 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 ($F1,67 = 0.0092$, $p > 0.10$). However, those children diagnosed with RAD 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 ($F1,31 = 4.63$, $p < 0.05$). 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 ($F1,31 = 1.55$, $p > 0.10$).

Smeekens 2009 (N = 129) reported on the association between the AQS and the C-M 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 <0.05]. When the scores for fussiness items of the AQS were co-varied, the residual 12-month AQS security score is predictive of SSP 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 = 0.55, P = 0.001).

Van Dam 1988 (N = 39) used a translated 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 151: Attachment Q-Sort: convergent validity

Study ID	Population (age range)	Convergent validity measure	Association
Van Dam 1988 LOW QUALITY	Low risk (mean 18 months)	Maternal responsiveness	Correlation with attachment security: r = -0.15, p = 0.17
Note. Grey = non-significant association. Van Dam 1988 used a modified versions of the AQS.			

Table 152: Attachment Q-Sort: discriminant validity

Study ID	Population (age range)	Discriminant validity measure	Association
Van Dam 1988 LOW QUALITY	Low risk (mean 18 months)	Infant difficultness	Security correlated with infant difficultness. More difficult children appeared to be rated as more secure (statistic not reported)
Note. Yellow = moderate association. Van Dam 1988 used a modified versions of the AQS			

Table 153: 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 <0.05
Note. Yellow = moderate association.			

Table 154: 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 = 0.30, p <0.001, peer social competence, B = 0.19, p <0.05 and externalising behaviour p = -0.22, p <0.05. It did not predict ego-resiliency, school adjustment, internalising behaviour or dissociation (p = NS)
Note. Yellow = moderate association. Smeekers used a modified version of the AQS and reported concurrent validity with a shortened version of the SSP			

Table 155: 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 < 0.001
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 VERY LOW QUALITY	Low risk (12–18 months)	Kappa 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.			

8.2.3.2.3 Modifications of the SSP

Preschool Assessment of Attachment

The HTA report included 3 studies: 1 compared the PAA with the SSP (Fagot 1996) and 2 compared the PAA with the C-M (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 156, Table 158 and Table 158.

Fagot 1996 (N = 175) compared the classification on the PAA with 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 levels of association with infancy classifications $\chi^2(15) = 33.5$, $p < 0.01$. Concurrent validity between the PAA and the C-M was statistically significant, $\chi^2 (15) = 157.3$, $p < 0.001$ (the 2 methods showed 50% agreement).

Table 156: 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, $r^2 = 0.04$. A significant association with internalising symptoms, $r = 0.08$. No significant association with externalising symptoms or depressive symptoms (p = NS)
Note. Yellow = moderate association.			

Table 157: Preschool Assessment of Attachment: convergent validity

Study ID	Population (age range)	Measure used	Predictive validity
Crittenden 2007 MODERATE QUALITY	Maltreated children (2–5 years)	Maltreatment status	Effect = 0.66, p <0.000
		Maternal interaction	MANOVA, F(2, 48), p <0.05
		Child developmental quotient	t(47) = 2.15, p <0.05
		Maternal attachment strategy	Effect = 0.60, p <0.0000
Note. Green = strong association.			

Table 158: 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 < 0.01
Reference tool			
Crittenden 2007 MODERATE QUALITY	Maltreated children (2–5 years)	86% agreement kappa = 0.82 p <0.000	
Note. Green = strong association; Yellow = moderate association; Grey = non-significant association.			

Cassidy–Marvin preschool attachment coding system

The HTA report included 3 studies that examined the C-M (Crittenden 2007, Posada 2006, Spieker 2010). One study compared the C-M with the Ainsworth - extended method and the PAA, 1 compared the C-M with the PAA and 1 compared the C-M with the AQS. In 1 study the C-M was the index tool (Spieker 2010). Data on reliability and validity of these tools are presented in Table 159, Table 161 and Table 161.

Spieker 2010 (N = 306) compared the C-M with the SSP as the reference tool. The SSP in infancy and the C-M were significantly associated, χ^2 (9) = 18.9, p <0.05. Concurrent validity with the PAA was statistically significant, χ^2 (15) = 157.3, p <0.001 (classified 50% similarly).

Table 159: 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, $r^2 = 0.05$
		Externalising and internalising problems	Non-significant
		Child reported depressive symptoms	trend association, $r^2 = 0.03$
Note. Green = strong association; Yellow = moderate association; Grey = non-significant association.			

Table 160: Cassidy–Marvin Preschool Attachment Coding System: convergent validity

Study ID	Population (age range)	Measure used	Predictive validity
Crittenden 2007 MODERATE QUALITY	Maltreated children (2–5 years)	Maltreatment status	Non-significant
		Maternal interaction	Non-significant

Study ID	Population (age range)	Measure used	Predictive validity
		Child developmental quotient	Non-significant
		Maternal attachment strategy	Non-significant
Note. Grey = NS association.			

Table 161: 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 <0.05
Crittenden 2007 MODERATE QUALITY	Maltreated children (2–5 years)	78% agreement kappa = 0.72, p <0.01	
Note. Green = strong association.			

8.2.3.3 Tools for children aged 5-7 years

8.2.3.3.1 Manchester Child Attachment Story Task

From the HTA report there were 3 studies that 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 (Minnis 2009). One study compared a computerised version of the MCAST with the MCAST (Minnis 2010). Data on reliability and validity of these tools as reported in the included studies are presented in Table 162, Table 164, Table 165 and Table 165.

Goldwyn 2000 (N = 31) compared the MCAST with the SAT. Concurrent validity was measured with the SAT. Agreement was 80%.

Minnis 2010 (N = 55) compared a computerised version on the MCAST with the Standard MCAST. Agreement between ratings of attachment security was kappa = 0.67.

Table 162: Manchester Child Attachment Story Task: 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 < 0.01) and attentional problems (r = 0.43, p < 0.005).
			Disorganisation and parental ratings of behaviour problems = NS
			% Agreement between 3-way attachment categories 61.3% (k = 0.18, NS)

Study ID	Population (age range)	Measure used	Convergent validity
		Maternal attachment representations	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.			

Table 163: Validity of the Manchester Child Attachment Story Task

Study ID	Population (age range)	Measure used	Construct validity
Minnis 2009 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 (0.4–4.9), p = 0.54), but significantly more likely to be disorganised (RR = 1.6 (1.1–2.2), p = 0.036)
Note. Yellow = moderate association.			

Table 164: Reliability of the Manchester Child Attachment Story Task

Study ID	Population (age range)	Inter-rater reliability
Minnis 2009 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.		

Table 165: 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.		

8.2.3.3.2 MacArthur Story Stem Battery

The HTA report did not identify any studies that examined the MSSB.

8.2.3.4 Tools for children aged 7-15 years

8.2.3.4.1 The Child Attachment Interview

From the HTA report there was 1 study that examined the CAI (Shmueli-Goetz, 2008) (N = 227), which compared it with 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 166 to Table 170.

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 < 0.005), which reflected a 64% agreement.

Table 166: Child Attachment Interview: reliability

Study ID	Population (age range)	Inter-rater reliability	Test–retest reliability
Shmueli -Goetz 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.			

Table 167: Child Attachment Interview: convergent validity

Study ID	Population (age range)	Measure used	Association
Shmueli -Goetz 2008 LOW QUALITY	Low risk and children referred for mental health treatment (mean clinical: 10.4 years, mean normative: 10.9 years)	Association with AAI on 4-way categorisation Hampstead Child Adaptation Measure Scales	$\chi^2(9, N = 88) = 23.9, p < 0.004$ Kappa 0.16, p <0.002 Difference among 3 groups (dismissing, preoccupied, secure caregivers). Global scores F(2, 83) = 3.93, p <0.03
Note. Green = strong association.			

Table 168: Child Attachment Interview: discriminant validity

Study ID	Population (age range)	Measure used	Association
Shmueli-Goetz 2008 LOW QUALITY	Low risk and children referred for mental health treatment	demographic or cognitive variables	demographic variables (age, socioeconomic status, ethnicity) and cognitive variables (IQ and expressive language) did not predict attachment classification in either the referred or the non-referred sample

Study ID	Population (age range)	Measure used	Association
	(mean clinical: 10.4 years, mean normative: 10.9 years)		
Note. Green = strong association.			

Table 169: Child Attachment Interview: discerning validity

Study ID	Population (age range)	Measure used	Association
Shmueli-Goetz 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.			

Table 170: Child Attachment Interview: predictive validity

Study ID	Population (age range)	Measure used	Association
Shmueli-Goetz 2008 LOW QUALITY	Low risk and children referred for mental health treatment (mean clinical: 10.4 years, mean normative: 10.9 years)	Social functioning Social adaptation	Predicts social functioning. Association between social adaptation
Note. Green = strong association.			

8.2.3.4.2 The Separation Anxiety Test

From the HTA report there were 2 studies which examined the SAT (Goldwyn 2000, Shmueli-Goetz 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.

8.2.3.4.3 School-age Assessment of Attachment

The HTA report did not identify any studies which reported on the SAA.

8.2.3.5 Tools for children aged 15 years and older

8.2.3.5.1 Adult Attachment Interview

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 SSP is associated with DSM diagnosis for secure attachment but not disorganised attachment. Thus, the SSP may demonstrate convergent validity with DSM diagnosis for attachment security.
- Very low to low-quality evidence from 2 studies (N = 185) showed that the SSP is associated with the AQS, however low-quality evidence from 1 study (N = 100) did not show an association. Thus, it is unclear whether the SSP demonstrates convergent validity with the AQS.
- 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 SSP. Thus, the SSP demonstrates good inter-rater reliability.
- Low-quality evidence from 1 study (N = 100) showed good internal stability over time. Thus, the SSP 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 SSP may demonstrate construct validity.
- Low-quality evidence from 1 study (N = 129) showed the SSP measured at 15 months is able to predict socio-emotional development at 5 years. Thus, the SSP demonstrates predictive validity.
- Low-quality evidence from 1 study (N = 39) showed that the SSP is associated with mothers responsiveness. Thus, the SSP demonstrates good convergent validity.

8.2.5.2 Attachment Q-Sort

- Very low evidence from 1 study (N = 69) showed that the AQS is associated with DSM criteria. Thus, the AQS demonstrates concurrent validity with DSM.
- Low-quality evidence from 1 study (N = 129) showed that the AQS is not associated with the C-M. Thus, the AQS does not demonstrate concurrent validity with the C-M.
- Very low-quality evidence from 1 study (N = 79) showed an association with the SSP, however low-quality evidence from 1 study (N = 39) did not. Thus, it is unclear whether the AQS demonstrates concurrent validity with the SSP.
- 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 AQS. Thus, the AQS demonstrates good inter-rater reliability.
- Very low-quality evidence from 1 study (N = 79) shows good test–retest reliability. Thus, the AQS demonstrates good test–retest reliability.

- Low-quality evidence from 1 study (N = 45) showed good internal consistency. Thus, the AQS demonstrates good internal consistency.
- Very low-quality evidence from 1 study (N = 79) showed that the AQS was not associated with mothers responsiveness. Thus, the AQS does not demonstrate convergent validity with mother's responsiveness.
- Very low-quality evidence from 1 study (N = 79) showed that the AQS correlated with infant difficultness. Thus, the AQS does not demonstrate discriminant validity.
- Low-quality evidence from 1 study (N = 74) showed that the VLBW infants were less secure on the AQS. Thus, the AQS may demonstrate construct validity.
- Low-quality evidence from 1 study (N = 111) showed that the AQS security at 15 months predicted socio-emotional development at 5 years. Thus, the AQS demonstrates good predictive validity.

8.2.5.3 Cassidy–Marvin preschool attachment coding system

- Low-quality evidence from 1 study (N = 306) showed that the C-M was associated the PAA. Thus, the C-M demonstrates concurrent validity with the PAA.
- Low-quality evidence from 1 study (N = 306) showed that the C-M had a low level association with SSP classifications in infancy. Thus, the C-M may demonstrate concurrent validity with the SSP.
- 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 C-M. Thus, the C-M 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 C-M does not demonstrate good convergent validity.

8.2.5.4 Preschool Assessment of Attachment

- Low-quality evidence from 1 study (N = 306) showed that the PAA was associated with the C-M. Thus, the PAA demonstrates good concurrent validity with the C-M.
- Low to moderate-quality evidence from 2 studies (N = 481) showed that the PAA was moderately associated with SSP classifications in infancy. Thus, the PAA may demonstrate concurrent validity with the SSP.
- 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 PAA. Thus, the PAA demonstrates good inter-rater reliability.
- Low-quality evidence from 1 study (N = 306) showed good test–retest reliability. Thus, the PAA demonstrates good test–retest reliability.
- Low to moderate-quality evidence from 3 studies (N = 532) showed that the PAA 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 PAA demonstrates good convergent validity.

8.2.5.5 Manchester Child Attachment Story Task

- Low-quality evidence from 1 study (N = 31) showed that the MCAST was associated with the SAT. Thus the MCAST demonstrates good concurrent validity with the SAT.

- 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 MCAST. Thus, the MCAST demonstrates good inter-rater reliability.
- Low-quality evidence from 1 study (N = 31) showed that the MCAST was associated with parent ratings of behaviour, independent behaviour ratings and maternal attachment representations. Thus, the MCAST demonstrates convergent validity with maternal attachment status and independent teacher ratings of classroom behaviour.

8.2.5.6 Child Attachment Interview

- Low-quality evidence from 1 study (N = 227) showed that the CAI was associated with the SAT. Thus, the CAI demonstrates good concurrent validity with the SAT.
- Low-quality evidence from 1 study (N = 227) showed that the CAI was associated with the Hampstead Child Adaptation Measures Scales and the AII. Thus, the CAI demonstrates good convergent validity.
- Low-quality evidence from 1 study (N = 227) showed that the CAI had no relation with demographic or cognitive variables. Thus, the CAI demonstrates 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 CAI demonstrates good construct validity.
- Low-quality evidence from 1 study (N = 227) showed that the CAI predicted social functioning and social adaptation. Thus, the CAI demonstrates 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 SAT. Thus, the SAT 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: RAD 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 used for attachment difficulties was used for this review – that is the GC selected an existing HTA (Wright 2014) as the basis of this review. The HTA report focused 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 with each other. Children included in the studies had to be aged 13 years or younger. The review excluded studies that had single measures of attachment disorders without comparison with

other instruments. If raw data were available in a comparison between a reference standard and another instrument concurrently, sensitivity and specificity were calculated.

8.3.1 Definition of tools used to identify attachment disorder

Using the above inclusion criteria, the HTA report identified 4 studies that investigated the validity of the following tools to measure attachment disorders:

- DAI
- PAPA
- ICD-10
- DSM-IV.

8.3.1.1 Disturbances of Attachment Interview

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.

8.3.1.2 Preschool Age Psychiatric Assessment

The PAPA is a comprehensive parent-report psychiatric diagnosis interview for preschool children (aged approximately 54 months). 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.

8.3.1.3 ICD-10 diagnosis of reactive attachment disorder

ICD-10 includes 2 types of disorders: RAD and disinhibited attachment disorder, varying only slightly from DSM-IV.

RAD 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 5 years of life and that tends to persist despite marked changed in environmental circumstances, for example 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'.

8.3.1.4 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

8.3.2.1 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 171. An assessment of the quality of included studies can be found in Table 172.

Gleason 2011 examined the validity of 2 instruments for detecting the attachment disorders: the DAI and PAPA. They assessed convergent validity by comparing the results from the DAI and PAPA with the 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 – Zero to Three – Revised (DC:0-3R). The DC:0-3R is a diagnostic manual that provides clinical criteria for categorising mental health and developmental disorders in infants and toddlers. Minnis 2009 investigated the validity of the ICD-10 criteria for attachment disorders by comparing with results from the MCAST, RPQ, 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 SSP and AQS.

Table 171: Study information table for trials included in the analysis of measurements/tools to identify/assess attachment disorders in children and young people

	DAI	PAPA	ICD-10 Reactive versus Diagnostic classification: 0-3R deprivation/ maltreatment disorder Disinhibited attachment disorder	Diagnostic Statistical Manual (DSM)
Number of studies (number of participants)	1 (136)	1 (136)	2 (330)	1 (69)
Study ID	Gleason 2011	Gleason 2011	(1) Equit 2011 (2) Minnis 2009	Boris 2004
Country	Romanian	Romanian	(1) Germany (2) UK	USA
N children	136	136	(1) 299 (2) 70	69
Child age mean (range)	Range unknown, mean 22 months	Range unknown, mean 22 months	(1) 3.94 years (0–5) (2) 6.4–6.6 years	13 to 48 months
Child gender (% female)	Unknown	Unknown	(1) 49% (2) 34%	45 to 55%

	DAI	PAPA	ICD-10 Reactive versus Diagnostic classification: 0-3R deprivation/ maltreatment disorder Disinhibited attachment disorder	Diagnostic Statistical Manual (DSM)
Ethnicity (% white)	53.9	53.9	(1) Unknown (2) 100%	Unknown
Carer age (mean years)	Details unknown	Details unknown	(1) Details unknown (2) Details unknown	17 to 35 years (mean 24.5)
Carer ethnicity (% white)	Details unknown	Details unknown	(1) Details unknown (2) Details unknown	9.1 to 55% white
Tool Used	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).	(1) ICD-10 used to screen psychiatric referrals for any diagnosis. (2) RAD children, screened with ICD-10 versus normative sample.	Clinical assessment (DSM-IV criteria for presence/ absence of attachment disorders).
Index or reference	Index	Reference	(1–2) Reference	Index
Comparison with another tool	PAPA (Diagnostic Interview: RAD, ADHD, disruptive behaviour disorder, major depressive disorder and functional impairment). SSP. Stranger at the door.	DAI (Diagnostic Interview: indiscriminately social/ disinhibited RAD or emotionally withdrawn/ inhibited RAD).	(1) DC:0-3R used to screen psychiatric referrals for any diagnosis (2) MCAST (A10). Child and Adolescent Psychiatric Assessment RAD (screening tool for RAD and other diagnoses). Waiting room observation (screening tool for RAD). RPQ	SSP Standard Ainsworth laboratory procedure (Ainsworth 1978) AQS
Setting	(1) Not reported	(1) Not reported	(1–2) Not reported	(1) Laboratory

Table 172: 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 2009	✓	×	✓	HIGH	✓	N/A	LOW	LOW
Equit 2011	✓	✓	✓	LOW	?	N/A	UNCLEAR	MODERATE

Note.
? = unclear ✓= performed x = not conducted.

8.3.2.2 Disturbances of Attachment Interview

Table 173 to Table 180 describe the results from the study by Gleason 2011 that assessed the concurrent validity of the DAI with PAPA (which used RDC, a modified version of the DSM criteria for RAD. 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. The Bear/Dragon task was also used as a measure of inhibitory control. In this task, the child is instructed to follow the directions of the bear puppet but not the dragon puppet, and is scored based on how many they follow from each.

Table 173: 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[1] + PAPA[2] (RDC) 54 months	85.8% concordance indiscriminate/disinhibited 98.3% concordance emotionally withdrawn/inhibited
		RAD DAI[1] + Stranger at the door[4]	86.7% concordance RAD + indiscriminate behaviour

Note.
[1] Carers' assessment.
[2] Used RDC for RAD.
[3] RDC, modified version of DSM criteria. Focuses more on attachment.
[4] indiscriminate behaviour at 54 months.
Green = strong association.

Table 174: 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[1] + SSP 42 months	Of the 22 who had RAD; 19 had attachment organised patterns of attachment (very low sensitivity of 0.14). Of the 82 without RAD; 62 had insecure or disorganised attachment (very poor specificity of 0.39).

Note.
[1] Carers' assessment.

Yellow = moderate association;

Table 175: 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 2011	RAD (DAI) + inhibition 54 months Bear/Dragon[1]	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
	RAD (DAI) + Care-giving quality[2]	NS 20 months, 30 months r^3 = -0.20* 42 months	r^3 = -0.29 to 0.38* 20, 30, 42 months

[1] Bear/Dragon = inhibition
[2] Care-giving environment = 1.5-hour observation using Observational Record of the Caregiving Environment association; Grey = non-significant association.[3] r = correlation.
Yellow = moderate association; Grey = non-significant association.
** p <0.05 to <0.001*

Table 176: DAI versus PAPA: concurrent validity

	Sensitivity[1]	Specificity[2]	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)

Note.
[1] Also called 'true positives', 100% sensitive, all with attachment difficulties are identified.
[2] 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

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Table 177: DAI: discriminant 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[1] behaviours 54 months	r^3 = 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) + Infant Toddler Social and Emotional Assessment[2]	r = 0.19* activity/impulsivity 42 months	
		r = 0.72* depression 42 months	
		r = 0.14* aggression/defiance 42 months	
		r = -0.21 to -0.28* social competence 30, 42 months	r = -0.25 to -0.64* social competence 20, 30, 42 months
		NS baseline social competence	

Note.

Study ID	Tool	Association between indiscriminate social/disinhibited RAD and externalising signs	Association between emotionally withdrawn/inhibited RAD (DAI) and externalising signs

[1] PAPA = number of domains impaired for: ADHD, disruptive behaviour, major depressive disorder, functional impairment.
[2] Caregiver social and emotional wellbeing and behaviour problems. Caregiver report.
[3] r = correlation.
Blue = good discriminant validity, yellow = moderate discriminant validity.
** p <0.05 to <0.001*

Table 178: 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

Note.

Green = strong association.

Table 179: DAI: inter-rater reliability

Study ID	Association
Gleason 2011	Agreement on RAD DAI kappa = 0.80

Note.
Green = strong association

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Table 180: Summary of the validity and reliability of the 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					
K = 1, n = 136 Stranger at the door	√ K = 1, n = 136 Bear/ Dragon	√ 16/21 K = 1, n = 136					

Note.

Green = strong association; Blue = good discriminant validity; Yellow = moderate association; Grey = NS association.

8.3.2.3 Preschool Age Psychiatric Assessment

The study identified in the HTA report (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 of findings can be found in Table 181–Table 185.

Table 181: 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[1] (RDC) 54 months	85.8% concordance indiscriminate/disinhibited 98.3% concordance emotionally withdrawn/inhibited

Note.
[1] PAPA = used RDC for RAD.
Green = strong association; Yellow = moderate association; Grey = NS association.

Table 182: 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[1] versus SSP	RAD r = -0.39* indiscriminate social/disinhibited + attachment R = -0.51* emotionally withdrawn/inhibited + attachment
			No RAD = 39% classified secure
			χ^2 = 12.3*, indiscriminate social/inhibited RAD less likely to be organised (versus disorganised)

Note.
[1] PAPA = used RDC for RAD.
Green = strong association; Yellow = moderate association; Grey = NS association.
** p <0.05 to 0.001.*

Table 183: PAPA RAD versus ADHD: discriminant validity

Study ID	Tool	Association
Gleason 2011	RAD (PAPA) + ADHD	4/16 RAD (PAPA) = ADHD 4 of 16 who had RAD met criteria for ADHD

Note.
Blue = good discriminant validity.

Table 184: PAPA versus depression: discriminant validity

Study ID	Tool	Association
Gleason 2011	RAD (DAI) Emotionally Withdrawn + Depression	2/5 RAD (DAI) = major depressive disorder 2 of 5 who had RAD met criteria for major depressive disorder

Note.
Blue = good discriminant validity.

Table 185: 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 ¼ K = 1, n = 136 ¼ NS K = 1, n = 136	√ N = 16, k = 1	NR	NR	NR	NR	NR

Note.
Green = strong association; Yellow = moderate association; Grey = non-significant association; Blue = good discriminant validity.

8.3.2.4 ICD-10 diagnosis of reactive attachment disorder

The HTA report identified 2 studies (Equit 2011; Minnis 2009) that investigated the validity and reliability of the ICD-10 diagnosis of attachment disorders. Equit 2011 included children with both RAD and disinhibited attachment disorder in their grouping for attachment disorder. Minnis 2009, on the other hand, only included children with symptoms of RAD. They used the Waiting Room Observation to assess indices such as shyness and interactions with strangers. The RPQ was completed by the teachers and parents to measure emotional problems, conduct problems, hyperactivity, problems with peers and prosocial behaviour. Summary of findings can be found in Table 186, Table 187, Table 188, Table 189, Table 190 and Table 191.

Table 186: 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%).

Note.
Green = strong association

Table 187: ICD-10: 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

Note.
Green = strong association; Grey = NS association.

Table 188: ICD-10: convergent validity

Study ID	Tools used	RAD + Attachment
Minnis 2009	ICD (RAD) versus MCAST	Children with RAD demonstrated statistically higher levels of disorganised behaviour and insecure attachment

Note.
Green = strong association; Grey = NS association

Table 189: ICD-10: construct validity

Study ID	Tools used	Following showed differences between RAD and controls:
Minnis 2009	ICD (RAD)	Teacher RPQ p <0.0001 Parent RPQ 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

Note.
Green = strong association.

Table 190: ICD-10: inter-rater reliability

3Study ID	
Minnis 2009	There was good agreement (97%; 1 disagreement) between the research team and expert panel on diagnostic status

Note.
Green = strong association.

Table 191: 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
	K = 1, n = 70 MCAST (attachment)						

Note.
Green = strong association; Grey = NS association.

8.3.3.1 DSM-IV

The HTA report identified 1 study (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 SSP. Summary of findings can be found in Table 192 to Table 195.

Table 192: 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: $\chi 2 = 5.55$* (secure infants less likely to have RAD)
			Disorganised: NS

Green = strong association; Grey = NS association.
** p <0.05.*

Table 193: DSM-IV: construct validity

Study ID	Maltreated versus non-maltreated
Boris 2004 K = 1,n = 69	Maltreatment sample was significantly more likely to meet criteria for 1 or more attachment disorders (p <0.001)

Green = strong association.

Table 194: 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.

Table 195: Summary of the validity and reliability of DSM-IV measure of reactive attachment disorder

Comparison tool	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 = NS association

8.3.4 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.

8.3.5 Clinical evidence statements for tools to identify reactive attachment disorders

8.3.5.1 Disturbances of Attachment Interview

- 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 weakly associated with attachment scores from SSP. Thus, the DAI demonstrates weak 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 discriminant 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 discriminant 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 discriminant 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 discriminant 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.

8.3.5.2 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 SSP. Thus, the PAPA 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 PAPA demonstrates discriminant validity.

8.3.5.3 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 SSP. Thus the ICD-10 may demonstrate convergent validity for attachment disorders.
- Low quality evidence from 1 study (n=70) showed the ICD-10 criteria is moderately associated with the attachment results from MCAST. Thus the ICD-10 demonstrates 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 with those who have not been maltreated. Thus, it is unclear if the ICD-10 demonstrates 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 demonstrate 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.

8.3.5.4 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.

8.3.6 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	32. 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, McArthur Story Stem Battery and Story Stem Attachment Profile 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. See the table in Appendix 1* for further information about these tools. *In the short version. 33. Health and social care provider organisations should ensure that health and social care professionals are skilled in the use of the assessment tools in recommendation 32.
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 children aged 1–2 years, the SSP was found to have good reliability and validity for identifying attachment difficulties, including secure and insecure attachment and disorganised attachment.

	The GC acknowledged that after approximately 2 years of age the focus of coding in the realm of disorganisation is on punitive caregiving (where the child tends to harshly order the parent around) or on compulsive caregiving (where the child will do anything to make their caregiver feel better so that they feel safe). These forms of behaviour appear to arise from disorganised attachment during infancy (Main & Cassidy, 1988). For children aged 1–4 years the AQS was found to have good reliability and moderate to good validity for identifying attachment difficulties. Based on this evidence, the GC agreed that both the SSP and the AQS were good tools to identify attachment difficulties in 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 AQS). Therefore, in order to avoid burdening services, and to ensure the access threshold was not 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 child 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 children aged 2–4 years, the C-M and the PAA, was more limited. However, the available evidence demonstrated moderate to good reliability and validity for both tools, although the PAA may have more predictive validity. The GC discussed the importance of having a tool that 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 C-M and the PAA) should be recommended. The AQS 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 years, the GC considered 3 tools; the MCAST, the MSSB and the SSAP. Based on the available evidence, the MCAST 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 MSSB or the SSAP (from the HTA report comparing the MSSB or SSAP with 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 both the MSSB and the SSAP were useful tools in clinical practice for this group of children and would recommend their use for the appropriate age group. For children aged between 7 and 15 years, 3 tools were considered: the CAI, the SAT 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 SAT (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 young people 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 AAI.
Trade-off between net health benefits and resource use	The GC considered that the use of validated tools for identification and assessment has the potential to be cost effective if it leads to timely identification and assessment, and to adequate treatment of attachment difficulties. The costs of administration of these tools would be negligible given that they would be administered only if 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 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. 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 selection of participants, 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 (each study had fewer than 400 participants). None of the studies reported on the critical outcomes of 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 they will 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 report were included. The studies needed to have compared the tool with another gold-standard tool. For this reason, papers were excluded that may have compared 1 of the tools of interest with a behaviour-related tool and provided additional data on construct validity. Thus, it is not known what other outcomes may have been provided (such as predictive validity or intra-tester reliability) had papers such as these met the inclusion criteria.
Other considerations	When making decisions about the clinical utility of these tools, the GC also drew on their clinical knowledge and expertise to develop 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 were 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 appraising the clinical utility of some of the tools, the GC were also aware of existing systematic reviews that 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 these reviews to help inform their decisions. When judging the clinical utility of the PAA, the GC noted that the only evidence for this tool came from studies authored by Crittenden and colleagues (who also developed the tool), therefore the GC was mindful of the lack of evidence on validity from groups outside Crittenden's. The GC agreed that health and social care workers 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 the 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 lead to a better understanding of the long-term outcomes of children who have attachment difficulties. It will also provide the predictive validity of attachment measurement tools. The GC discussed that RCTs that target the mother–child relationship have shown they reduce the risk of disorganised attachment. The results of these interventions and subsequent recommendations can be found in Chapters 9 and 10.

Recommendations	34. 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 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 discriminant 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, predictive validity or intra-rater reliability were reported. The PAPA overall showed good concurrent validity, unclear convergent validity, very good discriminant 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 discriminant validity, stability over time, predictive validity or intra-rater reliability. The DSM-IV criteria of RAD showed that children with RAD were less likely to have secure attachment but it was unable to detect children who were more likely to have disorganised attachment patterns (measured using the SSP). 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-5 (RAD and social engagement disorder) and ICD-10 (RAD and disinhibited attachment disorder) has important resource implications. The GC considered the costs of administering such semi-structured diagnostic interviews to be negligible, if they lead 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 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. Therefore timely and appropriate diagnosis, and subsequent treatment (where appropriate), can 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 their exclusion criteria. Studies were downgraded if the assessors were not blind to the results from the reference test 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 and therefore reduced the risk of false positives in their results. The GC discussed how it is incorrect to assume that a diagnosis of attachment disorder 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 report 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 behaviour-related tool and provided additional data on construct validity. Thus, it is not known what other outcomes may have been provided (such as predictive validity or 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 ongoing behavioural problem in the child. The GC did not find thta any of the tools showed obviously better results than another. For this reason they recommended the use of the internationally recognised criteria of ICD-10 and DSM-5 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, while 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. The apparent difference between attachment disorder and attachment difficulties is highlighted in a study by Smyke et al. (2010), which found that although rates of disorganised attachment substantially declined for children placed in foster care, rates of attachment disorder did not differ between those who remained institutionalised and those who were placed in foster care (Smyke et al., 2010). However, there is some evidence that disorganised attachment in infancy and toddlerhood predicts the disinhibited form of attachment disorder in high risk samples (Lyons-Ruth et al., 2009). For these reasons the GC wanted to make a recommendation that addressed this problem, with the intention that only children correctly assessed and diagnosed (according to the DSM or ICD) should be described as having an attachment disorder.

8.4.1 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 parents, and those 'accommodated' (section 20 of the Children's Act 1989), that is in circumstances when 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. While 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 (for example, 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% in England are aged 10–15 years. 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 with the previous year and an increase of 12% compared with 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 with the previous year and, again, an increase of 12% compared with 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 with 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 196. 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 1 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 (that is, family cohesion). The reason for this was because the GC 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 (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).

Table 196: 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 difficulties 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: ○ 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 difficulties ○ 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 Parental sensitivity and behaviour training Home visiting Psychotherapy 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 (that is, 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	RCT
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 (Moran et al., 2005), Moss 2011(Moss et al., 2011), Negrao 2014 (Negrao et al., 2014), Stein 2006 (Stein et al., 2006) and Van Doesum 2008 (van Doesum et al., 2008). Of the eligible studies, all included sufficient data to be included in the evidence syntheses.

Ten 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 197. 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 198, Table 199 and Table 200, respectively. Summary of the findings for video feedback versus counselling can be found in Table 201. The full GRADE evidence profiles and associated forest plots can be found in Appendices N and O.

Table 197: 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)	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) Van Doesum 2008	Stein 2006
Country	(1, 3–4, 6) USA (2, 5, 10) Netherlands (8) Portugal (7–9) Canada	UK

	Video feedback versus control	Video feedback versus counselling
Number of participants originally randomised	(1) 48 (2) 30 (3) 120 (4) 361 (5) 81 (6) 31 (7) 100 (8) 43 (9) 79 (10) 85	80
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, 5–10) None (3) Attachment and bio-behavioural catch-up	None
Stage of intervention (approximate age range of children at onset of intervention)	(1) 3–6 months (2) 7–10 months (3) 1–22 months (4) Began prenatally (third trimester of pregnancy) (5) 7–10 months (6) 4–6 weeks (7) 6 months (8) 0–36 months (9) 1–5 years (10) 1–12 months	4–6 months
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 bachelor's degree in Psychology, education or related field. (5) Home visitors with minimum bachelor's degree in education and child studies (6) Nurses (7) Two home visitors: 1 with a PhD in child clinical psychology and 1 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	Therapists experienced in child and family mental healthcare

	Video feedback versus control	Video feedback versus counselling
	graduate or postgraduate training in prevention or health education	
Length of session	(1, 4, 9) 1.5 (2, 5) 1.5–3 hours (3, 7) 1 hour (6, 8) Unclear. (10) 1–1.5 hours	1 hour.
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) Approximately 4 months (2, 5) 3 months (3, 9) 2 months (4) Approximately 3 years (6) 1 month (7) 5 months (8) Approximately 6 months (10) 3–4 months	Approximately 6 months
Tool used to measure attachment	(1–2, 4, 6, 8) None (3, 5, 7–9) SSP (10) AQS (story completion at follow-up)	None
Tool used to measure sensitivity/responsiveness	(1) Mother–infant observation (2, 5) Ainsworth's Maternal Sensitivity Scale (3, 7) None (4) Landry Parent–child Interaction scale (6) Nursing Child Assessment Teaching Scale (8, 10) EAS (9) MBQS	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	Supportive counselling

	Video feedback versus control	Video feedback versus counselling
	feedback provided (8) Control – 6 telephone (9) Treatment as usual (10) Non-therapeutic control – general information provided via phone on childrearing skills	
Post-treatment assessment (after baseline)	(1) Approximately 4 months (2, 5) None (3) Approximately 3 months (4) 30 month (6) 1 month (7) 5 months (8) Approximately 3.5 months (9) Approximately 2 months (10) 3–4 months	6 months
Follow-up assessment (after end of treatment)	(1, 3–4, 7–9) None (2, 5) 3 months (6) 1 month (10) 6 months and 56 months	None

Table 198: 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 post-treatment	Risk difference with video feedback (95% CI)
Sensitivity/responsiveness; mother–infant observation; Landry Parent–child Interaction Scale; Nursing Child Assessment Teaching Scale; MBQS; EAS	442 (6 studies) 1–30 months	⊕⊕⊕⊖ MODERATE[1] due to risk of bias			The mean sensitivity/ responsiveness in the intervention groups was 0.47 SD higher (0.29 to 0.65 higher)
Secure attachment SSP	286 (3 studies) 2–5 months	⊕⊕⊖⊖ LOW[2,3] 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 SSP	286 (3 studies) 2–5 months	⊕⊕⊖⊖ LOW[2,3] 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 SSP	286 (3 studies) 2–5 months	⊕⊖⊖⊖ VERY LOW[2,3,4] 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 Behavior Checklist (CBCL)	67 (1 study) 2 months	⊕⊕⊖⊖ LOW[3,5] due to risk of bias, imprecision			The mean externalising behaviour in the intervention groups was 0.03 SD higher (0.45 lower to 0.51 higher)
Internalising behaviour CBCL	67 (1 study) 2 months	⊕⊕⊖⊖ LOW[3,5] due to risk of bias, imprecision			The mean internalising behaviour in the intervention groups was 0.12 SD lower (0.6 lower to 0.36 higher)

Note.

[1] Risk of bias (due to 1 or more of the following in the majority of studies: unclear random sequence generation, unclear allocation concealment, unclear reporting of participant dropout).

Outcomes	No. of participants (studies) Follow-up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with control post-treatment	Risk difference with video feedback (95% CI)

[2] Risk of bias (due to 1 or more of the following in the majority of studies: unclear random sequence generation, unclear allocation concealment).
[3] Imprecision (OIS for dichotomous outcomes = 300 events, and for continuous outcomes = 400 participants).
[4] Inconsistency (I^2>50%, p <0.05).
[5] 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 (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 follow-up [1]	Risk difference with video feedback (95% CI)
Sensitivity/responsiveness Ainsworth's Maternal Sensitivity Scales; Nursing Child Assessment Teaching Scale; EAS	203 (4 studies) 1–6 months	⊕⊕⊖⊖ LOW[1,2] due to risk of bias, imprecision			The mean sensitivity/responsiveness in the intervention groups was 0.70 SD higher (0.4 to 0.99 higher)
Secure attachment SSP	81 (1 study) 3 months	⊕⊕⊖⊖ LOW[1,2] 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	⊕⊕⊕⊖ MODERATE[2] due to imprecision			The mean secure attachment in the intervention groups was 0.45 SD higher (0.02 lower to 0.93 higher)
Externalising behaviour Infant Toddler Social and Emotional Assessment	71 (1 study) 6 months	⊕⊕⊖⊖ LOW[2,3] due to risk of bias, imprecision			The mean externalising behaviour in the intervention groups was 0.09 SD higher (0.38 lower to 0.55 higher)
Internalising behaviour Infant Toddler Social and Emotional Assessment	71 (1 study) 6 months	⊕⊕⊖⊖ LOW[2,3]			The mean internalising behaviour in the intervention groups was 0.3 SD higher (0.17 lower to 0.77 higher)

Outcomes	No. of participants (studies) Follow-up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with control follow-up [1]	Risk difference with video feedback (95% CI)
		due to risk of bias, imprecision			

Note.
[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] Imprecision (OIS 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 200: 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 follow-up 2	Risk difference with video feedback (95% CI)
Secure attachment Attachment Story Completion Task	58 (1 study) 56 months	⊕⊕⊕⊖ MODERATE[1] due to imprecision			The mean secure attachment in the intervention groups was 0.42 SD higher (0.1 lower to 0.95 higher)
Externalising behaviour CBCL	58 (1 study) 56 months	⊕⊕⊖⊖ LOW[1,2] due to risk of bias, imprecision			The mean externalising behaviour in the intervention groups was 0.14 SD lower (0.65 lower to 0.38 higher)
Internalising behaviour CBCL	58 (1 study) 56 months	⊕⊕⊖⊖ LOW[1,2] due to risk of bias, imprecision			The mean internalising behaviour in the intervention groups was 1.79 SD higher (1.17 to 2.4 higher)

Note.
[1] Imprecision (OIS 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 201: 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 post- treatment	Risk difference with video feedback (95% CI)
Insensitivity Author's own measure	77 (1 study) 6 months	⨁⨁⨁⊖ MODERATE[1] due to imprecision	RR 0.67 (0.44 to 1.02)	667 per 1000	220 fewer per 1000 (from 373 fewer to 13 more)

Note.
[1] Imprecision (OIS for dichotomous outcomes = 300 events, and for continuous outcomes = 400 participants).

Table 202: 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 and country	**Limitations**	**Applicability**	**Other comments**	**Incremental cost versus standard care (n = 100) (£)[1]**	**Incremental effect versus standard care (n = 100)**	**NMB[2] (λ = £20,000/ QALY[2]; n = 100)[1]**	**Uncertainty[1]**
Guideline economic model	Potentially serious limitations[3]	Directly applicable[3]	Cost-utility Time horizon: 11 years Perspective: NHS and PSS[4]	Video feedback: £76,024 Parental sensitivity and behaviour training: £114,259 Home visiting and parent–child psychotherapy £666,245	Video feedback: 3.91 Parental sensitivity and behaviour training: 5.30 Home visiting and parent–child psychotherapy: 14.75	Video feedback: £15,398,673 Parental sensitivity and behaviour training: £15,388,258 Home visiting and parent–child psychotherapy £15,025,297	Probabilistic sensitivity analysis: probability of video feedback being cost effective at £20,000/QALY is 0.253

Note.
[1] Costs expressed in 2013/14 UK pounds.
[2] NMB = net monetary benefit; QALY = quality-adjusted life year.
[3] 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; probabilistic sensitivity analysis performed.

Economic evidence profile
[4] NHS and PSS perspective, QALYs based on the Health Utility Index mark 2 (HUI2) for children with emotional disorders (valuations elicited from UK population).

9.2.1.2 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) and Toth 2002 (Toth et al., 2002). All 5 studies compared parent–child psychotherapy with control. Two of the studies (Cicchetti 2006; Toth 2002) included 3 study arms and also compared parent–child psychotherapy with home visiting.

Of the included studies, the risk factors 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 203. 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 204 and Table 205, respectively. Summary of findings for parent–child psychotherapy versus home visiting can be found in Table 206 and Table 207, respectively. The full GRADE evidence profiles and associated forest plots can be found in Appendix N and O.

Table 203: 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)	5 (504)	2 (163)
Study ID	(1) Cicchetti 1999 (2) Cicchetti 2006[2] (3) Lieberman 1991 (4) Sleed 2013 (5) Toth 2002[3]	(1) Cicchetti 2006[2] (2) Toth 2002[3]
Country	(1–3, 5) USA (4) UK	(1–2) 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	(1–2) Maltreating families
Title of intervention	(1) Toddler–parent psychotherapy (2–3) Infant–parent psychotherapy (4) New Beginnings (5) Preschooler–parent psychotherapy	(1) Infant–parent psychotherapy (2) Preschooler–parent psychotherapy

	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 to 3 years (2–3) 1–2 years (4) Birth to 2 years (5) 4–5 years	(1) 1–2 years (2) 4–5 years
Delivered by	(1) Psychotherapists (2) Master's-level therapists (3) Women with a master's degree in psychology or social work and with clinical experience (4) Psychotherapists (5) Master's and doctoral-level therapists	(1) Master's-level therapists (2) Master's and doctoral-level therapists
Length of session	(1–2) Unclear (3) 1.5 hours (4) 2 hours (5) 1 hour	(1) Unclear (2) 1 hour
Frequency	(1–3) Unclear (4) Twice per week (5) Weekly	(1–2) 12 months
Tool used to measure attachment	(1–2) SSP (3) AQS (4) None (5) Global Relationship scale	(1) SSP (2) Global Relationship scale
Tool used to measure sensitivity/responsiveness	(1–2, 5) None (3) Own measure (4) Coding Interactive Behaviour scale	(1–2) None
Control/comparison	(1) No treatment (2, 4–5) Treatment as usual (3) Control – no information provided	(1–2) Home visiting (influenced by the work of Olds – nurse–family partnership model)
Post-treatment assessment (after baseline)	(1) 16 months (2–3, 5) 12 months (4) 1 month	(1–2) 12 months
Follow-up assessment (after end of treatment)	(1, 3–5) None (2) 12 months	(1) 12 months (2) None

Note.
[1] Number randomised.
[2] Three-armed trial: utilised parent–child psychotherapy versus control; utilised parent–child psychotherapy versus home visiting in the head-to-head analysis.
[3] Three-armed trial: utilised parent–child psychotherapy versus control; utilised parent–child psychotherapy versus home visiting in the head-to-head analysis.

Table 204: 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 post-treatment	Risk difference with parent–child psychotherapy (95% CI)
Sensitivity/responsiveness Coding Interactive Behaviour scale; authors' own measure	141 (2 studies) 1–12 months	⊕⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, inconsistency, imprecision			The mean sensitivity/responsiveness in the intervention groups was 0.14 SD higher (0.91 lower to 1.18 higher)
Secure attachment SSP	182 (2 studies) 1–16 months	⊕⊖⊖⊖ VERY LOW[2,3,4] 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 AQS; Global relationship expectation scale	106 (2 studies) 12 months	⊕⊖⊖⊖ VERY LOW[2,3,5] due to risk of bias, inconsistency, imprecision			The mean secure attachment in the intervention groups was 0.27 SD higher (0.51 lower to 1.05 higher)
Insecure attachment AQS	53 (1 study) 12 months	⊕⊕⊖⊖ LOW[3,6] due to risk of bias, imprecision			The mean insecure attachment in the intervention groups was 0.74 SD lower (1.3 to 0.17 lower)
Insecure attachment SSP	182 (2 studies) 1–16 months	⊕⊖⊖⊖ VERY LOW[3,4] 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 SSP	182 (2 studies) 1–16 months	⊕⊖⊖⊖ VERY LOW[3,4] 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)

Note.
[1] Risk of bias (1 or more of the following: unclear allocation concealment, selective outcome reporting, use of non-validated assessment measures).
[2] Inconsistency (I^2 >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 post-treatment	Risk difference with parent–child psychotherapy (95% CI)

[3] Imprecision (OIS 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 205: 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 follow-up	Risk difference with parent–child psychotherapy (95% CI)
Secure attachment SSP	76 (1 study) 12 months	⨁⊖⊖⊖ VERY LOW[1,2] 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 SSP	76 (1 study) 12 months	⨁⊖⊖⊖ VERY LOW[1,2] 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 SSP	76 (1 study) 12 months	⨁⊖⊖⊖ VERY LOW[1,2] 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)

Note.

[1] Risk of bias (downgraded twice due to broken randomisation and selective outcome reporting).

[2] Imprecision (OIS for dichotomous outcomes = 300 events, and for continuous outcomes = 400 participants).

Table 206: 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 post-treatment	Risk difference with parent–child psychotherapy (95% CI)
Secure attachment	50 (1 study) 12 months	⊕⊖⊖⊖ VERY LOW[1,2] 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	⊕⊕⊖⊖ LOW[2,3] due to risk of bias, imprecision			The mean secure attachment in the intervention groups was 0.67 SD higher (0.12 to 1.21 higher)
Less likely to have an insecure attachment	50 (1 study) 12 months	⊕⊖⊖⊖ VERY LOW[1,2] 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 LOW[1,2] 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)

Note.
[1] Risk of bias (downgraded twice due to broken randomisation).
[2] Imprecision (OIS 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 207: **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 follow-up	Risk difference with parent–child psychotherapy (95% CI)
Secure attachment	49 (1 study) 12 months	⊕⊖⊖⊖ VERY LOW[1,2] due to risk of bias, imprecision	RR 2.44 (1.05 to 5.67)	227 per 1000	327 more per 1000 (from 11 more to 1000 more)

Outcomes	No. of participants (studies) Follow-up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with home visiting follow-up	Risk difference with parent–child psychotherapy (95% CI)
Less likely to have an insecure attachment	49 (1 study) 12 months	⨁⊖⊖⊖ VERY LOW[1,2] 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 LOW[1,2] 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 (OIS for dichotomous outcomes = 300 events, and for continuous outcomes = 400 participants).

9.2.1.3 Parental 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) and 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 208. Further information about both included and excluded studies can be found in Appendices L and M, respectively.

Summary of findings for parental sensitivity and behaviour training at the end of intervention and at follow-up can be found in Table 209 and Table 210, respectively. The full GRADE evidence profiles and associated forest plots can be found in Appendices N and O.

Table 208: Study information table for trials included in the meta-analysis of parental sensitivity and behaviour training versus control

	Parental sensitivity and behaviour training
Total no. of studies (N)	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, 4–5) USA (3) South Africa (6) Canada (7) UK (8–9) 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, 8–9) Maltreating families/at risk of maltreatment (7) Social disadvantage
Title of intervention	(1–3) None

	Parental sensitivity and behaviour training
	(4) Interaction coaching for at risk parents and their infants (5) Communicating and relating effectively (6) Webster-Stratton 'Incredible Years' parenting programme (7) Webster-Stratton 'Incredible Years' parenting programme and SPOKES literacy programme (8–9) 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) 4 weeks (5) 4–6 weeks (6) 3–8 years (7) 4–6 years (8) 5–8 years (9) 3–7 years
Delivered by	(1) Psychologists and social workers (2) Certified neonatal-behavioural assessment-scale examiner (3) Lay trainers (all mothers) (4–6) Nurses (7) Trainers with a minimum qualification of a psychology degree (8–9) Master's and doctoral-level psychologists
Length of session	(1–2, 7–9) Unclear (3, 5) 1 hour (1) 15 minutes (6) 2 hours
Frequency	(1) Weekly/Fortnightly (2, 8) Unclear (3, 5) Variable (2) Every 3–5 weeks (6–7, 9) Weekly
Duration	(1) Approximately 13 months (2) 4 weeks (3) Approximately 7 months (4) 10 weeks (5) Approximately 7 months (6) 8 weeks (7) 18 weeks (8) Varied according to participant progress; average 6 months (9) Unclear (12 sessions)
Tool used to measure attachment	(1–2, 4–9) None (2) SSP
Tool used to measure sensitivity/responsiveness	(1) SSP (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 (8–9) EAS
Control/comparison	(1, 4) Control – no information provided (2) Non-therapeutic control (3, 7) Treatment as usual (5) Non-therapeutic control – nurse visits (6, 8–9) Waitlist
Post-treatment assessment (after baseline)	(1) 13 months (2) 1 month (3, 5) 7 months (4) 2 months

	Parental sensitivity and behaviour training
	(6) 7 months (5–7, 9) 3 months (8) 4 months
Follow-up assessment (after end of treatment)	(1–2, 4–9) None (3) 5 months

Table 209: Summary of findings table for parental 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 post-treatment	Risk difference with parental sensitivity and behaviour training (95% CI)
Sensitivity/responsiveness SSP; 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; EAS	1080 (9 studies) 1–13 months	⊕⊕⊕⊖ MODERATE[1] due to risk of bias			The mean sensitivity/ responsiveness in the intervention groups was 0.25 SD higher (0.09 to 0.42 higher)
Externalising behaviour CBCL	224 (2 studies) 3–4 months	⊕⊕⊖⊖ LOW[2,3] due to risk of bias, imprecision			The mean externalising behaviour in the intervention groups was 0.28 SD lower (0.55 to 0.01 lower)
Internalising behaviour CBCL	224 (2 studies) 3–4 months	⊕⊕⊖⊖ LOW[2,3] due to risk of bias, imprecision			The mean internalising behaviour in the intervention groups was 0.11 SD higher (0.16 lower to 0.38 higher)
Negative parenting attitudes Child Abuse Potential Inventory	226 (2 studies) 3–4 months	⊕⊕⊖⊖ LOW[2,3] due to risk of bias, imprecision			The mean negative parenting attitudes in the intervention groups was 0.06 SD lower (0.33 lower to 0.2 higher)

Note.
[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 dropout rate and lack of blinding for parent-reported outcomes).
[3] Imprecision (OIS for dichotomous outcomes = 300 events, and for continuous outcomes = 400 participants).

Table 210: Summary of findings table for parental 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 follow-up	Risk difference with parental sensitivity and behaviour training (95% CI)
Sensitivity/responsiveness	318 (1 study) 5 months	⊕⊕⊕⊖ MODERATE[1] due to imprecision			The mean sensitivity/responsiveness in the intervention groups was 0.26 SD higher (0.04 to 0.48 higher)
Secure attachment SSP	318 (1 study) 5 months	⊕⊕⊕⊖ MODERATE[1] 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 SSP	318 (1 study) 5 months	⊕⊕⊕⊖ MODERATE[1] 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 SSP	318 (1 study) 5 months	⊕⊕⊕⊖ MODERATE[1] due to imprecision	RR 1.04 (0.97 to 1.11)	901 per 1000	36 more per 1000 (from 27 fewer to 99 more)

Note.
[1] Imprecision (OIS for dichotomous outcomes = 300 events, and for continuous outcomes = 400 participants).

9.2.1.4 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., 2007), 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 et al., 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) and Walkup 2009 (Walkup et al., 2009).

There were 22 studies (N = 13078) comparing home visiting with control and 1 study (N = 105) comparing home visiting plus parent–child psychotherapy with control.

Of the included studies, the risk factors 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 211. 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 212, Table 213, Table 214 and Table 215. Summary of findings for home visiting versus parent–child psychotherapy at the end of intervention can be found in Table 217. The full GRADE evidence profiles and associated forest plots can be found in Appendices N and O.

Table 211: 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)	22 (13,078)	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 (17) Norr 2003	Sadler 2013

	Home visiting versus control	Home visiting + parent–child psychotherapy versus control
	(18) Olds 1994 (19) Olds 2002 (20) Schuler 2000 (21) Wagner 2002 (22) Walkup 2009	
Country	(1, 4, 13) Australia (2) UK (3, 5–10, 12, 14–22) 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	(1–2, 6, 9–21) Social disadvantage (3, 22) Adolescent American Indian mothers (4) Mothers with high trait anxiety (5) Mothers misusing substances (7–8) At risk of maltreatment	Social disadvantage
Title of intervention	(1–2, 4–5, 10–11, 14, 18–19) None (3, 22) Family Spirit (6) Mental health model (7) Healthy Families Alaska (8) Hawaii's Healthy Start programme (9) Comprehensive child development programme (12) Oakland family services (13) The Miller Early Childhood Sustained Home-visiting programme (15) The Getting Ready intervention (16) Early head start (17) REACH-Futures intervention (20) Mothers misusing substances (21) Parents as teachers	None

	Home visiting versus control	Home visiting + parent–child psychotherapy versus control
Stage of intervention (approximate age range of children at onset of intervention)	(1, 4, 7–10, 16, 18–20) Birth (2) Began prenatally (6 months of pregnancy) (3, 5, 11, 13–14) Began prenatally (time-point, unclear) (6) Began prenatally (approximately 22 weeks pregnancy) (12, 17) Began prenatally (third trimester of pregnancy) (15) Birth-3 years (21) <9 months (22) Began prenatally (28 weeks pregnancy)	Began prenatally (third 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. (5–6, 9, 11, 13–14, 17–19) Nurses (7–8, 20, 22) Paraprofessionals (6, 10) Mental health professionals with experience in child development and family systems approaches (12) 'Volunteer coach' – (bachelor's/associate's degree nurses) (15) Early childhood professionals (16) Home visitors and teachers (minimum education: 2-year degree) (21) 'Parent educators' with associate/bachelor's/ master's degree and training in child development or education	Nurses and social workers
Length of session	(1–2, 4, 6–8, 11–12, 14, 16–17, 19, 21) Unclear (3, 5, 10, 22) 1 hour (9) 0.5–1.5 hours (13, 15) 1–1.5 hours (18) 1 hour 15 minutes (20) 30 minutes	1 hour (but variable depending on family's needs)
Frequency	(1) Weekly/fortnightly (2, 15, 20) Weekly (3–4, 11–13, 16, 18) Variable (5) Fortnightly (6, 14, 19, 22) Unclear (7) Weekly for first 6–9 months; frequency decreases as family improves (8) Variable depending on progress (9) Biweekly (10) Weekly/Fortnightly (17, 21) Monthly	Weekly/fortnightly

	Home visiting versus control	Home visiting + parent–child psychotherapy versus control
Duration	(1) 4 months (2, 5–6) 18 months (3) 36 months (4) 12 months (7, 10, 13, 19) 2 years (8, 16, 21) 3 years (9) 5 years (11) 7 years (12) Approximately 14 months (14, 18) 25 months (15) 16 months (17) 13 months (20) 6 months (22) 7 months	27 months
Tool used to measure attachment	(1) Parenting Stress Index (2–3, 5–9, 11, 13–22) None (4, 10) SSP (12) AQS	SSP
Tool used to measure sensitivity/ responsiveness	(1, 3, 5, 8, 11, 13, 17, 18, 22) HOME (Home Observation Measurement of the Environment) Inventory (2, 6) CARE-Index (4, 12) None (6–7, 9, 14, 21) Nursing Child Assessment Teaching Scale (10) Bayley test situation (15) Parent/Caregiver Involvement Scale (16) Own measure (19) EAS (20) Cowen & Cowen 1992 rating scales	AMBIANCE scale
Control/ comparison	(1–3, 5, 9, 12, 14–16, 22) Treatment as usual (4, 11) No treatment (6, 7, 10, 13, 17–18) Non-therapeutic control – community referrals (8, 20) Control – no information provided (19) Non-therapeutic control-home visits (21) Non-therapeutic control-breast feeding/nutritional education	Treatment as usual
Post-treatment assessment (after baseline)	(1) 1 month (mid treatment) (2, 5–6) 18 months (3) 12 months (mid treatment) (4) 12 months (7, 10, 13, 19) 24 months (8, 16) 36 months (9) 36 months (mid treatment) (11) 9 months (12)14 months (14) 25 months (15) 16 months (16) 13 months (18) 24 months (no extractable data) (20) 6 months (21) 24 months mid treatment (22) 7 months	12 months (mid treatment) (some outcomes measured at 4 months)

	Home visiting versus control	Home visiting + parent–child psychotherapy versus control
Follow-up assessment (after end of treatment)	(1) 1 month (2–4, 6–8, 10, 13–17, 21) None (5, 20) 12 months (9) 12 months and 24 months (11) 6 months (some outcomes only) (12) 9 months (18) 10 months and 22 months (19) 24 months, 48 months and 84 months (22) 6 months	None

Table 212: 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 post-treatment (Generic inverse variance (GIV) and non-GIV outcomes)	Risk difference with home visiting (95% CI)
Sensitivity/responsiveness	8309 (20 studies) 1–36 months	⨁⨁⊖⊖ LOW[1,2] due to risk of bias, inconsistency			The mean sensitivity/responsiveness GIV in the intervention groups was 0.24 SD higher (0.14 to 0.35 higher)
Secure attachment	113 (2 studies) 12–24 months	⨁⨁⊖⊖ LOW[3,4] 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	284 (3 studies) 1–24 months	⨁⊖⊖⊖ VERY LOW[2,4,5] due to risk of bias, inconsistency, imprecision			The mean secure attachment in the intervention groups was 0.81 SD higher (0.15 to 1.47 higher)
Insecure attachment	113 (2 studies) 12–24 months	⨁⨁⊖⊖ LOW[4,6] 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	6645 (7 studies) 7–36 months	⨁⨁⨁⊖ MODERATE[1] due to risk of bias			The mean externalising behaviour GIV 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 post-treatment (Generic inverse variance (GIV) and non-GIV outcomes)	Risk difference with home visiting (95% CI)
					0.11 SD lower (0.19 to 0.03 lower)
Internalising behaviour	3491 (4 studies) 7–36 months	⨁⨁⊖⊖ LOW[1,2] due to risk of bias, inconsistency			The mean internalising behaviour GIV in the intervention groups was 0.13 SD lower (0.32 lower to 0.06 higher)
Mental development	6605 (12 studies) 9–36 months	⨁⨁⨁⊖ MODERATE[1] due to risk of bias			The mean mental development GIV in the intervention groups was 0.08 SD higher (0.03 to 0.13 higher)
Motor development	960 (6 studies) 13–24 months	⨁⨁⨁⊖ MODERATE[7] due to risk of bias			The mean motor development in the intervention groups was 0.11 SD higher (0.02 lower to 0.24 higher)
Parenting attitudes	1062 (3 studies) 24–25 months	⨁⨁⨁⊖ MODERATE[1,8] due to risk of bias			The mean parenting attitudes GIV in the intervention groups was 0.18 SD higher (0.06 to 0.31 higher)

Note.
1 risk of bias (due to one or more of the following across several studies: unclear random sequence generation, unclear allocation concealment, unclear or high participant drop out rate, unclear or lack of blinding of outcome assessors)
2 inconsistency ($I^2>50\%$, $p<0.05$)
3 risk of bias (due to unclear random sequence generation, unclear allocation concealment and unclear blinding of outcome assessors)
4 imprecision (optimal information size for dichotomous outcomes=300 events, and for continuous outcomes=400 participants)

Outcomes	No. of participants (studies) Follow-up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with control post-treatment (Generic inverse variance (GIV) and non-GIV outcomes)	Risk difference with home visiting (95% CI)
5 risk of bias (due to one or more of the following in the majority of studies: unclear allocation concealment and unclear blinding of outcome assessors) 6 risk of bias (due to unclear allocation concealment and unclear blinding of outcome assessors) 7 risk of bias (due to one or more of the following across several studies: unclear randomisation, unclear allocation concealment, unclear blinding of outcome assessors, unclear participant drop out rate) 8 risk of bias (due to one or more of the following in the majority of studies: unclear allocation concealment and no method used to account for missing data)					

Table 213: 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 follow-up (GIV and non-GIV outcomes)	Risk difference with home visiting (95% CI)
Secure attachment	224 (1 study) 1 months	⊕⊕⊕⊖ MODERATE[1] due to imprecision			The mean secure attachment in the intervention groups was 0.72 SD higher (0.34 lower to 1.78 higher)
Sensitivity/responsiveness	269 (3 studies) 1–10 months	⊕⊕⊖⊖ LOW[2,3] due to risk of bias, imprecision			The mean sensitivity/responsiveness GIV in the intervention groups was 0.46 SD higher (0.22 to 0.71 higher)
Mental development	93 (2 studies) 6–10 months	⊕⊕⊖⊖ LOW[3,4] due to risk of bias, imprecision			The mean mental development GIV in the intervention groups was 0.15 SD higher (0.27 lower to 0.57 higher)
Motor development	44 (1 study) 6 months	⊕⊕⊖⊖ LOW[1,3]due to risk of bias, imprecision			The mean motor development in the intervention groups was 0.36 SD higher (0.23 lower to 0.96 higher)

Note.

[1] Imprecision (OIS 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 dropout 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 dropout rate).

Table 214: 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 (time-point 2	Risk difference with home visiting (95% CI)
Sensitivity/responsiveness	49 (1 study) 22 months	⊕⊕⊖⊖ LOW[1,2] due to risk of bias, imprecision			The mean sensitivity/responsiveness in the intervention groups was 0.38 SD higher (0.2 lower to 0.96 higher)
Less likely to have externalising behaviour	345 (1 study) 48 months	⊕⊕⊖⊖ LOW[2,3] 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	345 (1 study) 48 months	⊕⊕⊖⊖ LOW[2,3] 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	49 (1 study) 22 months	⊕⊕⊖⊖ LOW[1,2] due to risk of bias, imprecision			The mean mental development in the intervention groups was 0.19 SD higher (0.4 lower to 0.79 higher)

Note.
[1] Risk of bias (due to unclear allocation concealment, high participant dropout rate).
[2] Imprecision (OIS 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 215: 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 time-point 3	Risk difference with home visiting (95% CI)
Less likely to have externalising behaviour	302 (1 study) 84 months	⊕⊕⊖⊖ LOW[1,2] 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	303 (1 study) 84 months	⊕⊕⊖⊖ LOW[1,2] due to risk of bias, imprecision	RR 1.04 (0.97 to 1.12)	897 per 1000	36 more per 1000 (from 27 fewer to 108 more)

Note.
[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 (OIS for dichotomous outcomes = 300 events, and for continuous outcomes = 400 participants).

Table 216: Clinical/economic question: What is the cost effectiveness of home visiting compared with standard care?

Economic evidence profile							
Study & country	**Limi-tations**	**Applica-bility**	**Other comments**	**Increm-ental cost (£)[1]**	**Incremental effect**	**Incremental cost effectiveness ratio (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	Proportion of infants identified as being ill-treated: 0.059 CARE-Index score (maternal sensitivity): 1.07	Public sector and informal care perspective: £71,096 per extra infant identified as being ill-treated £3,920 per extra unit of improvement on maternal sensitivity index	Public sector and informal care perspective: Probability of intervention being cost effective is 0.95 at willingness to pay (WTP) of £16,100 and £4,000 per unit of improvement on maternal sensitivity index and improvement on infant

Economic evidence profile							
				£3,050 – health service perspective	CARE-Index score (infant cooperativeness): 1.44 Time exposed to abuse and neglect: 1.92 months	£2,933 per extra unit of improvement on infant cooperativeness index £2,185 for a reduction in infant exposure to abuse and neglect by 1 month Healthcare payer perspective: £51,690 per extra infant identified as being ill-treated £2,850 per extra unit of 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 1 month	cooperativeness index, respectively At WTP of £1,400 for a reduction in infant exposure to abuse and neglect by 1 month, probability that the intervention is cost effective is 0.75; at WTP of £3,100 it is 0.95

Note.

[1] Costs uplifted to 2013/2014 UK pounds using the hospital and community health services 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; probabilistic sensitivity analysis 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 217: 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	76 (1 study) 4 months	⊕⊕⊖⊖ LOW[1,2] 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	82 (1 study) 12 months	⊕⊕⊖⊖ LOW[1,2] 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)
Disorganised attachment	60 (1 study) 12 months	⊕⊕⊖⊖ LOW[1,2] 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)

Note.
[1] Risk of bias (due to lack of blinding of outcome assessors).
[2] Imprecision (OIS 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 1 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 218. 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 219, Table 220 and Table 221, respectively. The full GRADE evidence profiles and associated forest plots can be found in Appendix N and Appendix O.

Table 218: Study information table for trials included in the meta-analysis of parent CBT versus any comparison.

	Parent CBT versus control	Parent CBT versus psychotherapy	Parent CBT versus parent non-directive counselling
Total no. of studies (N)	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	SSP	SSP	SSP
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 219: 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	88 (1 study) 14 months	⊕⊕⊖⊖ LOW[1,2] 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)

Note.
[1] Risk of bias (due to unclear allocation concealment and use of non-validated outcome measures).
[2] Imprecision (OIS for dichotomous outcomes = 300 events, and for continuous outcomes = 400 participants).

Table 220: 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	81 (1 study) 14 months	⊕⊕⊖⊖ LOW[1,2] 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)

Note.
[1] Risk of bias (due to unclear allocation concealment and use of non-validated outcome measures).
[2] Imprecision (OIS for dichotomous outcomes = 300 events, and for continuous outcomes = 400 participants).

Table 221: 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	80 (1 study) 14 months	⊕⊕⊖⊖ LOW[1,2] due to risk of bias, imprecision	RR 1.31 (0.82 to 2.1)	410 per 1000	127 more per 1000 (from 74 fewer to 451 more)

Note.

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)

[1] Risk of bias (due to unclear allocation concealment and use of non-validated outcome measures).
[2] Imprecision (OIS for dichotomous outcomes = 300 events, and for continuous outcomes = 400 participants).

9.2.1.6 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 and Suchman 2010 (Suchman et al., 2010). One study (Murray 2003) was composed of 2 arms comparing parent psychotherapy with control (N = 149) and parent non-directive counselling (N = 98).

The risk factors 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 222. 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 224, respectively. Summary of findings table for parent psychotherapy versus counselling can be found in Table 225. The full GRADE evidence profiles and associated forest plots can be found in Appendices N and O.

Table 222: 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)	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 (2) None	None
Stage of intervention (approximate age range of children at onset of intervention)	(1) Birth to 3 years (2) Birth	Birth
Delivered by	(1) Master's and doctoral-level therapists (2) Individuals trained in delivering the intervention	Individuals trained in delivering the intervention
Length of session	(1) 1 hour (2) Unclear	Unclear
Frequency	(1–2) Weekly	Weekly
Duration	(1) 12 weeks (2) 10 weeks	10 weeks

	Parent psychotherapy versus control	Parent psychotherapy versus parent non-directive counselling
Tool used to measure attachment	(1) None (2) SSP	SSP
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) 3 months (2) None	None
Follow-up assessment (after end of treatment)	(1) 1 month (2) 14 months	14 months

Table 223: 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 post-treatment	Risk difference with psychotherapy (95% CI)
Sensitivity/responsiveness	47 (1 study) 3 months	⨁⨁⨀⨀ LOW[1,2] due to risk of bias, imprecision			The mean sensitivity/responsiveness in the intervention groups was 0.58 SD higher (0 to 1.17 higher)

Note.
[1] Risk of bias (due to unclear random sequence generation and allocation concealment).
[2] Imprecision (OIS for dichotomous outcomes = 300 events, and for continuous outcomes = 400 participants).

Table 224: 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 follow-up	Risk difference with psychotherapy (95% CI)
Sensitivity/responsiveness	47 (1 study) 1 months	⨁⨁⨀⨀ LOW[1,2] due to risk of bias, imprecision			The mean sensitivity/responsiveness in the intervention groups was 0.71 SD higher (0.12 to 1.3 higher)
Insecure attachment	87 (1 study) 14 months	⨁⨁⨀⨀ LOW[1,2] 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)

Note.
[1] Risk of bias (due to unclear allocation concealment and use of non-validated outcome measures).
[2] Imprecision (OIS for dichotomous outcomes = 300 events, and for continuous outcomes = 400 participants).

Table 225: 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	79 (1 study) 14 months	⨁⨁⊖⊖ LOW[1,2] 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)

Note.
[1] Risk of bias (due to unclear allocation concealment and use of non-validated outcome measures).
[2] Imprecision (OIS for dichotomous outcomes = 300 events, and for continuous outcomes = 400 participants).

9.2.1.7 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 226. 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 227. The full GRADE evidence profiles and associated forest plots can be found in Appendices N and O**.**

Table 226: Study information for trials included in the meta-analysis of counselling versus any control

	Parent non-directive counselling versus control
Total no. of studies (N)	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	SSP
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)	14 months

Table 227: 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	86 (1 study) 14 months	⨁⨁⊖⊖ LOW[1,2] 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)

Note.
[1] Risk of bias (due to unclear allocation concealment and use of non-validated outcome measures).
[2] Imprecision (OIS 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 (Duggan et al., 1999), Fergusson 2005 (Fergusson et al., 2005) and 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 in Table 228. Further information about both included and excluded studies can be found in Appendix L and Appendix M, respectively.

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 229, Table 230 and Table 231. The full GRADE evidence profiles and associated forest plots can be found in Appendix N and Appendix O.

Table 228: 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)	4 (1940)
Study ID	(1) Caldera 2007 (2) Duggan 1999 (3) Fergusson 2005 (4) Olds 2002
Country	(1–2, 4) USA (3) New Zealand
Number of participants originally randomised	(1) 364 (2) 643 (3) 443 (4) 490
Risk factor	(1–4) At risk of maltreatment
Title of intervention	(1) Healthy Families Alaska (2) Hawaii's Healthy Start programme (3) Early Start programme (4) Not reported
Stage of intervention (approximate age range of children at onset of intervention)	(1–4) Birth
Delivered by	(1–2) Paraprofessionals (3) Trained family support workers (4) Nurses
Length of session	(1–4) 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

	Home visiting versus any control
	(2–3) 3 years
Tool used to measure attachment	(1–4) None
Tool used to measure sensitivity/responsiveness	(1) Nursing Child Assessment Teaching Scale (2) HOME Inventory (3) Maternal parenting attitude (4) EAS
Control/comparison	(1) Non-therapeutic control – community referral (2–3) Control – no information provided (4) Non-therapeutic control – home visits
Post-treatment assessment (after baseline)	(1) 2 years (2–3) 3 years (4) 24 months
Follow-up assessment (after end of treatment)	(1–3) None (4) 12 months
Note. [1] Number randomised.	

Table 229: 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)
Parental sensitivity/responsiveness	1178 (3 studies) 2–3 years	⊕⊕⊕⊖ MODERATE[1] due to risk of bias			The mean parenting outcomes–sensitivity/ responsiveness– in the intervention groups was 0.19 SD higher (0.08 to 0.31 higher)
Parenting attitudes	640 (2 studies) 2–3 years	⊕⊕⊕⊖ MODERATE[1] due to risk of bias			The mean parent outcomes–parenting attitudes– in the intervention groups was 0.25 SD higher (0.1 to 0.41 higher)
Externalising behaviour	1028 (3 studies) 2–3 years	⊕⊕⊕⊖ MODERATE[1] due to risk of bias			The mean child outcomes–externalising behaviour– in the intervention groups was 0.20 SD lower (0.32 to 0.08 lower)
Internalising behaviour	640 (2 studies) 2–3 years	⊕⊕⊕⊖ MODERATE[1] due to risk of bias			The mean child outcomes–internalising behaviour – in the intervention groups was 0.27 SD lower (0.43 to 0.11 lower)
Child mental development	637 (2 studies) 2–3 years	⊕⊕⊕⊖ MODERATE[1] due to risk of bias			The mean child outcomes–mental development– in the intervention groups was 0.15 SD higher (0.05 lower to 0.36 higher)
Child motor development	249 (1 study) 2 years	⊕⊕⊖⊖ LOW[1,2]due to risk of bias, imprecision			The mean child outcomes–motor development– in the intervention groups was 0.18 SD higher (0.07 lower to 0.43 higher)
Child abuse report (12 months mid-treatment)	309 (1 study) 2 years	⊕⊖⊖⊖ VERY LOW[1,3] due to risk of bias, imprecision	RR 1.18 (0.62 to 2.22)	101 per 1000	18 more per 1000 (from 38 fewer to 124 more)
Child abuse report	688 (2 studies) 2–3 years	⊕⊕⊖⊖ LOW[1,3]	RR 0.93 (0.66 to 1.31)	162 per 1000	11 fewer per 1000 (from 55 fewer to 50 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 (95% CI)
		due to risk of bias, imprecision			
Severe physical assault	391 (1 study) 3 years	⨁⨁⨁⊖ MODERATE[1] 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)

Note.
[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 230: 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	345 (1 study) 3 years	⨁⨁⨁⊖ MODERATE[1] 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	345 (1 study) 3 years	⨁⨁⨁⊖ MODERATE[1] 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)

Note.
[1] Unclear risk of bias across several domains.

Table 231: 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	302 (1 study) 3 years	⨁⨁⨁⊖ MODERATE[1] 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	303 (1 study) 3 years	⨁⨁⨁⊖ MODERATE[1] 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)

Note.
[1] Unclear risk of bias across several domains.

9.2.2.2 Parent–child psychotherapy versus control

There were 2 RCTs (N = 163) that met the eligibility criteria for this review: Cicchetti 2006 and 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, respectively.

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 Cicchetti 2006 and 4 to 5 years in 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 233 and Table 234, 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 235 and Table 236, respectively. The full GRADE evidence profiles and associated forest plots can be found in Appendix N and O, respectively.

Table 232: 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)	2	2
Study ID	(1) Cicchetti 2006 (2) Toth 2002	(1) Cicchetti 2006 (2) Toth 2002
Country	(1–2) USA	(1–2) USA
Number of participants originally randomised	(1) 84 (2) 79	(1) 84 (2) 79
Risk factor	(1–2) Maltreating families	(1–2) Maltreating families
Title of intervention	(1–2) Infant–parent psychotherapy	(1–2) 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) Master's-level therapists (2) Master's and doctoral-level therapists	(1) Master's-level therapists (2) Master's 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	(1–2) 1 year	(1–2) 1 year
Tool used to measure attachment	(1) SSP (2) Global relationship scale	(1) SSP (2) Global relationship scale
Tool used to measure sensitivity/responsiveness	(1–2) None	(1–2) None
Control/comparison	(1–2) Treatment as usual	(1–2) Treatment as usual

	Parent–child psychotherapy versus control	**Parent–child psychotherapy versus home visiting**
Post-treatment assessment (after baseline)	(1–2) 1 year	(1–2) 1 year
Follow-up assessment (after end of treatment)	(1) 1 year (2) None	(1) 1 year (2) None
Note. [1] Number randomised.		

Table 233: 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	57 (1 study) 1 years	⨁⨁⊖⊖ LOW[1,2] due to risk of bias, imprecision			The mean secure attachment in the intervention groups was 0.67 SD higher (0.12 to 1.21 higher)
Secure attachment	82 (1 study) 1 years	⨁⊖⊖⊖ VERY LOW[2,3] 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)
Insecure attachment	82 (1 study)	⨁⊖⊖⊖ VERY LOW[2,3,4] 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)
Disorganised attachment	82 (1 study) 1 years	⨁⊖⊖⊖ VERY LOW[2,3] 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	57 (1 study) 1 years	⨁⊖⊖⊖ VERY LOW[1,4,5] due to risk of bias, imprecision			The mean maternal maladaptive representations in the intervention groups was 0.39 SD lower (0.93 lower to 0.14 higher)

Note.
[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 234: 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)
Secure attachment	76 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW[1,2] 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)
Less likely to have insecure attachment	76 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW[1,2] 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)
Disorganised attachment	76 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW[1,2,3] 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)

Note.
[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 235: 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	50 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW[1,2,3]	RR 1.11 (0.69 to 1.81)	545 per 1000	60 more per 1000 (from 169 fewer to 442 more)

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)
		due to risk of bias, imprecision			
Secure attachment	53 (1 study) 1 years	⊕⊕⊖⊖ LOW[4,5] due to risk of bias, imprecision			The mean secure attachment in the intervention groups was 0.67 SD higher (0.11 to 1.23 higher)
Less likely to have an insecure attachment	50 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW[1,2] 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) 1 years	⊕⊖⊖⊖ VERY LOW[1,2,3] 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)
Maternal maladaptive representations	57 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW[3,4,5] due to risk of bias, imprecision			The mean parent outcomes: maternal maladaptive representations in the intervention groups was 0.39 SD lower (0.93 lower to 0.14 higher)

Note.
[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 236: 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 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW[1,2] due to risk of bias, imprecision	RR 2.44 (1.05 to 5.67)	227 per 1000	327 more per 1000 (from 11 more to 1000 more)
Less likely to have an insecure attachment	49 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW[3,4] 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	49 (1 study) 1 years	⊕⊖⊖⊖ VERY LOW[2,3] 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)

Note.
[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).

9.2.2.3 Parental 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 and 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 237. Further information about both included and excluded studies can be found in Appendix L and M.

Summary of findings can be found in Table 238. The full GRADE evidence profiles and associated forest plots can be found in Appendix N and O.

Table 237: Study information table for trials included in the meta-analysis of parental sensitivity and behaviour training versus control

	Parental sensitivity and behaviour training versus control
Total no. of studies (N)	4
Study ID	(1) Chaffin 2004 (2) Hughes 2004 (3) Thomas 2011 (4) Thomas 2012
Country	(1) USA (2) Canada (3, 4) Australia
Number of participants originally randomised	(1) 110 (2) 28 (3) 150 (4) 152
Risk factor	(1) Abusive parents (2) Maltreating families (3–4) Maltreating families/at risk of maltreatment
Title of intervention	(1, 3–4) Parent– child interaction therapy (2) Webster-Stratton 'incredible years' parenting programme
Stage of intervention (approximate age range of children at onset of intervention)	(1) 4–12 years (2) 3–8 years (3) 5–8 years (4) 3–7 years
Delivered by	(1) Therapists (including both trainees and experts) (2) Nurses (3) Master's and doctoral-level psychologists (4) Master's and doctoral-level psychologists
Length of session	(1, 3–4) Unclear. (2) 2 hours
Frequency	(1) Average twice a month (12–14 sessions over 6 months) (2, 4) Weekly (3) Unclear
Duration	(1) 6 months (2) 8 weeks (3) Varied according to participant progress; average 6 months (4) Unclear (12 sessions)
Tool used to measure attachment	None
Tool used to measure sensitivity/responsiveness	(1) Dyadic Parent–Child Interaction Coding System (2) Parenting Skills Observation Scale (3–4) EAS
Control/comparison	(1) Standard community (group psychoeducation) (2, 3, 4) Waitlist

	Parental sensitivity and behaviour training versus control
Post-treatment assessment (after baseline)	(1) 28 weeks (median 850 days) (2) 11 weeks (3, 4) 12 weeks
Follow-up assessment (after end of treatment)	None
Note. [1] Number randomised.	

Table 238: Summary of findings table for parental 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 parental sensitivity and behaviour training (95% CI)
Sensitivity and responsiveness	319 (4 studies) 2–6 months	⊕⊕⊖⊖ LOW[1,2] due to risk of bias, inconsistency			The mean parent outcomes: sensitivity and responsiveness in the intervention groups was 0.46 SD higher (0.12 to 0.8 higher)
Negative parenting behaviour	77 (1 study) 6 months	⊕⊕⊖⊖ LOW[1,3] due to risk of bias, imprecision			The mean parent outcomes: negative parenting behaviour in the intervention groups was 0.75 SD lower (1.22 to 0.29 lower)
Negative parenting attitudes	226 (2 studies) 6 months	⊕⊕⊖⊖ LOW[1,3] due to risk of bias, imprecision			The mean parent attitudes: negative parenting attitudes in the intervention groups was 0.06 SD lower (0.33 lower to 0.2 higher)
Internalising behaviour	301 (3 studies) 6 months	⊕⊕⊖⊖ LOW[1,3] due to risk of bias, imprecision			The mean child outcomes: internalising behaviour in the intervention groups was 0.09 SD higher (0.14 lower to 0.31 higher)
Externalising behaviour	301 (3 studies)	⊕⊕⊖⊖ LOW[1,3] due to risk of bias, imprecision			The mean child outcomes: externalising behaviour in the intervention groups was 0.22 SD lower (0.45 lower to 0.01 higher)
Re-report of physical abuse	77 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW[4,5] 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)

Note.
[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 and 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 239. Further information about both included and excluded studies can be found in Appendix L and M.

Summary of findings can be found in Table 240. The full GRADE evidence profiles and associated forest plots can be found in Appendix N and O.

Table 239: Study information table for trials included in the meta-analysis of video feedback versus control

	Video feedback versus control
Total no. of studies (N)	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) SSP (2) SSP/Preschool Separation Reunion Procedure
Tool used to measure sensitivity/responsiveness	(1) None (2) MBQS
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)	(1–2) None
Note. [1] Number randomised.	

Table 240: 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	67 (1 study) 2 months	⊕⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, imprecision			The mean sensitivity/responsiveness in the intervention groups was 0.48 SD higher (0.01 lower to 0.97 higher)
Secure attachment	187 (2 studies) 2–3 months	⊕⊕⊖⊖ LOW[1,4] 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	187 (2 studies) 2–3 months	⊕⊕⊖⊖ LOW[1,4] 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	187 (2 studies) 2–3 months	⊕⊕⊖⊖ LOW[1,4] 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	67 (1 study) 2–3 months	⊕⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, imprecision			The mean externalising behaviour in the intervention groups was 0.03 SD higher (0.45 lower to 0.51 higher)
Internalising behaviour	67 (1 study) 2–3 months	⊕⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, imprecision			The mean internalising behaviour in the intervention groups was 0.12 SD lower (0.6 lower to 0.36 higher)

Note.
[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).
[4] Total number of events is less than 300 (a threshold rule-of-thumb).

9.2.2.5 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), which 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 241. 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 242, Table 243 and Table 244. The full GRADE evidence profiles and associated forest plots can be found in Appendix N and O.

Table 241: Study information table for trials included in the meta-analysis of trauma-focused CBT versus parent–child psychotherapy

	Trauma-focused CBT versus parent–child psychotherapy
Total no. of studies (N)	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 with 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 242: Summary of findings table for trauma-focused CBT versus parent–child psychotherapy

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 sensitivity/responsiveness	179 (1 study) 3 months	⨁⨁⊖⊖ LOW[1,2] due to risk of bias, imprecision			The mean parental outcomes: sensitivity/responsiveness in the intervention groups was 0.32 SD higher (0.02 to 0.61 higher)
Internalising behaviour	179 (1 study) 3 months	⨁⨁⊖⊖ LOW[1,2] due to risk of bias, imprecision			The mean child outcomes: internalising behaviour in the intervention groups was 0.42 SD lower (0.71 to 0.12 lower)
Externalising behaviour	179 (1 study) 3 months	⨁⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, imprecision			The mean child outcomes: externalising behaviour in the intervention groups was 0.29 SD lower (0.58 lower to 0.01 higher)

Note.
[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 243: Summary of findings table for trauma-focused CBT versus parent–child psychotherapy 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)
Parenting practices	143 (1 study) 3 months	⨁⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, imprecision			The mean parental outcomes: parenting practices in the intervention groups was 0.08 SD higher (0.25 lower to 0.4 higher)
Internalising behaviour	142 (1 study) 3 months	⨁⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, imprecision			The mean child outcomes: internalising behaviour in the intervention groups was 0.11 SD lower (0.43 lower to 0.22 higher)
Externalising behaviour	142 (1 study) 3 months	⨁⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, imprecision			The mean child outcomes: externalising behaviour in the intervention groups was 0.09 SD lower (0.42 lower to 0.24 higher)

Note.
[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 244: Summary of findings table for trauma-focused CBT versus parent–child psychotherapy 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)
Parenting practices	148 (1 study) 3 months	⨁⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, imprecision			The mean parental outcomes: parenting practices in the intervention groups was 0.1 SD lower (0.42 lower to 0.22 higher)
Internalising behaviour	146 (1 study) 3 months	⨁⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, imprecision			The mean child outcomes: internalising behaviour in the intervention groups was 0.3 SD lower (0.63 lower to 0.02 higher)
Externalising behaviour	146 (1 study) 3 months	⨁⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, imprecision			The mean child outcomes: externalising behaviour in the intervention groups was 0.12 SD higher (0.21 lower to 0.44 higher)

Note.
[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 2 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., 2007; 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 216. 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 202.

Barlow and colleagues (2007) 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 up to about age 2 years 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 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.

9.2.3.2.2 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:

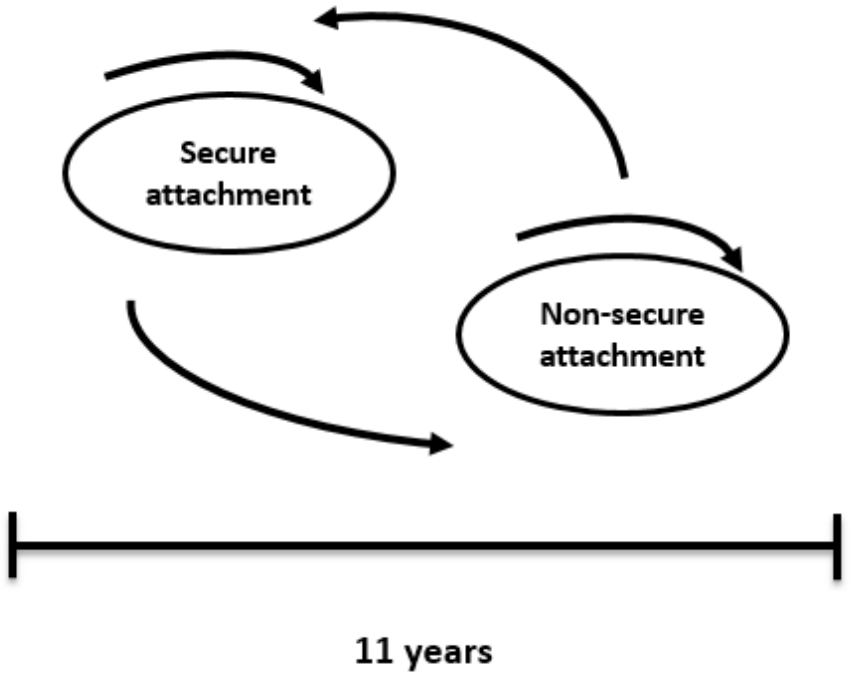
- video feedback added to standard care
- parental sensitivity and behaviour training added to standard care
- home visiting and parent–child psychotherapy added to standard care

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 1 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). 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 were applied at 1 year, and for home visiting and parent–child psychotherapy efficacy data were 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 (Cooper 2009; Klein-Veldermann 2006; 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 age 14, 24, and 58 months. At the 14-month visit mother–child dyads were videotaped through a 1-way mirror in the standard SSP and at 24 and 58 months mothers and children participated in a modified version of the SSP. 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, the time trade-off and the standard gamble (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, PTSD, 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 and colleagues (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 HUI2 and 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 seventh 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 visual analogue scale and standard gamble (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 standard gamble (McCabe et al., 2005; Petrou & Kupek, 2009).

Table 245 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 time trade-off or standard gamble, 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 the European Quality of Life – 5 Dimensions (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 standard gamble, 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 245: 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 and 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; information obtained using Development and Well Being Assessment was used to assign ICD-10 and DSM-IV-TR diagnoses. Emotional problems encompassed separation anxiety, specific phobia, social phobia, PTSD, generalised anxiety disorder, childhood emotional disorder (not otherwise specified) and major depression.	Standard gamble	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)

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 246 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 246: Resource use data reported in RCTs assessing video feedback, 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 minutes each
Bakermans-Kranenberg 1998	3 sessions, lasting 90–180 minutes each
Bernard 2012	11 sessions, lasting 60 minutes each
Klein-Velderman 2006	3 sessions, lasting 90–180 minutes each
Moran 2005	7–21 sessions, lasting 60 minutes each
Van Doesum 2008	6–17 sessions, lasting 60–90 minutes each
Parental sensitivity and behaviour training	
Ammaniti 2006	28–56 sessions
Cooper 2009	16 sessions, lasting 60 minutes each
Horowitz 2001	4–6 sessions, lasting 15 minutes each
Horowitz 2013	7 sessions, lasting 60 minutes each
Hughes 2004	9 sessions, lasting 120 minutes 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 minutes 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 247 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 247: 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 and colleagues(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 and colleagues (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: Video feedback	 £760	**'Inverse' of gamma distribution**	Based on resource use reported in RCTs included in the guideline systematic review supported with GC expert opinion (video feedback 10 hourly sessions, parental

Input parameter	Deterministic value	Probabilistic distribution	Source of data – comments
Parental sensitivity and behaviour training Home visiting and parent–child psychotherapy	£1,140 £6,687	α = 100, β = 7.60 α = 100, β = 11.40 α = 100, β = 66.87	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 247 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.

9.2.3.2.3 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 2 alternative options) are excluded from further analysis. Subsequently, 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).

9.2.3.2.4 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.

9.2.3.2.5 Results

Full probabilistic results of the base-case economic analysis are presented in Table 248. 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 248: 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 versus standard care)
Parental sensitivity and behaviour training	£114,259	775	£27,487 (parental sensitivity and behaviour training versus video feedback)
Home visiting and parent–child psychotherapy	£666,245	785	£58,404 (home visiting and parent–child psychotherapy versus parental sensitivity and behaviour training)

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 parental 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

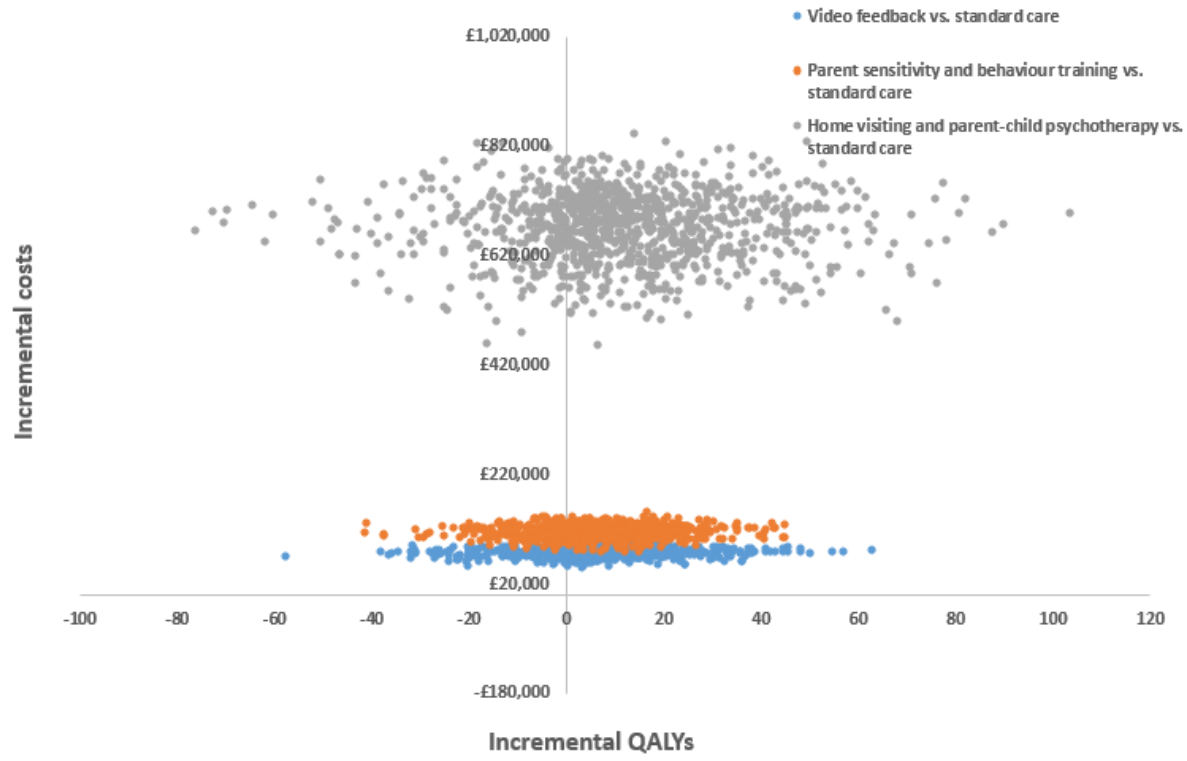


Figure 3: CEACs showing the probability of standard care, video feedback, parental sensitivity and behaviour training, and home visiting and parent–child psychotherapy being cost effective at various threshold values

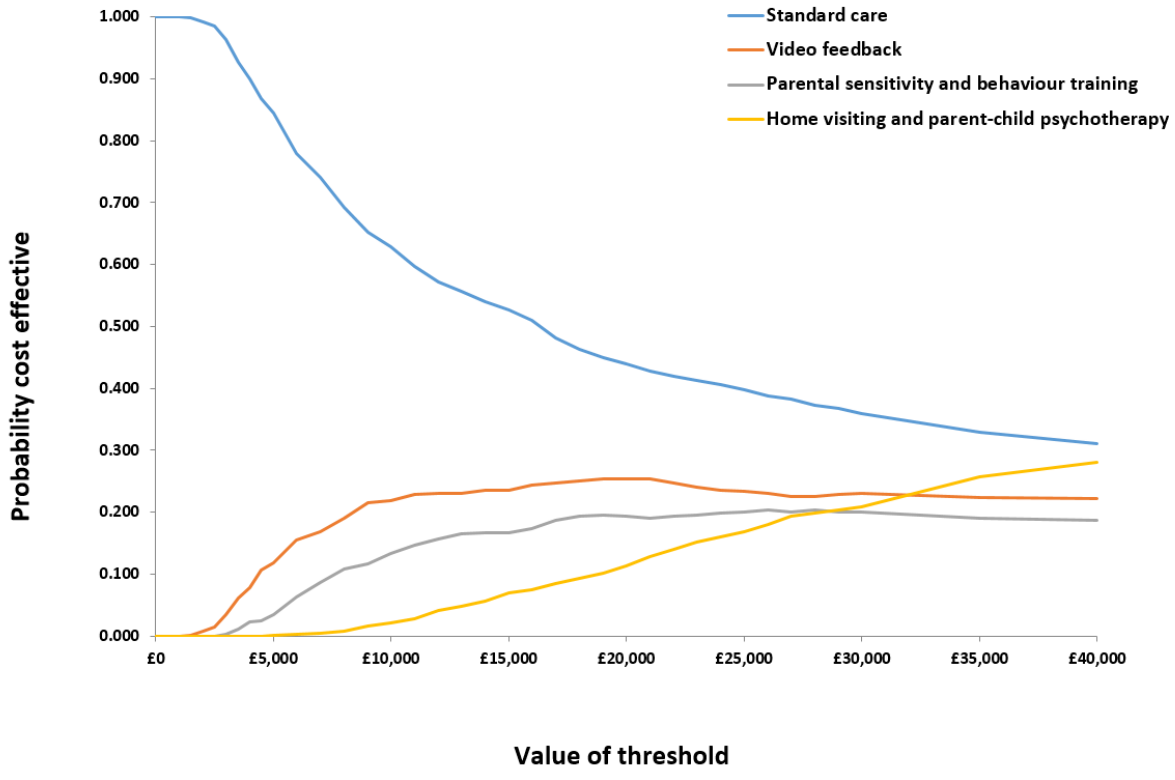
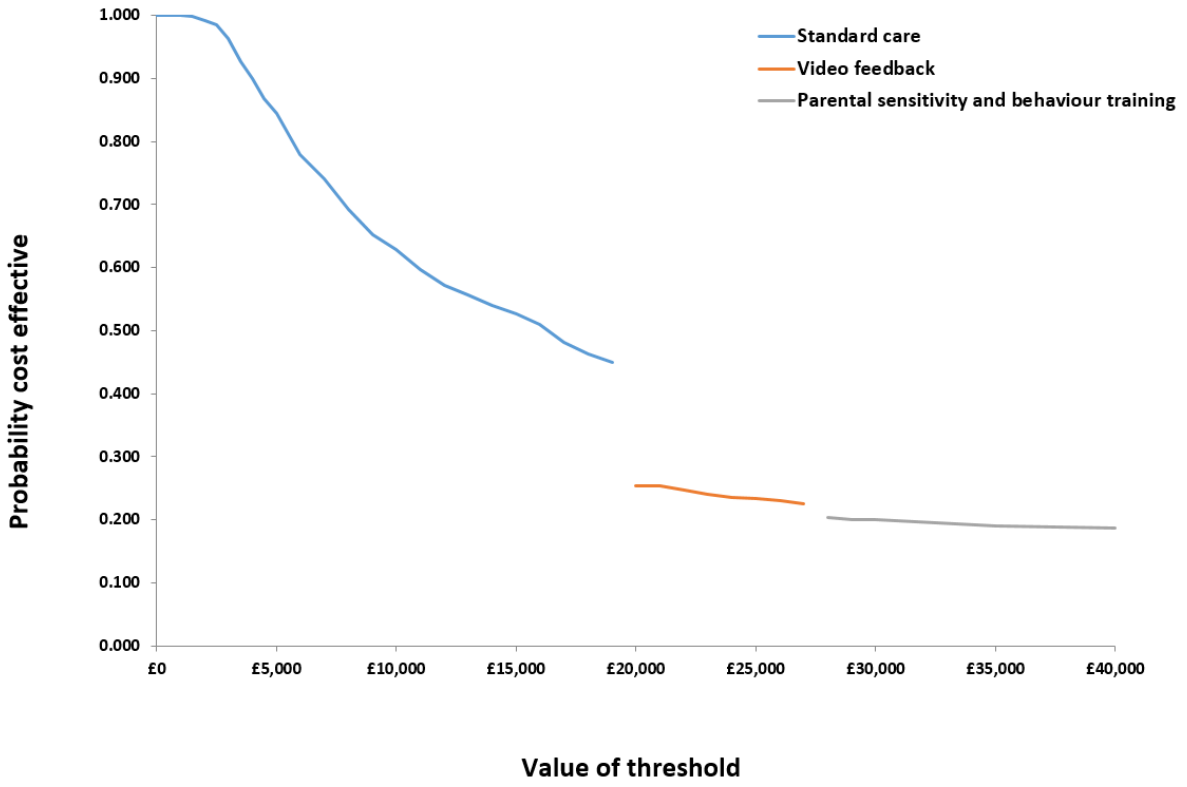


Figure 4: CEAF showing the probability of highest mean NMBs at various threshold values for standard care, video feedback, and parental sensitivity and behaviour training



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 £20,000 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 249.

Table 249: Results of threshold sensitivity analysis

Parameter	Values that resulted in:		
	ICER of video feedback (versus standard care) exceeding the threshold of £20,000/QALY	**ICER of parental sensitivity and behaviour training (versus video feedback) below the threshold of £20,000/QALY**	**ICER of home visiting and parent–child psychotherapy (versus 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			

9.2.3.2.6 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 could not 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.

9.2.3.3 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 has not 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 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 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 control at the end of treatment.
- Low-quality evidence from 4 studies (N = 203), showed that video feedback is more effective than 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 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 control at 6-month follow-up.
- Moderate-quality evidence from 1 study (N = 58) showed that video feedback is more effective than 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 with control in improving externalising behaviour at 56-month follow-up.
- Low-quality evidence from 1 study (N = 58) showed that 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 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 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 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 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 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 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 Parental sensitivity and behaviour training versus control

- Low to moderate-quality evidence from up to 9 studies, showed that parental sensitivity and behaviour training is more effective than 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 parental sensitivity and behaviour training compared with 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 parental sensitivity and behaviour training is more effective than control in improving sensitivity/responsiveness and secure attachment, at 5-month follow-up.
- Moderate-quality evidence from 1 study (N = 318), showed that parental sensitivity and behaviour training is more effective than 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 parental sensitivity and behaviour training compared with 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 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 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 important.
- Low-quality evidence from up to 4 studies, is inconclusive as to the effectiveness of home visiting compared with 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 control in improving sensitivity/responsiveness, at 1 to 12-month follow-up.
- Low-quality evidence from 1 study (N = 49), is inconclusive as to the effectiveness of home visiting compared with 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 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 1 study (N = 345), is inconclusive as to the effectiveness of home visiting compared with control in reducing externalising and internalising behaviour at 4-year follow-up.
- Low-quality evidence from 1 study, is inconclusive as to the effectiveness of home visiting compared with control in reducing externalising behaviour (N = 302) and internalising behaviour (N = 303) at 7-year follow-up.

9.2.4.7 Home visiting combined with parent–child psychotherapy versus control

- Low-quality evidence from 1 study (N = 82), showed that home visiting combined with parent–child psychotherapy is more effective than control in improving secure attachment, at the end of treatment.
- Low-quality evidence from 1 study, is inconclusive as to the effectiveness of home visiting combined with parent–child psychotherapy compared with control, in improving sensitivity/ responsiveness (N = 76) and reducing disorganised attachment (N = 60), at the end of treatment.

9.2.4.8 Psychotherapy versus control

- Low-quality evidence from 1 study (N = 47), showed that psychotherapy is more effective than control in improving sensitivity/responsiveness at the end of treatment and at 6-week follow-up.
- Low-quality evidence from 1 study (N = 87), is inconclusive as to the effectiveness of psychotherapy compared with control in reducing insecure attachment at 14-month follow-up.

9.2.4.9 Psychotherapy versus counselling

- Low-quality evidence from 1 study (N = 79), is inconclusive as to the effectiveness of CBT compared with psychotherapy in reducing insecure attachment at 14-month follow-up.

9.2.4.10 CBT versus control

- Low-quality evidence from 1 study (N = 88), is inconclusive as to the effectiveness of CBT compared with control in reducing insecure attachment at 14-month follow-up.

9.2.4.11 CBT versus psychotherapy

- Low-quality evidence from 1 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 1 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 1 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 important.
- 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-month 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.

9.2.5.2 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.

9.2.5.3 Parent–child psychotherapy versus home visiting

- Very low-quality evidence from 1 study (N = 50) showed no effect of parent–child psychotherapy compared with 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.

9.2.5.4 Parental sensitivity and behaviour training

- Low-quality evidence from 4 studies (N = 319) showed that parental sensitivity and behaviour training is more effective than control in increasing parental sensitivity and responsiveness in preschool and primary school-age children at the end of intervention.
- Low-quality evidence from 1 study (N = 77) showed that parental sensitivity and behaviour training is more effective than control in reducing negative parenting behaviour in primary school-age children at the end of intervention.
- Low-quality evidence from 2 studies (N = 226) showed no effect of parental sensitivity and behaviour training on negative parenting attitudes in preschool and primary school-age children at the end of intervention.

- Low-quality evidence from 3 studies (N = 301) showed no effect of parental sensitivity and behaviour training on internalising behaviour in preschool and primary school-age children at the end of intervention.
- Low-quality evidence from 3 studies (N = 301) showed that parental sensitivity and behaviour training is more effective than control in reducing externalising behaviour in preschool and primary school-age children at the end of intervention, but there was some uncertainty.
- Low-quality evidence from 1 study (N = 77) showed that parental 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 1 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 35. 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. 36. 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:

	○ highlight parental sensitivity, responsiveness and communication ○ highlight parental strengths ○ acknowledge positive changes in the behaviour of the parents and child. 37. If there is little improvement to parental sensitivity or the child's attachment after 10 sessions of a video feedback programme for parents of preschool-age children on the edge of care, 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, disorganised and attachment disorder) 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 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. 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. Details about what information to look for on the video feedback was extracted from the studies. The information relating to the number of sessions and the duration of the programme was also extracted from the studies but was adapted by the GC to ensure the programme was relevant to a UK setting. The GC highlighted the importance of ensuring families who either do not respond to video feedback programmes or choose not to take part in them are given the option to try another intervention (parental sensitivity and behaviour training) or to try video feedback again. Because of the lack of evidence on families who try successive interventions, a consensus recommendation was made by the GC to advise that 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 there was 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 1 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, leading to some outcomes being downgraded. Most outcomes were downgraded for imprecision due to a low number of events (fewer than 300) or a low number of participants (fewer than 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 the review protocol for definitions). For video feedback compared with 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 were factors that are likely to bring children 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.

Recommendations	**Preschool-age children** 38. 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. 39. 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 a 6-month period • is delivered by a trained health or social care professional • includes: o coaching the parents in behavioural management (not applicable 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. 40. 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 or 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** 41. Consider parental sensitivity and behaviour training for parents of primary and secondary school-age children and young people (as described in recommendation 39) to improve attachment difficulties, 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, disorganised and attachment disorder) 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 preschool- and primary school-age children on the edge of care may improve maternal sensitivity/responsiveness and for primary school-aged children reduce externalising behaviour. The evidence was inconclusive for internalising behaviour and parenting attitudes. One study of preschool-aged children 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. Given the size of the response to parental sensitivity and behaviour training in children aged 3 to 11 years of age, the GC agreed that the evidence could be extrapolated to secondary school-age children and young people and therefore recommended parental sensitivity and behaviour training to parents of children at these ages. The GC also discussed that young people may be less likely to engage with one-to-one therapies, so interventions that target the parents/carers and the way they treat the children, such as parental sensitivity and behaviour training, will result in better outcomes. The GC highlighted the importance of ensuring that families who either do not respond to video feedback programmes and parental sensitivity and behaviour training, 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	A video feedback programme 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 a 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 the 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 dropout rate. Most outcomes were downgraded for imprecision due to a low number of events (fewer than 300) or a low number of participants (fewer than 400) in the analysis.
Other considerations	To investigate heterogeneity, subgroups of age and duration of treatment were considered (see the review protocol for definitions). For parental sensitivity and behaviour training compared with 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. Although the evidence on the effectiveness of parental sensitivity and behaviour training on disorganised attachment in children on the edge of care was unclear, evidence from a review in Chapter 7 showed that maternal sensitivity measured at 1point in time is associated with the likelihood of a child developing disorganised attachment 5 to 24 months later. Thus, it is important that maternal sensitivity is improved where needed since it may prevent the development of disorganised attachment. The GC identified children of families at a social disadvantage and parents with mental health problems as groups that needed special consideration. These are factors that are likely to bring children 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.

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Recommendations	42. If the multi-agency review concludes that further intervention is appropriate, consider a home visiting programme to improve parenting skills delivered by an appropriately-trained lay home visitor or a healthcare professional such as a nurse. 43. Ensure home visiting programmes: • consist of 12 weekly or monthly sessions (lasting 30–90 minutes) over an 18-month period • 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 and attachment disorder) 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 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-based recommendation to address the families who do not respond to video feedback or parental sensitivity and behaviour training, or decline to participate in them. 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 a home visiting programme to improve parenting skills should be considered.
Trade-off between net health benefits and resource use	Limited existing economic evidence suggested that home visiting may be a 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 1 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 (fewer than 300) or a low number of participants (fewer than 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 (fewer than 300) or a low number of participants (fewer than 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 (fewer than 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 (fewer than 300) or a low number of participants (fewer than 400) in the analysis.
Other considerations	To investigate heterogeneity, subgroups of age and duration of treatment were considered (see the review protocol for definitions). For parent–child psychotherapy compared with 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 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 1 study. The GC identified children of families at a social disadvantage and parents with mental health problems as groups that needed special consideration. These are factors that are likely to bring children 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.

Recommendations	**Preschool-age children who are at risk of being or have been maltreated** 44. Consider parent–child psychotherapy for parents who have maltreated or are at risk of maltreating their child to improve attachment difficulties, ensuring that safeguarding concerns are addressed. 45. Ensure parent–child psychotherapy to improve attachment difficulties: • 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. * Cicchetti D, Rogosch FA, Toth SL (2006) Fostering secure attachment in infants in maltreating families through preventive interventions. Development and Psychopathology 18: 623–49 and Toth SL, Maughan A, Manly JT et al. (2002) The relative efficacy of two interventions in altering maltreated preschool children's representational models: implications for attachment theory. Development and Psychopathology 14: 877–908.
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 and attachment disorder) 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 other reviews in this chapter. Although they may have included indirect measures of parental sensitivity or attachment difficulty, the GC felt it was important to incorporate as many relevant studies as possible for this review since maltreatment is strongly associated with attachment difficulties. 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	For children who are at risk of being or have been maltreated, there was evidence that parent–child psychotherapy for preschool-age children may promote secure attachment and reduce both insecure and disorganised attachment. This effect was also present at 12-month 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-month follow-up, although the precision in the estimate of this effect was poor. The GC discussed and agreed that there were clinical benefits for parent–child psychotherapy, however they 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 GC decided not to recommend home visiting. Video feedback and parental sensitivity and behaviour training were also reviewed and showed some benefits for promoting parental sensitivity and secure attachment in children who are at risk of being or have been maltreated. However, some of these results were inconclusive, and together with their clinical judgement, the GC 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 GC judged that provision of such interventions may result in benefits that outweigh costs. As indicated by the clinical review, the main benefits of parent–child psychotherapy for preschool-age children who are at risk of being or have been maltreated is the promotion of secure attachment and reduction of both insecure and 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 system). 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 (fewer than 300) or a low number of participants (fewer than 400) in the analysis.
Other considerations	The GC 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 maltreated 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 GC 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.

Recommendations	**Primary and secondary school-age children and young people who have been, or are at risk of being, maltreated** 46. 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. 47. Consider parental sensitivity and behaviour training (as described in recommendation 39) for parents at risk of maltreating their child to improve attachment difficulties, ensuring that safeguarding concerns are addressed and 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. Outcomes used for this review also included a broader definition of attachment difficulties and parental sensitivity than the other reviews in this chapter. Although they may be unvalidated tools or indirect measures of parental sensitivity or attachment difficulty, the GC felt it was important to incorporate as many relevant studies as possible for this review since maltreatment is strongly associated with attachment difficulties. 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 from 4 studies (N= 319) that parental sensitivity and behaviour training may promote parental sensitivity/responsiveness and reduce negative parenting behaviour and child externalising behaviour in primary school-age children aged from 3 to 12 years compared to control at the end of the intervention. In addition, there was evidence that parental sensitivity and behaviour training may reduce re-reports of physical abuse. No effect of treatment was detected for negative parenting attitudes or internalising behaviour of the child at the end of intervention There were no outcomes for attachment difficulties. No harms were associated with this intervention. 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-month follow-up. There were no outcomes for attachment difficulties. No harms were associated with this intervention. There was no evidence for any other interventions in primary or secondary school- age children.

Trade-off between net health benefits and resource use	No economic evidence is available on interventions for children and young people who have been maltreated, and show signs of trauma or PTSD. 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 patterns. 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 the criminal justice system). Similarly, no economic evidence is available on interventions for parents at risk of maltreating their child. The GC judged that provision of parental sensitivity and behaviour training may result in benefits that outweigh costs. According to the GC the main benefit of such an intervention would be the promotion of secure attachment and reduction of both insecure and 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 the criminal justice system). The GC also expressed the opinion that parental sensitivity and behaviour training is likely to improve outcomes for families and carers and may consequently reduce healthcare resource utilisation associated with mental health problems experienced by families and carers.
Quality of evidence	For parental sensitivity and behaviour training the quality of the evidence was rated low. Outcomes were downgraded for risk of bias in several domains and for imprecision due to a low number of events (fewer than 300) or a low number of participants (fewer than 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). For trauma-focused CBT 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 (fewer than 300) or a low number of participants (fewer than 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 GC highlighted that the population considered in the studies was 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 maltreated by their carer. There was evidence from 4 studies of primary school-age children who are at risk of being or have been maltreated providing evidence that parental sensitivity and behaviour training had a benefit for increasing the sensitivity/responsiveness of the parent. (These 4 studies are described in section 9.2.2.3 and the evidence statements relating to the findings can be found in section 9.2.5.4.) Although there was no direct evidence for attachment outcomes, the GC used sensitivity of the parent to be a proxy for attachment in addition to evidence from a review in Chapter 7 on tools that measure parental sensitivity, which suggests that improving parental sensitivity may reduce the risk of the child developing disorganised attachment. The GC also noted the benefit of this intervention on reducing negative parenting behaviour and externalising behaviour of the child, and also evidence from 1 study that the intervention reduced re-reports of maltreatment. Based on this evidence the GC agreed there was enough evidence to make a recommendation to consider parental sensitivity and behaviour

	training for this group of children. The GC also noted the components of this intervention; 3 of the trials were based on parent–child interaction therapy which involved teaching relationship enhancement skills and establishing a daily positive parent–child interaction time for an average of 12 sessions over a 6-month period. There was very little evidence on the very sizeable and important group of primary and secondary school-age children who have been maltreated, and clearly need help, therefore the GC had to make recommendations with very little evidence. For children who had been maltreated, the GC drew on evidence from 1 study 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 post-traumatic stress disorder NICE guideline. In addition, the GC recognised that CBT has been shown to be very effective in other settings and mental health conditions therefore 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 aged over 12 years and that this was an important group because maltreatment is strongly associated with children entering care. The vast majority of adoption disruptions or numbers entering care are from this age group. Furthermore, the GC noted that adolescents were less likely to engage with interventions, especially in a one-to-one modality. The GC also agreed that better understanding is needed about the prevalence of attachment difficulties, complex trauma and the combination of both in children and young people on the edge of care (as well as in the care system) and the relationship between complex trauma and attachment difficulties/ attachment disorders. Therefore the GC made a research recommendation to illuminate these areas of uncertainty. The GC acknowledged that there is neurobiological research that suggests the maturation of the infant's brain is experience dependent, and that these experiences are embedded in the attachment relationship. Thus, if the child experiences early trauma it may have a negative impact on the neurobiological structures that are maturing during the brain growth spurt and this may lead to disorganised attachment. This is a controversial area beyond the scope of the guideline. Most of the evidence to date is in animals since it is difficult to carry out in children for ethical reasons and because of the scanning equipment needed.

9.3.1 Research recommendation

4. Evaluate currently unevaluated but extensively used interventions for attachment difficulties. (See Appendix G.)

5. This research recommendation is composed of 2 parts:

- **Assess the prevalence of attachment difficulties (including attachment disorder), complex trauma and the combination of both in children and young people in the care system and on the edge of care.**
- **Investigate the effect of various factors, such as multiple placements, on the likelihood of having attachment difficulties, complex trauma or both.**

(See Appendix G.)

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) 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., 1999).

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 (Biehal & Wade, 1996; Dickson et al., 2009{Biehal, 1996 #28056; Schofield & Beek, 2005; Ward & Skuse, 2003). 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, which may be arranged quickly and allow little time for an acknowledgement of the attachments they have formed, 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: What interventions are effective in the prevention and 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?

The review protocol summary, including the review question(s) and the eligibility criteria used for this section of the guideline, can be found in Table 250. 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 an SMD (the 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 (that is, 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, meaning 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 (that is, pre-, primary or secondary school age). No systematic reviews were identified that met our inclusion criteria.

Interventions considered for this review include: video feedback, MTFC, parental sensitivity and behaviour training, parent training, education and support programme, parent–child psychotherapy, parent psychotherapy or CBT. A description of each intervention's aim, method 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 programme 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 interventions. *Intensity*: each visit usually lasts for 60–80 minutes, the healthcare 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 (that is, 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 programme 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 healthcare professional (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 programmes 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, for around 18 months.

Multidimensional treatment foster care programme. *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 (that is, 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 healthcare 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 such as over 3 days or a 10-week period.

Cognitive behavioural therapy. *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 consists 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 psychoanalytic intervention where the therapist will aim to increase maternal understanding on the effects of prior relationships on current feelings and interactions. *Method*: 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 (36 months). Alternatively, it may be delivered intensively for 2 hours a week for 4 weeks. It may be delivered in individual or group settings.

Table 250: 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: Preschool (aged 4 years or younger), primary school (aged 4 to 11 years), secondary school (aged 11 to 18 years)

Component	Promoting attachment in children and young adults in the care system.
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 behaviour training ▪ MTFC ▪ 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 review ▪ RCT
Note. The databases to be searched include: Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, Cochrane Database of Abstracts of Reviews of Effects, Embase, MEDLINE, PreMEDLINE, PsycINFO Social Care Online, ChildData, PsycINFO, Applied Social Sciences Index and Abstracts, British Education Index and Social Services Abstracts	

10.2.1 Clinical evidence for interventions for promoting attachment in children and young adults who are in the care system

10.2.1.1 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 2005 (Fisher et al., 2005), Fisher 2007 (Fisher & Kim, 2007), 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) and 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 inclusion 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 L and Appendix M, respectively.

Eight RCTs (n = 833) measured attachment difficulties as an outcome. Four compared video feedback with usual care (Bick 2013, Dozier 2009, Groenevel 2011, Spieker 2012), 1 compared parental sensitivity and behaviour training with usual care (Briskman 2014), 1 compared MTFC with usual care (Fisher 2007), 1 compared parental education, training and

support with usual care (Minnis 2001) and 1 randomised children in an institution to foster care with parent training or to remain in the institution (Smyke 2010).

Six RCTs (n = 866) of parental sensitivity and behaviour training (Fisher 2005; Gativa 2012; Kim 2011; Macdonald 2005; Price 2008; Taussig 2012) did not measure attachment difficulties as an outcome, however placement disruption was an outcome. This was considered a proxy measure for attachment difficulties because children who are removed from their primary caregiver and have multiple placements will find it harder to form an attachment.

Table 251: 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	MTFC versus usual care	Parental sensitivity and behaviour training versus usual care	Foster care with parent education versus remaining institutionalised
Total no. of studies (N)	4 RCTs (400)	1 RCT (121)	1 RCT (117)	1 RCT (77)	1 RCT (118)
Study ID	(1) Bick 2013 (2) Dozier 2009 (3) Groeneveld 2011 (4) Spieker 2012	Minnis 2001	Fisher 2007	Briskman 2014	Smyke 2010
Follow-up studies	-	-	-	-	Smyke 2012 Almas 2012
Country	(1–2, 4) USA (3) Netherlands	UK	USA	UK	USA
Year of publication	(1) 2013 (2) 2009 (3) 2011 (4) 2012	2001	2007	2014	2010
Diagnosis	(1–3) Maternal sensitivity (2) Attachment difficulties (4) Secure attachment	Attachment disorder	Secure attachment	Quality of attachment	Secure attachment
Age (mean)	(1) 9.9 ± 6.05 months (2) 18.9 ± 1.8 months (SE) (3) <4 years (4) 10–14 months	10.9 to 11.6 years	3–5 years	2–12 years	42.4 ± 0.3 months
Initially randomised	(1) 96 (2) 46 (3) 48 (4) 210	121	117	77	118

	Video feedback versus usual care	Parental education, training and support versus usual care	MTFC versus usual care	Parental sensitivity and behaviour training versus usual care	Foster care with parent education versus remaining institutionalised
Name of intervention	(1–2) Attachment and bio-behavioural catch-up (3) Video-feedback + book (4) Reflective video feedback	Save the Children manual	MTFC for Pre-schoolers (MTFC-P)	Fostering Changes Programme	Foster care with parent education
Control arm	(1–2) Developmental education for families (3) Telephone calls only (4) Early education support	Standard services	Regular foster care	Waitlist	Institutionalised
Delivered by	(1) Parent trainers (2) Social workers or psychologists (3) Graduate students (4) Trained providers	Social worker	Clinicians, psychologist	Trained facilitators	Social workers
Recipients of intervention	(1–4) Foster carers	Foster carer + child	Foster carer + child	Foster carer	Foster carer
Frequency of treatment	(1–2, 4) Weekly (3) Monthly	Daily	Weekly	Weekly	Regular visits
Duration of each session	(1) 1 hour (2–3) Unclear (4) 60–75 min	6 hours	Unclear	3 hours	Unclear
Treatment length	(1–2, 4) 10 weeks (3) 6 months	3 days	9–12 months	3 months	11–36 months
Long-term follow-up	(1) Yes, 1–12 months (2–3) No (4) Yes, 6 months	Yes, 9 months	No	No	Yes, 5.5–7.5 years
Aim	(1) Promote sensitive behaviour (2) Help children develop regulatory capabilities	To improve communication skills and attachment	Increase secure attachment	Produce changes in children attachment security	To promote attachment after period of deprivation

	Video feedback versus usual care	Parental education, training and support versus usual care	MTFC versus usual care	Parental sensitivity and behaviour training versus usual care	Foster care with parent education versus remaining institutionalised
	(3) Promote positive child-care relationship (4) Identify possible miscues, and empathise with the child's underlying distress				
Tool to measure attachment	(1, 3) NA (2) Parent attachment diary (Stovall 2009) (4) Toddler attachment Sort-45 (Kirkland 2004)	RAD scale (Minnis 1999)	Parent attachment diary (Stovall 2009)	Quality of Attachment Relationships Questionnaire	Ainsworth's SSP (Ainsworth et al., 1979) RAD: Interview (Smyke, unpublished instrument)
Tool used to measure sensitivity	(1) Observing 10-minute play interaction (used Ainsworth definition) (2) NA (3) Observing a 10-minute play interaction (DeKruif 2007) (4) Nursing Child Assessment Teaching Scale (Barnard, 1994)	NA	NA	NA	NA
Tool to measure responsiveness	(1–4) NA	NA	NA	NA	NA

Table 252: 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 sensitivity and behaviour training versus usual care (no measure of attachment)
Total no. of studies (N)	6 RCTs (N = 866)
Study ID Follow-up	(1) Fisher 2005 (2) Gavita 2012 (3) Kim 2011 (4) Macdonald 2005 (5) Price 2008 (6) Taussig 2012
Country	(1, 3, 5–6) USA (2) Romania and USA (4) UK
Year of publication	(1, 4) 2005 (2) 2013 (3) 2011 (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.
Age (mean)	(1) 4.35 years (2) 9.51 years (5–18 years) (3) 11.5 years (4) Age not reported

	Parental sensitivity and behaviour training versus usual care (no measure of attachment)
	(5) 8.8 years (6) 9–11 years
Initially randomised	(1) 90 (2) 79 (3–4) 100 (5) 700 (6) 156
Name of intervention	(1) Early Intervention Foster Care Programme (2) Short Enhanced Cognitive-Behavioural Parent training Video-feedback + Book (3) Middle School Transition intervention (4) Based on basic Attachment Behavioural Catch-up' approach – skills in analysing behaviour (5) Keeping Foster and Kinship Parents Trained and Supported (6) Fostering Healthy Futures
Control arm	(1) Regular foster care (2) Waitlist (3) Usual service (4–5) Control group (6) Usual care
Delivered by	(1) Clinicians with bachelor's or master's degree (2) Therapists trained in CBT (3) Facilitators (4) Unclear (5) Trained facilitator (6) Trained mentors (graduate students) and programme staff
Recipients of intervention	(1) Children + carers (2) Foster carer (3, 6) Child and foster carer (4–5) Foster parents

	Parental sensitivity and behaviour training versus usual care (no measure of attachment)
Frequency of treatment	(1, 6) Weekly (2–3) 4 per week (4) 2 per week (5) Unclear
Duration of each session	(1, 3, 5) Unclear (2) 4 hours (4) 5 hours (6) Skills 1.5 hours mentoring 4 hours
Treatment length	(1) 6 to 9 months (2) 3 months (3) 3 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, 6) 12 months (4) 6 months (5) No
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	(1–6) NA
Tool used to measure sensitivity	(1–6) NA

	Parental sensitivity and behaviour training versus usual care (no measure of attachment)
Tool to measure responsiveness	(1–6) NA

Table 253: GRADE profile of outcomes for the comparison of video feedback versus usual care in pre- and primary school-age children in foster 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	⨁⨁⨀⨀ LOW[1,2] due to risk of bias, imprecision			The mean secure attachment in the intervention groups was 0.16 SD higher (0.1 lower to 0.43 higher)
Secure attachment – preschool	175 (1 study) 10 weeks	⨁⨁⨁⨀ MODERATE[2,3] due to imprecision			The mean secure attachment – preschool – in the intervention groups was 0.14 SD higher (0.16 lower to 0.43 higher)
Secure attachment – primary school	46 (1 study) 1 months	⨁⨁⨀⨀ LOW[4,5] due to risk of bias, imprecision			The mean secure attachment – primary school – in the intervention groups was 0.27 SD higher (0.31 lower to 0.85 higher)
Sensitivity – preschool	319 (3 studies) 1 to 2.5 months	⨁⨀⨀⨀ VERY LOW[5,6,7] due to risk of bias, inconsistency, imprecision			The mean sensitivity – preschool – in the intervention groups was 0.33 SD higher (0.11 to 0.55 higher)
Attachment difficulties – primary school	46 (1 study) 1 months	⨁⨁⨁⨀ MODERATE[3,5] due to imprecision			The mean attachment difficulties – primary school – in the intervention groups was 0.67 SD lower (1.26 to 0.07 lower)
Parenting stress/mental wellbeing – preschool	175 (1 study) 10 weeks	⨁⨁⨀⨀ LOW[2,4] due to risk of bias, imprecision			The mean parenting stress/mental wellbeing – preschool – in the intervention groups was 0.1 SD higher (0.2 lower to 0.4 higher)

Parental attitude/knowledge/behaviour – preschool	223 (2 studies) 2.5–6 months	⊕⊕⊖⊖ LOW[4,5] due to risk of bias, imprecision			The mean parental attitude/knowledge/behaviour – preschool – in the intervention groups was 0.36 SD higher (0.1 to 0.63 higher)
Secure attachment – follow-up – preschool	129 (1 study) 6 months	⊕⊕⊖⊖ LOW[2,4] due to risk of bias, imprecision			The mean secure attachment follow-up – preschool – in the intervention groups was 0.06 SD lower (0.41 lower to 0.29 higher)
Sensitivity – follow-up – preschool	225 (2 studies) 6–12 months	⊕⊖⊖⊖ VERY LOW[5,8,9] due to risk of bias, inconsistency, imprecision			The mean sensitivity – follow-up – preschool – in the intervention groups was 0.61 SD higher (0.34 to 0.89 higher)
Parenting stress/mental wellbeing – follow-up – preschool	129 (1 study) 6 months	⊕⊕⊖⊖ LOW[2,4] due to risk of bias, imprecision			The mean parenting stress/mental wellbeing follow-up – preschool – in the intervention groups was 0.12 SD higher (0.22 lower to 0.47 higher)
Parenting attitude/knowledge/ behaviour – follow-up – preschool	129 (1 study) 6 months	⊕⊕⊖⊖ LOW[4,5] due to risk of bias, imprecision			The mean parenting attitude/knowledge/ behaviour follow-up – preschool – in the intervention groups was 0.32 SD higher (0.03 lower to 0.67 higher)
Emotional/behavioural problems – follow-up – preschool	120 (1 study) 9 months	⊕⊕⊖⊖ LOW[2,10] due to risk of bias, imprecision			The mean emotional/behavioural problems – follow-up – preschool – in the intervention groups was 0.08 SD higher (0.27 lower to 0.42 higher)

Note.

*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% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

[1] Unclear if allocation concealment was performed. Dozier 2009 was tripled blinded, but the other study only assessors were blinded.
[2] For continuous outcomes, the OIS (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 2013, the other 2 studies had assessors blinded, but unclear if anyone else.
[7] Heterogeneity was detected, I^2 >50%.
[8] Unclear if allocation concealment was performed. Assessors were blinded in Spieker 2012, but not in other study, and it was unclear if investigators or

participants were blinded.
[9] Heterogeneity was detected, I^2 >80%.
[10] Unclear if allocation concealment was performed. Investigators were blinded, but it was unclear if assessors or participants were blinded.

Table 254: GRADE profile of outcomes for the comparison of parental education, training and support versus usual care in pre- and primary school-age children in foster care

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)
RAD – primary school	100 (1 study) 3 days	⨁⨁⊖⊖ LOW[1,2] due to risk of bias, imprecision			The mean RAD – primary school in the intervention groups was 0.47 SD higher (0.07 to 0.86 higher)
RAD – follow-up – primary school	150 (1 study) 9 months	⨁⨁⊖⊖ LOW[1,2] due to risk of bias, imprecision			The mean RAD – follow-up – primary school in the intervention groups was 0.35 SD higher (0.02 to 0.67 higher)
Emotional/behavioural problems – follow-up – primary school	150 (1 study) 9 months	⨁⨁⊖⊖ LOW[2,3] due to risk of bias, imprecision			The mean emotional/behavioural problems – follow-up – primary school in the intervention groups was 0.12 SD higher (0.2 lower to 0.45 higher)
Child's wellbeing – follow-up – primary school	150 (1 study) 9 months	⨁⨁⊖⊖ LOW[1,2] due to risk of bias, imprecision			The mean child's wellbeing – follow-up – primary school in the intervention groups was 0.18 SD lower (0.5 lower to 0.15 higher)

Note.
*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% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

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 255: GRADE profile of outcomes for the comparison of MTFC versus usual care in preschool-age children in care

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 MTFC treatment (95% CI)
Secure attachment – preschool	117 (1 study) 12 months	⨁⨁⨁⊖ MODERATE[1,2] 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 – preschool	117 (1 study) 12 months	⨁⨁⨁⊖ MODERATE[1,2] due to imprecision	RR 1.13 (0.91 to 1.4)	300 per 1000	39 more per 1000 (from 27 fewer to 120 more)

Note.
*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% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

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 256: Clinical/economic question: What is the cost effectiveness of MTFC 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 et al., 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	Full sample: 5.17%	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

Economic evidence profile							
				Placement instability sample: -£4,579	Placement instability sample: 35.24%		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)
Note. [1] Costs converted and uplifted to 2013/2014 UK pounds – converted using purchasing power parity exchange rates 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 257: GRADE profile of outcomes for the comparison of parental sensitivity and behaviour training versus usual care in pre- to secondary-school age children in 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 parental sensitivity and behaviour training (95% CI)
Attachment	63 (1 study) 12 weeks	⨁⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, indirectness, imprecision			The mean attachment in the intervention groups was 0.53 SD higher (1.03 to 0.03 lower)
Behavioural and emotional problems	63 (1 study) 12 weeks	⨁⨁⊖⊖ LOW[1,3] due to risk of bias, imprecision			The mean behavioural and emotional problems in the intervention groups was 0.03 SD lower (0.53 lower to 0.47 higher)

Parenting attitude/knowledge/behaviour	55 (1 study) 12 weeks	⨁⨁⊖⊖ LOW[1,3] due to risk of bias, imprecision			The mean parenting attitude/knowledge/behaviour in the intervention groups was 0.24 SD lower (0.78 lower to 0.3 higher)
Child behavioural problems	61 (1 study) 12 weeks	⨁⨁⊖⊖ LOW[1,3] due to risk of bias, imprecision			The mean child behavioural problems in the intervention groups was 0.74 SD lower (1.26 to 0.22 lower)
Quality of life	63 (1 study) 12 weeks	⨁⨁⊖⊖ LOW[1,3] due to risk of bias, imprecision			The mean quality of life in the intervention groups was 0.27 SD lower (0.77 lower to 0.23 higher)

Note.

*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% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

[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 258: GRADE profile of outcomes for the comparison of foster care with parent education versus usual care in pre- and primary school-age children in care

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 – preschool	118 (1 study) 13–36 months	⨁⨁⊖⊖ LOW[1,2] 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 – preschool	118 (1 study) 13–36 months	⨁⨁⊖⊖ LOW[1,3] 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)
RAD – preschool	136 (1 study) 11–36 months	⨁⨁⊖⊖ LOW[1,4] due to risk of bias, imprecision			The mean RAD – preschool – in the intervention groups was 0.71 SD lower (1.06 to 0.36 lower)

RAD – primary school	136 (1 study) 5.5–7.5 years	⨁⨁⨀⨀ LOW[1,4] due to risk of bias, imprecision			The mean RAD – primary school – in the intervention groups was 0.54 SD lower (0.88 to 0.19 lower)
Social skills – primary school	94 (1 study) 5.5–7.5 years	⨁⨁⨀⨀ LOW[1,5] due to risk of bias, imprecision			The mean social skills – primary school – in the intervention groups was 2.36 SD higher (1.83 to 2.89 higher)
Note. *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% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).					
[1] Unclear if allocation concealment was performed. Unclear if participants, investigator and outcome assessor were blinded. [2] For dichotomous outcomes, the OIS (that is a total number of 300 events) was not met. [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 OIS (that is a total of 400 participants) was not met.					

Table 259: GRADE profile of outcomes for the effects of parental education, training and support for carers in studies that measured placement disruption but not attachment

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 education, training and support for carers (95% CI)
Placement disruptions	269 (3 studies) 1 – 9 months	⨁⨁⨀⨀ LOW[1,2,3] 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	⨁⨁⨀⨀ LOW[1,3] 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 and secondary school	79 (1 study) 3 months	⨁⨁⨀⨀ LOW[3,4] 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	⨁⨁⨀⨀ LOW[4,5] due to risk of bias, imprecision	Not estimable	See comment	-

Positive exits from care – primary school	700 (1 study) 4 months	⊕⊕⊖⊖ LOW[3,6] 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)
Negative exits from care (inverted) – primary school	700 (1 study) 4 months	⊕⊕⊖⊖ LOW[3,6] 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	⊕⊕⊕⊖ MODERATE[6] 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	⊕⊕⊖⊖ LOW[4,7] due to risk of bias, imprecision			The mean placement disruptions – secondary school – in the intervention groups was 0.38 SD lower (0.78 lower to 0.02 higher)
Quality of parenting	179 (2 studies) 1–3 months	⊕⊕⊖⊖ LOW[4,8] due to risk of bias, imprecision			The mean quality of parenting in the intervention groups was 0.84 SD higher (0.53 to 1.15 higher)
Quality of parenting – primary school	100 (1 study) 5 weeks	⊕⊕⊖⊖ LOW[4,7] due to risk of bias, imprecision			The mean quality of parenting – primary school – in the intervention groups was 0.75 SD higher (0.35 to 1.16 higher)
Quality of parenting – primary to secondary school	79 (1 study) 3 months	⊕⊕⊖⊖ LOW[4,7] due to risk of bias, imprecision			The mean quality of parenting – primary to secondary school – in the intervention groups was 0.96 SD higher (0.49 to 1.43 higher)
Delinquency – secondary school	100 (1 study) 36 months	⊕⊕⊖⊖ LOW[4,7] due to risk of bias, imprecision			The mean delinquency – secondary school – in the intervention groups was 0.48 SD lower (0.88 to 0.08 lower)
Internalising/ externalising symptoms – primary school	46 (1 study) 5 weeks	⊕⊕⊖⊖ LOW[4,7] due to risk of bias, imprecision			The mean internalising/externalising symptoms – primary school – in the intervention groups was 0.02 SD lower (0.6 lower to 0.57 higher)

Internalising/ externalising symptoms – primary to secondary school	79 (1 study) 3 months	⊕⊕⊖⊖ LOW[4,7] due to risk of bias, imprecision			The mean internalising/externalising symptoms – primary to secondary school – in the intervention groups was 0.67 SD lower (1.13 to 0.22 lower)
Internalising/ externalising symptoms – secondary school	100 (1 study) 12–24 months	⊕⊕⊖⊖ LOW[4,8] due to risk of bias, imprecision			The mean internalising/externalising symptoms – secondary school – in the intervention groups was 0.03 SD higher (0.36 lower to 0.42 higher)
Fewer placements disruptions – Follow-up	199 (2 studies)	⊕⊕⊖⊖ LOW[2], 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)

Note.

*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% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

[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^2 >50%.
[3] For dichotomous outcomes, the OIS (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 OIS (that is a total of 400 participants) was not met.

10.2.2 Economic evidence

10.2.2.1 Systematic literature review

The systematic search of the economic literature identified 1 US study that assessed the cost effectiveness of MTFC 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 256.

Lynch and colleagues (2014) evaluated the cost effectiveness of MTFC compared with regular foster care 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 were available for only 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 before entry to the study.

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 regular foster care 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 regular foster care 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 regular foster care.

The authors also calculated the net monetary benefit as the value of the incremental permanent placements achieved by MTFC in comparison with regular foster care less the incremental cost of MTFC compared with regular foster care. 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-age 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-age 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-age 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-age 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-age 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-age 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-age 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-age 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-age 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-age children in care compared with usual care but there was some imprecision.
- No adverse effects were detected.

10.2.3.2 Parental education, 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 carers of primary school-age children in care increases the risk of RAD 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 carers of primary school-age children in care increases the risk of RAD 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 carers of primary school-age 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 carers of primary school-age 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 MTFC for preschool-age children 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 MTFC for preschooler-age children 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 behaviour training versus usual care

- Very low-quality evidence from 1 study (N = 63) showed that 12 weeks of parental sensitivity and behaviour training may improve secure attachment in preschool to secondary school-age 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 behaviour training has no effect on behavioural and emotional problems in preschool to secondary school-age 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 behaviour training may improve parental attitude/knowledge/behaviour in carers of preschool to secondary school-age 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 behaviour training improves behavioural problems in preschool to secondary school-age 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 behaviour 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 education, training and support versus remaining in an institution

- Low-quality evidence from 1 study (N = 118) showed that preschool-age 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-age 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-age children who enter foster care and their parents are provided educational training and support have a lower risk of RAD 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-age children who enter foster care and their parents are provided educational training and support have a lower risk of RAD 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-age 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.

10.2.3.6 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-age 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-age 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-age 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-age 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-age 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-age 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-age 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-age 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-age 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-age 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-age 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-age 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-age 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 regular foster care 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 48. Health and social care professionals should offer a video feedback programme to foster carers, special guardians and adoptive parents, as described in recommendation 36. 49. If there is little improvement to parental sensitivity or the child's attachment after 10 sessions of a video feedback programme for foster carers, special guardians and adoptive parents of preschool-age children, arrange a multi-agency review before going ahead with more sessions or other interventions. 50. If foster carers, special guardians 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** 51. 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 person in residential care • offer parental sensitivity and behaviour training adapted for professional carers in residential care. 52. 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:

	○ coaching the residential carers in behavioural management (for children aged 0–18 months) and limit setting ○ reinforcing sensitive responsiveness ○ ways to improve caring quality ○ homework to practise applying new skills. 53. Modify interventions for young people in residential care 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 assessing the effectiveness of interventions in children and young people with, or at risk of, attachment difficulties. For this population secure attachment and attachment difficulties (insecure attachment, disorganised attachment and attachment disorder) are of greatest concern. The GC agreed that in terms of decision making, disorganised attachment and attachment disorder are the most important outcomes since they best reflect the poor long-term outcome of the child. The GC felt that disorganised and insecure attachment best reflect the quality of care children receive, more so than attachment disorders. Nevertheless, attachment disorders were included as a critical outcome. They 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 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 care 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 and behavioural functioning, wellbeing and quality of life, parenting attitude, knowledge and behaviour, and parental stress and mental wellbeing. Criminal outcomes and developmental status were also considered important as they would impact on quality of life.
Trade-off between clinical benefits and harms	*Interventions to promote attachment in adopted children – preschool-age children* Video feedback over 6 months for adoptive parents with preschool-age children may promote secure attachment, maternal sensitivity and

reduce the likelihood 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-age children had no benefit on secure attachment, maternal sensitivity or disorganised attachment compared with usual care. Parenting behaviour and behavioural functioning in the child 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-age children

Video feedback for carers of preschool-age children may improve maternal sensitivity and parenting attitude, knowledge or 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 and mental wellbeing and the child's emotional and behavioural functioning.

No difference in secure attachment or attachment difficulties was detected between MTFC for preschool-age children and usual care. No harms were detected in the treatment group.

Foster care in addition to parental, education, training and support showed a clear benefit on secure attachment, attachment difficulties (including RAD) compared with the preschool-age children who remained institutionalised. Years after being placed into care the benefit on RAD was still evident 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 programmes 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 impacted on the child's relationships. It showed a trend to reduce the number of placement breakdown and had a positive effect on the quality of parenting.

A 12-week parental sensitivity and behaviour training intervention in preschool to secondary school-age children showed a positive result on secure attachment, parental attitude and the child's behavioural problems. Quality of life was, however, lower in the intervention arm.

Considering the findings in both adopted and foster care children, the GC felt the evidence was strong enough to make a strong recommendation for video feedback. This supported the recommendation for preschool-age children on the edge of care that was based on studies with more participants and positive effects on parental sensitivity, secure attachment and insecure attachment.

Although the findings on parental sensitivity and behaviour training on adopted children were not convincing, the results on preschool to secondary school-aged children were most positive and the GC felt that when appraising these findings and those in children on the edge of care, a 'consider' recommendation should be made.

The GC felt that video feedback is not an appropriate intervention for children in residential care because of the transient nature of the setting. For this reason, the GC felt that parental sensitivity and behaviour training that aims to help carers understand a child's behaviour, improve their responsiveness to a child's needs and

	manage difficult behaviour would be more appropriate. Despite the transient nature of residential care, the GC still felt it was important to identify key attachment figures to work specifically with the child or young person.
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 conducted for this guideline for children on the edge of care (see Chapter 9). 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-age 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 a video feedback programme. According to the guideline economic analysis for children on the edge of care, parental sensitivity and behaviour training was just below the NICE upper cost-effectiveness threshold of £30,000 per QALY. Moreover the 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. 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 NICE's lower cost-effectiveness threshold. Consequently the GC judged that parental sensitivity and behaviour training should be an available treatment option.
Quality of the evidence	For the review on adopted children the quality of the evidence was generally very low quality. The outcomes were downgraded 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 (fewer than 300) and a low number of participants (fewer than 400). None of the outcomes could be meta-analysed. The studies on video feedback and parental sensitivity and behaviour training were downgraded for indirectness because they recruited families with adopted infants aged 6 months, 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 because 2 intervention groups were combined into 1. The participants were not blinded and secure attachment was parentally assessed so there was 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 were significant. The GC acknowledged there is a lack of evidence for interventions in educational settings. They also highlighted that there are few outcomes related to education apart from school attendance and school performance. For the review on children in (foster) care, the quality of the evidence ranged from moderate to very low; the majority of the outcomes were

	low quality. The outcomes were downgraded 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 (fewer than 300) or a low number of participants (fewer than 400) included in the meta-analysis. Some outcomes were downgraded because of heterogeneity between the studies, but equally there were few instances where 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 would not be used to make a recommendation. Instead the findings would 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 MTFC for preschool-age children. This tool, however, has been validated against the SSP 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, parental stress and wellbeing, and the child's wellbeing or quality of life. The results from studies that measured placement breakdown are discussed in the following 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-age 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). 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 programme. 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 with the children or young person.
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 is not about 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 (as opposed to

	foster carer or adoptive parents). The interventions for parents who are maltreating their child would be different for parents who were receiving children who are troubled. Overall, however, the principles of parenting would be the same regardless of the situation. For this reason, despite the low quality data for children in care, the GC felt confident making the recommendations for this group since they complemented those found in the larger review for children on the edge of care (see Chapter 9). Although the evidence on the effect of parental sensitivity and behaviour training on children in care was limited, evidence from a review in Chapter 7 on tools that measure parental sensitivity suggests that improving parental sensitivity may reduce the risk of the child developing disorganised attachment. The results showed maternal sensitivity measured at 1 point in time is able to predict the likelihood of the child developing disorganised attachment 5 to 24 months later. 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 apart from school attendance and school performance. But they also acknowledged there is no way of directly linking school attendance to attachment and therefore this 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% CI 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 should be regarded with caution. A GC member noted that quality of parenting relates more to the use of validated scales, whereas observational measures are more relevant for parenting behaviour.

Recommendation	Primary school-age children
	54. Consider intensive training and support for foster carers, special guardians and adoptive parents (see recommendations 55 and 56) before the placement and for 9–12 months after, combined with group therapeutic play sessions for the child for the same duration (see recommendation 57). 55. Ensure intensive training for foster carers, special guardians and adoptive parents includes: • positive behavioural management methods • help with peer and parent/carer relationships for the child • support for schoolwork • help to defuse conflict. 56. Ensure intensive support for foster carers, special guardians and adoptive parents includes: • supervision by daily telephone contact • weekly support group meetings • a 24-hour crisis intervention telephone line. 57. Ensure group therapeutic play sessions for primary school-age children after placement: • consist of weekly sessions (lasting 60–90 minutes) over the 9–12-month period • are delivered by a trained health or 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 assessing the effectiveness of interventions in children and young people with, or at risk of, attachment difficulties. For this population secure attachment and attachment difficulties (insecure attachment, disorganised attachment and attachment disorder) 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 attachment disorders. Nevertheless, attachment disorders were included as a critical outcome and 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 Maternal 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 care system is breaking down. Other outcomes of concern for children in care that are of less importance to attachment, but clearly important outcomes for family coherence, are the child's emotional and behavioural functioning, wellbeing and quality of life, parenting attitude, knowledge and behaviour, and parental stress and wellbeing. Criminal outcomes and developmental status were also considered important outcomes because of their impact on quality of life.
Trade off benefits and harms	*Interventions to prevent placement breakdown – primary school-age children* One RCT that targeted the parents of foster children (aged 3 to 6 years) 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 that carers were prepared to take on the foster child and to continue to support the carers via a 24-hour telephone support helpline for 9–12 months. During this time the child participated in group therapeutic play sessions that included monitoring of behavioural, social and developmental progress. 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 further failed placements. *Interventions to promote attachment in adopted children – primary school-age children* Parental education, training and support for adoptive parents of preschool and primary school-age 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-age children* Parental education, training and support for foster carers of children in primary school appeared to have a negative effect on RAD in the short and long-term compared with the control group. No difference in emotional or behavioural problems or the child's wellbeing or self-esteem was detected between the intervention and control group. The parental education, training and support 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, training and support 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 in a group setting 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 no other relevant outcomes were reported Video feedback for carers with primary school-age 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-age children* Parental sensitivity and behaviour training for foster carers was associated with an improvement in attachment between preschool to secondary school-age children in care and their carers (Briskman 2014). A reduction in child behavioural problems was detected in the treatment group. No effect of treatment was detected on the child's emotional/behavioural functioning or on the carer's behaviour or quality of life. *For adopted children – preschool to secondary school-age children* Ten weeks of parental sensitivity and behaviour training improved parental empathy and decreased behavioural problems in adopted primary school-age (2 to 10 years, mean of 5.8 years) children compared with control (Carnes-Holt 2014).
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 therapeutic play 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 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. The GC judged the costs of such interventions were far outweighed by the potential benefits.
Quality of evidence	*Quality of the evidence for studies that measured placement breakdown* The quality of the evidence was low and was downgraded for the following reasons: (a) potential risk of bias because it was unclear if allocation concealment was performed; and (b) 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 (fewer than 300). The GC agreed that the results from Fisher 2005 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. *Quality of the evidence for primary school-age 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 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 (fewer than 300) or a low number of participants (fewer than 400) included in the meta-analysis. Some outcomes were downgraded because of heterogeneity between the studies, but equally there were few instances where 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. 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? Although not used to generate a recommendation the data on parental sensitivity and behaviour training is promising because it includes children from age 2 to 12 years and shows positive effects on attachment (Briskman 2014). 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. Moreover, the results were from 1 small study of only 77 participants *Quality of the evidence for adopted primary school-age 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 (Carnes-Holt 2014) used an empathy scale that has not been validated against attachment so it is unclear how relevant the findings are to the target 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 10-week sensitivity and behaviour intervention showed promising, albeit non-significant results. 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 CBT 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 these recommendations. The GC acknowledged that is important to consider the potential length of the placement before commencing a long-term intervention (more than 6 months) for children and their carers. For short-term placements it may be better to focus on preparing the carer before the child arrives.

Recommendations	**Late primary and early secondary school-age children and young people** 58. Consider a group-based training and education programme for foster carers, special guardians and adoptive parents to maintain stability in the home and help transition to a new school environment (see recommendation 59), combined with a group-based training and education programme for late primary and early secondary school-age children and young people in the care system, subject to special guardianship orders and adopted from care to improve social skills and maintain positive peer relationships (see recommendation 60). 59. Ensure group-based training and education programmes for foster carers, special guardians and adoptive parents: • consist of twice-weekly sessions (lasting 60–90 minutes) in a group 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. 60. Ensure training and education programmes for late primary and early secondary school-age children and young people in the care system, subject to special guardianship orders and adopted from care: • consist of twice-weekly sessions (lasting 60–90 minutes) in a group for the first 3 weeks, then individual weekly sessions over the remaining school year • are delivered by trained mentors, which may include graduate level workers, at a time that ensures schooling is not disrupted • 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. 61. Modify interventions for young people in the care system, subject to special guardianship orders and adopted from care 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, special guardians 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 assessing the effectiveness of interventions in children and young people

	with, or at risk of, attachment difficulties. For this population secure attachment and attachment difficulties (insecure attachment, disorganised attachment and attachment disorder)are of greatest concern. The GC agreed that in terms of decision making, disorganised attachment and 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 attachment disorders. Nevertheless, they were included as a critical outcome. The GC judged 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 care 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 and behavioural functioning, wellbeing and quality of life, parenting attitude, knowledge and behaviour and parental stress and wellbeing. Criminal outcomes and developmental status were also considered important outcomes because of their impact on quality of life.
Trade-off between clinical benefits and harms	One RCT in secondary school-age 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, mean age 11.5 years). 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, 40 group sessions were provided before the girls started school, then continued over the remaining school year 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 delivered in a group before school began, twice a week for 3 weeks, and continued as individual sessions for the remaining 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 when compared with control. 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 the 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 late primary and early secondary school-age 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 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. The GC judged the costs of such interventions to be far outweighed by the potential benefits.
Quality of evidence	The quality of the evidence was low and downgraded for the following reasons: (a) potential risk of bias because it was unclear if allocation concealment was performed; and, (b) 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 (fewer than 400) and few events (fewer than 300). The study only included girls, but 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 could be detrimental to the child's home life and adjusting to a new 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 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. The recommendation for individual training and education sessions is based on evidence from 1 trial that found an improvement in placement stability but no effect on behavioural or emotional outcomes for children. The GC realised the weakness of the evidence in this area and it is reflected in the use of 'consider'. However, the GC felt it was important to provide a recommendation for children beginning secondary school because being exposed to a new environment may be a vulnerable time for children in care. The recommendation includes weekly sessions for the children over the school year, and while the GC acknowledged the potential cost implications, they felt it was important to provide support for these children in school given that it may be the only permanent place for them if they are in and out of care.

10.3.1 Research recommendation

6. This research recommendation is composed of 2 parts:

- **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**
- **Develop attachment-based interventions to promote secure attachment in children and young people who have been, or are at risk of being, maltreated**.

(See Appendix G.)

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 Section 6.1) can mean that children are older when placed with less likelihood of forming secure attachments with adoptive carers (Brown & Ward, 2014).

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., 2001b). 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 psychosocial outcomes for adopted children with those in long-term foster care, and found no significant difference in average scores on the SDQ between adopted children and those in long-term foster care, although both groups had higher scores than the general population.

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%) (Selwyn et al., 2014). However about 1 in 4 adoptive parents describe major challenges and inadequate support in caring for a child with multiple and overlapping difficulties, but most had a high level of commitment to the child . The most common reason for a disruption was challenging behaviour, such as child-to-parent violence, self-harming, running away and sexually inappropriate behaviour. 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).

11.3 Review question: 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?

The review protocol summary, including the review question and the eligibility criteria used for this section of the guideline, can be found in Table 260. 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, MTFC, parental sensitivity and behaviour training, parent training, education and support programme, parent–child psychotherapy, parent psychotherapy or CBT. 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 260: Review 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: Preschool, 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 behaviour training • MTFC • 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 or maternal responsiveness number of placements/disruption
Electronic databases	The databases to be searched include: Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, Cochrane Database of Abstracts of Reviews of Effects, Embase, MEDLINE, PreMEDLINE (in-process and other non-indexed citations from MEDLINE), PsycINFO

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?
Study design	Systematic review RCT

11.3.1 Clinical evidence for interventions for promoting attachment in children and young people who have been adopted

11.3.1.1 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). A summary of the studies included in this review can be found in Table 261. Six studies were excluded from the review. 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 consisted of 90 families with their first adopted child (Juffer 1997) and the second included an additional 40 families with their own birth children who were added to the control group (Juffer 2005) (Juffer et al., 2005), which also re-assessed the data to provide information on disorganised attachment. Twenty were assigned to a control group, 20 to a video feedback group (which included an educational book) and 20 to a parental sensitivity and behaviour training group (education book). There was a long-term follow-up study of this population, 6 years after the end of the intervention when the children were aged 7 years: Stams 2001 (Stams et al., 2001). However, no raw data on each group were 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), but did use a measure of empathy that could be likened to maternal responsiveness. Because of the paucity of any other 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-, primary and secondary school age). 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 263 and Table 264. The forest plots can be found in Appendix O and full GRADE evidence profiles can be found in Appendix N. See also the study selection flow chart in Appendix P and list of excluded studies in Appendix M.

Table **262: GRADE profile for video feedback versus control for adoptive parents**

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)
Secure attachment – preschool	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, indirectness, imprecision	RR 1.29 (0.99 to 1.67)	700 per 1000	203 more per 1000 (from 7 fewer to 469 more)
Maternal sensitivity – preschool	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW[1,2,4] due to risk of bias, indirectness, imprecision			The mean maternal sensitivity – preschool – in the intervention groups was 0.39 SD higher (0.12 lower to 0.91 higher)
Less likely to have disorganised attachment – preschool	98 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW[2,3,5] due to risk of bias, indirectness, imprecision	RR 1.21 (1.02 to 1.43)	776 per 1000	163 more per 1000 (from 16 more to 333 more)
Parental behaviour – preschool	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW[1,2,4] due to risk of bias, indirectness, imprecision			The mean parental behaviour – preschool – in the intervention groups was 0.86 SD higher (0.33 to 1.39 higher)
Behavioural functioning – preschool	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW[1,2,4] due to risk of bias, indirectness, imprecision			The mean behavioural functioning – preschool – in the intervention groups was 0.34 SD lower (0.85 lower to 0.17 higher)

Note.

*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% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

[1] Unclear methods for randomisation and unclear if performed allocation concealment. Participants and assessor were however, blinded.
[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 however, blinded. Also added an additional group from another RCT.

Table 263: GRADE profile for parental sensitivity and behaviour training versus usual care for adopted children

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 sensitivity and behaviour training (95% CI)
Secure attachment – preschool	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 more per 1000 (from 105 fewer to 371 more)
Maternal sensitivity – preschool	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW1,3,4 due to risk of bias, indirectness, imprecision			The mean maternal sensitivity – preschool – in the intervention groups was 0.12 SD higher (0.39 lower to 0.63 higher)
Less likely to have disorganised attachment – preschool	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 more per 1000 (from 140 fewer to 233 more)
Parental behaviour – preschool	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW1,3,4 due to risk of bias, indirectness, imprecision			The mean parental behaviour – preschool – in the intervention groups was 0.26 SD higher (0.25 lower to 0.77 higher)
Behavioural/emotional problems – preschool	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW1,3,4 due to risk of bias, indirectness, imprecision			The mean behavioural/emotional problems – preschool – in the intervention groups was 0.29 SD lower (0.79 lower to 0.22 higher)
Empathy	58 (1 study) 10 weeks	⊕⊖⊖⊖ VERY LOW5 due to risk of bias, imprecision indirectness			The mean empathy in the intervention groups was 1.67 SD lower (2.28 to 1.07 lower)

Total CBCL	61 (1 study) 10 weeks	⊕⊕⊖⊖ LOW6,7 due to risk of bias, imprecision			The mean total CBCL score in the intervention groups was 1.67 SD lower (2.28 to 1.07 lower)

Note.

*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% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

[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 blinded.
[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 assignment to experimental or waitlist.
[7] Study did not include the optimal study size of n = 400 participants for a continuous outcome.

Table 264: Clinical/economic question: What is the cost effectiveness of parental education, training and support programmes compared with standard care?

Economic evidence profile

Study and country	Limitations	Applicability	Other comments	Incremental cost (£)1	Incremental effect	ICER (£/effect)1	Uncertainty1
Sharac, 2011 UK	Potentially serious limitations2	Partially applicable3	Primary measure of outcome: SDQ; Parental Satisfaction Questionnaire Time horizon: 6 months	£1,921	SDQ scores: 0.79 (in favour of standard care) Parental Satisfaction Questionnaire: 4.90 (in favour of the intervention)	Standard care dominant with SDQ scores as an outcome £392 per unit of improvement on the satisfaction with parenting scale	Incremental cost: 6 months: 95% CI -£1,987 to £4,963 Incremental effect: SDQ scores p = NS Parental Satisfaction Questionnaire scores p < 0.007

Economic evidence profile
Note. [1] Costs uplifted to 2013/2014 UK pounds using the hospital and community health services pay and prices inflation index (Curtis, 2014). (6) 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 intervention dominant using 1 of the outcomes (SDQ); cost effectiveness difficult to judge when using the other outcome (parental satisfaction questionnaire).

Table 261: 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 and behaviour training versus usual care	Parental education, training and support versus usual care
Total no. of studies (N)	1 RCT (60)1	2 RCTs (60)	1 RCT (37)
Study ID	Juffer 1997	(1) Juffer 1997 (2) Carnes-Holt 2014	Rushton 2010
Follow-up studies	Juffer 2005 Stams 2001	(1) Juffer 2005 Stams 2001 (2) N/A	
Country	Netherlands	(1) Netherlands (2) USA	UK
Year of publication	1997	(1) 1997 (2) 2014	2010
Diagnosis	Maternal sensitivity: disorganised attachment	(1) Maternal sensitivity: disorganised attachment (2) Maternal empathy: Measurement of Empathy in Adult-Child Interaction	Attachment
Age (mean)	6 months	(1) 6 months (2) 2 to 10 years (5.8 years)	3–7 years
Initially randomised	60	(1) 60	38

	Video feedback versus usual care	Parental sensitivity and behaviour training versus usual care	Parental education, training and support versus usual care
		(2) 39	
Name of intervention	Personal book on sensitivity and video	(1) Personal book on sensitivity and video (2) Child–parent relationship therapy	CBT and education
Treatment length	6 months	(1) 6 months (2) 10 weeks	10 weeks
Control arm	Booklet on adoption issues	(1) Booklet on adoption issues (2) Waitlist	Usual treatment
Delivered by	Master's students	(1) Master's students (2) Graduate counselling students	Social workers
Recipients of intervention	Parents	(1–2) Parents	Parents
Frequency of treatment	3 home visits	(1) Once only (2) Weekly	Weekly
Duration of each session	NA	(1) NA (2) 20-minute play session, 2-hour group sessions	NA
Treatment length	6 months	(1) 6 months (2) 10 weeks	10 weeks
Long-term follow-up	Yes, 6.5 years	(1) Yes, 6.5 years (2) No	Yes, 6 months
Aim	Aimed to support parental sensitive responsiveness, with the ultimate goal of promoting secure infant–parent attachment relationships	(1) Aimed to 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	Control of difficult behaviour and to provide the child with a consistent, responsive, parenting environment

	Video feedback versus usual care	Parental sensitivity and behaviour training versus usual care	Parental education, training and support versus usual care
Tool to measure attachment	SSP	(1) SSP (2) NA	Visual Analogue Scales – adopters judge how far the child has progressed
Tool to measure sensitivity	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	NA
Tool to measure responsiveness	NA	(1) NA (2) Measurement of Empathy in Adult-Child Interaction (Stover 1971(Stover et al., 1971)	NA

Table 262: GRADE profile for video feedback versus control for adoptive parents

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)
Secure attachment – preschool	60 (1 study) 6 months	⨁⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, indirectness, imprecision	RR 1.29 (0.99 to 1.67)	700 per 1000	203 more per 1000 (from 7 fewer to 469 more)
Maternal sensitivity – preschool	60 (1 study) 6 months	⨁⊖⊖⊖ VERY LOW[1,2,4] due to risk of bias, indirectness, imprecision			The mean maternal sensitivity – preschool – in the intervention groups was 0.39 SD higher (0.12 lower to 0.91 higher)
Less likely to have disorganised attachment – preschool	98 (1 study) 6 months	⨁⊖⊖⊖ VERY LOW[2,3,5] due to risk of bias, indirectness, imprecision	RR 1.21 (1.02 to 1.43)	776 per 1000	163 more per 1000 (from 16 more to 333 more)

Parental behaviour – preschool	60 (1 study) 6 months	⨁⊖⊖⊖ VERY LOW[1,2,4] due to risk of bias, indirectness, imprecision			The mean parental behaviour – preschool – in the intervention groups was 0.86 SD higher (0.33 to 1.39 higher)
Behavioural functioning – preschool	60 (1 study) 6 months	⨁⊖⊖⊖ VERY LOW[1,2,4] due to risk of bias, indirectness, imprecision			The mean behavioural functioning – preschool – in the intervention groups was 0.34 SD lower (0.85 lower to 0.17 higher)
Note. *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% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).					
[1] Unclear methods for randomisation and unclear if performed allocation concealment. Participants and assessor were however, blinded. [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 however, blinded. Also added an additional group from another RCT.					

Table 263: GRADE profile for parental sensitivity and behaviour training versus usual care for adopted children

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 sensitivity and behaviour training (95% CI)
Secure attachment – preschool	60 (1 study) 6 months	⨁⊖⊖⊖ VERY LOW[1,2] due to risk of bias, indirectness, imprecision	RR 1.14 (0.85 to 1.53)	700 per 1000	98 more per 1000 (from 105 fewer to 371 more)
Maternal sensitivity – preschool	60 (1 study) 6 months	⨁⊖⊖⊖ VERY LOW[1,3,4] due to risk of bias, indirectness, imprecision			The mean maternal sensitivity – preschool – in the intervention groups was 0.12 SD higher (0.39 lower to 0.63 higher)

Less likely to have disorganised attachment – preschool	79 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW[1,2,3] due to risk of bias, indirectness, imprecision	RR 1.03 (0.82 to 1.3)	776 per 1000	23 more per 1000 (from 140 fewer to 233 more)
Parental behaviour – preschool	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW[1,3,4] due to risk of bias, indirectness, imprecision			The mean parental behaviour – preschool – in the intervention groups was 0.26 SD higher (0.25 lower to 0.77 higher)
Behavioural/emotional problems – preschool	60 (1 study) 6 months	⊕⊖⊖⊖ VERY LOW[1,3,4] due to risk of bias, indirectness, imprecision			The mean behavioural/emotional problems – preschool – in the intervention groups was 0.29 SD lower (0.79 lower to 0.22 higher)
Empathy	58 (1 study) 10 weeks	⊕⊖⊖⊖ VERY LOW[5] due to risk of bias, imprecision indirectness			The mean empathy in the intervention groups was 1.67 SD lower (2.28 to 1.07 lower)
Total CBCL	61 (1 study) 10 weeks	⊕⊕⊖⊖ LOW[6,7] due to risk of bias, imprecision			The mean total CBCL score in the intervention groups was 1.67 SD lower (2.28 to 1.07 lower)

Note.

*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% CI) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI).

[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 blinded.
[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 assignment to experimental or waitlist.
[7] Study did not include the optimal study size of n = 400 participants for a continuous outcome.

Table 264: Clinical/economic question: What is the cost effectiveness of parental education, training and support programmes compared with standard care?

Economic evidence profile							
Study and country	**Limitations**	**Applicability**	**Other comments**	**Incremental cost (£)1**	**Incremental effect**	**ICER (£/effect)1**	**Uncertainty1**
Sharac, 2011 UK	Potentially serious limitations[2]	Partially applicable[3]	Primary measure of outcome: SDQ; Parental Satisfaction Questionnaire Time horizon: 6 months	£1,921	SDQ scores: 0.79 (in favour of standard care) Parental Satisfaction Questionnaire: 4.90 (in favour of the intervention)	Standard care dominant with SDQ scores as an outcome £392 per unit of improvement on the satisfaction with parenting scale	Incremental cost: 6 months: 95% CI -£1,987 to £4,963 Incremental effect: SDQ scores p = NS Parental Satisfaction Questionnaire scores p < 0.007

Note.

[1] Costs uplifted to 2013/2014 UK pounds using the hospital and community health services pay and prices inflation index (Curtis, 2014).

(7) 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 intervention dominant using 1 of the outcomes (SDQ); cost effectiveness difficult to judge when using the other outcome (parental satisfaction questionnaire).

11.3.2 Economic evidence

11.3.2.1 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 264.

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 1 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, accident and emergency departments, hospital outpatient care, hospital operations, school nurse, health visitor, dentist, optician, general practitioner, paediatrician, child development centre, CAMHS, speech/hearing therapist, other therapist, home care worker, daycare 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 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.

11.3.3 Clinical evidence statements

11.3.3.1 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 preschool-age 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 preschool-age 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 preschool-age 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 preschool-age 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 preschool-age children, but there was some uncertainty.

11.3.3.2 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 preschool-age 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 preschool-age 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 preschool-age 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 preschool-age 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 preschool-age 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 control in adopted primary school-age 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-age children compared with control, but there was some uncertainty.

11.3.3.3 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-age 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-age 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-age 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-age 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-age 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-age 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-age children, but there was some uncertainty.

11.3.4 Economic evidence statements

11.3.4.1 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.

11.4 Recommendations and link to evidence

See Chapter 10, Section 10.3, which presents the recommendations and link to evidence 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 265. 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 265: 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: • preschool (≤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 for pharmacological interventions in the treatment of children and young people with attachment difficulties

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 to generate discussion around the topic (rather than to enable them to make recommendations). All studies except 1 compared the effects of a single dose of oxytocin with placebo on attachment-related outcomes. The indirect populations included:

- healthy males who had children with secure attachment: Weisman 2012 (Weisman et al., 2012), Weisman 2013 (Weisman et al., 2013) and Nabera 2010 (Nabera et al., 2010)
- healthy males who did not have children: Bartz 2010 (Bartz et al., 2010) and De Dreu 2012 (De Dreu, 2012)
- adult males with attachment difficulties but without children: Buchheim 2009 (Buchheim et al., 2009)
- adults with borderline personality disorder (BPD) for whom it was unclear if they had children: Bartz 2011 (Bartz et al., 2011).

One RCT, Conners 1964 (Conners et al., 1964), compared the effects of methylphenidate with placebo on learning tasks in children who were institutionalised because of behavioural problems or in foster care.

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 Buchheim 2009, were in healthy adults. A study by Bartz 2011 was on adults with BPD and they found oxytocin may have a negative effect on trust and cooperation in adults with BPD, 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 of findings can be found in Table 266 and Table 267.

See also the study selection flow chart in Appendix P. Further information about both included and excluded studies can be found in Appendix L and Appendix M, respectively.

Table 266: 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 in healthy males without children	Oxytocin versus placebo in insecure males without children	Oxytocin versus placebo in healthy fathers with infants	Oxytocin versus placebo in adults with BPD	Methylphenidate versus placebo
Total no. of studies (N)	2 RCTs (108)	1 RCT (26)	2 RCTs (52)	1 RCT (27)	1 RCT (81)
Study ID	(1) Bartz 2010 (2) De Dreu 2012	Buchheim 2009	(1) Nabera 2010 (2) Weisman 2012*	Bartz 2011	Conners 1964
Country	(1) USA (2) Netherlands	Austria	(1) Netherlands (2) Israel	USA	USA
Year of publication	(1) 2010 (2) 2011	2009	(1) 2010 (2) 2012	2011	1964
Diagnosis	(1) Mentally and physically healthy (2) Healthy males	Insecure attachment	(1–2) Healthy fathers	DSM-IV personality disorders + healthy adults	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	Unclear	(1) Yes, 1.5 to 5 years (2) Yes, 4–8 months	Unclear	No
Age (mean)	(1) 19–45 years (2) Mean: 20.81 years	21–33 years	(1) 31–45 years (2) 22–38 years	23–53 years	7–15 years
Sex	(1–2) 100% male	100% male	(1–2) 100% male	40% male	63% male

	Oxytocin versus placebo in healthy males without children	Oxytocin versus placebo in insecure males without children	Oxytocin versus placebo in healthy fathers with infants	Oxytocin versus placebo in adults with BPD	Methylphenidate versus placebo
Initially randomised	(1) 31 (2) 77	26	(1) 17 (2) 35	27	84
Treatment	(1–2) 24 IU intranasal OXT	24 IU intranasal OXT	(1–2) 24 IU intranasal OXT	40 IU intranasal OXT	Methylphenidate (methylphenidate, 20–60 mg/day)
Control arm	(1–2) Placebo	Placebo	(1–2) Placebo	Placebo	Placebo
Cross-over	(1) Yes 3–4 weeks apart (2) No	Yes, 2–3 weeks apart	(1–2) Yes, 1 week	No	No
Duration of treatment	(1–2) Single dose	Single dose	(1–2) Single dose	Single dose	10 days
Long-term follow-up	(1–2) No	No	(1–2) No	No	No
Hypothesis/aim	(1) OXT 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) OXT increases cooperation, trust and lowers betrayal aversion and strengthens affiliation tendencies especially among those with high attachment avoidance.	That OXT might also promote the experience of secure attachment in humans.	(1) OXT is expected to lead to increased paternal responsiveness to the child during play since OXT enhances sensitivity for the child's cues. (2) OXT would reduce the father's and infant's corticosteriod response to a social stressor.	OXT should facilitate trust and cooperation in both healthy control and BPD participants. Also, differences in attachment anxiety/ avoidance moderate the effects of OXT on trust and pro-social behaviour.	The drug would be of greatest benefit to those most impaired by a low IQ.
Tool to measure attachment at baseline (anxiety,	(1) Experience in Close Relationships scale.	Adult Attachment Projective Picture	(1) EAS (Biringen et al., 1998) assesses paternal sensitivity.	Experience in Close Relationship scale (Brennan 1998)	Not measured

	Oxytocin versus placebo in healthy males without children	Oxytocin versus placebo in insecure males without children	Oxytocin versus placebo in healthy fathers with infants	Oxytocin versus placebo in adults with BPD	Methylphenidate versus placebo
sensitivity or responsiveness)	(2) Adult Attachment Style (Collins 1996) baseline.	System (George & West, 2001).	(2) Interactions were videotaped using Flip Mino HD digital camcorder (Cisco Systems, Irvine, CA) for offline coding.	measured attachment anxiety and avoidance.	
Tools used to measure outcome.	(1) Recollections of maternal care with the Parental Bonding Instrument and Relationship Questionnaire. (2) Incentivised social dilemma. Paired up with another participant	Adult Attachment Projective Picture System (George & West, 2001)	(1) Interactions were videotaped using Flip Mino HD digital camcorder (Cisco Systems, Irvine, CA) for offline coding. (2) EAS (Biringen et al., 1998) assess paternal sensitivity.	Assurance Game (Kollack, 1998). Each player should only cooperate if he/she trusts that the other player will cooperate.	Learning task. Digit letter and oscillation
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.	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 ($p < 0.05$).	OXT had no effect on cooperation or trust healthy individuals; decreased cooperation and trust in BPD individuals; reduced trust and cooperation in anxiously attached/rejection sensitive individuals; had no effect on trust and cooperation in less anxiously attached.	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.

	Oxytocin versus placebo in healthy males without children	Oxytocin versus placebo in insecure males without children	Oxytocin versus placebo in healthy fathers with infants	Oxytocin versus placebo in adults with BPD	Methylphenidate versus placebo
Conclusion	(1) OXT may improve memories of maternal care and closeness in less anxiously attached individuals. (2) OXT leads individual's to select secure attachment scenarios more, and insecure attachment less, than placebo.	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. (2) OXT enhances behaviours that underpin parent–infant bonding.	OXT does not facilitate trust and pro-social behaviour. OXT may reduce trust and pro-social behaviour in anxiously attached/ rejection sensitive individuals.	Little support for methylphenidate to improve learning, only among the more disturbed children.
Note. * Follow-up studies: Weisman 2013.					

Table 267: Summary of results from studies that gave a single dose of oxytocin or placebo to healthy male adult populations (except for Bartz 2011). 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 (for example, 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										

	Memories of maternal care and closeness	Select secure scenarios	Cooperation	Trust	Betrayal aversion (for example, tried to minimise losses/ worried being exploited)	Responsiveness	Sensitivity	Reduced hostility	Skin-to-skin	Infant social gazing
OXT positive effect	Less anxiously attached		High attachment avoidance	High attachment avoidance	High attachment avoidance					
OXT negative effect			Lower in attachment avoidance BPD Anxiously attached/rejection sensitive	BPD 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					
Note. NS = non-significant main effect										

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 international units [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 oxytocin 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, oxytocin 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 RCT (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.

12.2.3.5 Methylphenidate versus placebo – emotionally disturbed children in psychiatric institution, awaiting foster care

- One RCT (n = 84) showed in children aged 6–15 years that 10 days of methylphenidate (20 to 60 mg/day) had no effect on learning tasks (digit-symbol or oscillations) compared with placebo. However, in more emotionally disturbed children (in an institution) methylphenidate was associated with greater improvements in a learning task (digit symbol) compared with placebo. However this finding was only found in 1 of the 2 learning tasks.

12.2.4 Economic evidence statements

There is no economic evidence on pharmacological interventions for the treatment of attachment difficulties in children and young people.

12.3 Recommendations and link to evidence

Recommendations	62. 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 attachment, disorganised attachment and attachment disorder) are of greatest concern since they best reflect the poor long-term outcomes of the child. The GC felt that disorganised and insecure attachment best reflect the quality of care children receive, more so than attachment disorders. Nevertheless, attachment disorders were included as a critical outcome. They 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 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 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 care system is breaking down. Other outcomes of concern for children, which are of lesser importance to attachment but clearly important outcomes for family coherence, are the child's emotional and behavioural functioning, wellbeing and quality of life, parenting attitude, knowledge and behaviour, and parental stress and wellbeing. Criminal outcomes and developmental status were also considered important outcomes because of their 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 and young people.

	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 based on the results of providing oxytocin to parents, they asked for the data to be presented 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, minimising losses or avoiding being exploited). However, positive effects of oxytocin were detected on cooperation with another adult, skin-to-skin contact with their infant and it reduced hostility in the father towards their own infant. It also appears to increase the amount of social gazing from the infant towards their fathers. Some harms were detected when subgroup 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 subgroup analysis that showed the more disturbed children given methylphenidate exhibited greater learning skills 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 of pharmacological interventions in children with attachment difficulties were identified, 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 in adult males, some of whom had children and some had BPD. The studies only provided 1 single dose of oxytocin and some were cross-over study designs in which each participant received the drug and placebo on different occasions. The sample sizes were also small, ranging from 17 to 77 participants. The 1 study on children included institutionalised children with emotional and behavioural difficulties who were given methylphenidate for 10 days. 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 was on the performance of a learning task, but it was not detected in another learning task.
Other considerations	The GC agreed that for some mental health problems (for example, conduct disorder, ADHD, depression and alcohol misuse) pharmacological intervention for children may be considered effective. If provided, treatment should be in line with relevant NICE guidelines..To date, there is no evidence to suggest that pharmacological interventions should be used to treat 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.

13 Summary of recommendations

13.1 Principles of care in all contexts

Using this guideline

13.1.1.1 Use this guideline in conjunction with the NICE public health guideline on looked-after children and young people and the NICE clinical guideline on when to suspect child maltreatment.

Ensuring equal access to consistent care

13.1.1.2 Ensure that all children, young people and their parents or carers get equal access to interventions for attachment difficulties, regardless of whether they:

- are on the edge of care, accommodated under Section 20 of the Children Act 1989, subject to a care order, under special guardianship or adopted from care
- are placed with birth parents, foster carers (including kinship carers), special guardians or in residential care
- are from a minority ethnic group
- have a disability or a mental health problem
- are from the UK or overseas.

13.1.1.3 Assess all children and young people who enter the UK as unaccompanied asylum-seeking children 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 asylum-seeking children 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.

13.1.1.4 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, personal adviser or key person in school throughout the period the child or young person is in the care system or on the edge of care.

13.1.1.5 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.

Improving the stability of placements

13.1.1.6 Ensure that, whenever possible, children and young people enter the care system in a planned manner rather than in response to a crisis.

13.1.1.7 Ensure that carers are ready to accept the child or young person's need to be in a loving relationship and are able and, whenever possible, willing to think about providing longer-term care or involvement if needed.

13.1.1.8 Help arrange kinship placements, if safe and in the best interest of the child or young person.

13.1.1.9 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.

13.1.1.10 Provide ongoing support and advice, either by telephone or in person, and 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.

13.1.1.11 If a placement breaks down, aim to maintain the relationship between the child or young person and the foster carers (including kinship carers), adoptive parents or special guardians, whenever possible and if it is in the best interests of the child or young person.

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

13.1.1.12 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, such as face-to-face meetings, telephone conversations and other appropriate methods of communication
- making sure the child or young person has the opportunity to ask questions and make choices whenever appropriate and possible
- supporting the child or young person in maintaining relationships with their parents or previous carers unless this would not be in the child or young person's best interests
- taking account of the needs of children at different ages and developmental stages, including needs related to their mental health and any physical disabilities.

Improving the likelihood of a more permanent placement, including adoption

13.1.1.13 If a return to the birth parents or original family is not an option, keep siblings together if it is possible and in the best interests of all the children or young people.

13.1.1.14 Offer 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, or
- if there have been frequent changes of placement, or
- if there is more than one child with attachment difficulties in the placement.

13.1.1.15 When adoption is considered the best outcome for the child or young person ensure that:

- their wishes are taken into account
- they are offered information that is appropriate to their developmental level about the implications that adoption may have for future contact with their birth parents, siblings, wider family members and others
- a full assessment of need is conducted before adoption
- an assessment of attachment difficulties is offered at any stage after adoption
- they are offered support (based on the assessment of need and attachment difficulties) before, during and after adoption.

Preserving the personal history of children and young people

13.1.1.16 Social care workers should offer children and young people in the care system, in special guardianship or adopted from care, accurate, comprehensive, up-to-date 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).

13.1.1.17 Social care workers should keep a record of the significant people and places in the child or young person's life while they are in the care system.

Safeguarding and monitoring during interventions

13.1.1.18 Ensure safeguarding is maintained during any intervention for a child or young person with attachment difficulties.

13.1.1.19 Consider using a parental sensitivity tool (for example the Ainsworth Maternal Sensitivity Scale) and a parenting quality tool with parents and carers to help guide decisions on interventions and to monitor progress.

Pharmacological interventions

13.1.1.20 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.

13.2 Supporting children and young people with attachment difficulties in schools and other education settings (including early years)

13.2.1.1 Schools and other education providers should ensure that all staff who may come into contact with children and young people with attachment difficulties receive appropriate training on attachment difficulties, as set out in recommendation 13.2.1.2.

13.2.1.2 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
- how attachment difficulties affect learning, education and social development
- understanding the consequences of maltreatment, including trauma
- how they can support children and young people with attachment difficulties.

Children and young people with attachment difficulties, and their parents or carers, should be involved in the design of the training courses, wherever possible.

13.2.1.3 Staff in schools and other education settings and health and social care professionals should work together to ensure that children and young people with attachment difficulties:

- can access mental health services for children and young people and education psychology services for interventions
- are supported at school while they are taking part in interventions following advice from mental health services for children and young people and education psychology services.

13.2.1.4 When providing support for interventions in schools and education settings, staff should:

- be aware of the possibility of stigma, bullying and labelling as a result of any absences from school
- take into account the child or young person's preferences for the setting of the intervention.

13.2.1.5 Schools and other education providers should ensure that the designated teacher:

- has had specialist training:
  - to recognise and understand attachment difficulties and mental health problems
  - in data protection and confidentiality
- is aware of and keeps accurate and comprehensive records about all children and young people in their school who:
  - are in the care system
  - have been adopted or subject to special guardianship orders
  - 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 or young person and to whom the child or young person 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
- maintains an effective referral system with other agencies.

13.2.1.6 Social care professionals, schools and other education providers should ensure that changes or gaps in the education of children and 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.

13.2.1.7 Schools and other education providers should avoid using permanent and fixed-term school exclusion as far as possible for children and young people in the care system with identified attachment difficulties.

13.3 Assessing attachment difficulties in children and young people in all health and social care settings

13.3.1.1 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 teenage parents) that together are associated with an increased risk of attachment difficulties
- recognising and assessing other difficulties, including coexisting mental health problems and the consequences of maltreatment, including trauma
- knowing when and how to refer for evidence-based interventions for attachment difficulties (see Sections 13.4, 13.5 and 13.6).

13.3.1.2 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, including:

- personal factors, including the child or young person's 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), parental drug and alcohol misuse or mental health problems, and parents' and carers' experiences of maltreatment and trauma in their own childhood
- 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), depression, alcohol misuse and emotional dysregulation.

13.3.1.3 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).

13.3.1.4 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, McArthur Story Stem Battery and Story Stem Attachment Profile 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.

See the table in Appendix 1[c] for further information about these tools.

13.3.1.5 Health and social care provider organisations should ensure that health and social care professionals are skilled in the use of the assessment tools in recommendation 13.3.1.4.

13.3.1.6 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).

13.3.1.7 Do not offer genetic screening (including measuring specific gene polymorphisms) in children and young people to predict or identify attachment difficulties.

13.3.1.8 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
- works with other services, including mental health services for children and young people, education and social care

[c] In the short version.

- actively involves children and young people with attachment difficulties in staff training programmes.

13.4 Interventions for attachment difficulties in children and young people on the edge of care

This section covers children and young people with attachment difficulties (or at risk of attachment difficulties) who currently live with their birth parents or original family and who are at high risk of entering or re-entering the care system. It also covers children and young people who have been maltreated or are at high risk of being maltreated (see recommendations 13.4.1.9, 13.4.1.10 and 13.4.1.12).

Preschool-age children with, or at risk of, attachment difficulties

13.4.1.1 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.

13.4.1.2 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:
  - highlight parental sensitivity, responsiveness and communication
  - highlight parental strengths
  - acknowledge positive changes in the behaviour of the parents and child.

13.4.1.3 If there is little improvement to parental sensitivity or the child's attachment after 10 sessions of a video feedback programme for parents of preschool-age children on the edge of care, arrange a multi-agency review before going ahead with more sessions or other interventions.

13.4.1.4 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.

13.4.1.5 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 a 6-month period
- is delivered by a trained health or social care professional
- includes:
  - coaching the parents in behavioural management (not applicable for children aged 0–18 months) and limit setting

- reinforcing sensitive responsiveness
- ways to improve parenting quality
- homework to practise applying new skills.

13.4.1.6 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 or the child's attachment after either intervention and there are still concerns, arrange a multi-agency review before going ahead with more interventions.

13.4.1.7 If the multi-agency review concludes that further intervention is appropriate, consider a home visiting programme to improve parenting skills delivered by an appropriately-trained lay home visitor or a healthcare professional such as a nurse.

13.4.1.8 Ensure home visiting programmes:

- consist of 12 weekly or monthly sessions (lasting 30–90 minutes) over an 18-month period
- 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:
  - supporting positive parent–child interaction using role modelling
  - reinforcing positive interactions and parental empathy
- provide parental education and guidance about child development.

Preschool-age children who have been or are at risk of being maltreated

13.4.1.9 Consider parent–child psychotherapy for parents who have maltreated or are at risk of maltreating their child to improve attachment difficulties, ensuring that safeguarding concerns are addressed.

13.4.1.10 Ensure parent–child psychotherapy to improve attachment difficulties:

- is based on the Cicchetti and Toth model[d]
- 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.

[d] Cicchetti D, Rogosch FA, Toth SL (2006) Fostering secure attachment in infants in maltreating families through preventive interventions. Development and Psychopathology 18: 623–49 and Toth SL, Maughan A, Manly JT et al. (2002) The relative efficacy of two interventions in altering maltreated preschool children's representational models: implications for attachment theory. Development and Psychopathology 14: 877–908.

Primary and secondary school-age children and young people with, or at risk of, attachment difficulties

13.4.1.11 Consider parental sensitivity and behaviour training for parents of primary and secondary school-age children and young people (as described in recommendation 13.4.1.5) to improve attachment difficulties, adapting the intervention for the age of the child or young person.

Primary and secondary school-age children and young people who have been, or are at risk of being, maltreated

13.4.1.12 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.

13.4.1.13 Consider parental sensitivity and behaviour training (as described in recommendation 13.4.1.5) for parents at risk of maltreating their child to improve attachment difficulties, ensuring that safeguarding concerns are addressed and adapting the intervention for the age of the child or young person.

13.5 Interventions for attachment difficulties in children and young people in the care system, subject to special guardianship orders and adopted from care

This section covers children and young people with attachment difficulties (or at risk of attachment difficulties) who are in the care system, subject to special guardianship orders or adopted from care; it also covers their foster carers (including kinship carers), special guardians and adoptive parents.

Preschool-age children

13.5.1.1 Health and social care professionals should offer a video feedback programme to foster carers, special guardians and adoptive parents, as described in recommendation 13.4.1.2.

13.5.1.2 If there is little improvement to parental sensitivity or the child's attachment after 10 sessions of a video feedback programme for foster carers, special guardians and adoptive parents of preschool-age children, arrange a multi-agency review before going ahead with more sessions or other interventions.

13.5.1.3 If foster carers, special guardians or adoptive parents do not want to take part in a video feedback programme, offer parental sensitivity and behaviour training as described in recommendation 13.4.1.5.

Primary school-age children

13.5.1.4 Consider intensive training and support for foster carers, special guardians and adoptive parents (see recommendations 13.5.1.5 and 13.5.1.6) before the placement and for 9–12

months after, combined with group therapeutic play sessions for the child for the same duration (see recommendation 13.5.1.7).

13.5.1.5 Ensure intensive training for foster carers, special guardians and adoptive parents includes:

- positive behavioural management methods
- help with peer and parent/carer relationships for the child
- support for schoolwork
- help to defuse conflict.

13.5.1.6 Ensure intensive support for foster carers, special guardians and adoptive parents includes:

- supervision by daily telephone contact
- weekly support group meetings
- a 24-hour crisis intervention telephone line.

13.5.1.7 Ensure group therapeutic play sessions for primary school-age children after placement:

- consist of weekly sessions (lasting 60–90 minutes) over the 9–12 month period
- are delivered by a trained health or social care professional
- include monitoring of behavioural, social and developmental progress.

Late primary and early secondary school-age children and young people

13.5.1.8 Consider a group-based training and education programme for foster carers, special guardians and adoptive parents to maintain stability in the home and help transition to a new school environment (see recommendation 13.5.1.9), combined with a group-based training and education programme for late primary and early secondary school-age children and young people in the care system, subject to special guardianship orders and adopted from care to improve social skills and maintain positive peer relationships (see recommendation 13.5.1.10).

13.5.1.9 Ensure group-based training and education programmes for foster carers, special guardians and adoptive parents:

- consist of twice-weekly sessions (lasting 60–90 minutes) in a group 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.

13.5.1.10 Ensure training and education programmes for late primary and early secondary school-age children and young people in the care system, subject to special guardianship orders and adopted from care:

- consist of twice-weekly sessions (lasting 60–90 minutes) in a group for the first 3 weeks, then individual weekly sessions over the remaining school year
- are delivered by trained mentors, which may include graduate level workers, at a time that ensures schooling is not disrupted.

- 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.

13.5.1.11 Modify interventions for young people in the care system, subject to special guardianship orders and adopted from care 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, special guardians and adoptive parents. Discuss making contact with their birth parents or original family sensitively.

13.6 Interventions for attachment difficulties in children and young people in residential care

13.6.1.1 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 person in residential care
- offer parental sensitivity and behaviour training adapted for professional carers in residential care.

13.6.1.2 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:
  - coaching the residential carers in behavioural management (for children aged 0–18 months) and limit setting
  - reinforcing sensitive responsiveness
  - ways to improve caring quality
  - homework to practise applying new skills.

13.6.1.3 Modify interventions for young people in residential care 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.

14 Abbreviations

√	significant result
5-HTTLPR (LL/SL/S/SS)	serotonin transporter gene (long long/short long/short/short short allele carrier variants)
AAI	Adult Attachment Interview
ABC	Attachment Behavioural Catch-up
ADHD	attention deficit hyperactivity disorder
AGREE	Appraisal of Guidelines for Research and Evaluation Instrument
AMBIANCE	Atypical Maternal Behaviour Instrument for Assessment and Classification
AQS	Attachment Q-Sort
BDI	Beck Depression Inventory
BPD	borderline personality disorder
c2	chi-squared test
CAI	Child Attachment Interview
CAMHS	Child and Adolescent Mental Health Services
CARE-Index	a dyadic procedure that assesses adult sensitivity in a dyadic context
CBCL	Child Behavior Checklist
CBT	cognitive behavioural therapy
CCG	clinical commissioning group
CES-D	Center for Epidemiologic Studies - Depression scale
CI	confidence interval
CIDI	Composite International Diagnostic Interview
C-M	Cassidy–Marvin preschool attachment coding system
CMCAST	Computerised Manchester Child Attachment Story Task
COMT (GG, Val/Met)	catechol-O-methyltransferase (GG genotype, valine/methionine)
d	Cohen's *d*
DAI	Disturbances of Attachment Interview
DC:0-3R	Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood – Zero to Three – Revised
DRD2	dopamine D2 receptor
DRD4	dopamine D4 receptor
DSED	disinhibited social engagement disorder
DSM(-III-R, -IV, TR, -5)	Diagnostic and Statistical Manual of Mental Disorders (third edition revised, fourth edition, text revision, fifth edition)
DZ	dizygotic
EAS	Emotional Availability Scales
ECR	Experience in Close Relationship Scale
Embase	Excerpta Medica Database
EQ-5D	European Quality of Life – 5 Dimensions
GABA	gamma-aminobutyric acid
GABRA(6)	GABA Subunit A Receptor (Alpha 6)
GC	Guideline Committee

GRADE	Grades of Recommendation Assessment, Development and Evaluation
HOME	Home Observation Measurement of the Environment
HR	hazard ratio
HRQoL	health-related quality of life
HTA	Health Technology Assessment
HUI(2, 3)	Health Utilities Index (Mark 2, Mark 3)
ICC	intraclass correlation
ICD(-10)	International Statistical Classification of Diseases and Related Health Problems (10th revised edition)
ICER	incremental cost-effectiveness ratio
IQ	intelligence quotient
ITT	intention to treat
IU	international unit
k/K	number of studies/total number of studies
MBQS	Maternal Behaviour Q-Sort
MCAST	Manchester Child Attachment Story Task
MEDLINE	Medical Literature Analysis and Retrieval System Online
MSSB	MacArthur Story Stem Battery
MTFC(-P)	multidimensional treatment foster care (for pre-schoolers)
MZ	monozygotic
n/N	number of participants/total number of participants
NA	not available
NCCMH	National Collaborating Centre for Mental Health
NHS	National Health Service
NICE	National Institute for Health and Care Excellence
NMB	net monetary benefit
NR	not reported
NS	not significant [or 'non-significant main effect' where indicated in tables]
OIS	optimal information size
OR	odds ratio
OXT	oxytocin
OXTR	oxytocin receptor
PAA	Preschool Assessment of Attachment
PAPA	Preschool Age Psychiatric Assessment
PICO	Population, Intervention, Comparison and Outcome
PPP	Preschooler–Parent Psychotherapy
PSS	personal social services
PsycINFO	Psychological Information Database
PTSD	post-traumatic stress disorder
QALY	quality-adjusted life year
r	Pearson's correlation coefficient
RAD	reactive attachment disorder
RCT	randomised controlled trial
RDC	Research Diagnostic Criteria
SAA	School-age Assessment of Attachment

SAT	Separation Anxiety Test
SD	standard deviation
SDQ	Strengths and Difficulties Questionnaire
SE	standard error
SMD	standardised mean difference
SSP	Strange Situation Procedure
SSSP	Short Strange Situation Procedure
VLBW	very low birth weight
WTP	willingness to pay

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