

**Update on review of reviews on teenage pregnancy and parenthood**  
**Submitted as an Addendum to the first evidence briefing 2003**

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# **Update on review of reviews on teenage pregnancy and parenthood: An addendum to the first briefing**

**December 2007**

## **1. Background**

### **Policy context**

This report presents the findings from reviews identified since December 2001 to update the first evidence briefing relating to teenage pregnancy and parenthood published in 2003 (Swann et al 2003). Following on from the comprehensive work carried out by the Social Exclusion Unit (SEU 1999) the evidence briefing provided an overview of the effectiveness of interventions aimed at reducing unintended teenage pregnancy and supporting teenage parents, drawn from review-level evidence. It identified the need for more good quality studies and reviews, especially within the UK to provide clear messages for policy and practice.

A UK strategy designed to prevent unintended teenage pregnancy and improve outcomes for teenage parents has already implemented some of the findings from the review and identifies areas for future work to inform 'best practice' models (Wellings et al, 2005). This strategy, which has been evaluated in the UK through national and regional work by the Teenage Pregnancy Unit (TPU), draws on the best available international research evidence and suggests a multi-faceted approach which includes:

1. Helping young people resist pressure to have early sex through improved sex and relationship education and supporting parents in talking to their children about these issues
2. Increasing uptake of contraceptive advice by sexually active teenagers
3. Supporting young parents to improve the health and social outcomes for them and their children.

The Department of Health (DH) in its white paper *Choosing Health: making healthy choices easier* (DH 2004) has committed to support the implementation of the Teenage Pregnancy Strategy, in particular through action in neighbourhoods with high teenage conception rates and putting in place initiatives to support teenage parents. It has also issued new guidance on improving access to contraceptive and sexual health advice services as well as increasing choice and continuity of care for teenage mothers through multi-agency working (Department for Education and Skills (DfES) and DH 2007a, DfES and DH, 2007b). In addition, the National Institute for Health and Clinical Excellence (NICE) has issued guidance on one to one interventions to prevent sexually transmitted infections (STIs) and under 18 conceptions for vulnerable young people based on the best available evidence to date (NICE Guidance, 2007).

### **Current trends**

Reducing teenage pregnancy remains a Government priority in the UK which still has the highest rates in Western Europe. In 2004, there were 39,545 under 18 conceptions and 7179 under 16 conceptions in England, of which 41% and 57.6% respectively resulted in abortions (TPU, 2006). Since the implementation of the teenage pregnancy strategy in 1998 (TPU, 2006) the under 18 and under 16 conception rates in England have fallen overall by 11.1% and 15.2% respectively. This rate of decline has been steepest in specifically targeted areas such as those characterised by higher social deprivation and lower educational attainment. However, the participation of teenage mothers in education or the proportion of teenage mothers living unsupported have remained unchanged (Wellings et al, 2005).

### Inequalities

The positive association of teenage pregnancy and parenthood with high levels of deprivation and unfavourable health, educational and social outcomes was highlighted in the first briefing (Swann et al, 2003). However, data at ward level shows that low educational attainment is associated with high teenage pregnancy rates even after accounting for the effects of deprivation (TPU, 2006). The Teenage pregnancy strategy has identified a number of risk factors which increase the likelihood of teenage pregnancy. These include risky sexual behaviours; education-related factors, such as low education attainment; and family/background characteristics, such as living in care, being a daughter of a teenage mother and belonging to a particular ethnic group (DfES, 2006). Whilst current policy aims to lower the risk of social exclusion and health inequalities, interventions designed to reduce these factors need to be formally evaluated.

## **2. Introduction**

This update summarises evidence from selected systematic reviews, meta-analyses and other reviews about the effectiveness of public health interventions to prevent unintended teenage pregnancies and to improve outcomes for teenage parents published since the first evidence briefing in 2003. We describe key findings from 12 reviews most of which describe multi-component interventions delivered in a variety of settings; many using mixed designs. Eight were systematic reviews and four were literature reviews.

In general these reviews present little additional evidence on the prevention of unintended teenage pregnancies and most findings overlap with the reviews described in the first edition. Only one recent review, examining research relating to policy initiatives aimed at tackling the social exclusion associated with unintended teenage pregnancy and young parenthood, contributes a new focus within the context of social disadvantage and exclusion (Harden et al, 2006). However, we have, where possible, extracted implications for research from the new reviews to build on the recommendations and gaps identified in the first evidence briefing. In the first briefing there was little evidence on interventions to improve outcomes for teenage parents and their children. We found six additional reviews which strengthens the evidence base in this area.

We acknowledge that some studies from earlier reviews will have also been included in recent reviews and the criteria for inclusion of studies will also have varied. We have not accessed individual studies to assess the impact of these variations on the conclusions reached. This report is an 'addendum' to the first briefing and, therefore, does not replace the first edition but builds on its findings and recommendations.

### **Research aims**

The review focuses on the following original research questions:

- What interventions, programmes or policies are effective in reducing the rate of teenage pregnancies for the general population and for specific vulnerable groups (e.g. young people in/leaving care, school excludees/persistent truants, children of teenage parents, young people from some black and minority ethnic groups (primarily Caribbean, Pakistani and Bangladeshi)?)
- What interventions, programmes or policies are effective in improving educational, social, health and employment outcomes for teenage parents in general, and for these vulnerable groups?

The aims of this update are to:

- Update the first edition of the review of reviews on teenage pregnancy and parenthood
- Identify and evaluate all relevant systematic reviews, syntheses, meta-analyses and review-level papers published since the searches for the first edition (December 2001)
- Highlight new findings on 'what works' to prevent teenage pregnancies and improve outcomes for teenage parents
- Identify gaps in the evidence
- Highlight emerging issues pertinent to the scope of the work and identify areas that would merit further development and research

### **3. Methodology**

This update employs the same methodology as the original evidence briefing (Swann et al, 2003).

#### **Updated searches**

An extensive and systematic search of the literature was conducted in December 2005 to update the previous search carried out for the first edition (January 1996 to November 2001). The search formulations listed in the first edition were simulated as closely as possible on a similar range of databases and are shown in Appendix 1. Where possible the full records (not full-text) or at least bibliographic details and abstracts were imported into an EndNote database. Some search results were not in a suitable format for importation into EndNote and these were kept as separate documents, with, where possible, hypertext links to the full text of the records (National Guidelines

Clearing house (NGC) and National Research Register (NRR). Searches on the DARE and HTA databases were part of the 'Cochrane Library' search. The log of searches for the first edition was generally detailed and specific; some variations were introduced for the updated searches without apparent loss of sensitivity or specificity.

### **Inclusion criteria**

We used the same inclusion criteria as those specified in the first briefing. These were:

- Systematic reviews, meta-analyses, literature reviews and syntheses published between December 2001 – December 2005 (Our searches identified a protocol for a review which was subsequently published in March 2006. This review was also included as it was considered to be highly relevant)
- Papers in the English language
- Evaluations of interventions to prevent teenage/adolescent pregnancy, increase contraceptive use and/or delay the onset of sexual intercourse, and/or to delay or reduce repeat pregnancies.
- Evaluations of interventions to improve outcomes for teenage parents and their children
- Reported outcome measures relevant to teenage pregnancy prevention including pregnancy rates, contraceptive use, sexual behaviour and knowledge/attitudes

Reviews focusing on interventions specifically for the prevention of Human immunodeficiency virus (HIV) and/or sexually transmitted infections (STIs) and those reporting findings from developing countries were excluded.

### **Screening for inclusion**

Titles and abstracts of 1,966 electronic records identified through the search were screened independently by two reviewers to determine whether they met the inclusion criteria. In addition we screened reference lists for additional relevant citations. In total 107 papers appeared to be relevant and were retrieved in full.

### **Data extraction and quality assessment**

After full text review 66 papers, judged to be potentially relevant, were independently assessed by two reviewers. These were read and critically appraised using a critical appraisal tool based on the Health Development Agency (HDA) tool used in the first evidence briefing (Swann et al, 2003) and which was more detailed shown in Appendix 2. This form was used to determine the quality of the identified papers as well as extract relevant data from the included reviews. Through this process we examined the extent to which reviews were transparent, systematic, analytically sound and relevant. They were then, as in the first briefing, assigned a category from 1-5 with 1 being 'best quality' and 5 being 'poorest quality'. These categories reflected the strength and the

appropriateness of the evidence based on the methodology and quality of the studies. The categories were defined as:

1. Typically, although not always, a systematic review or meta-analysis where research questions, methods and analysis are completely transparent and replicable.
2. A review in which there is some clear methodological and analytical data, although not sufficient information for the searches, selections and analysis to be replicated.
3. Typically a literature review or synthesis where the research questions are highly pertinent to this area, but little or no methodological or analytical data is presented.
4. Background information: Reviews that are methodologically too weak to be included as part of the data pool and/or not focused on interventions and/or effectiveness, but which contain useful policy, background, epidemiological or interpretive information.
5. Not systematic, not transparent, not relevant, therefore excluded.

Thirteen papers were initially categorised as 1 or 2 and 24 as 3 and 4. These were further reviewed by two authors, independently, to assess suitability for inclusion and 12 reviews (two category 1, seven category 2 and three category 3) were selected for the final synthesis. Category 4 and 5 papers were excluded although, where appropriate, some category 4 reviews were used to inform our discussion. Detailed data were extracted and assessed using the critical appraisal tool and data extraction form (Appendix 2). The full findings from a protocol identified by the searches became available in March 2006 (Harden et al, 2006) and were included.

#### **4. Results and analysis**

The results are presented in the following way: a description of the reviews, an overall summary of the findings, and a detailed report on the evidence for effectiveness from each review.

Evidence tables showing a summary of the better quality reviews included in our update (Category 1 and 2) are shown in Appendix 3; prevention of unintended teenage pregnancies (table 4), interventions to improve outcomes for teenage parents (table 5). The search and appraisal process identified eight systematic reviews and four literature reviews. Of these, one category 1 review described interventions to reduce unintended teenage pregnancies and improve outcomes for teenage parents, four category 2 reviews and two category 3 reviews addressed the prevention of teenage conceptions only and one category 1, three category 2 and one category 3 review included studies focusing on improving outcomes for teenage parents. These are listed in Table 1, in the order in which they appear in the text, and are cited in Appendix 4.

#### **Interventions and settings**

The reviews included in this update considered a variety of interventions, settings and populations, more details of which can be seen in Tables 2 (prevention of unintended teenage pregnancies) and 3 (improving outcomes for teenage parents). We have used the following categories based on the first briefing:

## **Interventions**

- Education/information interventions aimed primarily to increase knowledge
- Skills/self-esteem approaches to equip participants with the necessarily social skills in terms of relationships and decision-making
- Peer education approaches, which can be educational, motivational, support or skills-based, and use 'peers' as facilitators
- Abstinence programmes that either wholly or partly promote an abstinence message
- Programmes involving parental participation
- Other approaches such as access, multi-agency support, clinical/social service, employment/training

## **Settings**

- School-based
- Clinic/primary care
- School-clinic
- Community-based
- Home-based
- Media/internet
- Other

The reviews varied with respect to quality, study designs and sample sizes. Although most reviews targeted mixed ethnic populations and mixed socio-economic backgrounds, only one category 1 review included studies that targeted a 'high risk', mostly black or African-American population and people from socially disadvantaged backgrounds. However, most of the studies in this review were based in the USA with the exception of qualitative views studies which were based in the UK (Harden et al 2006). We did not identify any new reviews that evaluated media/internet based studies.



**Table 1: Table of quality rated papers for Teenage pregnancy and teenage parenthood**

<b>Teenage pregnancy</b>		
<b>Author and Year</b>	<b>Type of paper</b>	<b>Category</b>
Harden et al 2006	Systematic review	1
Bennett and Assefi 2005	Systematic review	2
Robin et al 2004	Systematic review	2
Moos et al 2003	Systematic review	2
Mathias 2002	Systematic review	2
Kirby 2002	Literature review	3
Kirby and Miller 2002	Literature review	3
<b>Teenage parenthood</b>		
<b>Author and Year</b>	<b>Type of paper</b>	<b>Category</b>
Harden et al 2006	Systematic review	1
Coren et al 2003	Systematic review	1
Meade and Ickovics 2005	Systematic review	2
Letourneau et al 2004	Literature review/synthesis (uses systematic principles)	2
Akinbami et al 2001	Literature review	2
Schellenbach et al 2003	Literature review	3

**Table 2: Interventions and settings: Teenage pregnancy**

Author and year (category)	Type of approach						Type of setting						
	Education/ Information	Skills-based/ self-esteem/ youth devpt	Peer	Abstinence	Involving parents	Other	School / Institutes	Clinic/ primary care	School-clinic	Community	Home-based	Media/ Internet	Other
Harden et al 2006 (1)	√	√			√	social service	√			√		√	
Bennett and Assefi 2005 (2)	√	√		√	√		√						
Robin et al 2004 (2)	√	√	√		√		√	√		√		√	
Moos et al 2003 (2)	√	√						√					
Mathias 2002 (2)						Access	√		√				
Kirby 2002 (3)	√	√		√	√		√		√				
Kirby and Miller 2002 (3)	√	√		√	√		√			√		√	

**Table 3: Interventions and settings: Teenage parenthood**

Author and year (category)	Type of approach						Type of setting						
	Education/ Information	Skills-based/ self-esteem/ youth devpt	Peer	Abstinence	Involving parents	Other	School / Institutes	Clinic/ primary care	School-clinic	Community	Home-based	Media/ Internet	Other
Harden et al 2006 (1)	√	√				multiagency support welfare/social support training/ employment holistic day care	√			√	√		
Coren et al 2003 (1)	√	√					√	√	√	√	√		Various agencies
Meade and Ickovics 2005 (2)	√	√				integrated clinical/social services	√	√		√	√		
Letourneau et al 2004 (2)	√	√	√		√		√	√		√	√		
Akinbami et al 2001 (2)	√	√					√	√					
Schellenbach et al 2003 (3)	√	√					√				√		Not stated

## **Summary of findings**

This section summarises the findings from the reviews included in this update, the extent to which they provide new information on interventions to prevent unintended teenage pregnancies and/or improve outcomes for teenage parents, and how this relates to the first evidence briefing.

Evidence tables (Tables 4 and 5) showing a summary of better quality reviews in this update (Category 1 and 2) are shown in Appendix 3. Implication for practice and recommendations for research are discussed in Section 5. The first briefing summarised evidence from twenty one reviews, of which nine were good quality (category 1 and 2) reviews. In our update we found little new evidence, and most findings overlapped with the first briefing. However, one recent review evaluated research relating to policy initiatives to tackle social exclusion associated with unintended teenage pregnancy and parenthood. This review contributes a new focus within the context of social disadvantage and exclusion (Harden et al 2006). In our update, five (category 1 and 2) reviews evaluated the effect of interventions such as school-based programmes, access for youth services, counselling and skills-based education, and programmes among those who are socially disadvantaged on teenage pregnancy, sexual risk behaviour, access to services, and contraceptive use and knowledge. Five (category 1 and 2) reviews focused on teenage parenthood and described various interventions such as support-education, clinical health supervision, family planning, parenting programmes and programmes among socially disadvantaged groups. A range of outcomes included repeat pregnancies, school drop-outs, infant and teenage health outcomes, psychosocial and developmental outcomes, parenting attitudes, practices, and parenting skills or knowledge. None of the reviews reported on cost-effectiveness. Three category 3 reviews described school based programmes, parent-child communication and programmes enhancing developmental outcomes of teenage parents and their children.

### ***Interventions for the prevention of teenage pregnancies***

The first briefing identified two category 1, seven category 2 and eleven category 3 reviews relating to the prevention of teenage pregnancy. This update identified seven new reviews, one was category 1, four were category 2 and two were category 3. We summarise evidence from the first briefing and the update.

## **What we know**

### **School-based sex education or sexual health clinics**

The first briefing found good evidence (category 1 and 2) that school-based sex education, particularly linked to contraceptive services, was effective in preventing unintended teenage pregnancies (Swann et al, 2003) and that effective contraceptive services were cost effective (Swann et al, 2003).

There was no good evidence (category 1 or 2) for the effectiveness of abstinence-based interventions. Programmes that include abstinence messages only seem to be effective if

messages about contraceptive services and other practical issues were included. There was weak evidence that school-based clinics may be effective as part of multi-factor programmes in delaying sexual initiation and decreasing birth rates (Swann et al, 2003). Weaker evidence for increased use of condoms was also reported in the first briefing for the provision of free condoms in schools.

In our update we found weaker evidence (evidence from category 3 reviews and weaker evidence from category 2 reviews) from studies concerned mainly with sex education or provision of sexual health clinics. There was some evidence that school-based interventions that offered contraceptive education had a positive effect on knowledge and contraception use (Bennett and Assefi, 2005, *Category 2*). Overall, neither abstinence-only nor abstinence-plus programmes showed significant long-term changes in sexual behaviour. One review, of studies in a variety of settings, including schools, found that adolescent sexual risk-reduction programmes, based on a combination of behavioural theories, may improve condom use, although effect sizes were not reported (Robin et al, 2004, *Category 2*). The authors report that although, there was insufficient evidence on which programme characteristics were effective, in general, most programmes that produced positive effects used trained adult facilitators, included content that was specific to reducing sexual risk behavior, such as refusal of unwanted sex and condom-use skills, and most commonly employed interactive and participatory educational strategies (Robin et al, 2004, *Category 2*).

One review found that youth specific primary health care services, in particular school-based health centres, improved access and utilisation of general health care services by young people but that there was a lack of good quality evidence to demonstrate changes in reproductive health outcomes (Mathias, 2002, *Category 2*). Another review found that although school-based clinics and condom availability programmes did not appear to increase risky sexual behaviour, effects on condom and contraception use remained unclear (Kirby, 2002). However, sex and STI/HIV-education programmes with identified common characteristics (such as focusing on sexuality, sexual behaviours and emphasising abstinence and/or condom/contraceptive use) may delay sex, reduce the frequency of sex, increase condom or contraceptive use, or decrease pregnancy and childbearing (Kirby, 2002, *Category 3*).

### **Community based programmes (which may be linked with school-based settings)**

The first briefing found good evidence (category 1 and 2) for the effectiveness of community based (e.g. family or youth centres) education, development and contraceptive services.

Although there were few studies of youth development programmes, the reviews showed that programmes focusing on personal development (i.e. promoting confidence, self-esteem and negotiation skills), education and vocational development may increase contraceptive use and reduce pregnancy rates (Swann et al, 2003).

In our update we also found good evidence that programmes that aimed to foster social and academic skills among young people, and which combine school-based activities with activities in the community (e.g. volunteering, work experience), can be effective in increasing contraceptive use and reducing pregnancy rates among high risk groups. One review (Harden et al 2006) found support for early childhood interventions aimed at promoting academic and social skills in preschool and primary aged children. It showed that early childhood interventions and youth development programmes can lower teenage pregnancy rates, especially among socially disadvantaged groups, by 39% in women and 41% in men. Based on young people's views, the authors identified key components that may be appropriate for inclusion within these programmes. These are:

- Learning support for children or young people who fall behind in school
- Skill development to help children and young people form positive relationships with each other and to resolve conflicts
- Greater parental involvement in secondary school to encourage young people's ambition
- Work experience opportunities, volunteering, and out of school activities to foster success and ambition
- Support for children and young people experiencing family breakdown and conflict
- Parent training in conflict resolution

A category 3 review suggests programmes that decrease school dropout, improve attachment to school, improve school performance, and enhance educational and career aspirations may either delay sex, increase condom or contraceptive use, and/or decrease pregnancy and childbearing. Service learning programmes (for example non-sexuality focused and including community or voluntary service programmes) provide some evidence of effectiveness in reducing teen pregnancy (Kirby, 2002, *Category 3*).

### **Family outreach**

Some good evidence from the first briefing (category 1 or 2) was found for the effectiveness of including teenagers' parents in information and prevention programmes aimed at preventing teenage pregnancy.

In our update we also found good evidence that early childhood interventions aimed at preschool and primary school aged children and involving their parents may be effective in preventing teenage pregnancy (Harden et al, 2006, *Category 1*). The review suggested that key components of interventions were greater parental involvement in secondary school to encourage young people's ambitions, and parent training in conflict resolution. One review suggested that theory based adolescent sexual risk-reduction programmes, that used trained adult facilitators, including parents, may be important (Robin et al, 2004, *Category 2*). Weaker category 3 evidence indicated

that parent-child programmes may also be a worthwhile component in larger more intensive programmes to reduce adolescent sexual risk taking (Kirby and Miller 2002, *Category 3*).

### **Clinic/primary care based counselling**

The first briefing showed mixed evidence for the effectiveness of interventions that take place in a clinic/primary care setting alone. Ensuring that they are linked to other community and school services, and evaluated as part of a broader programme may be important (Swann et al, 2003). We also found a lack of good quality evidence available to assess the effectiveness of counselling (Moos et al. 2003, *Category 2*) on prevention of teenage pregnancy or influencing contraceptive use. Only a few studies are described with poor designs and considerable heterogeneity in populations, interventions and outcomes.

### ***Improving outcomes for teenage parents***

The evidence base around interventions to improve outcomes for teenage parents was limited in the first briefing. It identified one category 1 and two category 3 reviews for improving outcomes for teenage parents. This update includes six new reviews identified for teenage parenthood. Two were category 1, three were category 2 and one was category 3. We summarise evidence from the first briefing and the update.

### **What we know**

The first briefing found good evidence from one category 1 review for the effectiveness of the following interventions aimed at improving outcomes for teenage parents (Swann et al, 2003).

- Good antenatal care can improve health outcomes for mother and child and is cost-effective.
- Home visiting, parental and psychological support can improve health and welfare outcomes for mother and child.

Our update also supports and builds on these findings. Individual and group-based parenting programmes offered ante or post-natally may be effective in improving a range of psychosocial and developmental outcomes for teenage mothers and their children. However, the evidence is limited (Coren et al, 2003, *Category 1*). One new review (Harden et al, 2006, *Category 1*) found support for the following:

- Education and career development programmes that provide support for childcare, rather than welfare sanctions and bonuses, can be effective in encouraging young parents back into education, training, and employment,
- Parent support interventions, such as education and career development, holistic support programmes and day care appeared to reduce repeat pregnancy rates, but the trends were not statistically significant. Further development and evaluation of these programmes are required.

- Holistic support interventions (such as Sure Start Plus) are considered to be appropriate by young parents in the UK although the effectiveness of these interventions in reducing social exclusion among them has not yet been established. However, based on young peoples' views, the review identified key components that may be appropriate for inclusion within these holistic support programmes. These are:
  - i. Tailored information and advice about: existing choices for education and training, employment and careers, childcare, money, benefits, and housing
  - ii. Individualised plans for returning to education and employment which consider the wider costs and benefits of such a return
  - iii. Specialised services that are 'young parent friendly' which include fathers as well as mothers and which promote resilience in young people with long-standing problems
  - iv. Child care provision
  - v. Advocates to help young parents approach services and/or co-ordinate cross-agency support to better match young parents' needs
  - vi. Interventions to reduce domestic violence and improve relationships

In the first briefing category 3 evidence suggested that improving housing, support to continue education and clinic based health care programmes, can have a positive effect on educational and employment outcomes for parents and prevent repeat pregnancies (Swann et al, 2003). In addition, category 1 evidence from the first briefing suggested that early educational interventions for disadvantaged children may improve long-term outcomes, a finding also substantiated by category 1 evidence from our update (Harden et al, 2006).

The findings from category 2 evidence in our update also suggest that:

- Programmes offering 'comprehensive care' (integrated prenatal, clinical and social services) to both teenagers and their infants may reduce rates of repeat pregnancy (Meade and Ickovics 2005).
- There is inconsistent evidence of a relationship between support-education interventions and parenting confidence and psychological well-being (Letourneau et al, 2004).
- There is limited evidence upon which to judge the evidence of teen-tot programmes (US based community outreach programmes providing comprehensive primary care for teenage mothers and their children) in preventing repeat pregnancies, helping teenage mothers continue their education, and improving parent and infant health (Akinbami et al, 2001).

Category 3 evidence from our update (Schellenbach et al, 2003) found: Comprehensive home visitation programmes to support school engagement and promoting employment may be effective.



- Intensive prenatal and postpartum programmes for young mothers (including nurse based home visiting and school based comprehensive programmes) may be effective in improving health outcomes and preventing repeat pregnancy

Parent training programmes to build parenting skills have shown mixed results of effectiveness. Programmes that build on mothers' own goals for themselves and their children may be successful. This supports better quality (category 1) findings from the first briefing.

### ***What works: Prevention of teenage pregnancy and improving outcomes for teenage parents***

#### *Characteristics of effective interventions*

In our update, as in the first evidence briefing, most of the reviews are based on studies conducted in the USA. Interventions have taken place in a variety of settings, using many different approaches and often involving complex, multi-faceted interventions. Therefore, it was often difficult to untangle the settings and approaches to identify which components were most important or effective and whether they would be generalisable to the UK. In addition, there was a lack of good quality evidence which makes it difficult to make firm recommendations for practice.

However, we have outlined below characteristics of effective services and interventions; although further work on applicability to the UK is needed. These come from both the first briefing (Swann et al, 2003) and our update and are taken largely from better quality reviews (category 1 or 2).

Key characteristics of effective interventions:

- Targeting social exclusion associated with teenage pregnancy and parenthood. For example, providing educational support, further education and training, income support, or housing assistance
- Skills based approaches including personal development, self-esteem, educational and social skills development
- Combining community service and student learning, or providing a programme of academic and social development
- Daycare, holistic support programmes and educational programmes to support young parents
- Parental involvement, particularly when included in early childhood programmes
- Improved access to services and interventions
- Incorporating theory-based behavioural programmes with clear behavioural goals and outcomes
- Focusing on improving contraceptive use and other behaviours likely to prevent teenage pregnancy and/or STI transmission and incorporating these in routine care
- Focusing on high risk groups

In addition, the first briefing also highlighted the following approaches considered to be important:

- Taking key opportunities – e.g. if an adolescent uses a clinic service and receives a negative pregnancy test – to provide education and information
- Long-term services and interventions, tailored to meet local needs of young women and young men, with clear and unambiguous information and messages
- Making sure that information and education is in place before young people become sexually active
- Ensuring staff are appropriately trained, respect confidentiality and encourage culturally appropriate discussion of sexual issues
- Working with teenage 'opinion leaders' and peer group influences
- Joining up services and interventions aimed at preventing pregnancy with other services for young people, and working in partnership with local communities

## Description of included reviews

### Research question 1: preventing teenage pregnancy

In this section the evidence for the effectiveness of different interventions, identified for this update, is presented by category; with better quality evidence presented first.

Category 1 evidence: Typically a systematic review or meta-analysis where research questions, methods and analysis are completely transparent and replicable.

Only one review from the update met category 1 criteria.

**Harden A, Brunton G, Fletcher A, Oakley A, Burchett H, Backhans M (2006) *Young people, pregnancy and social exclusion: A systematic synthesis of research evidence to identify effective, appropriate and promising approaches for prevention and support*. London: The Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) , Social Science Research Unit, Institute of Education, University of London.**

#### *Research Aims*

This review dealt with policy initiatives to prevent unintended teenage pregnancy within the context of social disadvantage and exclusion. It addressed two questions:

- What research has been undertaken that is relevant to informing policy and practice in the area of young people, pregnancy, parenting and social exclusion?
- What is known about effective, appropriate and promising interventions that target the social exclusion associated with teenage pregnancy and parenting, which might, therefore, have a role to play in lowering rates of unintended teenage pregnancy and supporting teenage parents?

It aimed to systematically map and review studies that focused on pregnancy prevention for under 20 year olds, and social exclusion. The focus of this review was the prevention of unintended teenage pregnancy through interventions to improve young people's education, training, employment and career prospects, or financial circumstances. Conclusions were drawn from both international evaluation of policy and practice as well as UK based qualitative research examining experiences and views of young people on education, training employment, careers and financial circumstances.

#### *Data pool*

Ten controlled intervention studies which addressed education and training, employment and careers and financial circumstances, were included for in-depth review. The studies evaluated multi component interventions delivered by more than one type of provider in the USA. Six of those, judged to be good quality and without significant heterogeneity, were included in a meta-analysis.

For the qualitative studies, only studies judged to be of medium/high quality were included in the synthesis. The majority of qualitative studies described young people's views about personal or family factors associated with teenage pregnancy. Fifty five reports (71%) described studies which had examined young people's views about contraception and sexual health issues, and 19 reports (24%) described studies of views about relationships. Fewer reports described studies exploring structural factors such as education (N=15, 19%), careers, training and employment (N=7, 9%) and money and benefits (N=6, 8%). Two reports (3%) described studies which obtained young people's views about housing, two examined views of social services (N=2, 3%) and 11 (14%) reported young people's views about other issues such as health care services or additional personal issues.

The reviewers did a cross-study synthesis to match outcome evaluations with views studies to determine the implications of findings for policy, practice and research. Only five published views studies were included in the data pool following appraisal, and these included 1483 participants, mostly women, living in England and Scotland and from a range of different backgrounds. Participants included teenage mothers and fathers, young people who had not become parents, young women who had terminated their pregnancies, older men and women who had become parents as teenagers, young offenders, young people excluded from school, looked-after young people, homeless young people, young people with and without educational qualifications, from working class and middle class backgrounds, deprived and non-deprived areas, and from ethnic minority groups.

### *Interventions and settings*

A number of different types of interventions tackling social exclusion were identified, most of which evaluated multi-component interventions. The most common intervention types were educational support such as: preschool education, learning support in secondary schools, careers, training or employment support. Others included social service interventions such as: income and social support, medical or counselling programmes, or incentives that aimed to change behaviour or facilitate young people's involvement in a particular programme. Some programmes involved parental participation. These approaches aimed to increase knowledge, self-esteem and social skills in terms of relationships and decision-making. The interventions were delivered in schools, institutes, communities and homes.

Two categories were identified for analysis: early childhood interventions aimed at preschool and primary school aged children and their parents; and youth development programmes aimed at fostering social and academic development among young people aged 11 to 18. Studies included young people considered to be at 'high risk' for teenage pregnancy or other problem behaviours

such as criminal activity, drug use, or falling behind in school. Most participants were black or of African-American origin and from low socio-economic backgrounds.

## *Findings*

### *Early childhood and youth development programmes*

Quantitative synthesis: Two different meta-analysis were conducted for 701 men and 1309 women according to the intervention type. Three studies evaluated early childhood interventions, two of which reported on long-term effects of preschool education and parenting support. Three studies evaluated youth development programmes, two of which combined community service with student learning. Pooling the study findings revealed a significant reduction in pregnancy among young women. (39% reduction; RR 0.61; 95% CI 0.48-0.77). Although the effects for young men were not statistically significant, they were in the same positive direction, reducing rates by 41% (Relative risk, RR 0.59; 95% CI 0.34-1.02).

### *Effect on other outcomes*

Young people who had received early childhood and youth development interventions did better at school, had better attitudes to school, and were more likely to be employed and financially independent. These factors may be important in preventing teenage pregnancy. Results for these outcomes were not pooled.

Qualitative synthesis: Thematic analysis identified three common themes relating to teenage pregnancy and exclusion across five studies: 'Dislike of school', poor material circumstances and unhappy childhoods' and 'expectations/aspirations for the future'. Key implication for intervention development was to include the following components within early childhood interventions and youth development programmes:

- Learning support for children or young people who fall behind in school
- Skill development to help children and young people form positive relationships with each other
- Skill development to help children and young people resolve conflicts
- Greater parental involvement in secondary school to encourage young people's ambition
- Work experience opportunities, volunteering, and out of school activities to foster success and ambition
- Support for children and young people experiencing family breakdown and conflict
- Parent training in conflict resolution

## *Conclusions*

This review demonstrated that early childhood and youth development programmes to improve young people's education, training, employment and career prospects, or financial circumstances can prevent teenage pregnancy. Only ten studies were identified as meeting the criteria over a thirty year period and six were analysed for teenage pregnancy. Few reviews or studies address social exclusion and young people, so this work makes a significant contribution in this context. It is not clear whether unintended pregnancy rates were measured, and only studies that were rigorously evaluated were analysed.

This review has highlighted how young people's own views and experiences can inform the development of policies that concern them. The authors acknowledge some limitations: the cultural, political and social contexts may vary between the USA and the UK; only soundly evaluated studies were synthesised so interventions better matching young people's needs may already have been developed but not included in the synthesis. In addition the authors acknowledge that 'cross-matching' of quantitative and qualitative reports is experimental and its accuracy is questionable.

Category 2 evidence: A review in which there is some clear methodological and analytical data, although not sufficient information for the searches, selections and analysis to be replicated.

Four reviews met the criteria for category 2 evidence. Their findings are summarised below

**Bennett S. E. and Assefi N P (2005). "School-based teenage pregnancy prevention programs: a systematic review of randomized controlled trials." J.Adolesc.Health 36(1): 72-81.**

### *Research aim*

To compare the effects of abstinence-only and abstinence-plus programmes on teenage sexual behaviour, contraceptive knowledge, contraceptive use, and pregnancy rates.

### *Data pool*

The review included 16 randomised controlled trials, of secondary-school-based teen pregnancy prevention programmes in the United States, published between 1980-2002. The studies evaluated the effects of abstinence-only and abstinence-plus programmes to determine their impact on teen pregnancy, sexual behaviour, contraceptive knowledge and contraceptive use. Abstinence-plus programmes incorporated into the curriculum information on contraception and the prevention of sexually transmitted infections along with abstinence education. Of the sixteen studies, 3 examined abstinence-only programmes, 12 evaluated abstinence-plus programmes, and one study compared an abstinence-only with an abstinence-plus programme. This study compared three groups: an unrelated health class control group, an abstinence-only

intervention, and an abstinence-plus intervention emphasising the importance of condom use for sexually active teenagers. With the exception of the study directly comparing abstinence-only to abstinence-plus programmes, all of the studies used the school districts' existing pregnancy prevention curriculum as the comparison group. Most studies did not ask teenagers directly about pregnancy but reported outcomes of sexual behaviour and contraceptive use.

The racial mix of included populations varied considerably. Only five of the 16 studies provided information on the socio-economic status of the subjects and follow-up times ranged from seven weeks to 48 months. Sample sizes ranged from 36-10,600, (Total N= 36,033), although half the studies used more than 1000 subjects, and retention ranged from 68% to 100%.

### *Interventions and settings*

The setting of the programmes varied widely from the suburbs to the inner city. The interventions involved educational and skills-based approaches, parental involvement and encouraging abstinence.

### *Findings*

Findings from the included studies suggest that overall, neither abstinence-only nor abstinence-plus programmes showed significant long-term changes in young people's sexual behaviours. One abstinence only programme and two abstinence-plus programmes showed a delay in initiation of sexual activity. None of the programmes resulted in decreased numbers of partners in sexually experienced teenagers. Despite concerns that abstinence-plus programmes may increase sexual activity, all except one of the eleven programmes including contraceptive information failed to show an increase in sexual activity or a decline in the age at first intercourse. Four abstinence-plus studies found a decreased frequency of sexual activity in the intervention group compared with controls. More than 80% of abstinence-plus programmes measuring contraceptive knowledge showed an increase at follow-up. The one study comparing an abstinence-only to an abstinence-plus programme found that the abstinence-only group scored lower on questions about correct contraceptive use. Seven of the ten programmes that evaluated contraceptive use reported an improvement in the number of teenagers using contraception. Only two studies that evaluated an abstinence-only and an abstinence-plus programme asked teenagers directly about pregnancy. They found no effect on pregnancy rates at follow-up.

### *Conclusions*

The results of these studies suggest that teaching students about contraception in addition to abstinence does not encourage sexual activity. Although neither abstinence-only nor abstinence-plus programmes had a strong influence on sexual activity, programmes that offered contraceptive education significantly influenced students' knowledge and use of contraception. It is difficult to draw definite conclusions regarding which type of programme is most effective due to considerable variability in study populations, interventions, and outcomes of existing school-based trials of teenage pregnancy prevention, and the small number of studies directly comparing abstinence-only and abstinence plus programmes. However, the majority of abstinence-plus programmes reported an increase in contraceptive use, with one study showing the effects to last for at least 30 months. The question of whether abstinence-only or abstinence-plus programmes will prove effective at altering teenagers' sexual behavior remains unanswered. The authors conclude that in the absence of strong evidence that either type of programme increases sexual activity there is no justification for excluding contraceptive education which, they feel, has the greatest potential to decrease the pregnancy rate. Some studies in this review were also included in an earlier review (DiCenso, 2002) which reported an increase in pregnancy among partners of young male participants. However, that review excluded studies that evaluated knowledge, attitudes or condom use only.

**Robin L P, Dittus P, Whitaker D, Crosby R, Ether K, Mezoff J, Ches PH, Miller K, Pappas-Deluca K (2004). "Behavioral interventions to reduce incidence of HIV, STD, and pregnancy among adolescents: a decade in review." J.Adolesc.Health 34(1): 3-26.**

#### *Research aims*

- To examine common characteristics and features among sexual risk- reduction programmes evaluated during the 1990s
- To describe evaluated programmes and identify characteristics of effective programmes for health educators and researchers

This review aimed to identify factors that may be important in determining the effectiveness of sexual risk reduction programmes. It examined common characteristics and features of theory-based sexual risk reduction programmes to identify important elements that can be used in designing more effective programmes to reduce incidence of HIV, STI and pregnancy.

The authors used a classification system that distinguished between studies and programmes. *Study* was defined as an evaluation of an intervention with a unique sample (which could result in multiple publications), and *programme* was defined as a specific intervention or variant of an intervention (which may have been evaluated in multiple studies). Results were aggregated both at the study level, and across studies on the programme level. Each study was classified as having produced "positive," "null," or "negative" effects. A study had *positive effects* if the intervention(s)



had a positive effect on at least one outcome, relative to the control group, *null effects* if no differences were detected among groups for any of the outcomes and *negative effects* if the intervention had any negative impact on one or more of the outcomes. For programmes the authors added the category of *mixed effects* if one or more studies found positive effects and one or more studies found null effects.

### *Data pool*

This publication reviews adolescent sexual risk-reduction programmes that were evaluated in the USA using quasi-experimental or experimental methods and published in the 1990s. The review described 20 studies and 17 programmes with a total sample size of 27,978. Sample sizes, of included studies, ranged from under 100 to more than 10,000 participants; thirteen studies had more than 500 participants. Of the 20 studies 12 were RCTs and the rest used quasi-experimental designs. Most interventions were based on a combination of behavioural theories. Programme characteristics described included duration, intensity, facilitators, intervention content and intervention strategies or formats; these varied considerably.

### *Interventions and settings*

Programme content was diverse and included volunteer work (Teen Outreach Programme), career planning (Teen Incentives Programme), activities involving parents and peers and knowledge and skills based programmes. Studies were conducted in a range of settings: schools, clinics, community, detention centres, homes or a combination of venues, which were usually schools and clinics or community-based organisations.

### *Findings*

The authors aggregated the 20 studies into 17 programmes and their variants.

Twelve studies/ten programmes demonstrated positive effects, five studies/four programmes had null effects, one programme had mixed effects and three studies/two programmes reported negative effects.. Among frequently targeted behaviours, the least consistent impact was found for delayed initiation of sexual intercourse and the most consistent for condom use. Negative effects included: (a) increased likelihood of males in the intervention group engaging in sex within the last month relative to the control group (b) increased reports of pregnancy and (c) less contraceptive use at most recent sex among females who were sexually inexperienced at baseline or (d) less contraceptive efficiency (i.e. an index measure combining the consistency of contraceptive use and effectiveness of the selected method of contraception) among females in the intervention group. Study limitations and variations were identified across all the studies. This included variation in

designs, programme characteristics, populations, outcomes, follow-up times and mode of delivery. Pregnancy rates were reported in three programmes. Of those one service-based programme showed a reduction in pregnancy rates and one peer-led programme showed negative effects. The majority of studies showing positive effects were RCTs published since 1995, targeted African-American youth, included both males and females, and took place in schools. In addition, overall most programmes that produced positive effects used predominantly trained adult facilitators, included content that was specific to reducing sexual risk behaviour, such as refusal of unwanted sex and condom-use skills, and commonly employed interactive and participatory educational strategies.

### *Conclusions*

In general there were no important study features or programme characteristics that clearly distinguished studies with positive, null, and negative effects from each other. However, aggregating the studies suggested four overall factors that may impact programme effectiveness. These included: the extent to which programmes focus on specific skills for reducing sexual risk behaviours; duration and intensity; programme content including a clear definition of what constitutes an entire programme; and adequate training for programme facilitators.

**Moos M. K, Bartholomew NE, Lohr, KC (2003). "Counselling in the clinical setting to prevent unintended pregnancy: an evidence-based research agenda *Contraception* 67(2): 115-132.**

### *Research Aims*

This review aimed to identify effective, evidence-based information for clinicians to consider for counselling their patients to reduce the risk of unintended pregnancy. It addressed five key questions:

- How effective is counselling in a clinical setting to prevent unintended pregnancy in changing knowledge, skills and attitudes?
- What are the influences on contraceptive use and adherence (often referred to as compliance)?
- What is the association between behaviours that support fertility desires and the prevention of unintended conceptions?
- What are the potential harms of contraception counselling?
- What is the cost-effectiveness of counselling in the clinical setting to prevent unintended pregnancy?

### *Data pool*

This review assessed the effect of counselling in a clinical setting in the USA to prevent unintended pregnancy. It included pregnant teenagers aged 12 to 19 years; males aged 15 to 18 years who were enrolled in a Health Maintenance Organisation; women younger than 20 years who were attending a family planning clinic (FPC) for contraception; and females younger than 18 years who were attending a FPC. Studies were included from 1985-2000 regardless of their validity. Four studies addressed the effectiveness of counselling: one RCT (1,449 males), one cohort study with retrospective analysis (79 females) and two longitudinal studies (one with 823 females and one with 1,256 females). Ten studies described influences on contraceptive use and adherence and not all were specifically targeted at teenagers. No experimental research analysing the potential harms of contraceptive counselling or the cost-effectiveness of clinic-based counselling was identified.

### *Interventions and settings*

Counselling was delivered in family planning clinics and involved provision of education and information on family planning, contingency planning and in-depth counselling to promote skills in decision-making regarding family planning methods.

### *Findings*

There was no good-quality evidence available. All four studies were badly designed with poor internal and external validity. The interventions were diverse, comparisons were difficult and most of the studies did not measure direct outcomes, such as unintended pregnancy rates, but reported indirect outcomes such as knowledge or contraceptive practices. Although some clinical interventions appeared to increase contraceptive use and knowledge, there was little evidence of long term impact. Significant effects on use of contraception and improved knowledge were reported in two studies, and one study reported a short term reduction in repeat pregnancy in previously pregnant patients receiving contingency planning (providing extra attention to possible problems that might arise with the method of choice). Only about a third of this population was under 20 years of age.

### *Conclusions*

The reviewers concluded that no robust evidence exists to determine effective counselling approaches for changing knowledge, attitudes or behaviours, or to answer questions about the effectiveness of counselling in the clinical setting for reducing rates of unintended pregnancies. Existing studies were poor quality and extremely heterogeneous in terms of populations studied

and outcomes measured. There was no good quality evidence that could reliably explain influences on contraceptive use and adherence.

**Mathias K. (2002) Youth-specific primary healthcare - access, utilisation and health outcomes: a critical appraisal of the literature. Christchurch: New Zealand Health Technology Assessment (NZHTA), 2002:97.**

### *Research Aims*

This study was commissioned by the New Zealand Ministry of Health to provide an evidence-based review of the effectiveness of youth-specific primary health care. The scope of the review reflects the Ministry of Health's priority for evidence-based health programme interventions. Key research questions were:

- To assess the impacts of youth-specific primary care on access, utilisation, mental health, health outcomes and emergency department use
- To describe factors that increase access and utilisation and improve health status in delivery of primary care services to youth

### *Data pool*

The review assessed the impact of youth-specific primary care on access, utilisation of services and health outcomes. It included studies published from 1990-2001, most of which evaluated school-based health centres (SBHCs) in the USA. It described factors that increase access and utilisation and improve health status in delivery of primary care services to youth. Studies were included if they aimed to evaluate outcomes of general and comprehensive primary health youth-targeted services. Twenty three quantitative studies were included. Participants were aged 10 to 24 years. Eligible study designs included meta-analyses, systematic reviews, RCTs, cohort studies, case-control studies, before-and-after studies and cross-sectional studies. Seventeen studies considered the impact of youth-targeted primary care on access and utilisation. Two were retrospective cohort studies and the remainder cross-sectional studies.

### *Interventions and settings*

These were primary care services in school-based health centres. There is little information specifically on types of interventions or programmes since the focus was on improving access.

### *Findings*

All 17 studies reported high levels of use of youth-specific primary care services. In seven studies, which compared SBHCS versus comparator groups without access to a SBHC, they found significantly greater use (mean annual visits) of health services by students with access to youth-targeted care. Some of these studies found that young people who particularly benefit from enhanced access are those who are socio-economically disadvantaged, female and at-risk. Whilst some studies demonstrate increased access for ethnic minorities, the evidence is not consistent. Evidence suggests that SBHCs increased access for rural youth compared to urban youth. Only four studies (N=6,769 available for 2 studies) assessed health outcomes among young people using youth-specific primary care. All four studies assessed outcomes related to reproductive health (sexual activity, contraceptive use, pregnancy rates), and all were judged to be methodologically poor to moderate in quality. One study described a small, but statistically significant increase in reported condom and contraceptive pill use after SBHCs started in two of six schools.

### *Conclusions*

Youth-specific primary health care services improve access and utilisation of health care services by young people. High risk youth in particular may benefit, that is adolescents with a high health risk profile, e.g. use of drugs, alcohol, involvement in criminal activity and those socio-economically disadvantaged. However, currently, there is insufficient evidence to demonstrate changes in reproductive health outcomes through youth-specific primary health care. Rigorous evaluations of youth-specific primary health care interventions are required.

Category 3 evidence: Typically a literature review or synthesis where the research questions are highly pertinent to this area, but little or no methodological or analytical data is presented.

Two reviews met the criteria for category 3 evidence. Their findings are summarised below

**Kirby, D.(2002) "The impact of schools and school programs upon adolescent sexual behavior." *Journal of Sex Research* 39(1): 27-33.**

### *Research Aims*

In this review, the author reviews studies which examine the impact upon sexual risk-taking of: school involvement, school characteristics and specific programmes in school that do, or do not, address sexual behaviour and risk taking. It attempts to address the following questions:

- Does simply being in school have an impact upon adolescent sexual risk-taking? Does greater attachment to school affect adolescent sexual behaviour?

- Does enrolment in schools with particular characteristics reduce the chances of sexual risk-taking?
- Through what mechanisms do schools reduce sexual risk-taking?
- Are there school-based programmes that do not focus on any aspect of sexuality but that nevertheless reduce sexual risk-taking?
- Are there school-based programmes focusing upon some aspect of sexuality that reduce sexual risk-taking?
- If so, is there broad public support for these programmes and how broadly are they implemented?

### *Data pool*

This literature review was narrative and described a range of studies: five included non-sexuality focused programmes, four were sexuality focused, seven involved school-based clinics and four looked at condom availability.

### *Interventions and settings*

Non-sexuality focused school-based programmes were service learning programmes (such as community or voluntary service programmes) that aimed to improve attachment to school, school performance and educational and career aspirations. This involved educational and voluntary programmes which included parental participation.

Sexuality focused programmes involved abstinence only, sex education and STI/HIV curriculum based programmes. These were delivered in school-based health centres or clinics located in schools and school-linked adolescent clinics located near schools. Both types provided basic primary health care services including contraceptives.

### *Findings*

The review suggests that being in school reduces risk taking behaviour and, therefore, educational programmes that enhance school involvement, school performance and educational aspirations may also reduce sexual risk-taking. Four service learning programmes (non-sexuality focused and included community or voluntary service programmes) and one school attachment programme, which included experimental evaluations, suggest that if schools can implement programmes that keep youth in schools, make them feel more attached to school, help them succeed, and help them develop plans for higher education and future careers, they may delay students' onset of sex, increase contraceptive use, and decrease pregnancy and childbearing. School-based sexuality programmes have focused on abstinence, sex education and STI/HIV education programmes.

The authors state that it is premature to draw conclusions about the impact of these because abstinence only programmes are a heterogeneous group of programmes and too few rigorous studies have been completed. School based and school linked health centres providing comprehensive reproductive health services or making condoms available in schools do not appear to increase sexual activity and may be effective but they have not been rigorously evaluated.

### *Conclusions*

The research on the impact of schools upon adolescent sexual behaviour is mixed and limited, and the types of study designs employed in this review are not clear. However, the author suggested the following conclusions:

- Programmes that effectively decrease school dropout and improve attachment to school, school performance, and educational and career aspirations may delay sex, increase condom or contraceptive use, and decrease pregnancy and childbearing.
- There is evidence that service learning programmes can reduce teenage pregnancy.
- Sex and STI/HIV-education programmes with identified common characteristics may delay sex, reduce the frequency of sex, increase condom or contraceptive use, or decrease pregnancy and childbearing.
- School-based clinics and school condom availability programmes do not appear to increase sexual behaviour. Centres that focus upon sexual and contraceptive behaviour giving clear messages may be effective.
- Evidence on contraceptive and condom use is mixed.

The authors suggest that more research is needed to examine particular characteristics of schools and sexual behaviour. Plausible mechanisms of school impact have been suggested such as educational and career aspirations, peer norms and increasing students' self-esteem, sense of competence and social skills, but these areas require further research.

**Kirby D and Miller B C (2002) Interventions designed to promote parent-teen communication about sexuality. Talking sexuality: Parent-adolescent communication. San Francisco,CA,US, JosseyBass 117 pp.: 93-110.**

Although this review is not strictly pertinent to the questions being addressed in this update it is included because interventions to promote parent-teenagers' communication about sexuality may be an important component in developing effective teenage pregnancy prevention programmes.

### *Research aims*

- To describe different approaches used to increase parent-child communication about sexuality

- To examine the impact of the programmes on parent-child communication, adolescent sexual behaviour, or other determinants of that behaviour.

### *Data pool*

This narrative review included 19 studies published since 1980 which targeted parents of children aged 10-18. As a minimum studies had to include a quasi-experimental design with either pre-test and post-test data or a comparison group.

### *Interventions and settings*

Interventions included education/information, skills based approaches youth development and parental involvement. They were delivered in schools/institutes, community venues and homes.

### *Findings*

- Apart from student homework assignments and media campaigns, most of these programmes did not reach substantial numbers of families.
- Few studies provided evidence that they met any of the common short term goals for parents (knowledge, clarity of values, skills, etc).
- Many of the programmes showed a short term increase in parent-child communication about sexuality. However, long term effects, and effects on other outcomes are uncertain.

### *Conclusions*

Despite these limitations parent-child programmes may still be a worthwhile component of larger, more comprehensive, and more intensive programmes to reduce adolescent sexual risk taking. Programmes that do not focus only on increasing parent-child communication about sexuality but also upon other ways in which parents can influence the sexual behaviour of their adolescent children may be more effective and require larger well designed evaluation. Programmes need to be based on the best research on parent-child communication, the barriers to such communication, and effective strategies for overcoming barriers.

## **Research question 2: interventions to support teenage parents**

The following section presents the evidence for the effectiveness of different interventions, by category.

Category 1 evidence: Typically a systematic review or meta-analysis where research questions, methods and analysis are completely transparent and replicable.

Two category 1 reviews were identified and are summarised below.



**Harden A, Brunton G, Fletcher A, Oakley A, Burchett H, Backhans M (2006) Young people, pregnancy and social exclusion: A systematic synthesis of research evidence to identify effective, appropriate and promising approaches for prevention and support. London: The Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) , Social Science Research Unit, Institute of Education, University of London.**

### *Research Aims*

This review dealt with policy initiatives to prevent unintended teenage pregnancy and support teenage parents within the context of social disadvantage and exclusion. It addressed two questions:

- What research has been undertaken that is relevant to informing policy and practice in the area of young people, pregnancy, parenting and social exclusion?
- What is known about effective, appropriate and promising interventions that target the social exclusion associated with teenage pregnancy and parenting, which might therefore have a role to play in lowering rates of unintended teenage pregnancy and supporting teenage parents?

### *Data pool*

Eighteen intervention studies were included for an in-depth review. Seventeen studies were conducted in the USA and one in the UK and most targeted disadvantaged young families largely from ethnic minorities. Most described multi-component interventions delivered in a number of settings. Ten soundly evaluated studies were further included in a meta-analysis.

Twenty 'view' studies, which included 2061 young women and 110 young men, were reviewed. Most of these were UK studies and included a diverse range of teenage parents including: looked-after young people and care leavers, homeless young parents, young parents with and without educational qualifications, those from deprived and non-deprived areas, and young parents from ethnic minority groups. The studies examined views about: personal; family; or peer group issues, such as health status and relationships, and views about service provision, such as education, employment, or childcare. Most reports described young parents' views about their relationships with their families or their partners with fewer reports exploring issues such as careers, training or employment, education, housing, mental or physical health problems, income, interaction with children and social services support. Very few reports described young parents' views about daycare, parent training and home visiting. Thirty-three reports (30%) dealt with other issues or services, such as peer-led interventions provided by teenage parents for other young people. Studies quality assessed as medium/high quality were included and cross-study synthesis was used to match outcome evaluations with views to determine the implications for policy, practice and research.

## *Interventions and settings*

The review described studies evaluating multi-component interventions delivered in schools, primary care clinics, community venues and homes. The most common were parent training interventions and educational support, such as programmes which help pregnant or parenting teenagers continue at school or college. Others included day care, careers, training or employment support and home visiting. Few reports described studies of social service interventions, provision of income support and housing support interventions.

Four categories were identified for analysis: those linked to teenage parents' welfare benefits using sanctions or bonuses; strategies focused on teenage parents' education, training, employment or career prospects; holistic interventions to improve teenagers' social and emotional wellbeing; and daycare programmes.

## *Findings*

### Quantitative synthesis

#### *Findings by type of outcomes*

Three main outcomes of interest were evaluated in a meta-analysis: teenage mothers' emotional wellbeing (comprised of measures of self-esteem, depression, self-concept or locus of control); their participation in education, training or employment; and repeat pregnancy rates.

*Teenage mothers' emotional well-being.* The effects of education and career development interventions (2 studies N= 2,145, standardised mean difference (SMD) 0.07 95% CI -0.03, 0.18) and holistic support programmes (2 studies N=1,379, SMD 0.15 95% CI -0.19, 0.48) on emotional wellbeing although in a positive direction were not statistically significant. There is insufficient evidence to determine whether or not these effects are real. Only one study was UK based and this targeted mainly white participants.

*Teenage mothers' participation in education or training.* Interventions using welfare sanctions or bonuses, evaluated in two high quality studies with 5,055 participants, significantly increased the likelihood of teenage mothers being in education or training by 21% relative to the control group. (RR 1.21, 95% CI 1.14–1.29). Although sanctions and incentives appear to be effective in promoting participation in education and employment, high-quality programmes simply focusing on young mothers' education and career development appear to be even more effective. Education and career development interventions, evaluated in four high quality studies with 2,724

participants, found that intervention participants were 213% more likely than those in the control group to be in further education or training (RR 3.13, 95% CI 1.49–6.56). The one study evaluating the provision of daycare showed a promising effect (RR 3.46, 95% CI 0.84–14.29). However, the result was not significant, confidence intervals were wide and the sample size was quite small. Further meta-analysis of the data on long-term impact showed that these promising short-term effects on participation in education and training did not necessarily translate into better rates of employment (Holistic support RR 1.22 95% CI 0.86, 1.74; welfare sanction/bonus RR 1.00, 95% CI 0.96, 1.05; education and career development RR 1.04, 95% CI 0.96, 1.13).

*Repeat pregnancy rates.* Seven good quality studies, with a total of 4,415 teenage parents measured repeat pregnancies. There were no statistically significant results. There was significant statistical heterogeneity in the different groups of studies, and these were analysed separately.

Parent support interventions, such as education and career development (RR 1.00, 95% CI 0.91, 1.23) holistic support programmes (RR 0.83, 95% CI 0.62, 1.11) and day care (effect size not reported) appeared to reduce repeat pregnancy rates, but this was not statistically significant. Narrative analysis from two sound studies of programmes using welfare sanctions and bonuses indicated no effect on reducing further pregnancies.

#### *Effects on other outcomes*

Two studies of interventions that used welfare sanctions or bonuses to foster participation in education, training and employment showed no improvement in young mothers' qualifications nor any long-term effects on their participation in the workforce. Two of the four sound studies that evaluated education and career development programmes showed improvement in overall education attainment in the intervention groups. However, a focus on basic educational courses did not appear to improve employment prospects. Only studies where the intervention had a clear organisational focus on employment improved the long-term self-sufficiency of teenage mothers through increased employment and higher earnings.

Qualitative synthesis: Thematic analysis identified five common themes across fourteen studies:

- 'diverse needs and preferences but lack of choice'
- 'struggles against negative stereotypes of teenage mothers'
- 'heavy reliance on families'
- 'continuity of problems existing prior to parenthood' (dislike of school, low expectations, poverty, violence, unhappiness)
- 'wider costs and benefits of education and employment'

Based on these young parents' views the authors suggest that the key implication for intervention development would be to include the following components:

- Tailored information and advice about existing choices for education and training, employment and careers, childcare, money and benefits and housing
- Individualised plans for returning to education and employment which consider the wider costs and benefits of such a return
- Specialised services for young parents
- Advocates to help young parents approach services and/or co-ordinate cross-agency support to better match young parents' needs
- Childcare provision
- Interventions to reduce domestic violence and improve relationships

### *Conclusions*

The evidence suggests that daycare and education and career development programmes may be promising ways of supporting young parents. Although holistic support programmes would appear to be appropriate they have not yet been shown to be effective. Studies included in the review showed that the stigma of early parenthood and a lack of appropriate support services worked against teenage parents. Studies of young people's views suggest many important research gaps. These include the development and evaluation of policies to promote young people's involvement in schooling, further education and training, and to support families experiencing problems linked with social disadvantage. The findings add to the debate about whether it is teenage parenting itself that leads to adverse outcomes or the social exclusion associated with it.

**Coren E, Barlow J, Stewart Brown s. (2003). "The effectiveness of individual and group-based parenting programmes in improving outcomes for teenage mothers and their children: a systematic review." J.Adolesc. 26(1): 79-103.**

### *Research aims*

This review aimed to establish whether parenting programmes which are increasingly being used to promote the well-being of parents and children, can improve outcomes for teenage parents and their children.

### *Data pool*

The review examined the effectiveness of individual and/or group-based parenting programmes in improving psychosocial and developmental outcomes in teenage parents (aged <20 yrs) and their

infants. The findings of the review are based on 14 studies, publication range 1977-1999, that used varying study designs.

The interventions were offered ante or postnatally to pregnant or parenting teenagers based on the use of a structured format and focusing on the improvement of parenting attitudes, practices, skills or knowledge. Standard antenatal programmes not specifically aimed at adolescent parents, programmes involving direct work with the children of teenage parents, programmes aimed exclusively to prevent or reduce teenage pregnancy, or parenting programmes combined with a home visiting intervention were excluded. All studies were based in the USA and targeted women with mixed ethnic profiles and only one study included women from a low income support centre. Four studies were randomised controlled trials (N=279), five were controlled clinical trials (N=848) and five were before and after studies (N=319) with sample sizes ranging from 8 to 535. There was considerable heterogeneity in interventions and outcomes. Child outcomes included language development, parent-infant interaction and infant development (especially in high risk groups). Parent outcomes included parenting knowledge and attitudes, parental communication, mother – infant interaction and responsiveness, aspects of maternal identity, self confidence, maternal involvement, maternal well-being, attitudes, self-esteem and involvement. Effect sizes were reported but studies were not pooled in a meta-analysis.

### *Interventions and settings*

The included studies reflect the wide range of settings in which interventions for teenage parents are provided, e.g. schools, health settings, a residential maternity home, community health clinics, family support centres and homes. The programmes used educational and skills-based approaches to promote communication, problem solving and parenting skills. Group based programmes also focused on cognitive behaviour, child development, continuing education, family planning, support to mothers, health and relationship issues.

### *Findings*

Parent training programmes can be effective in improving a range of psychosocial and developmental outcomes for teenage mothers and their children including maternal sensitivity, identity, self-confidence and the infants' responsiveness to their parents. The studies showed:

- Improvement in child related outcomes such as response to parents, language development and general infant development. This was especially in 'high risk' groups
- Improvement in parental attitudes and knowledge, communication, mother – infant interaction, maternal sensitivity, identity and involvement.

## *Conclusions*

The results of this review are limited due to the small number of included studies and the varying methodologies used. The study quality was poor and few outcomes were measured. However, the results suggest that parenting programmes can be effective in improving a range of outcomes for both teenage parents and their infants including maternal sensitivity, identity, self-confidence and the infants' responsiveness to their parents. There was considerable diversity in the mode, intensity and duration of the parenting programmes that were evaluated in this review. One study which directly compared a group-based programme with a programme delivered on a one-to-one basis showed the group-based format more effective than the individual programme, especially in the case of high risk mothers. This may be due to the effects of group processes and peer-group support. No evidence of the cost-effectiveness of the interventions was provided. The studies included in this review were all directed at teenage mothers and while one study recruited fathers, it did not include the results obtained from them in the analysis. Findings may be relevant to parents from a range of ethnic groups but their applicability to other social and cultural contexts needs to be addressed.

Category 2 evidence: A review in which there is some clear methodological and analytical data, although not sufficient information for the searches, selections and analysis to be replicated.

Three reviews met category 2 criteria. Their findings are summarised below

**Meade C S and Ickovics J R (2005). "Systematic review of sexual risk among pregnant and mothering teens in the USA: pregnancy as an opportunity for integrated prevention of STD and repeat pregnancy." Soc.Sci.Med. 60(4): 661-678.**

### *Research aims*

- To document rates of STIs, repeat pregnancy, condom use, and contraception among pregnant/mothering teenagers
- To identify correlates of these biological and behavioural outcomes
- To review existing risk reduction interventions
- To discuss directions for future research and implications for clinical care.

We describe their findings on sexual risk reduction programmes.

### *Data pool*

This paper reviews literature (1981-2003) on sexual risk behaviour of pregnant/mothering teenagers but the data reported here concerns only those studies which evaluated risk reduction intervention programmes (nine out of 51 studies). The review focused on American teenagers aged 19 or less, and discussed directions for future research and implications for clinical care. To ensure a “best evidence synthesis” only studies that had minimum sample size of 50, retention rate of  $\geq 70\%$  and a control/comparison group were included. One programme was designed to reduce HIV/STI risk and the other eight (N=1,845) to reduce repeat pregnancy.

### *Interventions and settings*

Interventions used educational and skills based approaches to target sexual risk behaviours. They included integrated clinical/social services and ‘teen tot’ clinics. They were delivered in schools, clinics, homes and community settings, such as family support centres.

### *Findings*

Nine interventions were aimed at reducing sexual risk among pregnant/mothering teenagers and less than half showed evidence of effectiveness. Only one study focused on HIV/STI risk reduction, and no intervention targeting both STI/HIV and repeat pregnancy was found.

Four programmes offering comprehensive care to both teenagers and their infants reported significantly reduced rates of repeat pregnancy ( $p < 0.05$ ). Participants receiving care in “teen-tot” clinics were less likely to have a repeat pregnancy 18 months postpartum than those from traditional care clinics (23% versus 41% and 12% versus 28% respectively from two studies), 9% versus 38% for those who received home visitation and supplemental services from a family support centre (e.g. parenting skills) and pregnant teenagers attending an alternative high school for a longer duration had significantly lower rates of repeat pregnancy 24-months postpartum (12% versus 36%), although the authors acknowledge selection bias and limited generalisability. Other studies that evaluated multi-city employment training project to increase economic self-support; adult mentoring support; peer-support groups and/or monetary incentive; or an early intervention programme with comprehensive services did not show any effect on pregnancy rates. These studies varied in their designs and although interventions were generally compared with traditional care, it is not clear how participants were allocated to the two groups.

### *Conclusions*

Existing studies indicate that pregnant/mothering teenagers engage in exceptionally high rates of unprotected sex during pregnancy and postpartum, and are at subsequent risk for STIs and repeat

pregnancy. The authors suggest that pregnancy may serve as a “window of opportunity” for behaviour change. Young people deal with sexual health often for the first time during prenatal care and many engage in routine health care throughout pregnancy. Incorporating risk reduction programmes in prenatal clinics that provide access and routine care may be cost-effective and requires further evaluation from well designed studies.

**Letourneau N L and Stewart M J (2004). "Adolescent mothers: Support needs, resources, and support-education interventions." *Journal of Adolescent Health*. 35(6) 509-525**

#### *Research aims*

- To describe the support needs and challenges faced by adolescent parents and their children
- To describe the support resources available to and accessed by adolescent parents
- To review relevant support education intervention studies to provide directions for future research

#### *Data pool*

Nineteen studies published between 1982 and 2003 were reviewed. Four randomised controlled trials (N=7,674), ten quasi-experimental (N=1,705) and five ‘post-hoc’ evaluations (N=1,569) evaluated professional support interventions designed to increase social support, contraceptive knowledge and behaviour, employability, parental confidence and psychological well-being, parenting skills and knowledge, and/or child health and development. These were delivered in individual and/or group based formats with a wide variation in duration and frequency of intervention.

#### *Interventions and settings*

The interventions were based on social learning theory and used educational, information and skills-based approaches. This included emotional support, parenting skills training and links to community services. The support was provided mainly by professionals, such as nurses, teachers, social workers, and nurse counsellors, although a few studies also included, peers, parent volunteers and mentors. They appeared to have been delivered in homes, schools, clinics and community settings, although details were not specified.

#### *Findings*

The review described reported outcomes and for most studies, no effect sizes were indicated. The authors state whether or not the intervention improved the outcomes. They used the Cochrane Collaboration’s criteria to assess quality according to the level of bias and acknowledge the



limitations of the review that challenge the utility of the findings. The following key points provide some useful pointers for future evaluations.

Professional support-education interventions:

- Designed to enhance coping skills may increase social support with participants more likely to access child-care services
- Aimed at enhancing contraceptive knowledge and behaviour appear to benefit participants who remain involved. Only one RCT delivering an adolescent health care programme addressing school plans, family planning and general health reduced repeat pregnancy (12% intervention versus 28% control)
- Aimed at improving employability appear helpful but participants with higher initial education or skills seem to benefit more from such programmes
- Show inconsistent relationship with parenting confidence and psychological well-being and it is unknown if gains in parenting confidence and psychological well-being translate into parenting skills and knowledge
- May improve parenting skills and knowledge
- May improve child health and development

### *Conclusions*

The authors conclude that the results suggest inconsistency in the demonstrated relationships between support-education interventions and parenting confidence and psychological well-being over time, and between treatment and control participants. Further, it is unknown if gains in parenting confidence and psychological well-being translate into parenting skills and knowledge. Despite the limitations in study designs and considerable variability in mode, frequency and duration of interventions, in the authors' opinion, this review shows that parents clearly need support to overcome problems in maternal mental health and their children's health and development. Correlation data identified families, partners, and friends as typical sources of support for adolescents. No research was identified that examined interventions designed to enhance the natural (e.g. family, partner) or peer support networks of adolescents. Better evaluation designs are required to clearly delineate the characteristics and impact of successful support interventions for adolescent parents.

**Akinbami L J, Cheng TL, Kornfield D (2001). "A review of teen-tot programs: comprehensive clinical care for young parents and their children)." *Adolescence* 36(142): 381-393.**

*Reference: Database of Abstracts of Reviews of Effects 2006 Issue 1; Centre for Reviews and Dissemination; University of York*

## *Research aim*

To review the experience of teen-tot programmes in meeting the goals of improving outcomes and preventing repeat pregnancies.

## *Data Pool*

This review described preventive clinic-based programmes for teenage parents and their children to improve outcomes and prevent repeat pregnancies. Four studies (n=1,197), including one RCT (n=243), were included. Whilst it was unclear whether the studies included mothers or fathers, the types of outcomes indicate it was mostly mothers. The participants in the included studies were aged from under 17 years to under 20 years, with sample ethnicity ranging from 80% white to 100% black. The efficacy of the programmes in preventing repeat pregnancies and school drop-outs, improving infant and teenage health outcomes, and improving the adequacy of teenagers in the parental or caretaking role were examined. There were considerable differences in the programme characteristics, interventions and outcomes.

## *Interventions and settings*

The studies evaluated programmes including clinical health supervision and family planning and support for teenage parents, such as assistance with staying in school or obtaining community services. Each of the included studies had multidimensional interventions. These included well-child health visits; 24-hour on call system to an interdisciplinary team; individual counselling about financial management, school and work; and social worker reviewed family planning methods with referrals to a birth control clinic. All four programmes were conducted in hospital clinics or academic centres in urban areas. Participants were recruited from hospital clinics, prenatal adolescent programmes or were self-referred.

## *Findings*

*Repeat pregnancy rates.* All four studies reported a decreased pregnancy rate (12 to 26 weeks postpartum), which was statistically significant for three of the studies. Rates in intervention and comparison groups were 16 versus 38%, 9 versus 70%, and 12 versus 28% respectively.

*School attendance.* Different outcomes for maternal school attendance were reported. Two studies reported improved school attendance (77 versus 38%) and school enrolment (86 versus 66%) in the intervention group compared to the control at six months. The third study used a composite score and the fourth study found no significant difference between the groups.

*Health outcomes.* A beneficial effect on infant health outcomes was reported. Two studies reported higher rates of clinic attendance in the intervention group than in the control group: 75 versus 18%, and 40 versus 22%. Three studies reported higher immunisation completion for the intervention group versus the control group: 91 versus 46% complete immunisation at 6 months, and 33 versus 18% immunised at 18 months; no data were provided for the remaining study. One study reported more adequate weight and height for age at 6 months (97 versus 83%), while another reported lower rates of injury and illness (data not reported). Only one study reported a significantly lower maternal morbidity among the intervention group participants (data not reported).

*Caretaking skills.* In the only study that measured the use of preventive health behaviours such as using car seats there were no significant between group differences (data were not reported).

### *Conclusions*

The authors suggest that the teen-tot programmes had moderate success in preventing repeat pregnancies, helping teenage mothers continue their education, and improving parent and infant health over 6 to 18 months. However, they acknowledge that study weaknesses, such as broad selection criteria, variation in study designs, limited searches and quality assessment may have contributed to the reported results. Study heterogeneity was not taken into consideration in the narrative synthesis and there was limited evidence upon which to judge the effectiveness of teen-tot programmes. Whilst the authors support teen-tot programmes and suggest there should be increased support and funding for them the evidence from the review does not justify their implementation. The efficacy of separate programme components and the long-term sustainability of benefits need to be addressed through better quality evaluations.

Category 3 evidence: Typically a literature review or synthesis where the research questions are highly pertinent to this area, but little or no methodological or analytical data is presented.

One review met the criteria for category 3 review

**Schellenbach C J, Leadbeater BJ, Anderson Moore K (2003) Enhancing the development outcomes of adolescent parents and their children. Investing in children, youth, families, and communities: Strengths-based research and policy. Washington, DC, US, American Psychological Association: 117-136.**

This review takes a developmental perspective for policy focus on helping young mothers to meet the developmentally appropriate challenges of adolescence. For example, through efforts to support self sufficiency for older adolescent mothers and to facilitate school engagement for younger ones. The review reports results around school engagement, employment, physical health, the prevention of repeat pregnancies and the promotion of parenting skills. The

interventions and findings from eleven studies describing various programmes are summarised below:

*Supporting school engagement and promoting employment*

- Comprehensive home visitation programmes have shown positive impact
- Broad based social service programmes for teen mothers are not effective for sustaining long term improvements

*Promoting physical health and decreasing subsequent pregnancy*

- Intensive prenatal and postpartum programs have reported positive impacts on health outcomes
- Increasing employment programmes have shown little success in repeat pregnancies
- Nurse based home visiting and school based comprehensive programmes for young mothers may be more effective in delaying subsequent pregnancy
- Intensive prenatal programmes have shown some success in improving the quality of prenatal care, improving life course outcomes, providing quality child care and reducing repeat pregnancy

*Building parenting skills*

- Parent training programmes have shown mixed results of effectiveness
- Programme characteristics may interact with personal variables to influence positive outcomes, that is a 'strengths – based' model (i.e. increase in personal control and strengths)
- Programmes that build on mothers' own goals for themselves and the children tend to be more successful than programmes that mandate goals and sanctions
- Timing is critical, that is early intervention (prenatal into postnatal) can producing more lasting outcomes
- Comprehensive programmes show more positive outcomes than those that targeted single outcomes (like parenting skills)

The review further highlights the lack of studies that have addressed long-term developmental approaches from pregnancy through to early adult years on which to base policy and programme efforts to reduce the risks of adolescent parenting for mothers and their children. Studies need to simultaneously look at the influence of several factors such as social, psychological and economic foundations that predict better outcomes for teenage parents and their children.

## 5. Discussion

The first evidence briefing (Swann et al 2003) and our subsequent update have identified a number of interventions which may reduce risky sexual behaviour and decrease pregnancies in teenagers. These include: school-based sex education (particularly linked to contraceptive services), community based education, development and contraceptive services, youth development programmes focusing on education, personal and vocational development and family outreach programmes involving teenagers' parents. Interventions which can improve health and welfare outcomes for teenage mothers and their children include good antenatal care, home visiting and parental and psychological support. Early childhood interventions, youth development programmes and nurse home visiting can be especially effective among socially disadvantaged groups. In addition, incorporation of risk reduction interventions into routine care, comprehensive care with integrated clinical and social services to teenagers and their infants, education and career development and holistic support programmes may prevent adverse outcomes, including repeat pregnancy in teenage parents.

The original briefing identified the need for good quality reviews to incorporate different types of evidence and to provide clear messages for policy and practice. In our update we found only one review which used a systematic approach of 'mapping' relevant studies and combined both a quantitative and qualitative synthesis of studies to address the issue of pregnancy prevention among 'socially disadvantaged and excluded' young people (Harden et al 2006). Whilst high quality randomised controlled trials are important for evaluating effectiveness, qualitative studies that address process issues and explore views and experiences have an important role to play in informing policy and practice (Thomas et al 2004). Harden et al demonstrated, to some extent, how this approach could guide the development and implementation of programmes. Although they acknowledge methodologies for 'cross-matching' quantitative and qualitative reports are still being developed. Although much of the effective work with teenagers has been group based, a recent rapid review for NICE (published since our update) found some evidence that one to one interventions, for example, home visiting, health care programmes for pregnant women/mothers, contraceptive care and advice in clinics, and sexual/reproductive health education, may reduce teenage pregnancy, although more rigorous evaluations are required (Bunn et al 2007).

### *What works to prevent teenage pregnancies and adverse outcomes in teenage parents*

The reviews describe a wide variety of interventions in a range of settings and using a number of approaches. Although more work is required in the UK on the effectiveness of different settings and approaches, and we are unable to draw firm conclusions, we have identified some common components of effective settings and approaches. These come from both the first briefing (Swann

et al 2003) and our update and are drawn largely from evidence found by better quality reviews (category 1 or 2).

### *Settings*

Overall there is mixed evidence for the effectiveness of school based or primary care based interventions. The evidence suggests that clinic/primary care based interventions may need to be linked to other community and school services, and evaluated as part of programmes which address broader issues, such as personal development, vocational training and better access. School-based clinics and school condom availability programmes may be effective in decreasing sexual behaviour, especially as part of multi-factor programmes, although effects on condom and contraception use remain unclear. Community based 'serve and learn' services (which may be linked with school based settings) as well as home-based/family interventions that involve and support parents are likely to be more effective, especially in high risk groups, although these are largely reported in US based literature. Service providers need to consider in which settings programmes can best be provided and how best they can be coordinated in order to maximise effectiveness. The effectiveness of media and internet based interventions which are popular for young people have not been rigorously evaluated.

*Key approaches and characteristics of potentially effective programmes include:*

- Targeting social exclusions associated with teenage pregnancy and outcomes for teenage parents. For example providing educational support, further education and training, income support, or housing assistance
- Skills based approaches including development of self-esteem and educational and social skills
- Combining community service and student learning, or providing a programme of academic and social development
- Daycare, holistic support programmes and education and career development programmes to support young parents
- Parental involvement, particularly when included in early childhood programmes
- Improved access to services and interventions
- Incorporating theory-based programmes with clear behavioural goals and outcomes
- Focusing on improving contraceptive use and other behaviours likely to prevent teenage pregnancy and/or STI transmission and incorporating these in routine care
- Focusing on high risk groups
- Taking key opportunities to provide education and information – e.g. if an adolescent uses a clinic service and receives a negative pregnancy test

- Long-term services and interventions, tailored to meet local needs of young people, with clear and unambiguous information and messages
- Providing information and education before young people become sexually active
- Ensuring staff are appropriately trained, respect confidentiality and encourage culturally appropriate discussion of sexual issues
- Working with teenage 'opinion leaders' and peer group influences
- Joining up services and interventions aimed at preventing pregnancy with other services for young people, and working in partnership with local communities

### *Implications of findings for policy and practice*

The reviews provide some useful pointers for practice. Interventions that should be considered for development and evaluation include:

- Early childhood interventions for preschool and primary aged children and their parents and youth development programmes which aim to promote social and academic skills and high quality sex education and contraception services. They should focus on local high risk groups and be tailored to the needs of young people to improve their enjoyment of school, raise their expectations and ambitions for the future, and prevent unhappy childhoods. It is not clear whether these strategies would be effective for young men.
- Education and career development programmes that provide tailored support for childcare and bonuses to encourage young parents back into education, training, and employment and consider the wider costs and benefits, to help young parents approach services that meet their needs. Interventions to reduce domestic violence and improve relationships, may be appropriate for inclusion in these programmes.
- Implementation of wider measures to tackle social disadvantage and poverty among young people to lower teenage pregnancy rates and promote long-term social inclusion of young parents.
- Services to ensure that young people are well informed about sexual matters, including contraceptive availability. The limitations of school-based programmes for looked after children are widely recognised, and research suggests they are less available for school-based education programmes (SCIE Research briefing). Therefore, this group may need additional sex and relationship education.

### *Methodological limitations*

A common theme in reviews of reproductive health interventions is poor methodological quality of research, intervention development and evaluation. Such methodological limitations may have an

important bearing on the validity of our results. Quality issues included poor reporting of effect sizes, high attrition rates, lack of long term follow up, the use of weak or inappropriate study designs, small numbers of included studies, inadequate quality assessment of included studies, variability in outcome measures reported and the use of surrogate outcomes such as knowledge and attitudes. Like the original briefing we found that studies where pregnancies were measured had not distinguished between intended and unintended pregnancies. The teenage pregnancy strategy evaluation has identified 'planned', 'ambivalent' and 'unintended' pregnancy through qualitative views of young mothers and fathers and factors that contribute to these definitions (Wellings et al, 2005). Future studies could use this approach to provide more consistent definitions.

Other limitations of our review of reviews include a lack of consistent data on: high risk groups, cost-effectiveness and information about effective programme characteristics such as content and format. In addition, much of the included research is from the USA and differences in demographics, social and cultural contexts raise questions about the applicability of the findings to the UK. Also, in conducting this review of reviews, we were reliant on the reviewers' judgement of 'how well' or 'badly' the complex multifaceted interventions were administered. The content and intensity of programmes are likely to influence effectiveness but such information was often not available. Areas identified from weaker evidence particularly from category 3 and weaker category 2 reviews where little or no methodological or analytical data was presented, require further or better designed research with rigorous evaluations before conclusions can be drawn about effectiveness.

Future studies should address the methodological limitations identified. They should include clearly defined long-term outcomes, such as: unintended or unwanted pregnancy (including conceptions, abortions, live births); changes in sexual behaviour; and health, educational, employment, welfare and social outcomes for teenage parents and their children. More robust evaluations, and cost effectiveness analysis, of complex interventions delivered in the UK are required.

#### *Implications of findings for research, evaluation and future work: Gaps in the evidence base*

Whilst we have highlighted the interventions, settings and approaches that may be effective in preventing teenage pregnancy we have also identified a number of areas for future research.

#### *Prevention*



In the original briefing the authors highlighted the need for more research on vulnerable young people, including ethnic minorities, school excludees, children of teenage mothers and those involved in criminal activity or drug use. We found, disappointingly, that many reviews still did not include studies aimed specifically at these groups although a recent category 1 review did focus on initiatives to tackle social exclusion associated with unintended teenage pregnancy and parenthood (Harden 2006). Further evaluation of interventions for young people at high risk of teenage pregnancy, including youth development projects and long term programmes, that include vocational and personal development, are required.

There is little or no good evidence that abstinence-based programmes on their own result in improved sexual health outcomes for young people. More work is required on the effectiveness of programmes, such as those including messages about contraception, on sexual activity and pregnancy prevention in the UK setting. Evaluation of interventions integrating STI/HIV and repeat pregnancy prevention, factors that impact on programme effectiveness and an understanding of what works for whom is important. The development and evaluation of interventions to improve communication between parents and children, as well as long-term developmental approaches to reduce the risks of adolescent parenting for mothers and their children, are needed. There are many different pathways to parenthood for young people, and more research is needed to understand them better. Development and evaluation of interventions that incorporate views from qualitative studies are required.

Evaluation of holistic support programmes (which may include peer-led/peer education/support) and nurse based home visiting programmes in the UK are required. An exploration of the role of nursing support for the physical, emotional, and educational needs of adolescents during the prenatal, intrapartum, and postpartum periods has been suggested (Logsdon and Koniak-Griffin 2005). Current research suggests that families, partners and peers provide a complementary combination of support which appear to contribute to more positive outcomes for teenage mothers (Bunting and McAuley 2004) and research to evaluate and promote the role of fathers, partners and peers in supporting pregnant/parenting teenage women is needed.

More qualitative research on the views and experiences of young people and health professionals could help to focus service development and further work. Programmes that involve young people in decision-making about school curriculum and culture and support (e.g. peer-led support or guidance counsellors) need to be developed and evaluated.

This review of reviews shows that whilst many interventions have been evaluated, and evidence-based strategies implemented (Slowinski et al 2001) gaps in the evidence base remain. This is

particularly true for the UK, where many interventions have not been properly evaluated. Matching qualitative and quantitative studies for developing interventions looks promising. Further development and rigorous evaluation of programmes is required to facilitate the development of models of good practice. The research agenda needs to be responsive to issues and needs identified by programme providers (Kalmuss et al 2003). Studies that respond to programmatic characteristics are important and help to strengthen links between research, programmes and policy.

## APPENDIX 1 – SEARCH STRATEGY

### Database Checklist

Database	Interface	Date Searched	Search Formulation	Records	Saved to:
Cochrane SR	Wiley Cochrane	27.12.05	A	160	RefMan 693-852
DARE	Wiley Cochrane	27.12.05	A	25	RefMan 853-877
Diss Abstracts International	[Part of PsycInfo]	27.12.05	C	[44]	
EMBASE	OVID	26.12.05	B	692	RefMan 1-692
HTA	Wiley Cochrane	27.12.05	A	6	RefMan 878-883
IBSS	WinSpirs / OVID	27.12.05	E	24	RefMan 1265-1283
National Guidelines Clearinghouse	WWW	27.12.05		[88]	Saved to: NGC.doc
National Res Register	WWW	27.12.05	G	[585]	Saved to: NRR (8 files)
PsycInfo	OVID/Winspirs	27.12.05	C	360	RefMan 897-1251* (*5 corrupted refs.)
PubMed	PubMed	27.12.05	F	13	RefMan 884-896
PubMed	PubMed	27.12.05	F corrected	3 extra	RefMan 1286-1288
TRIP	WWW	28.12.05	G	11	Saved to TRIP.doc
Web of Science	WWW	27.12.05	D	10	RefMan 1252-1261

Search A:  
Cochrane / DARE / HTA

ID	Search	Hits
#1	<a href="#">MeSH descriptor Pregnancy in Adolescence, this term only in MeSH products</a>	83
#2	<a href="#">teen next mother* or teen next father* or teen next parent* in All Fields in all products</a>	8
#3	<a href="#">(#1 OR #2)</a>	88
#4	<a href="#">MeSH descriptor Adolescent, this term only in MeSH products</a>	46468
#5	<a href="#">teen* or adolescen* or underage* or youth* in All Fields in all products</a>	56127
#6	<a href="#">young next person* or young next people* or young next adult* in All Fields in all products</a>	2132
#7	<a href="#">school next child* or school next adult* in All Fields in all products</a>	1328
#8	<a href="#">(#4 OR #5 OR #6 OR #7)</a>	58102
#9	<a href="#">MeSH descriptor Contraception explode all trees in MeSH products</a>	123
#10	<a href="#">MeSH descriptor Family Planning Services, this term only in MeSH products</a>	59
#11	<a href="#">MeSH descriptor Contraceptive Agents explode all trees in MeSH products</a>	3161

#12	<a href="#">MeSH descriptor Contraceptive Devices explode all trees in MeSH products</a>	617
#13	<a href="#">MeSH descriptor Sex Education explode all trees in MeSH products</a>	112
#14	<a href="#">contraceptive or contraception or condom* in All Fields in all products</a>	3679
#15	<a href="#">birth next control or family next planning in All Fields in all products</a>	521
#16	<a href="#">sex next education in All Fields in all products</a>	188
#17	<a href="#">MeSH descriptor Pregnancy, this term only in MeSH products</a>	17
#18	<a href="#">MeSH descriptor Pregnancy, Unwanted explode all trees in MeSH products</a>	23
#19	<a href="#">pregnan* in All Fields in all products</a>	16277
#20	<a href="#">(#9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19)</a>	20498
#21	<a href="#">(#8 AND #20)</a>	2833
#22	<a href="#">(#3 OR #21)</a>	2837
#23	<a href="#">&lt;nothing&gt;, from 2002 to 2005 in all products</a>	92347
#24	<a href="#">(#22), from 2002 to 2005</a>	667

Of those 667 references, added to RefMan

Cochrane SR 160 DARE 25 HTA 6

## Search Results

Show Results in:

[Cochrane Reviews \[160\]](#) | [DARE \[25\]](#) | [CENTRAL \[401\]](#) | [Methodology Reviews \[2\]](#) | [CMR \[1\]](#) | [HTA \[6\]](#) | [NHS EED \[62\]](#) | [About \[10\]](#)

There are **160** results out of **4113 records** for: "(#22), from 2002 to 2005 in **The Cochrane Database of Systematic Reviews**"

Search B:  
EMBASE

1 Meta Analysis/	20753
2 metaanalys\$.ti,ab.	639
3 meta-analys\$.ti,ab.	10091
4 cochrane.ti,ab,sh.	2808
5 (review\$ or overview\$).ti.	58349
6 review\$.pt.	481099
7 (synthes\$ adj3 (literature\$ or research or studies or data)).ti,ab.	7508
8 pooled analys\$.ti,ab.	858
9 ((data adj2 pool\$) and studies).mp. [mp=title, abstract, subject headings, drug trade name, original title, device/manufacture, drug manufacturer name]	971
10 (medline or medlars or embase or cinahl or scisearch or psychinfo or psycinfo or psychlit or psychlit).ti,ab.	12758
11 ((hand or manual or database\$ or computer\$) adj2 search\$.ti,ab.	7463
12 ((electronic or bibliographic\$) adj2 (database\$ or data base\$)).ti,ab.	1491
13 ((review\$ or overview\$) adj10 (systematic\$ or methodologic\$ or quantitativ\$ or research\$ or literature\$ or studies or trial\$ or effective\$)).ab.	83101
14 review\$.ti.	
15 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11	

or 12 or 13 or 14	567126
16 (retrospective\$ adj2 review\$).ti,ab,sh.	27879
17 (case\$ adj2 review\$).ti,ab,sh.	30519
18 (record\$ adj2 review\$).ti,ab,sh.	10002
19 (patient\$ adj2 review\$).ti,ab,sh.	54765
20 (patient\$ adj2 chart\$).ti,ab,sh.	4031
21 (peer adj2 review\$).ti,ab,sh.	2730
22 (chart\$ adj2 review\$).ti,ab,sh.	8723
23 (case\$ adj2 report\$).ti,ab,sh.	125373
24 (rat or rats or mouse or mice or hamster or hamsters or animal or animals or dog or dogs or cat or cats or/bovine or sheep).ti,ab,sh.	761525
25 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24	980957
26 25 not (25 and 15)	845671
27 15 not 26	567126
28 28 editorial.pt.	0 (error; should not matter)
29 letter.pt.	188221
30 28 or 29	188221
31 27 not 30	565045
32 exp ANIMAL/	66359
33 exp human/	2713782
34 32 not (32 and 33)	52104
35 exp nonhuman/	1276449
36 exp human/	2713782
37 35 not (35 and 36)	1021571
38 34 or 37	1022621
39 31 not 38	516737
40 Adolescent Pregnancy/	1349
41 (teen\$ mother\$ or teen\$ father\$ or teen\$ parent\$).ti,ab.	221
42 40 or 41	1440
43 (teen\$ or adolescen\$ or underage\$ or youth\$).mp. [mp=title, abstract, subject headings, drug trade name, / original title, device manufacturer, drug manufacturer name]	228578
44 (young person\$ or young people\$ or young adult\$).mp. [mp=title, abstract, subject headings, drug trade name, original title, device manufacturer, drug manufacturer name]	17728
45 (school child\$ or schoolchild\$).mp. [mp=title, abstract, subject headings, drug trade name, original title, device / manufacturer, drug manufacturer name]	53979
46 43 or 44 or 45	262660
47 exp contraceptive agent/	26410
48 exp contraception/	28612
49 birth control/	683
50 family planning/	2276
51 sexual education/	971
52 (contraceptive or contraception).ti,ab.	8356
53 (condom\$ or birth control or family planning).ti,ab.	5508
54 sex\$ education.ti,ab.	1020
55 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54	51800
56 46 and 55	5293
57 pregnan\$.mp. [mp=title, abstract, subject headings, drug trade name, original title, device manufacturer, drug / manufacturer name]	980039
58 ((teen\$ or adolescen\$ or underage\$ or youth\$ or (young person\$ or young people\$ or young adult\$) or (school child\$ or schoolchild\$)) adj5 pregnan\$).mp.	5099
59 42 or 56 or 58	9307
60 39 and 59	1328

61 limit 60 to (human and english language and yr=2001-2006)	774
62 Developing Country/	10200
63 AFRICA SOUTH OF THE SAHARA/ or CENTRAL AFRICA/	533
64 INDIA/	11067
65 62 or 63 or 64	21185
66 61 not 65	760
67 "200100".em	439952
68 66 not 67	692

Search C:  
PsycInfo

#35 #34(360 records)  
#34 #33 and (la="english")(360 records)  
#33 #18 and #32(374 records)  
#32 #19 or #29 or #31(833 records)  
#31 #23 near5 #28(142 records)  
#30 pregnan\*(3480 records)  
#29 #23 and #28(668 records)  
#28 #24 or #25 or #26 or #27(1956 records)  
#27 condom\*(931 records)  
#26 sex education(501 records)  
#25 birth control or family planning(493 records)  
#24 contraceptive or contraception or condom\*(1295 records)  
#23 #20 or #21 or #22(32542 records)  
#22 school child\* or school child\*(1978 records)  
#21 young person\* or young people\* or young adult\*(5585 records)  
#20 teen\* or adolescen\* or underage\* or youth\*(28026 records)  
#19 teen\* mother\* or teen\* father\* or teen\* parent\*(183 records)  
#18 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #15 or #14 or #16 or  
#17(155497 records)  
#17 literature\* in pt(0 records)  
#16 meta analysis in de(191 records)  
#15 literature review in de(75 records)  
#14 literature review in pt(0 records)  
#13 (peto or der simonian or dersimonian or fixed effect) in ti,ab(38 records)  
#12 ((electronic or bibliographic) with database) in ti,ab(1636 records)  
#11 ((hand or manual or computer or electronic or database) and search\*) in ti,ab(6526 records)  
#10 (data with pool with studies) in ab,ti(39 records)  
#9 pooled analys\*(45 records)  
#8 pooled analysis(37 records)  
#7 (medline or medlars or embase or scisearch) in ab(905 records)  
#6 (systematic\* or methodologic\* or quantitative or research\* or literature\* or studies or trial or effective) in  
ab(140187 records)  
#5 (review or overview) in ab(29382 records)  
#4 (review or overview) in ti(5527 records)  
#3 (synthes\* with (literature\* or research\* or studies or data)) in ti,ab(1891 records)  
#2 metaanaly\* in ti, ab(57 records)  
#1 meta analy\* in ti,ab(2107 records)

Search G:  
Nat Res Reg

#1.	<a href="#">(teen* next mother*)</a>	42
#2.	<a href="#">((teen* next mother*) or (teen* next father*))</a>	42
#3.	<a href="#">CONTRACEPTIVE AGENTS explode tree 1 (MeSH)</a>	89
#4.	<a href="#">PREGNANCY IN ADOLESCENCE single term (MeSH)</a>	73
#5.	<a href="#">(#2 or #4)</a>	92
#6.	<a href="#">ADOLESCENT single term (MeSH)</a>	1385
#7.	<a href="#">(teen* or adolescen* or (school next child*) or schoolchild*)</a>	5812
#8.	<a href="#">CONTRACEPTION explode tree 1 (MeSH)</a>	35
#9.	<a href="#">family-planning</a>	0
#10.	<a href="#">FAMILY PLANNING SERVICES single term (MeSH)</a>	0
#11.	<a href="#">(sex next education)</a>	56
#12.	<a href="#">(contraception or contraceptive or condom*)</a>	618
#13.	<a href="#">PREGNANCY check tag (MeSH)</a>	0
#14.	<a href="#">pregnan*</a>	5754
#15.	<a href="#">(#6 or #7)</a>	5812
#16.	<a href="#">(#6 or #7)</a>	5812
#17.	<a href="#">(#3 or #7 or #8 or #9 or #10 or #11 or #11 or #12 or #13 or #14)</a>	11521
#18.	<a href="#">(#16 and #17)</a>	5812
#19.	<a href="#">(review* or overview* or metaanalys* or meta-analys*)</a>	11523
#20.	<a href="#">(#18 and #19)</a>	485

Document type		
	Regional and National (Ongoing) ( 3 records / 29K )	<a href="#">Download</a>
	Regional and National (Completed) ( 94 records / 918K )	<a href="#">Download</a>
	Single Centre Projects (Ongoing) ( 36 records / 352K )	<a href="#">Download</a>
	Single Centre Projects (Completed) ( 224 records / 2M )	<a href="#">Download</a>
	Lead Centre for Multi-Centre Projects (Ongoing) ( 3 records / 29K )	<a href="#">Download</a>
	Lead Centre for Multi-Centre Projects (Completed) ( 18 records / 176K )	<a href="#">Download</a>
	Participating Centres for Multi-Centre Projects (Ongoing) ( 15 records / 146K )	<a href="#">Download</a>
	Participating Centres for Multi-Centre Projects (Completed) ( 35 records / 342K )	<a href="#">Download</a>

NRR\_SingleCentreComplete.txt

NRR\_SingleCentreOngoing.txt

NRR\_RegAndNatOngoing.txt

NRR\_RegAndNatComplete.txt

NRR\_ParticipCentreComplete.txt

NRR\_ParticipCentreOngoing.txt

NRR\_MultiCentreComplete.txt

NRR\_MultiCentreOngoing.txt

Search D:  
Web of Science

TI=((teen\* or adolescen\* or young\* or youth\* OR girl\* or boy or boys) AND (pregnan\* OR contracept\* or condom\* OR sex\* education OR family planning OR birth control OR sexual\* transmi\* OR sexual health or sexuality or conception\* or chlamydia) and (review or overview or meta-analys\* or metaanalys\* or guideline\* or systematic)) AND PY=(2001 or 2002 or 2003 or 2204 or 2005)

Search E:

International Bibliography of Social Sciences

Search History

#1 (teen\$ or adolescen\* or underage\* or youth or schoolchild\* or school child\*) and (pregnancy or pregnan\* or contraception or comntrceptive or birth control\* or family planning or sex education)

(240 records)

#2 teen\* mother\* or teen\* father\* or teen\* parent\* (37 records)

#3 #1 or #2 (268 records)

#4 review or overview or meta-analy\* or meta analy\* (48559 records)

#5 #3 and #4 (24 records)

Search F:

PubMed

#1 (teen OR teenage\* OR adolescent\* OR young OR youth OR girl OR girls)

AND pregnan\* AND (reduce\* OR prevent\* OR avoid\*) Field: Title 294

#2 review or overview or meta-analysis or guideline\* or consensus 1434596

#3 #1 and #2 60

#4 #1 and #2 Field: All Fields, Limits: Publication Date from 2002 to 2005 10

(Spelling mistake corrected: additional 3 refs.)

Search G:

TRIP

(teen\* or adolesc\*).ti. and pregnan\*.ti.

5 'Evidence Based Synopses', 6 Systematic Reviews



## APPENDIX 2

### NICE Teenage pregnancy – update of review of reviews

*Critical Appraisal Tool and Data extraction sheet: Reviews and guidelines (based on CAT tool HDA evidence briefing 2003)*

#### Section 1

Checklist completed by	
------------------------	--

#### Section A: Study Identification

A1. First author	
A2. Journal ( <i>year;volume:start and end pages</i> )	
A3. Year of publication	
A4. Electronic database-indexed? ( <i>circle number</i> )	1 Yes 2 No 3 Unsure
A5. Language ( <i>circle number</i> )	1 English 2 French 3 German 4 Italian 5 Spanish 6 Other ( <i>specify</i> )

## Section B1: General research question

<p><b>B1.1. Type of report</b> (<i>circle number</i>)</p>	<ol style="list-style-type: none"> <li>1 Full journal article</li> <li>2 Journal short report</li> <li>3 Letter in journal</li> <li>4 Abstract in journal issue</li> <li>5 Abstract not appearing in journal issue</li> <li>6 Thesis</li> <li>7 Book chapter/book</li> <li>8 Unpublished</li> <li>9 Presentation at congress</li> <li>10 Other</li> </ol>
<p><b>B1.2. Type of publication</b> (<i>circle number</i>)</p>	<ol style="list-style-type: none"> <li>1 Systematic review (see definition attached)</li> <li>2 Meta-analyses</li> <li>3 Literature review</li> <li>4 Other review (please specify)</li> <li>5 Guideline</li> <li>6 Other, describe</li> </ol>
<p><b>B1.3. Study scope</b> (<i>circle number(s): multiple answers possible</i>)</p>	<ol style="list-style-type: none"> <li>1 Interventions to prevent teenage pregnancy</li> <li>2 Interventions to tackle the consequences of teenage parenthood</li> <li>3 Promote contraceptive use</li> <li>4 Sexual behaviour</li> <li>5 Causation</li> <li>6 Monitoring and surveillance trends</li> <li>7 Cost</li> <li>8 Other (please specify)</li> </ol>
<p><b>B1.4 Do the objectives specify</b></p> <p><b>B1.4.1. Question</b> (<i>If Yes, describe research questions or methods</i>)</p>	<ol style="list-style-type: none"> <li>1 Yes</li> <li>2 No</li> <li>3 Unclear</li> </ol>
<p><b>B1.4.2. Intervention(s)</b> (<i>circle number</i>)</p>	<ol style="list-style-type: none"> <li>1 Yes</li> <li>2 No</li> <li>3 Unclear</li> </ol>

<b>B1.4.3. Comparison</b> ( <i>circle number</i> )	1 Yes 2 No 3 Unclear
<b>B1.4.4. Outcome(s)</b> ( <i>circle number</i> )	1 Yes 2 No 3 Unclear
<b>B1.4.5. The population studied</b> ( <i>circle number</i> )	1 Yes 2 No 3 Unclear
<b>B1.4.6. Inequalities</b> ( <i>circle number</i> )	1 Yes 2 No 3 Unclear
<b>NICEB1.1. The study addresses an appropriate and clearly focused question</b> ( <i>circle number</i> )  <i>Please indicate if it is worth continuing; If unsure, continue with the data extraction</i>	1 Well covered 2 Adequately addressed 3 Poorly addressed 4 Not addressed 5 Not reported 6 Not applicable

## Section B2: Description of methods

<b>B2.1. Inclusion and exclusion criteria stated</b> ( <i>circle number</i> )	1 Yes 2 No 3 Unclear
<b>B2.1.1. Describe inclusion criteria for studies</b>	

<b>B2.1.2. Describe exclusion criteria for studies</b>	
<b>B2.1.3. Describe inclusion criteria for participants</b>	
<b>B2.1.4. Describe exclusion criteria for participants</b>	
<b>B2.2. Data extracted in duplicate and independently</b> ( <i>circle number</i> )	1 Yes 2 No 3 Unclear
<b>B2.3. Consensus performed</b> ( <i>circle number</i> )	1 Yes 2 No 3 Unclear
<b>B2.4. Outcome definition described</b> ( <i>circle number</i> )	1 Yes 2 No 3 Unclear
<b>B2.5. Clinical heterogeneity assessed</b> ( <i>circle number</i> )	1 Yes 2 No 3 Unclear
<b>B2.6. Methodological heterogeneity assessed</b> ( <i>circle number</i> )	1 Yes 2 No 3 Unclear
<b>B2.7. Statistical heterogeneity assessed</b> ( <i>circle number</i> )	1 Yes 2 No 3 Unclear 4 Not applicable

<p><b>B2.8. Meta-analysis performed</b> (<i>circle number</i>)</p>	<p>1 Yes 2 No 3 Unclear 4 Not applicable</p>
<p><b>B2.9 If study results have been combined, was it reasonable to do so?</b></p> <p><b>Consider whether the following are true:</b></p> <p><b>B2.9.1 Are the results of included studies clearly displayed</b></p> <p><b>B2.9.2 Are the studies addressing similar research questions</b></p> <p><b>B2.9.3 Are the studies sufficiently similar in design?</b></p> <p><b>B2.9.4 Are the results similar from study to study (test of heterogeneity)?</b></p> <p><b>B2.9.5 Are the reasons for any variation in the results discussed?</b></p>	<p>1 Yes 2 No 3 Unclear 4 Not applicable</p> <p>1 Yes 2 No 3 Unclear</p> <p>1 Yes 2 No 3 Unclear</p> <p>1 Yes 2 No 3 Unclear</p> <p>1 Yes 2 No 3 Unclear</p> <p>1 Yes 2 No 3 Unclear</p>

<p><b>NICEB1.2. A description of the methodology used is included</b> (circle number)</p>	<p>1 Well covered 2 Adequately addressed 3 Poorly addressed √ not adequately addressed 4 Not addressed 5 Not reported 6 Not applicable</p>
<p><b>NICEB1.5. There are enough similarities between the studies selected to make combining them reasonable</b> (circle number)</p>	<p>1 Well covered 2 Adequately addressed 3 Poorly addressed 4 Not addressed 5 Not reported 6 Not applicable</p>

### Section B3: Search strategy

<p><b>B3.1. Databases searched</b></p> <p><i>If Yes, please indicate: (multiple answer possible)</i></p>	<p>1 Yes 2 No 3 Unclear</p> <p>1 Medline 2 Embase 3 CENTRAL 4 CINAHL 5 Other, describe √Psych Info, Popline, Health star</p>
<p><b>B3.2. Reference list checked</b> (circle number)</p>	<p>1 Yes 2 No (specifically stated) 3 Unclear</p>
<p><b>B3.3. Experts contacted</b> (circle number)</p>	<p>1 Yes 2 No (specifically stated) 3 Unclear</p>

<b>B3.4. Grey literature searched</b> ( <i>circle number</i> )	1 Yes 2 No (specifically stated) 3 Unclear
<b>B3.5. Language limitation</b> ( <i>circle number</i> )	1 English only 2 English and other (but limited) 3 No limitation 4 Not stated
<b>B3.6. Search terms described</b> ( <i>circle number</i> )  ( <i>B3.6.1. If yes, describe</i> )	1 Yes 2 No
<b>NICEB1.3. The literature search is sufficiently rigorous to identify all the relevant studies</b> ( <i>circle number</i> )	1 Well covered 2 Adequately addressed 3 Poorly addressed 4 Not addressed 5 Not reported 6 Not applicable
<b>B3.7. Results of search</b>	
<b>B3.7.1. Number of hits</b>	
<b>B3.7.2 Number matching inclusion criteria</b>	
<b>B3.7.3. Number included in the review</b>	
<b>B3.7.4. Flow chart or description of exclusion described</b>	1 Yes 2 No

## Section B4: Assessment of study quality

<p><b>B4.1. Study quality of RCT assessed</b> (circle number)</p> <p>(B4.1.1 If 'Yes', what kind of instrument was used? Describe) eg</p> <ul style="list-style-type: none"> <li>•</li> </ul>	<p>1 Yes</p> <p>2 No</p> <p>3 Unclear</p> <p>4 Not applicable (no RCT included)</p> <p>1 A rating system</p> <p>2 More than one assessor</p> <p>3 Other</p>
<p><b>B4.2. Study quality of other designs assessed</b> (circle number)</p>	<p>1 Yes</p> <p>2 No</p> <p>3 Unclear</p> <p>4 Not applicable (no other study designs included)</p>
<p>(B4.2.1 If 'Yes', what kind of instrument was used? Describe)</p>	<p>Do not state how or systematically report</p>
<p><b>B4.3. Study quality taken into account in interpretation?</b> (circle number)</p>	<p>1 Yes</p> <p>2 No</p> <p>3 Unclear</p>
<p><b>B4.4. The impact on inequality in health, particularly with reference to social class, ethnicity, sexual orientation and educational attainment was specifically mentioned in discussion</b> (circle number)</p>	<p>1 Yes</p> <p>2 No</p> <p>3 Unclear</p>
<p><b>NICEB1.4. Study quality is assessed and taken into account</b> (circle number)</p>	<p>1 Well covered</p> <p>2 Adequately addressed</p> <p>3 Poorly addressed</p> <p>4 Not addressed</p> <p>5 Not reported</p> <p>6 Not applicable</p>



## Section B5: Characteristics of studies included

<p><b>NICEB3.1. Types of study included</b> <i>(multiple answers possible)</i></p>	<ol style="list-style-type: none"> <li>1 RCT</li> <li>2 CCT</li> <li>3 Cohort</li> <li>4 Case-control</li> <li>5 Ecological study</li> <li>6 Other, describe</li> </ol>
<p><b>B5.1. Year range of publications</b></p>	
<p><b>B5.2. Under 25 age included</b> <i>(circle number)</i>  <i>If Yes, please specify age:&lt;17 to &lt;20</i></p>	<ol style="list-style-type: none"> <li>1 Yes</li> <li>2 No</li> <li>3 Unclear/Not stated</li> </ol>
<p><b>B5.3. Gender of participants</b> <i>(circle number)</i></p>	<ol style="list-style-type: none"> <li>1 Women only</li> <li>2 Men only</li> <li>3 Both</li> </ol>
<p><b>B5.4. Ethnic group</b> <i>(multiple answers possible)</i></p>	<ol style="list-style-type: none"> <li>1 White</li> <li>2 Black</li> <li>3 Asian</li> <li>4 Other</li> <li>5 Not stated</li> </ol>
<p><b>B5.5. Social-demographic characteristics</b> <i>(multiple answers possible)</i></p>	<ol style="list-style-type: none"> <li>1 Adolescents</li> <li>2 Black Caribbean and/or African</li> <li>3 People living with HIV</li> <li>4 People in prison</li> <li>5 People in or leaving care</li> <li>6 Homeless</li> <li>7 Refugee or asylum seeker or migrants</li> <li>8 School excludees</li> <li>9 None of the above</li> <li>10 Not specified</li> <li>11 Other – socio-economically disadvantaged group included</li> </ol>

<b>B5.6. Included studies performed in</b> <i>(multiple answers possible)</i>	1 USA 2 UK 3 European countries 4 Africa 5 Asia 6 Others 7 Not stated
<b>B5.7. Setting</b> <i>(multiple answers possible)</i>	1 Schools/institutes (academic centre) 2 School-based clinics 3 Clinic/primary care 4 Community 5 Home-based/family 6 None of the above 7 Other (describe)
<b>B5.8. Total sample size</b> <i>(describe)</i>	

### Sections B6-10: Intervention and outcome

<b>B6. Type of intervention</b> <i>(circle number)</i>	1 Education/Information 2 Skills-based/self-esteem/youth devpt 3 Peer education 4 Abstinence 5 Involving parents 6 None of the above 7 Other (describe)
<b>B7. Outcome extracted from studies</b> <i>(circle number)</i>	1 Reduction in pregnancy rates (births, conceptions, abortions) 2 Outcomes of pregnant/teenage parents (describe) Eg health , social, educational , employment 3 Change in sexual behaviour 4 Contraceptive use 5 Change in knowledge/attitudes

<p><b>B8. Effect size reported</b> (<i>circle number</i>)</p> <p><i>If yes, describe</i></p>	<p>1 Yes</p> <p>2 No</p> <p>3 Not applicable</p>
<p><b>B9. Conclusion of the review or guideline</b></p> <p><i>What is the overall finding? Consider:</i></p> <ul style="list-style-type: none"> <li>• <i>How the results are expressed (numeric – relative risks, etc)</i></li> <li>• <i>Whether the results could be due to chance (p-values and confidence intervals)</i></li> </ul>	
<p><b>Are sufficient data from individual studies included to mediate between data and interpretation/conclusions?</b></p>	<p>1. Yes</p> <p>2. No</p> <p>3. Unclear</p>

<p><b>B10. Any other additional remarks?</b></p> <p><i>Does this review cover all appropriate interventions and approaches for this field (within the aims of the study)?</i></p> <p><i>Please give details</i></p>	<p>1. Yes</p> <p>2. No</p> <p>3. Unclear</p>
---	--

**Sections B11 If the publication is Guideline**

<p><b>B11.1. Correspondent reviews mentioned</b> (<i>circle number</i>)</p>	<p>1 Yes</p> <p>2 No</p>
<p><b>B11.2. If yes, are the reviews available?</b> (<i>circle number</i>)</p>	<p>1 Yes</p> <p>2 No</p>
<p><b>B11.3. If yes, are the reviews applicable/eligible</b> (<i>circle number</i>)</p>	<p>1. Yes</p> <p>2. No – state reason</p>
<p><b>B11.4. If yes, what evidence did the reviews give?</b></p>	

**Section B12      Relevance**

<p><b>B12.1 Can the results be applied/are generalisable to a UK population/population group?</b></p>	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>3. Unclear</li> </ol>
<p><b>B12.2 Are there cultural differences from the UK</b></p>	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>3. Unclear</li> </ol>
<p><b>B12.3 Are there differences in healthcare provision with the UK?</b></p>	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>3. Unclear</li> </ol>
<p><b>B12.4 Is the paper focused on a particular target group (age, sex, population sub-group etc)?</b></p>	<ol style="list-style-type: none"> <li>1. Yes</li> <li>2. No</li> <li>3. Unclear</li> </ol>

## Section C: Overall assessment of the review

<p><b>NICEB2.1. How well was the review done to minimise bias? (circle number)</b></p>	<p>1 Very well (++)                  2 Well (+)                  3 Not well (-)                  4 Not clear</p>																
<p><b>NICEB2.2. If + or -, What is the likely direction in which bias might affect the study results?</b></p>																	
<p><b>NICEB 2.3. Accept for inclusion onto Evidence base?</b></p> <p><i>Category 1, 2, 3- see definitions below</i></p> <p><b>NICEB2.3.1 Quality of evidence (high, medium, low)</b></p> <p>Use to inform background discussion (Category 4)</p> <p>Discard (Category 5)</p>	<table border="0"> <tr> <td></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">No (4,5)</td> <td style="text-align: center;">3. Refer to 3rd party</td> </tr> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td></td> <td style="text-align: center;">4</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">5</td> <td></td> <td></td> </tr> </table>		Yes	No (4,5)	3. Refer to 3rd party		1	2	3		4				5		
	Yes	No (4,5)	3. Refer to 3rd party														
	1	2	3														
	4																
	5																
<p><b>NICEB3.2. How does this review help to answer your key question?</b></p>																	

## **Categories of evidence (Source: Review of reviews on teenage pregnancy and parenthood 2003)**

- 1 Typically, although not always, a systematic review or meta-analysis where research questions, methods and analysis are completely transparent and replicable.
- 2 A review in which there is some clear methodological and analytical data, although not sufficient information for the searches, selections and analysis to be replicated.
- 3 Typically a literature review or synthesis where the research questions are highly pertinent to this area, but little or no methodological or analytical data is presented.
- 4 Background information: Reviews that are methodologically too weak to be included as part of the data pool and/or not focused on interventions and/or effectiveness, but which contain useful policy, background, epidemiological or interpretive information.
- 5 Not systematic, not transparent, not relevant, therefore excluded.

### **Definition of a systematic review**

This was the definition used by NICE

Research that summarises the evidence on a clearly formulated question according to a pre-defined protocol using systematic and explicit methods to identify, select and appraise relevant studies, and to extract, collate and report their findings. It may or may not use statistical meta-analysis

**APPENDIX 3: Table 4 Evidence tables for category 1 and 2 reviews: Teenage pregnancy prevention from the update**

Author and year	Number and type of studies included	Quality category and type	Sample size(N),population	Broad categories of Interventions	Overall findings	Country	Notes
Harden 2006	6 'soundly evaluated' studies used comparison/control groups (5 used randomisation)  5 qualitative studies	1, systematic review	Mostly 'high risk', black, low SES 701 men (3 studies) 1309 women (4 studies) included in meta-analysis  1483, mostly women	Early childhood intervention and youth development	Reduction in teenage pregnancy: Women RR 0.61 (95% CI 0.48-0.77) Men RR 0.59 (95% CI 0.34-1.02)  Common themes: 'Dislike of school', poor material circumstances and unhappy childhoods' and low expectations/aspirations for the future'	USA  UK	Quantitative, describes outcome evaluations  Cross –study synthesis to match outcome evaluations with views. Key components that appear to be appropriate to include within early childhood interventions and youth development programmes are suggested
Bennett 2005	16 RCTs	2, systematic review	Ranged from 36-10600 men and women	Secondary school based teen pregnancy prevention programmes, abstinence (3 studies) or abstinence plus based (12 studies) included contraceptive education	Little impact on sexual behaviour, improved contraceptive knowledge and use for abstinence plus programmes. No effect on pregnancy rates (measured in 2 studies)	USA	Overall there was no increase in sexual activity
Robin 2004	12 RCTs 8 quasi-experimental	2, systematic review	Ranged from less than 100 to more than 10000 men and women, about half the studies described predominantly black participants	Diverse programme content included volunteer work (Teen Outreach Programme), career planning (Teen Incentives Programme), activities involving parents, knowledge and skills based programmes	12 studies (10 programmes) showed positive effects mostly for condom use. Studies did not distinguish effective programme characteristics; effect on pregnancy rates inconsistent (2 studies)	USA	Describes 17 programmes, most theory-based 10 programmes had positive effects, one had mixed effects, four had null effects, and two had negative effects with very few clear differences among studies and programmes on the basis of their effects
Moos 2003	1 RCT 1 cohort study with retrospective analysis 2 longitudinal	2, systematic review	1449 men and 2158 women. 2 studies had mostly black participants	Clinic based counselling	No good quality evidence to assess effectiveness on any outcomes.	USA	Studies included regardless of their validity
Mathias 2002	17 studies, mixed designs, 4 studies assessed sexual health	2, systematic review	Men and women (sample size 6769 available for 2 studies)	Access to youth specific services (school based health clinics)	Insufficient evidence of improved sexual health outcomes	USA	Studies were methodologically of poor quality

*Socio-demographics varied considerably with most reviews reporting mixed ethnic populations; RCT: randomised controlled trial; RR Relative risk; CI Confidence Interval; Effect sizes are reported only for pooled analysis*

**Table 5 Evidence tables for category 1 and 2 reviews: Teenage parenthood from the update**

Author and year	Number and type of studies included	Quality category	Sample size(N),population	Broad categories of Interventions	Overall findings	Country	Notes
Harden 2006	10 'soundly evaluated' studies addressing teenage parents. (6 used randomisations)  14 qualitative studies	1, systematic review	Mostly 'high risk', black, low SES 4415 teenage parents in 7 studies included in meta-analysis for teenage pregnancy  N = 2145 N = 1379  N = 5055	Education and career development  Holistic support programmes and day care  Programmes using welfare sanctions and bonuses  Education and career development Holistic support  Education and career development  Holistic support  Programmes using welfare sanctions and bonus  Provision of day care	<b>Repeat pregnancy:</b> No significant effect on repeat pregnancy. RR 1.00 (95% CI 0.81-1.23)  RR 0.83 (95% CI 0.62-1.11)  Narrative analysis indicated no effect on reducing further pregnancies  <b>Teenage mothers' emotional wellbeing</b> Non significant positive effect SMD 0.07 (95%CI -0.03 – 0.18) SMD 0.15 (95%CI -0.19-0.48)  <b>Teenage parents' participation in education/training</b> Significant improvement in participation RR 3.13 (95% CI 1.49-6.56)  No effect on participation  Significant improvement in participation RR 1.21 (95%CI 1.14-1.29)  RR 3.46 (95%CI 0.84-14.29) small sample size Long-term impact was non significant	USA and one based in UK; Qualitative views studies UK based	Describes outcome evaluations Cross –study synthesis to match outcome evaluations with views
Coren 2003	14 studies, various designs: 4 RCTs, 5 CT, 5 before/after	1, systematic review	Ante/postnatal pregnant/parenting teenagers, mixed ethnic N = 1446	Individual/group based parenting programmes focusing on improvement of attitudes, practices, skills, knowledge	Overall improvement in high risk groups in: response to parents, language & infant development, parental attitudes, knowledge, communications	USA	Small number of studies, varying methodologies, diversity in modes, intensity & duration of programmes
Meade 2005	9 studies employing control /comparison groups (1 RCT)	2, systematic review	1845 pregnant and teenage mothers	Sexual risk reduction programmes including comprehensive care to teens and their infants (teen tot clinics, home visitation and supplemental family support)	Less than half reported reduced sexual risk, four reduced repeat pregnancy Incorporating risk reduction interventions into routine care may be effective	USA	Study types with unclear designs



**Table 5 (continued...) Evidence tables for category 1 and 2 reviews for teenage parenthood from the update**

Letourneau 2004	19 studies 4 RCTs, 10 quasi- experimental, 5 'post-hoc' evaluations 3 studies (1 quasi- experimental, 1 post- hoc, 1 experimental) addressed sexual behaviour and pregnancy	2, literature review/synthesis used systematic principles	7674 RCTs 1705 (Quasi- experimental) 1569 (post hoc)	Support-education programmes: pregnancy and parenting adolescent health care programmes.  Social support (e.g., affirmation, informational, emotional, instrumental) from various sources(e.g. professionals, peers, family, partner),	Significant gains in contraceptive knowledge and behaviour, attitudes towards sexual behaviour and decrease in repeat pregnancies (3 studies, 651 teenage parents)  Improved parental confidence & psychological well-being (3 studies); inconsistent relationship between support education interventions and these outcomes  Improved parenting skills and knowledge (10 studies)  Improved child health and development (6 studies)  Improved employability (5 studies) e.g. reduced drop outs, improved attitudes towards vocational goals, improved graduation rates. More beneficial for those with higher initial education or skills	USA	Based on social learning theory; studies of varying designs and sample sizes
Akinbami 2001	4 studies (1 RCT, 3 case control)	2, literature review	1197 Teenage parents and their children; ethnicity ranged from 80% white to 100% black	Clinic based teen tot programmes: clinical health supervision, family planning & support	3 studies reported significant reduction in repeat pregnancy. Limited evidence upon which to judge evidence. Authors report 'moderate' success in preventing teenage pregnancy, helping mothers continue education, improving parent & infant health  Mixed results for maternal school attendance  Favourable infant health outcomes: improved clinic attendance, immunisation completion, lower illness rates  Improved maternal health (1 study) No effect on care taking skills (1 study)	USA	Multidimensional intervention in each study; considerable heterogeneity in programme characteristics, interventions, outcomes.  The reported results may reflect study weaknesses

*Socio-demographics varied considerably with most reviews reporting mixed ethnic populations; RCT randomised controlled trial; CT:Controlled trial; RR Relative risk; CI Confidence Interval; SMD Standardised mean difference; Effect sizes are reported only for pooled analysis*

## APPENDIX 4

### Categories of evidence (Source: Review of reviews on teenage pregnancy and parenthood 2003)

1 Typically, although not always, a systematic review or meta-analysis where research questions, methods and analysis are completely transparent and replicable.

2 A review in which there is some clear methodological and analytical data, although not sufficient information for the searches, selections and analysis to be replicated.

3 Typically a literature review or synthesis where the research questions are highly pertinent to this area, but little or no methodological or analytical data is presented.

4 Background information: Reviews that are methodologically too weak to be included as part of the data pool and/or not focused on interventions and/or effectiveness, but which contain useful policy, background, epidemiological or interpretive information.

5 Not systematic, not transparent, not relevant, therefore excluded.

### Category 1-3 Reviews

#### Teenage pregnancy

##### Category 1

Harden A, Brunton G, Fletcher A, Oakley A, Burchett H, Backhans M (2006) Young people, pregnancy and social exclusion: A systematic synthesis of research evidence to identify effective, appropriate and promising approaches for prevention and support. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

##### Category 2

Bennett S. E. and Assefi N P (2005). "School-based teenage pregnancy prevention programs: a systematic review of randomized controlled trials." *J.Adolesc.Health* 36(1): 72-81.

Mathias K. (2002) Youth-specific primary healthcare - access, utilisation and health outcomes: a critical appraisal of the literature. Christchurch: New Zealand Health Technology Assessment (NZHTA), 2002:1-97

Moos M. K, Bartholomew NE, Lohr, KC (2003). "Counselling in the clinical setting to prevent unintended pregnancy: an evidence-based research agenda *Contraception* 67(2): 115-132.

Robin L P, Dittus P, Whitaker D, Crosby R, Ether K, Mezoff J, Ches PH, Miller K, Pappas-Deluca K (2004). "Behavioral interventions to reduce incidence of HIV, STD, and pregnancy among adolescents: a decade in review." *J.Adolesc.Health* 34(1): 3-26.

##### Category 3

Kirby, D.(2002) "The impact of schools and school programs upon adolescent sexual behavior." *Journal of Sex Research* 39(1): 27-33.

Kirby D and Miller B C (2002) Interventions designed to promote parent-teen communication about sexuality. *Talking sexuality: Parent-adolescent communication*. San Francisco,CA,US, JosseyBass 117 pp.: 93-110.

#### Teenage parenthood

##### Category 1

Harden A, Brunton G, Fletcher A, Oakley A, Burchett H, Backhans M (2006) Young people, pregnancy and social exclusion: A systematic synthesis of research evidence to identify effective, appropriate and promising approaches for prevention and support. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

Coren E, Barlow J, Stewart Brown s. (2003). "The effectiveness of individual and group-based parenting programmes in improving outcomes for teenage mothers and their children: a systematic review." *J.Adolesc.* 26(1): 79-103.

### Category 2

Akinbami L J, Cheng TL, Kornfield D (2001). "A review of teen-tot programs: comprehensive clinical care for young parents and their children." *Adolescence* 36(142): 381-393.  
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Letourneau N L and Stewart M J (2004). "Adolescent mothers: Support needs, resources, and support-education interventions." *Journal of Adolescent Health.* 35(6) 509-525

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### Category 3

Schellenbach C J, Leadbeater BJ, Anderson Moore K (2003) Enhancing the development outcomes of adolescent parents and their children. Investing in children,youth,families,and communities: Strengths-based research and policy. Washington,DC,US, American Psychological Association: 117-136.

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