A review of the effectiveness and cost effectiveness of alcohol and sex and relationship education for all children and young people aged 5-19 years in community settings

Final report

.

Lisa Jones, Geoff Bates, Jennifer Downing, Harry Sumnall, Mark A Bellis

Centre for Public Health, Liverpool John Moores University

January 2010

Contribution of authors (alphabetical)

Geoff Bates	Study selection, data extraction and quality assessment. Contributed to the writing of all sections of the report.
Mark Bellis	Overall management responsibility for the project. Commented on various drafts of the report.
Jennifer Downing	Study selection, data extraction and quality assessment. Contributed to the writing of all sections of the report.
Lisa Jones	Management responsibility for the project and responsible for overall content of the final report. Study selection, data extraction and quality assessment. Contributed to the writing of all sections of the report.
Harry Sumnall	Management responsibility for the project. Commented on various drafts of the report.

Acknowledgements

In addition to the authors of the report we would like to acknowledge the contribution of Michelle Wareing (MW), Olivia Wooding (OW), Katrina Stredder (KW) and Angelina Kurtev (AK) from the Centre for Public Health, LJMU for their assistance in full text screening and data extraction.

Contents

Tables of figures

Table of tables

Glossary

Abstinence-only programmes	Programmes that encourage and promote abstinence as the best and only way to prevent pregnancy, HIV and other STIs.
Abstinence-plus programmes	Programmes that emphasise abstinence as the safest way to prevent pregnancy, HIV and other STIs, but also promote safer sex through the use of contraceptives.
American school grades	Education is divided into 3 levels: elementary school, junior high (or middle) school and high school.
Benefit-cost ratio	The benefits of a programme divided by its costs. One way of presenting the results of a cost-benefit analysis.
Bias	Deviation of results or inferences from the truth, or processes leading to such deviation. Any trend in the collection, analysis, interpretation, publication or review of data that can lead to conclusions that are systematically different from the truth.
Binge drinking	Consuming large quantities of alcohol over a short period of time. Often associated with drinking to become intoxicated.
Cost-effectiveness analysis	An economic evaluation technique in which outcomes are measured in natural units.
Cluster randomisation	A trial where the unit of randomisation is a cluster of participants (e.g. a school).
Controlled before and after study (CBA)	Intervention groups are tested and data collected before and after the intervention has been administered. Differ from controlled non-randomised trials in that participants are not allocated to intervention or control groups, but rather a 'convenience' control sample is used.
Effect size	Effect size is a term used for a family of indices that measure the magnitude of the relationship between variables or treatment effect. Effect sizes are commonly used in meta-analyses as unlike significance tests these indices are independent of sample size.
Generalisability	The extent to which the results and conclusions from a study may be validity transposed to other situations.
Intention to treat analysis	A method of data analysis in which all participants are analysed in the group they were assigned to at randomisation regardless of treatment adherence.

Internal validity	How well the study has minimised sources of bias and how likely it is that the intervention caused the observed outcomes.
Long-term outcome	Study outcomes evaluated at greater than one year post-intervention.
Medium-term outcome	Study outcomes evaluated at six months to one year post-intervention.
Mass media	Means of communication that reach large numbers of people in a short time, such as television, newspapers, magazines, and radio.
Mean difference	The difference between two means divided by an estimate of the within group standard deviation.
Meta-analysis	The combination of quantitative evidence from a number of studies.
Net present value (NPV)	The benefits of an intervention minus its costs, taking into account the discount rate.
Net (social) benefit	An NPV, which considers social benefits
Non-Randomised Controlled Trial	These are trials where participants or clusters are allocated between intervention and control groups but the allocation is not randomised or quasi-randomised (e.g. alternate allocation).
Odds ratio	The odds of the event occurring in one group (e.g. intervention) divided by the odds of the event occurring in the other group (e.g. control).
Randomised Controlled Trial	Individuals or, defined groups of individuals (clusters) are randomised to either an intervention or a control group. If well implemented, randomisation should ensure that intervention and control groups only differ in their exposure to treatment.
Short-term outcomes	Study outcomes evaluated at less than six months post-intervention.
Systematic review	A method of locating, appraising and synthesising evidence from primary studies, which adheres to a scientific methodology.
Uncontrolled before and after study	Intervention groups are tested and data collected before and after the intervention has been administered. No control group is used for comparison purposes.

Abbreviations

AESOP	AIDS Evaluation of Street Outreach Project
BPBR	Be Proud! Be Responsible!
CAS	Children's AID Society
CBA	Controlled before and after study
CI	Confidence interval
CTS	Cross-sectional time series
DCSF	Department for Children, Schools and Families
DfES	Department for Education And Skills
DH	Department of Health
ESOL	English Speakers for Other Languages
FOK	Focus on Kids
HEART	Heart Power! For Hispanics
HIV	Human immunodeficiency virus
ImPACT	Informed Parents And Children Together
ISFP	Iowa Strengthening Families Programme
ITT	Intention to treat
LST	Life Skills Training
MDHP	Mother/Daughter Health Promotion curriculum
MDRR	Mother/Daughter HIV risk reduction
NA	Not applicable
NICE	National Institute for Health and Clinical Excellence
NNT	Number needed to treat
NR	Not reported
NRCT	Non-Randomised Controlled Trial
NS	Non-significant
OR	Odds Ratio
PARE	Parent-Adolescent Relationship Education
PATH	Parent Preadolescent Training for HIV Prevention
PDFY	Preparing for the Drug Free Years
PSHE	Personal Social and Health Education
PT	Post-test
PWC	Parents Who Care
RAP	Reaching Adolescents and Parents
RCT	Randomised Controlled Trial
SAAF	Strong African-American Families
SE	Standard error
SHAPE	Sharing Healthy Adolescent and Parent Experiences
SR	Systematic Review
SRE	Sex and relationships education

STAND	Students Together Against Negative Decisions
STI	Sexually transmitted infection
UBA	Uncontrolled before and after study
YPYD	Young People's Youth Development
YUTHE	Youth United Through Health Education

Executive summary

BACKGROUND

This review sought to identify effective and cost-effective interventions and programmes that addressed health literacy and personal skills in relation to alcohol use and sexual health in community-based settings, including parent-targeted and family-based approaches.

METHODS

The methods for the review followed NICE protocols for the development of NICE public health guidance. Eighteen databases were searched for effectiveness and cost-effectiveness studies published since 1990. One reviewer screened all titles and abstracts and full text screening was undertaken independently by two reviewers. Data extraction and quality assessment were undertaken by one reviewer and checked for accuracy by a second reviewer. Each study was also graded (++, + or -) based on the extent to which the design and execution of the study minimised the potential sources of bias. Results of the data extraction and quality assessment for each study of effectiveness and cost-effectiveness were presented in structured tables and as a narrative summary.

PROGRAMMES TARGETING ALCOHOL USE

Thirty-one articles met the criteria for inclusion in the review of community-based programmes targeting alcohol use by young people. Four articles were systematic reviews and/or meta-analyses, three articles reported on studies that examined intervention or programmes delivered within social, healthcare and community settings, 20 articles reported on studies that examined programmes or interventions delivered to families or parents, and three studies examined interventions or programmes that involved the wider community or mass media. One economic evaluation study was also identified.

Systematic reviews and meta-analyses

Four articles covering three systematic reviews and meta-analyses were identified for inclusion. One review examined interventions and programmes aimed at the primary prevention of alcohol use across a range of populations and settings, and two reviews interventions and programmes delivered to parents and families, respectively. One good quality review found that although there was no consistent evidence to determine which programmes were effective over the short to medium-term, one family-based programme, the Iowa Strengthening Families programme (ISFP), was effective over the longer term. The systematic reviews of interventions and programmes delivered to parents and families also highlighted the long-term effectiveness of this programme.

Evidence statement 1

There is strong evidence from three systematic reviews to suggest that a family-based programme, Iowa Strengthening Families (ISFP), can produce long-term reductions (greater than 3 years) in alcohol use and heavy alcohol use.

Programmes delivered in social, healthcare and community settings

Three studies were identified that examined interventions and programmes targeting alcohol use, which were delivered in social, healthcare and community settings. All three studies were conducted within youth and after school agencies and were based in the USA. Of the three studies identified, two were cluster RCTs and one was based on CBA design. One study examined an interactive CD-ROM intervention designed to reduce early alcohol use, and two studies examined substance use prevention programmes which targeted migrant families, and adolescents enrolled in after school programmes, respectively. None of the studies examined intervention effects on knowledge and understanding. Short-term increases in perception of harm were reported in two studies of one CD-ROM intervention and one substance use prevention programme, respectively, but this effect was not sustained over the longer term. One study also found no impact of an after-school, youth development programme on participants' drug beliefs and there was no impact of a culturally tailored, substance use prevention programme on participants' susceptibility to alcohol. Intervention effects on personal and social skills were examined in one study of a CD-ROM intervention, which found a short-term intervention impact on assertion skills. Two studies, of a CD-ROM intervention and a culturally tailored, substance use prevention programme, respectively, found no intervention effects on health and social outcomes related to alcohol use. However, substance use remained low among both intervention and control participants throughout these studies. One study, which targeted older children (mean age 15 years) in after school programmes, however, reported a positive short- to medium-term effect on alcohol use.

Evidence statement 2

2 (a) There is inconsistent evidence from two RCTs and one CBA study to determine the effects of interventions and programmes delivered in social, healthcare and community settings on attitudes and values related to alcohol use.

2 (b) There is inconsistent evidence from two RCTs and one CBA study to determine the effects of interventions and programmes delivered in social and community settings on alcohol use. However, there is weak evidence from one CBA study to suggest that programmes that target older children may impact on alcohol consumption. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

Programmes delivered to parents and families

Twenty studies were identified that examined programmes and interventions delivered to parents and families, which targeted adolescent alcohol or substance use. Evaluations of nine programmes delivered to families were reported on across fifteen studies and five studies examined parent-targeted interventions. Eighteen studies were RCTs, one was an NRCT and one was a CBA. A range of intervention approaches were examined across these studies, including home- and community-based interventions. Effects on knowledge and understanding were only examined in one study of a family-based programme and none of the parent-targeted interventions examined this outcome. Short-term intervention effects on attitudes and values related to alcohol use were found for two

family-based programmes but for parent-targeted interventions there was no clear effect on parental attitudes to adolescent drinking. Both family-based and parent-targeted interventions appeared to produce short-term improvements in parent-child communication. Two studies of CD-ROM based interventions showed positive programme effects on family communication skills and involvement skills and a culturally tailored programme had a short-term positive effect on parental communication. Short-term intervention effects on parent-child communication were found for three studies of parent-targeted interventions; two studies reported more frequent or recent parent-child communication about alcohol and one study showed positive long-term effects on parent-child communication regarding family rules about alcohol and alcohol related situations. Eleven studies examined the effects of family-based programmes on health and social outcomes related to alcohol use across eight programmes. Three programmes demonstrated non-significant effects on alcohol use, but across four programmes, short- and long-term positive effects on alcohol use were reported. In addition, six studies of four family-based programmes reported positive intervention effects on initiation of alcohol use in the medium- to long-term. The Iowa Strengthening Families Programme (ISFP) also had long-term positive effects on drunkenness and drinking without parental permission and long-term follow up of the Preparing for the Drug Free Years (PDFY) revealed a positive effect of this programme on women's alcohol abuse in early adulthood. Two studies examined the effects of parent-targeted interventions. One study found no intervention effects but a second study, of a programme that promoted zero tolerance to adolescent alcohol use, reported positive intervention effects on youth drinking and drunkenness.

Evidence statement 3

3 (a) There is no evidence from one RCT to determine the effect of programmes aimed at families on knowledge and understanding relating to alcohol use

3 (b) There is moderate evidence from two RCTs to suggest that programmes delivered to families may have short-term positive effects on attitudes and values related to alcohol. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

3 (c) There is moderate evidence from two RCTs to suggest that programmes delivered to families which target family interaction may have positive effects on family communication, parental monitoring and parental rules about alcohol. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

3 (d) There is moderate evidence from 11 RCTs to suggest that programmes delivered to families may have mixed effects on health outcomes related to alcohol use. Three RCTs showed no intervention effects on alcohol use. One RCT of a brief, family focused intervention (Iowa Strengthening Families Program) showed long-term reductions in alcohol use, initiation of alcohol use, and drunkenness and one RCT of a culturally-tailored family-based programme showed a long-term effect on initiation of alcohol use. In addition, one RCT of a CD-ROM intervention with parental involvement showed long-term reductions in monthly alcohol use.

Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

3 (e) There is weak evidence from one RCT to suggest that physician-led interventions may have a long-term negative impact on alcohol use. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

Evidence statement 4

4 (a) There is inconsistent evidence from one NRCT and two RCTs to determine the effects of interventions delivered to parents on attitudes and values relating to alcohol. However, there is weak evidence from one RCT to suggest that programmes aimed at parents can have positive short-term effects on young people's attitudes towards family rules and their influence as a deterrent for drinking. These findings may be only partially applicable to the UK as this study was implemented in the USA and may not be generalisable beyond this population.

4 (b) There is moderate evidence from two RCTs and one CBA study to suggest that interventions delivered to parents may have a positive short- to potentially long-term effect on parent-child communication about alcohol. These findings may be only partially applicable to the UK as they were not implemented in a UK setting and may not be generalisable beyond the populations studied.

4 (c) There is insufficient and inconsistent evidence from one NRCT and one RCT to determine the effect of interventions delivered to parents on health and social outcomes relating to alcohol use among young people.

Programmes involving the wider community or mass media

Three studies were identified that examined programmes involving the wider community or mass media. All three studies were based on a CBA design. Two studies examined mass media programmes delivered in communities in the USA and New Zealand, respectively, and one study examined a 5-year community-based health promotion programme for adolescents on an American Indian Reservation. None of the included studies examined intervention effects on knowledge and understanding, or on personal and social skills. Only one study examined impacts on attitudes and values towards alcohol use, findings showed no effects of a long-term mass media programme on mediators of alcohol use. In addition, there were no effects of either mass media programme or the community-wide campaign targeting American Indian adolescents on alcohol use.

Evidence statement 5

5 (a) There is weak evidence from one CBA study to suggest interventions and programmes involving mass media have no effect on attitudes and values related to alcohol use. These findings may be only partially applicable to the UK as the study was not implemented in a UK

setting and may not be generalisable beyond the populations studied.

5 (b) There is moderate evidence from three CBA studies to suggest that interventions and programmes involving the wider community or mass media have no effects on alcohol use by young people. Findings may only be partially applicable to the UK as the studies were conducted in the USA and New Zealand and may not be generalisable beyond the populations studied.

Review of published economic evaluations

One study was identified that met the criteria for inclusion in the review of published economic evaluations. The study evaluated the cost-effectiveness and net benefits of two brief, family-focused interventions, the ISFP and PDFY, compared to a minimal intervention approach. Overall the net benefit for the ISFP was $5,923 per family and $2,697 per family for PDFY. The benefit-cost ratios were 9.60 and 5.85, indicating that for every $1 spent on the ISFP and PDFY, $9.60 and $5.85, respectively, were saved in medical costs. The generalisbility of the study to a UK context was unclear as the data used was based on studies conducted in the USA. In addition, projected alcohol use disorder rates were calculated based on US population data.

Evidence statement 6

There is moderate evidence from one economic evaluation study to suggest that programmes delivered to families may be cost-effective and cost saving. This evidence may be of limited applicability to a UK context because cost and benefit estimates were based on data from studies conducted in the USA.

PROGRAMMES TARGETING SEXUAL HEALTH

A total of 49 articles met the criteria for inclusion in the review of community-based programmes targeting young people's sexual health. Nine articles were systematic reviews and/or meta-analyses, 20 articles reported on studies that examined interventions or programmes delivered within social, healthcare and community settings, 15 articles reported on studies that examined programmes or interventions delivered to families or parents, two articles reported on studies that examined interventions or programmes that involved the wider community or mass media, and three articles reported on studies which examined interventions for vulnerable young people. No economic evaluation studies were identified for inclusion.

Systematic reviews and meta-analyses

Nine systematic reviews and meta-analyses were identified that examined the effectiveness of interventions and programmes across a range of settings and populations that targeted young people's sexual health behaviours. One systematic review focused on interventions and programmes that targeted sexual risk taking among young homeless people. Findings from six systematic reviews indicated that community-based programmes can affect sexual risk behaviours of young people. In particular, HIV prevention and sexual risk reduction programmes were effective in increasing condom use and reducing pregnancy. However, these programmes were found to have a limited impact on adolescent sexual activity. According to one systematic review, successful community-based

interventions were theoretically based, tailored to the target population, implemented by trained facilitators, and the content was diverse and delivered using a wide variety of methods.

Evidence statement 7

7 (a) There is strong evidence from five systematic reviews and meta-analyses to suggest that intervention and programmes delivered in a range of community settings can have a positive impact on young people's sexual risk behaviours, in particular, condom use and pregnancy.

7 (b) There is strong evidence from one systematic review to suggest that effective community-based interventions and programmes are: (1) theoretically based; (2) tailored to the target population, (3) implemented by trained facilitators; (4) based on diverse content; and (5) delivered using a wide variety of methods.

Programmes delivered in social, healthcare and community settings

Twenty studies were identified that examined interventions or programmes delivered within social, healthcare or community settings. Nine studies examined group education sessions or skills-based training interventions delivered in social and community settings, and five further studies in social and community settings, respectively, examined peer-led interventions, the Children's Aid Society (CAS) Carrera programme and a theatre production designed to inform young people about HIV. Six studies were conducted in healthcare settings including family planning clinics and primary care practices; four of which examined group-based education and/or skills-based interventions for sexually active young women, and two that examined interventions based around a health practitioner-led sexual health consultation. Of the included studies, 15 were RCTs, three were NRCTs, and two were CBA studies.

Across four studies that examined group education sessions or skills-based training interventions in community settings there were positive intervention effects on knowledge and understanding over the short- to medium-term. In addition, the three-year, CAS-Carrera programme had a positive impact on knowledge. There was no effect of a peer counselling intervention on knowledge, but two peer leadership interventions had positive effects on levels of knowledge among the peer leaders themselves. Four studies of interventions that specifically targeted sexually active young females in healthcare settings, reported consistent short- to medium-term improvements in sexual health-related knowledge among intervention participants. In addition, two studies of health practitioner-led sexual health consultations reported significant short-term increases in knowledge among intervention participants relative to controls.

Short-term decreases in intentions to engage in risky sexual intercourse were reported among black male adolescents who participated in an AIDS risk reduction intervention and an abstinence-based HIV risk reduction intervention resulted in short-term reductions in intentions to engage in any sexual intercourse. Across three studies that examined group education sessions and skills-based training interventions in community settings there were short-term increases in intervention participants'

perception of their vulnerability to HIV infection. However, this effect was not sustained in the medium-term. Two studies found no effects of a theatre production intervention or peer leadership intervention, respectively, on HIV attitudes at follow-up. There were indications of positive intervention effects of group education sessions and skills-based training interventions delivered in community settings on attitudes and values related to condom use. However, these effects were not consistent, and were not maintained over the medium-term. There were fairly consistent positive intervention effects on condom use attitudes across three studies, which examined group-based education and skills-based interventions for sexually active young women in healthcare settings, and one study that examined a primary care-based sexual risk assessment and education intervention. Two studies found short-term positive intervention effects of a CD-ROM mediated intervention and an abstinence-based HIV risk reduction intervention, respectively, on attitudes towards abstinence. A CD-ROM intervention and education and skills training programme had positive effects on behavioural skills but results from five studies presented mixed findings in relation to effects of programmes and intervention delivered in social, healthcare and community settings on communication.

Across five studies that examined group-based sessions and/or skills training in community settings, short- to medium-term effects on sexual intercourse were reported in four studies; one study reported no programme effects and one poorly conducted study reported a potentially harmful effect. The CAS-Carrera programme had a positive effect on sexual activity among females, but there were no effects of health practitioner-led sexual health consultations or peer interventions. Intervention effects on frequency of sexual intercourse and number of sexual partners were limited. Across four studies conducted in community settings, only one study reported a positive intervention effect and across four studies conducted in healthcare settings, there were inconsistent intervention effects on these outcomes. Intervention effects on condom use and unprotected intercourse were more consistent. Across six studies that examined group-based sessions and skills training in community and healthcare settings, there were positive short- to medium-term intervention effects on measures of condom use, and some evidence from three studies of a positive intervention effect on frequency of unprotected intercourse. There were no effects of an HIV theatre production or peer counselling intervention on contraceptive use or frequency of unprotected sex, but the CAS-Carrera programme positively influenced both condom and hormonal contraceptive use among females. This programmes also had a positive effect on pregnancy, with a reduction in pregnancies among intervention females. There was no effect of a peer counselling intervention or peer leadership programme on pregnancy rates. Three studies examined intervention effects on STI infection and/or diagnosis, finding mixed intervention effects. However, medium-term positive effects on STI diagnosis were reported in one study of a skills-based HIV/STI intervention for sexually active females.

Evidence statement 8

8 (a) There is moderate evidence from five RCTs, one NRCT and one CBA study to suggest that group-based education and/or skills-based interventions, youth development programmes and peer leadership interventions delivered in social and community settings may have a positive short-to medium-term impact on knowledge and understanding related to sexual health. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

8 (b) There is inconsistent evidence from five RCTs, one NRCT and one CBA study on which to determine the effects of interventions and programmes delivered in social and community settings on attitudes and values related to sexual health. There was moderate evidence from three RCTs to suggest that group-based education and/or skills-based interventions may have positive short-, but not long-term, effects on attitudes and values related to condom use. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

Evidence statement 8 continued

8 (c) There is weak evidence from two RCTs to suggest that group-based education and/or skills-based interventions delivered in social and community settings may have a positive short-term impact on behavioural skills related to sexual health. There was no evidence on which to determine intervention effects on communication skills. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

8 (d) There is moderate evidence from four RCTs and one CBA study to suggest that group-based education and/or skills-based interventions may have limited effects on sexual activity. Although reductions in the likelihood of sexual intercourse were reported across four RCTs[6] there was only evidence from one RCT of intervention effects on frequency of sexual intercourse or number of sexual partners. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

8 (e) There is weak evidence from four RCTs to suggest that group-based education and/or skills-based interventions delivered in social and community settings may have positive short-term impacts on condom use and frequency of unprotected intercourse. There is weak evidence from one RCT to suggest that these effects may diminish over the medium term. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

8 (f) There is moderate evidence from one RCT to suggest that youth development programmes that target disadvantaged young people may have a positive impact on sexual behaviours among females, including sexual activity, condom use and pregnancy. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

Evidence statement 9

9 (a) There is strong evidence from six RCTs to suggest that interventions and programmes delivered in healthcare settings may produce short- to medium-term improvements in sexual health-related knowledge. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

9 (b) There is strong evidence from three RCTs to suggest that group-based education and/or skills-based interventions specifically targeting sexually active young women in healthcare settings may have short- to medium-term positive effects on condom use attitudes. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

Evidence statement 9 continued

9 (c) There is inconsistent evidence from three RCTs on which to determine the effects of interventions and programmes delivered in healthcare settings on sexual health-related communication. However, there is strong evidence from one RCT to suggest that a gender- and culturally-tailored intervention for African American females may have a positive impact on communication with sexual partners and condom use skills. This evidence may only be partially applicable because these studies were conducted in the USA and focused on an ethnic population specific to the USA.

9 (d) There is moderate evidence from two RCTs to suggest that interventions and programmes based on health practitioner-led sexual health consultations may have a limited impact on sexual behaviours, including sexual activity and condom and other contraceptive use. This evidence may only be partially applicable because these studies were conducted in the USA.

9 (e) There is strong evidence from four RCTs to suggest that group-based education and/or skills-based interventions specifically targeting sexually active young women in healthcare settings may not have a consistent impact on sexual activity or numbers of sexual partners. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

9 (f) There is strong evidence from four RCTs to suggest that group-based education and/or skills-based interventions specifically targeting sexually active young women in healthcare settings may have a short- to medium-term positive impact on condom and other contraceptive use, and unprotected intercourse. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

9 (g) There is inconsistent evidence from three RCTs on which to determine the effects of interventions and programmes delivered in healthcare settings on STIs. However, there is strong evidence from one RCT to suggest that a skill-based HIV/STI intervention may have a positive medium-term impact on STI diagnosis. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations specific to the USA.

Programmes delivered to parents and families

Fifteen studies were identified that examined interventions and programmes delivered to parents and families, which targeted adolescent sexual health. Ten studies evaluated seven programmes delivered to adolescents and their families and five studies examined parent-targeted interventions. Programmes and interventions were delivered in a variety of settings, including at home and in community-based settings. Eleven studies were RCTs, two studies were NRCTs, and two were CBA studies. Both family-based and parent-targeted interventions demonstrated positive influences on knowledge related to sexual health in the short-, medium- and long-term, with improvements seen in both parent and adolescent knowledge related to sexual health. Programmes and interventions delivered to families did not appear to be effective at influencing adolescent's attitudes and intentions towards resisting or delaying sex and across three studies that examined parent-targeted

interventions, there were inconsistent effects on intentions. There were mixed effects on parent-child communication across both family-based and parent-targeted interventions. Nine studies that examined family-programmes found no clear intervention effects on communication, but in general positive effects were found across four studies that examined parent-targeted interventions. Across five studies that examined the effects of family-based programmes on health and social outcomes related to sexual health the results suggested that programmes and interventions delivered to families may not affect sexual behaviour. Two studies found no intervention effects on pregnancy rates or sexual behaviour, respectively, and one study of an intervention aimed at mothers and their adolescent children found no long-term effects on abstinence or involvement in intimate sexual behaviours. There were, however, limited but positive effects of this programme on condom use. There were positive short-term effects of two parent education programmes on initiation of sexual activity and behavioural risks related to early sexual initiation, respectively. However, lack of clear intervention effects were reported in two further studies of parent-targeted interventions.

Evidence statement 10

10 (a) There is moderate evidence from five RCTs and one NRCT to suggest that interventions and programmes delivered to families may improve knowledge in the short- to long-term. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

10 (b) There is moderate evidence from five RCT and one NRCT to suggest that interventions and programmes delivered to families may not influence adolescent's attitudes or intentions regarding abstinence or delaying sex. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

10 (c) There is moderate evidence from seven studies to suggest that programmes and interventions delivered to families may not influence parent-child communication. There is weak evidence from two CBA studies to suggest that intensive, family-focused interventions may have positive short-term effects on family communication. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

10 (d) There is weak evidence from three RCT and two CBA studies to suggest that programmes delivered to families may not have effects on adolescent sexual behaviour. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

Evidence statement 11

11 (a) There is moderate evidence from one RCT to suggest that training for mothers to be their daughters' primary HIV educator may produce short-term improvements in sexual health-related knowledge and understanding. The evidence may only be partially applicable to the UK as this study was conducted in the USA and focused on ethnic populations specific to the USA.

11 (b) There is inconsistent evidence from three RCTs and one NRCT on which to determine the effects of intervention and programmes delivered to parents on sexual health-related attitudes and values.

11 (c) There is weak evidence from three RCTs and one NRCT to suggest that interventions delivered to parents may improve parent-child communication about sexual health topics. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

11 (d) There is inconsistent evidence from four RCTs on which to determine the effects of programme delivered to parents on their children's sexual behaviour.

11 (e) There is moderate evidence from one RCT to suggest that delivery of HIV prevention content by mothers may be as equally effective as that of health experts. The evidence may only be partially applicable to the UK as this study was conducted in the USA and focused on ethnic populations specific to the USA.

Programmes involving the wider community or mass media

Two studies were identified that examined interventions which involved the wider community or mass media. One study examined a mass media intervention and the second study examined a community outreach programme. Both studies were based on cross-sectional time series. Neither of the included studies examined intervention effects on knowledge, attitudes and skills and both analysed population-level changes in pregnancy and STI rates, respectively, as measures of effectiveness. Both studies reported positive intervention effects at a population level, however the study of the mass media programme did not adequately control for natural fluctuations in the data and therefore it is not clear whether these or intervention effects were responsible for the differences seen in the intervention and control communities.

Evidence statement 12

12 (a) There is no evidence from two CTS on which to determine the effects of interventions and programmes involving the wider community or mass media on knowledge, attitudes and skills related to sexual health.

12 (b) There is weak evidence from one CTS to suggest that a programme of community outreach may have a positive impact on STI rates among young people. Findings may only be partially applicable to the UK as the study was not conducted in a UK setting and may not be generalisable beyond the population studied.

Programmes targeting vulnerable groups

Three studies examined the effectiveness of community-based programmes that targeted vulnerable populations. All three studies examined interventions which specifically targeted young homeless people. Intervention approaches examined were street outreach, a brief group-based sexual health intervention and a community reinforcement approach combined with HIV prevention. Intervention effects on knowledge and skills were examined in only one study and none of the included examined intervention effects on attitudes and values. There were limited effects of a brief sexual health intervention on knowledge related to AIDS and other STIs, and on communication and self-efficacy. Health and social outcomes related to sexual health were examined in all three studies, two of which reported no intervention effects. One study found a positive effect on the frequency of condom use among younger participants in a programme which combined a community reinforcement approach with HIV prevention content.

Evidence statement 13

13 (a) There is insufficient evidence from one NRCT to determine effects of interventions and programmes targeting vulnerable populations on sexual health-related knowledge and understanding, and personal and social skills.

13 (b) There is weak and inconsistent evidence from two NRCT and one RCT on which to determine effects of interventions and programmes targeting vulnerable populations on health and social outcomes relating to sexual health.

PROGRAMMES TARGETING MULTIPLE BEHAVIOURS

No systematic reviews or meta-analyses were identified for inclusion in the review of programmes targeting multiple health behaviours. Five articles were identified that reported on evaluations of programmes and interventions that addressed both alcohol use and sexual health. Two articles reported on studies that examined interventions or programmes delivered in social, healthcare or community settings and three articles reported on studies that examined interventions or programmes delivered to families or parents.

Programmes delivered in social, healthcare and community settings

Two studies examined interventions and programmes which targeted both sexual health and alcohol use. One study examined the effects of a sexual activity prevention programme for young people enrolled in Boys and Girls Clubs, which was part of a wider programme designed to prevent substance use, and a second study evaluated an intensive, multicomponent youth development programme. One study was an NRCT and a second study was based on a CBA design. Neither of the included studies examined intervention effects on knowledge and understanding, or on personal and social skills. However, both studies examined intervention effects on attitudes and values. One study of a sexual activity prevention programme found a favourable reduction in sexual attitudes but only among sexually experienced participants who received the intervention without additional booster sessions. The youth development programme had potentially harmful effects on attitudes, with female intervention participants more likely than control participants to report that they expected to be a

parent by age 20. Both studies examined intervention effects on health and social outcomes related to sexual health, and one study also examined intervention effects on alcohol use. The effects of the sexual activity prevention programme were inconsistent across the two intervention conditions examined. The youth development programme had a negative impact on participant's sexual behaviour, particularly among intervention females who were significantly more likely than controls to engage in heterosexual sexual intercourse and more likely to become pregnant. There was no effect of the programme on male participants or on participant's alcohol use.

Evidence statement 14

14 (a) There is weak and inconsistent evidence from one NRCT and one CBA study on which to determine the effects of programmes delivered in social and community settings on attitudes and values related to sexual health and alcohol use.

14 (b) There is weak and inconsistent evidence from one NRCT on which to determine the effects of programmes delivered in social and community settings that seek to address both sexual health and alcohol use.

14 (c) There is weak evidence from one CBA study to suggest that youth development programmes, which target young females at behavioural risk, may have a negative effect on sexual behaviours. This evidence is applicable as the study was conducted in the UK.

Programmes delivered to parents and families

Five studies examined three programmes delivered to families or parents, which targeted both alcohol use and sexual health, in addition to other risk behaviours. All three were universal prevention programmes that combined parenting, youth and family components. All five studies were conducted in the USA and were based on an RCT design. Two studies examined programmes that specifically targeted African American and Hispanic populations, respectively. None of the included studies examined intervention effects on knowledge and understanding. Across four studies that examined intervention effects on attitudes and values towards risky behaviours there were indications of mixed intervention effects. One study found positive long-term effects of both self-directed and group-based versions of a universal substance use and problem behaviour prevention programme on attitudes towards substance use and there were also long-term positive programme effects of a parental monitoring intervention for African American families on attitudes and values related to a range of risky behaviours. Three studies examined intervention effects on personal and social skills, finding mixed programme effects on parent/family-child communication. One study found positive effects of a culturally-tailored programme on communication, family functioning and positive parenting, and a second study found a positive effect of a parental monitoring intervention for African American families on parent-child communication about HIV/AIDS. Four studies examined intervention effects on health outcomes related to alcohol use and sexual health. Short- to medium-term reductions in alcohol drinking were found for African American families, who received a parental monitoring intervention, but this reduction was not sustained and no other significant programme effects were found for health outcomes related to alcohol use. One study of a culturally-tailored programme reported a long-term decrease in incidence rates for STIs and unsafe sex at last sexual intercourse

among Hispanic adolescents who received an additional parent-targeted component. Although, short-term benefits of a parental monitoring intervention were also reported, these differences were not sustained and over the longer term there were no additional positive effects on sexual behaviour of the parent-targeted intervention among African American adolescents who had received a community-based risk reduction intervention.

Evidence statement 15

15 (a) There is mixed evidence from four RCTs regarding the effects of interventions and programmes delivered to families and parents on attitudes and values related to risky behaviours.

15 (b) There is moderate evidence from two RCTs to suggest that interventions and programmes delivered to families and parents, and which target alcohol use and sexual health, may improve parent-child communication and family functioning. This evidence may only be partially applicable to the UK as these studies were conducted in the USA and focused on ethnic populations specific to the USA.

15 (c) There is moderate evidence from two RCTs to suggest that interventions and programmes delivered to parents and which target alcohol use and sexual health may not provide long-term additional benefits in terms of health and social outcomes related to sexual health and alcohol use beyond those conferred through interventions and programmes which directly target young people. This evidence may only be partially applicable to the UK as these studies were conducted in the USA and focused on ethnic populations specific to the USA.

CONCLUSIONS

The results of this systematic review suggest that programmes and interventions delivered to families may be effective in reducing adolescent alcohol consumption and that group-based sessions and/or skills training programmes in community and healthcare settings may be effective in increasing condom use and reducing the frequency of unprotected intercourse among adolescents. In addition, programmes and interventions delivered to families and parents appeared to be effective in increasing parent-child communication about alcohol use and sexual health. However, the applicability of the evidence identified may not be generalisable to the UK and good quality UK-based research of promising or novel intervention approaches, including assessment of cost-effectiveness, is required in order to build the evidence base on which to make UK-based policy and practice recommendations.

Programmes targeting alcohol use

There was a lack of evidence on which to draw conclusions about the effects of programmes and interventions that targeted adolescent alcohol use on knowledge and understanding. There were positive effects of programmes and interventions delivered to families on attitudes and values related to alcohol use, but programmes and interventions delivered to parents or within social, healthcare and community settings appeared to have no impact on these outcomes. Programmes and interventions delivered to families and parents produced short- and long-term improvements in parent-child communication, and programmes and interventions delivered to families had positive effects on both

alcohol use and initiation of alcohol use. Programme effects on health and social outcomes related to alcohol use were mixed and inconsistent across programmes and interventions delivered to parents, in social, healthcare or community settings, or to the wider community. The family-focused ISFP was highlighted across three systematic reviews as showing particular promise; this programme, which was designed to enhance family protective and resiliency processes and to reduce family-based risk factors associated with child behaviour problems, had positive, long-term effects on a range of outcomes related to alcohol use and has been shown to be cost-effective and potentially cost saving.

Programmes targeting sexual health

The evidence suggests that programmes and interventions delivered in social, healthcare and community settings and to families and parents may have beneficial effects on sexual health-related knowledge in the short- to long-term. A range of outcomes were reported with regards to attitudes and values and programmes effects were mixed across these measures. The evidence suggests that while programme and interventions targeting adolescent sexual health may not impact on attitudes towards sexual intercourse, programme and interventions delivered in healthcare settings may positively impact on condom use attitudes. Programmes and interventions delivered to families and in social, healthcare and community settings had mixed and inconsistent effects on communication, but programmes and intervention delivered to parents appeared to have positive effects on parent-child communication. There appeared to be no effects of programmes and interventions delivered to families and parents on adolescent sexual behaviour, and programmes and interventions delivered in social, healthcare and community settings had limited and inconsistent effects on sexual activity including frequency of intercourse and number of sexual partners. However, the evidence suggests that group-based sessions and/or skills training programmes in community and healthcare settings may increase condom use and reduce the frequency of unprotected sex. In addition, a youth development approach showed promise, with effects on a range of sexual health outcomes for females. There was a lack of evidence on which to draw conclusions about the effects of programmes involving the wider community or mass media or those targeting vulnerable populations.

Programmes targeting multiple behaviours

There was a lack of evidence on which to draw conclusions about the effects of programmes and interventions that targeted multiple behaviours on knowledge and understanding, and there was evidence of mixed and inconsistent effects of these programmes on attitudes and values. Programmes and interventions delivered to parents and families had long-term positive effects on communication, but intervention effects on health and social outcomes related to sexual health were less clear. There was no evidence supporting the effectiveness of programmes and interventions delivered in social, healthcare and community settings and interventions and programmes delivered to parents did not appear to provide additional long-term benefits beyond those conferred through intervention and programmes which directly targeted young people.

1 Introduction

1.1 Aims and objectives

The aim of the review was to identify effective and cost-effective interventions and programmes that address health literacy and personal skills in relation to alcohol use and sexual health. This was defined as alcohol education and/or sex and relationships education (SRE) delivered in isolation or as part of a wider programme in family, social, healthcare and community settings.

1.2 Research question

The review aimed to address the following key research questions:

1) What services, interventions, programmes, policies or strategies for children and young people aged 5 years and above are effective and cost-effective in contributing to the achievement of the “Every Child Matters” outcomes related to sexual health and alcohol?

2) What elements/components of those services, interventions, programmes, policies or strategies for children and young people aged 5 years and above are effective and cost-effective in contributing to the achievement of the “Every Child Matters” outcomes related to sexual health and alcohol?

2 Background

Interventions aiming to prevent, delay or reduce risk-taking behaviours are delivered at several different levels: individual, community and population. However, regardless of the level at which interventions are delivered their effects are rarely limited to just one level (NICE, 2007). This systematic review examined the effectiveness of both alcohol and sexual health interventions delivered in a community setting. Separate from school-based interventions, community-based interventions may include, for example, interventions targeted at families, parents, and young people outside school in after school clubs or youth clubs. Community-based interventions are used to reach young people who may not be in education or training and are also used to target vulnerable groups in the wider community, for example, such young homeless people. The need for interventions involving community-based and outreach initiatives for the prevention of sexual health and the prevention of alcohol use has been previously recognised (MedFASH, 2008)

Young people aged 16-19 years report that lessons at school are their primary source of sexual health information. However, females report parents to be their preferred source of information and for males, parents are reported a close second to school lessons (33.3% compared to 34.4% respectively). The difference between actual sources of information and preferred sources of information is most notable in males; with 1 in 12 reporting parents as their main source of information, compared to 1 in 3 who would prefer their main source of information to be their parents (Wellings et al., 2006). Often difficulty in addressing sensitive issues and a lack of parental communication skills can contribute to an inability for parents and children to openly discuss topics such as alcohol and sex. Poor family relationships and poor parental support have been highlighted as contributing risk-factors for teenage pregnancy (DfES, 2006). Strong family bonds, parental monitoring and family rules have also been cited as important contributing factors to prevention interventions (DfES, 2004) (see Table 2.1).

As young people develop, their primary source of education and information regarding, for example, sexual behaviour and alcohol use can move from parents, to school, to peers, particularly during adolescence and the need to adhere to peer norms can conflict with or override previous influential norms. At this developmentally vulnerable time females with parents who drink show higher rates of initial alcohol use (Duncan et al., 2006). Young people's drinking is predicted more by a mother's drinking behaviour than a father's drinking behaviour, indicating that young peoples' drinking is influenced through modelling (White et al., 2000). Further research has shown that being white, being from a single-parent family, having deviant peers and friends who encourage alcohol use predicts increased rates of alcohol use from age 9-16 years (Duncan et al., 2006). Strict parental rules about drinking alcohol have been shown to have a protective influence on frequent or heavy consumption of alcohol in young people and to delay the initiation of alcohol use (van der Vorst et al., 2005; van der Vorst et al., 2006). However, if parents are permissive regarding, for example, early alcohol use or if they engage in heavy alcohol use themselves then their children are more likely to tend towards early or heavy drinking (van der Vorst et al., 2009).

Similarly, young white teenagers who report sexually permissive peer norms, perceived peer approval of teenage sexual behaviour, perceived peer sexual behaviour and greater levels of sexual communication with peers have a higher susceptibility and higher odds of initiating sexual intercourse (L'Engle & Jackson, 2008). Other studies also support the findings that normative peer sexual behaviour predicts sexual initiation in young teenagers and show that perceived peer values are more strongly related to sexual initiation than actual peer reports of attitudes and values (Sieving et al., 2006). Findings also show that the media can act as a sexual socialising agent for young teenagers (L'Engle & Jackson, 2008) and be a super peer in terms of sexual influences, giving the impression to young girls that early sexual behaviour is acceptable (Brown et al., 2005). Moderating factors for sexual initiation, similar to those from alcohol studies, are stronger parent-child relationships, particularly with the mother. In addition, parental monitoring and strong links to school (e.g. feeling good about being in school, expecting to finish school and go on to further education) can have protective effects.

Although education on alcohol and sexual health features in school curricula, the contribution and support of parents and carers is vital to ensure that consistent and accurate public health messages are conveyed to young people to prevent risk-taking behaviour and facilitate behaviour-change (DfES, 2004; DCSF, 2008). This also includes the provision of parenting support to develop improved communication (DfES, 2006). An example of a well received programme for parent training reported in the UK is 'Speakeasy' which is a community-based education programme solely targeting parents. The aim of the programme is to help parents communicate well with their children about sex, sexual health and relationships by increasing parental knowledge and self-efficacy through group work (Ramm & Coleman, 2008). However, this programme is yet to be evaluated using a control group or with the inclusion of feedback from young people.

Early intervention is necessary, particularly in cases where young people are experiencing behavioural, emotional or social difficulties, which are risk factors for alcohol use and sexual risk-taking. As such parenting programmes are being implemented to help support parents and promote child well-being which could subsequently affect alcohol and sexual behaviour. Parent early intervention pathfinder programme, a DCSF funded programme primarily aimed at addressing anti-social behaviour, recommends a national roll-out of parenting programmes for parents with children aged 8-13 years (Lindsay et al., 2008). Programmes such as those recommended in the pathfinder programme (Strengthening Families, Strengthening Communities and Incredible Years) may precede and complement parenting programmes such as Speakeasy.

A whole school approach to education goes further and emphasises that consistent messages to those taught in schools ought to be conveyed not only through parents and family members but within the wider community also (DfES, 2004). Educational interventions delivered in the community also include media campaigns such as 'want respect, use a condom' and 'know your limits'. In addition community interventions can be supported by population level interventions such as that included in the Alcohol Harm Reduction Strategy to changing labels on alcohol, provide information at point of

sale, review advertising regulations and ensure that alcohol is not used positively in advertisements (The Strategy Unit, 2004).

Table 2.1. Risks and protective factors associated with drug[1] misuse.

Vulnerable Groups	Risk Factors	Protective Factors
Homeless Looked after School truants Pupils excluded from schools Sexually abused Prostitutes In contact with mental health or criminal justice system Children of parents with drug problems	Chaotic home environment Parents who misuse drugs or suffer from mental illness Behavioural disorders Lack of parental nurturing Inappropriate or aggressive classroom behaviour School failure Poor coping skills Low commitment to school Friendship with deviant peers Low socio-economic status Early age of first drug use Being labelled as a drug misuser	Strong family bonds Experiences of strong parental monitoring with clear family rules Family involvement in the lives of children Successful school experiences Strong bonds with local community activities A caring relationship with at least one adult

(Source: The Right Responses – Managing and making policy for drug-related incidents in schools [Drugscope, 1999], taken from DfES, 2004)

[1] 'Drugs' refers to all drugs including medicines, volatile substances, alcohol, tobacco and illegal drugs.

3 Methodology

3.1 Search strategy

Systematic searches of electronic databases and websites were undertaken to identify studies that examined the effectiveness and/or cost-effectiveness of alcohol education and/or SRE delivered in community settings in isolation or as part of a wider programme of study such as PSHE or its equivalents. Searches were conducted across a range of health, education and social care databases as shown in Box 3.1.

Box 3.1. Health, education and social care databases

- ASSIA (Applied Social Science Index and Abstracts)
- CINAHL (Cumulative Index of Nursing and Allied Health Literature)
- Database of Abstracts of Reviews of Effectiveness (DARE)
- The Cochrane Library
- EMBASE
- ERIC
- British Education Index
- Australian Education Index
- HMIC
- MEDLINE
- PsycINFO
- Sociological Abstracts
- Social Science Citation Index
- EPPI Centre databases
- The Campbell Collaboration
- C2-SPECTR & C2-PROT Campbell Collaboration

Economic evaluation studies were identified by searching the following major health economics databases:

- NHS Economic Evaluations Database (NHS EED)
- EconLit

3.2 Inclusion and exclusion criteria

3.2.1 Population

Studies were eligible for inclusion if they included children aged 5 to 19 years old in community and outreach settings.

Studies were eligible for inclusion if they were undertaken in the UK, Western Europe, Australia, New Zealand, Canada and the USA.

3.2.2 Interventions

Studies were eligible for inclusion if they examined interventions that focused on SRE and/or alcohol education. Relevant intervention approaches included:

- Interventions and programmes delivered within social, healthcare or community settings
- Interventions and programmes delivered to families or parents
- Intervention and programmes involving the wider community or mass media

3.2.3 Comparator(s)

Studies were eligible for inclusion if they compared the intervention of interest against a no intervention control or against another intervention approach.

3.2.4 Outcomes

Studies were eligible for inclusion only if they examined the primary outcomes of interest:

- Health and social outcomes relating to alcohol use and sexual health
- Personal and social skills

The following secondary outcomes were assessed but only where a study reported a primary outcome of interest:

- Knowledge and understanding
- Attitudes and values

3.2.5 Study design

Systematic reviews, meta-analyses, randomised controlled trials, controlled non-randomised studies and controlled before and after studies that compared a community-based intervention against no

intervention or another type of intervention were eligible for inclusion in the assessment of effectiveness.

Studies were eligible for inclusion in the assessment of cost-effectiveness if they were economic evaluations conducted alongside trials, modelling studies and analyses of administrative databases. Only full economic evaluations that compared two or more options and considered both costs and consequences (including cost-effectiveness, cost utility and cost-benefit analyses) were included.

3.3 Data extraction strategy

All titles and abstracts retrieved were screened by one reviewer (LJ, GB and JD) according to the inclusion/exclusion criteria described above. Relevant articles were retrieved in full, and full text screening was undertaken independently by two reviewers (LJ, GB, JD, MW, OW, KS and AK). Disagreements were resolved through consensus and where necessary a third reviewer was consulted.

One reviewer (LJ, GB and JD) independently extracted and assessed the quality of the individual studies into an Access database. All data extraction and quality assessment were independently checked for accuracy by a second reviewer. The results of the data extraction are presented in an addendum to this report.

3.4 Quality assessment strategy

The quality of the studies was assessed according to criteria set out in the NICE Centre for Public Health Excellence Methods Manual (2009). Each of the effectiveness and cost-effectiveness studies was graded using a code, ++, + or – based on the extent to which the potential sources of bias had been minimised:

- ++ All or most of the criteria have been fulfilled. Where they have not been fulfilled the conclusions are thought very unlikely to alter.
- + Some of the criteria have been fulfilled. These criteria that have not been fulfilled or not adequately described are thought unlikely to alter the conclusions.
- - Few or no criteria have been fulfilled. The conclusions of the study are thought likely or very likely to alter.

Results of the quality assessment are presented in Appendix 4 and 5.

3.5 Methods of analysis/synthesis

3.5.1 Effectiveness studies

The results of the data extraction and quality assessment for each study of effectiveness are presented in structured tables and as a narrative summary. The possible effects of study quality on the effectiveness data and review findings are also discussed within the text of the review.

Studies are grouped according to (1) focus (alcohol or sex and relationships education) and (2) setting (social, health or community; family; parent; or community-wide or mass-media). Where reported in the original publications, effect sizes (e.g. odds ratios, Cohen's d) are presented. Where effect sizes were not reported significant ($p<0.05$; $p<0.01$; $p<0.001$) and non-significant changes in outcomes of the intervention(s) relative to the comparison group are presented.

Where sufficient data are available, intervention effect sizes will be calculated and presented as odds ratios (OR) for dichotomous data and as mean differences for continuous data in an addendum to this report to be prepared for the PDG meeting in February. Forest plots will be generated for single studies using RevMan (version 5). Heterogeneity between the included studies was assessed by considering differences in (a) the study population, (b) intervention approach, (c) outcome measures, and (d) study quality. However, given the anticipated heterogeneity between the included studies it was judged to be unlikely that pooling would be appropriate or feasible.

3.5.2 Published economic evaluations

Details of each identified published economic evaluation, together with a critical appraisal of its quality were presented in structured tables and as a narrative summary. For economic studies conducted alongside trials, the validity of the included studies was assessed by considering the source of the resource use and effectiveness data, the methods used to measure and calculate costs, the methods of analysis used and the generalisability of the results to the UK population.

4 Summary of study identification

4.1 Review of effectiveness and cost-effectiveness

A total of 12,108 references were identified from the literature searches. Following screening of titles and abstracts, 531 articles were identified as potentially relevant and attempts were made to source the full text articles. Of these articles, 91 were not available. These studies were therefore not subject to further screening and a total of 440 full-text articles were screened against the inclusion criteria for the study. The process of study selection is summarised in Figure 1.

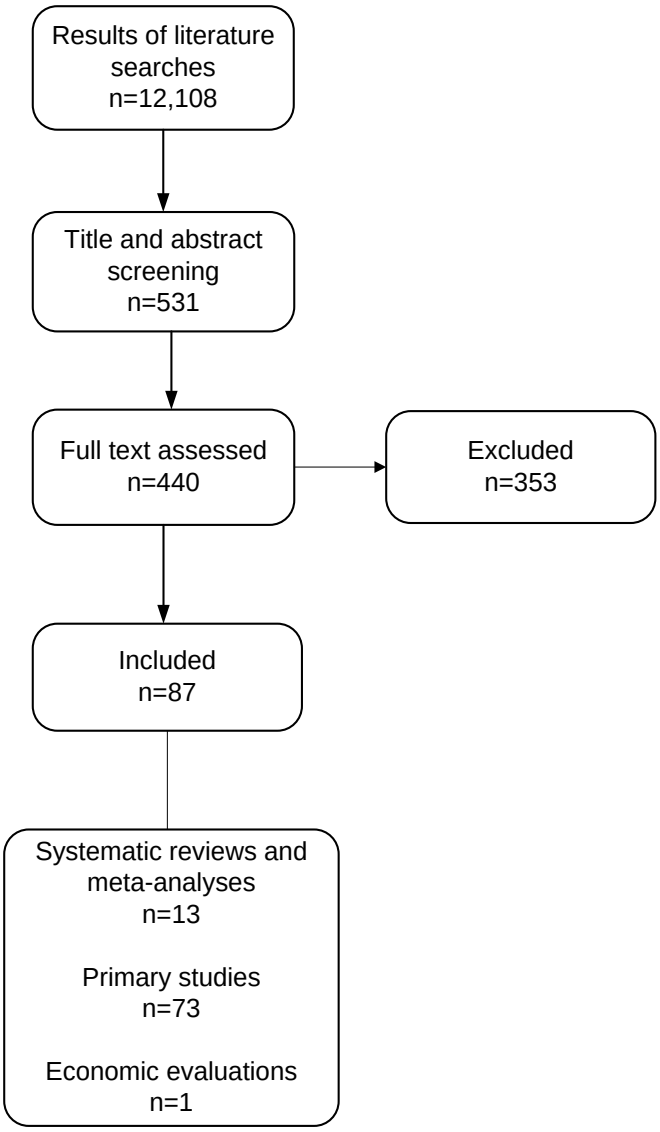

Figure 4.1. Process of study selection

4.1.1 Included studies

A total of 87 studies met the criteria for inclusion in the review of effectiveness and cost-effectiveness. Of these, 31 studies examined interventions targeting alcohol use, 51 studies examined interventions

targeting sexual health and the remaining five studies examined interventions which targeted both alcohol use and sexual health. Thirteen articles were systematic reviews and/or meta-analyses, 62 studies were based on experimental designs of which 53 used random assignment to allocate participants to intervention and comparison conditions. Eleven observational studies were identified for inclusion including nine controlled before and after (CBA) studies, and two cross-sectional time series (CTS). One economic evaluation study was also identified. A summary of the study designs identified for inclusion in the review is summarised on Table 4.1.

Table 4.1. Summary of study designs identified from inclusion

Section	Total	SR/MA	RCT	NRCT	CBA	CTS	Economic evaluation
Alcohol use	31	4	21	1	4	-	1
Sexual health	49	9	27	7	4	2	-
Multiple behaviours	7	-	5	1	1	-	-
Total	87	13	53	9	9	2	1
SR/MA – systematic review or meta-analysis; RCT – randomised controlled trial; NRCT – nonrandomised controlled trial; CBA – controlled before and after; CTS – cross sectional time series							

4.1.2 Excluded studies

A total of 353 articles did not meet the criteria for inclusion in the review and were excluded for the following reasons:

- Study design did not meet design criteria for inclusion in the review, n=213
- Population targeted by the intervention(s) did not meet the review criteria, n=75
- Intervention examined was not based in a relevant setting, n=53
- Intervention or intervention was not alcohol education or SRE related, n=9
- Duplicates or foreign language, n=3

References for the excluded studies are presented in Appendix 2.

5 Programmes targeting alcohol use

A total of 31 articles met the criteria for inclusion in the review of community-based programmes targeting alcohol use by young people. Four articles were systematic reviews and/or meta-analyses, four articles reported on studies that examined intervention or programmes delivered within social, healthcare and community settings, 19 articles reported on studies that examined programmes or interventions delivered to families or parents, and three studies examined interventions or programmes that involved the wider community or mass media. One economic evaluation study was also identified that examined the cost-effectiveness and cost-benefits of the Iowa Strengthening Families Programme (ISFP) and Preparing for the Drug Free Years (PDFY).

5.1 Systematic reviews and meta-analyses

5.1.1 Overview of evidence identified

Four systematic reviews were identified for inclusion that examined community-based interventions and programmes targeting alcohol use among young people. Two publications of the Cochrane review by Foxcroft and colleagues were identified (Foxcroft et al., 2002; 2003). This review sought to identify and summarise rigorous evaluations of psychosocial and educational interventions aimed at the primary prevention of alcohol misuse by young people. One review (Petrie et al., 2007) examined the effectiveness of parenting programmes to prevent tobacco, alcohol or drug abuse in children, and the fourth article identified (Smit et al., 2008) aimed to quantify the effectiveness of family interventions in reducing adolescent drinking through a meta-analysis of RCTs. All three reviews focused primarily on the inclusion of RCTs.

5.1.2 Quality assessment

All three reviews were rated good quality. They addressed appropriate and clearly focused questions and a good description of the methodology used to conduct the reviews was reported. All three reviews were based on rigorous searches of the literature and assessed study quality. The synthesis of study data was undertaken appropriately across all three reviews.

5.1.3 Findings

Of the community-based studies reviewed by Foxcroft and colleagues (2002; 2003), the ISFP was highlighted as showing particular promise over the long-term. The authors conducted an intention-to-treat reanalysis, reporting a number needed to treat (NNT) of 9 for this programme at the four-year follow-up. This indicates that for every 9 individuals who receive the intervention, there will be one fewer person reporting that they have ever used alcohol (NNT 9; 95% CI 5, infinity), used alcohol without permission (NNT 9; 95% CI 5, 160), or ever been drunk (NNT 9; 95% CI 5, 327).

Petrie and colleagues (2007) reported that the strongest evidence supported interventions targeting preteen and early adolescent children. Parenting programmes highlighted as effective included the Iowa Strengthening Families Program (ISFP) and Preparing for the Drug Free Years (PDFY). The authors reported that effective interventions focused on developing strategies to involve adolescents

in family activities, in order to maintain familial bonds and manage conflict. Effective intervention also placed an emphasis on parental engagement in an activity-based programme.

Smit and colleagues (2008) included nine RCTs in their meta-analysis, the main findings of which suggested a favourable effect of family-based interventions on alcohol initiation (OR 0.71; 95% CI 0.54, 0.94) and frequency of alcohol use (Cohen's *d* -0.25; 95% CI -0.37, -0.12) in adolescents. However there was evidence of heterogeneity across the pooled studies on the measure of alcohol initiation. Longitudinal analyses conducted by the authors pointed to the success of the ISFP and PDFY.

5.1.4 Summary and evidence statements

Three systematic reviews and meta-analyses were identified for inclusion. One review (Foxcroft et al., 2002; 2003) examined interventions and programmes aimed at the primary prevention of alcohol use across a range of populations and settings. Two further reviews (Petrie et al., 2007; Smit et al., 2008) examined interventions and programmes delivered to parents and families, respectively.

Foxcroft et al (2002; 2003) found that although there was no consistent evidence to determine which programmes were effective over the short to medium-term, one family-based programme, the Strengthening Families programme, was effective over the longer term. The reviews by Petrie and colleagues (2007) and Smit and colleagues (2008) also highlighted the long-term effectiveness of the Strengthening Families programmes.

Evidence statement 1

The is strong evidence from three systematic reviews[1] to suggest that a family-based programme, Strengthening Families, can produce long-term reductions (greater than 3 years) in alcohol use and heavy alcohol use.

[1] Foxcroft et al., 2002; 2003 (SR ++); Petrie et al., 2007 (SR ++); Smit et al., 2008 (SR ++)

Table 5.1. Summary of findings from systematic reviews and meta-analyses: Programmes targeting alcohol use

Author (year)	Design	Inclusion/exclusion	Number of studies	Findings
Foxcroft et al (2002; 2003)	SR ++	Psychosocial and educational interventions aimed at the primary prevention of alcohol misuse by young people aged up to 25 years	56 studies	Twenty studies demonstrated evidence of ineffectiveness. No firm conclusions about the effectiveness of prevention in the short and medium-term were possible. But over the longer term (>3 years), the Strengthening Families Programme showed more promise as an effective prevention intervention.
Petrie et al (2007)	SR ++	Parenting programmes to prevent tobacco, alcohol or drug abuse in children	20 studies	Strongest evidence related to interventions and programmes that had been undertaken with preteen and early adolescent children. Effective interventions focussed on developing strategies to involve adolescents in family activities to maintain familial bonds and manage conflict. Also, an emphasis on parental engagement in an activity-based programme.
Smit et al (2008)	SR ++	Family interventions that focused on reducing adolescent drinking.	18 studies	Main findings pointed to a favourable effect of family interventions on alcohol initiation and frequency of alcohol consumption among young people. The effects were maintained over time. Studies that examined group-based interventions and programmes tended to report a stronger intervention effect that interventions targeting individual families.

5.2 Programmes delivered within social or community settings

5.2.1 Overview of evidence identified

Three studies (Elder et al., 2002; Schinke et al., 2005; Tebes et al., 2007) were identified that examined programmes delivered within social, healthcare or community settings, which targeted alcohol use among young people. These studies were conducted within youth and after school agencies and all three were conducted in the USA. Schinke et al (2005) examined an interactive CD-ROM intervention designed to reduce early alcohol use, and Elder et al (2002) and Tebes et al (2007) examined substance use prevention programmes which targeted migrant families, and adolescents enrolled in after school programmes, respectively.

The theoretical basis for intervention was not reported in two of the three studies. The interactive CD-ROM intervention (Schinke et al., 2005) was based on a combination of theories, including social cognitive theory, problem-behaviour theory, peer-cluster theory and family networks theory.

The number of participants recruited across the included studies ranged from 304 (Tebes et al., 2007) to 660 (Elder et al., 2002) students. One study (Schinke et al., 2005) examined interventions that targeted children aged 10-12 years, and another (Tebes et al., 2007) examined an intervention that targeted students with a mean age of 15 years. The study by Elder et al. (2002) did not specify the age range of the adolescents targeted in their study. One study (Elder et al., 2002) reported long-term follow-up data (>12 months); the study by Tebes and colleagues (2007) reported 12-months of follow-up and Schinke and colleagues (2005) reported immediate post-test results only.

5.2.2 Quality assessment

Of the three studies identified, two were cluster RCTs (Elder et al., 2002; Schinke et al., 2005) and one was based on CBA design (Tebes et al., 2007). The RCT by Elder and colleagues (2002) was rated moderate. The authors did not report the number of participants assigned to the intervention and control groups, although other aspects of the study were adequately reported. The RCT by Schinke and colleagues (2005) was rated poor quality as insufficient information was reported to determine whether the analyses were conducted appropriately and whether the outcomes measures were reliable. The quality of the CBA study by Tebes and colleagues (2007) was rated moderate. The intervention and comparison conditions were well described and appropriate, contamination was acceptably low, and all important and relevant outcomes were examined.

5.2.3 Findings

5.2.3.1 Knowledge

None of the included studies examined intervention effects on knowledge.

5.2.3.2 Attitudes and values

Three studies (Elder et al., 2002; Schinke et al., 2005; Tebes et al., 2007) examined intervention effects on alcohol and substance-related attitudes. Elder and colleagues (2002) found that there were

no effects of the 'Sembrano Salud' programme, which targeted migrant families, on participant's susceptibility to drinking. The CD-ROM intervention, Thinking not Drinking, examined by Schinke and colleagues (2005) had a positive impact on participant's perception of the harms of alcohol at post-test in comparison to a 'no intervention' control group ($p<0.05$). A short-term positive intervention effect on participants' perception of the harms of alcohol was also reported in the study by Tebes and colleagues (2007) that examined an after-school, youth development programme, Adolescent Decision-Making for the Positive Youth Development Collaborative (ADM-PYDC), designed to prevent substance use. At post-test, intervention participants reported an increased perception of risk of harm compared with the control group ($p<0.01$), but there was no difference on this measure at the 12-month follow-up. In addition, there was no significant difference between the intervention and control group in their attitudes towards drugs over follow-up.

5.2.3.3 Personal and social skills

Only one study (Schinke et al., 2005) examined intervention effects on personal and social skills. At immediate post-test, participants who received an interactive CD-ROM intervention scored more positively on the measure of assertion skills compared to their control counterparts ($p<0.001$).

5.2.3.4 Health and social outcomes related to alcohol use

All three studies examined intervention effects on health and social outcomes related to alcohol use. There were no effects of the interactive CD-ROM intervention (Schinke et al., 2005) on participants' alcohol use at post-test, but the authors reported that the frequency of substance use was low among the study participants, who were a median age of 11 at baseline. Frequency of alcohol prevalence was also reported to be low among those who participated in the evaluation of Sembrano Salud (Elder et al., 2002) and there was no difference between intervention and control groups in terms of 30-day drinking at any follow-up (OR 1.21; 95% CI 0.74, 1.97). The after-school, youth development programme examined by Tebes and colleagues (2007) was found to have had a positive effect on alcohol use. Between baseline and the 1-year follow-up, reductions in alcohol use were found to be significantly greater among the intervention group relative to the control group (OR 0.37; 95% CI 0.15-0.90).

5.2.4 Summary and evidence statements

Three studies were identified for inclusion that examined interventions and programme targeting alcohol use, which were delivered in social, healthcare and community settings. All three studies (Elder et al., 2002; Schinke et al., 2005; Tebes et al., 2007) were conducted within youth and after school agencies and were based in the USA.

None of the studies examined intervention effects on knowledge and understanding. Short-term increases in perception of harm were reported in two studies (Schinke et al., 2005; Tebes et al., 2007), but this effect was not sustained at the 12-month follow-up in the study by Tebes and colleagues (2007). Tebes and colleagues (2007) also found no impact of an after-school, youth development programme on participants' drug beliefs and there was no impact of Sembrano Salud (Elder et al., 2002) on participants' susceptibility to alcohol. One study (Schinke et al., 2007) examined intervention

effects on personal and social skills, finding a short-term intervention impact of an interactive CD-ROM intervention on assertion skills.

Two studies (Elder et al., 2002; Schinke et al., 2005), conducted within youth agencies, reported that there were no intervention effects on health and social outcomes related to alcohol use, and that substance use remained low among participants. However, one study (Tebes et al., 2007), which targeted older children (mean age 15 years) in after school programmes reported a positive short- to medium-term effect on alcohol use.

Evidence statement 2

2 (a) There is inconsistent evidence from two RCTs and one CBA study[1] to determine the effects of interventions and programmes delivered in social, healthcare and community settings on attitudes and values related to alcohol use.

2 (b) There is inconsistent evidence from two RCTs and one CBA study[1] to determine the effects of interventions and programmes delivered in social and community settings on alcohol use. However, there is weak evidence from one CBA study[2] to suggest that programmes that target older children may impact on alcohol consumption. Findings may only be partially applicable to the UK as the study was conducted in the USA and may not be generalisable beyond the populations studied.

[1] Elder et al., 2002 (RCT +); Schinke et al., 2005 (RCT -); Tebes et al., 2007 (CBA +)

[2] Tebes et al., 2007 (CBA +)

Table 5.2. Summary of programme content: programmes delivered within social, healthcare or community settings

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
Elder et al., 2002	RCT (cluster) +	USA n=660 Majority Mexican age NR	School (evenings)	**Sembrano Salud**: Eight weekly, 2-hour sessions: presentation of information, modelling and behavioural rehearsal; developing parental support through enhanced parent-child communication. Additional components were telephone booster calls and three newsletters.	NR	Mexican American group leaders
Schinke et al., 2005	RCT (cluster) -	USA n=489 54% African American; 30% Hispanic, 11% White; 5% other 10-12 years	Youth agencies	**Thinking Not Drinking:** Ten weekly, 45 minute sessions. Interactive CD-ROM; goal setting, coping, media literacy, peer pressure, assertiveness training and preventive strategies	Social cognitive theory, problem-behaviour theory, peer-cluster theory and family networks theory	CD-ROM
Tebes et al., 2007	CBA +	USA n=304 76% African American; 20% Hispanic; 4% White; <1% other mean 15 years	Youth agencies	**Adolescent Decision-Making for the Positive Youth Development Collaborative (ADM-PYDC)**: 18 sessions; understanding and coping with stress, decision-making, information about tobacco, alcohol and drugs, and applying decision-making.	NR	Community group leaders

Table 5.3. Programmes delivered in social, healthcare and community settings: effects on knowledge, skills and attitudes

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
Elder et al., 2002	RCT (cluster) +	Sembrano Salud n=NR	First aid/home safety n=NR	PT (97%)	-	**NS** susceptibility to drinking	-
				1 yr (89%)	-	**NS** susceptibility to drinking	-
				2 yr (81%)	-	**NS** susceptibility to drinking	-
Schinke et al., 2005	RCT (cluster) -	Thinking Not Drinking n=329	No intervention n=160	PT (100%)	-	↑ perceived harm of alcohol*	↑ assertion skills***
Tebes et al., 2007	CBA +	ADM-PYDC n=149	Other after-school activities n=155	PT (NR)	-	↑ perception of risk of harm** **NS** drug beliefs	-
				1 yr (Int 62%; Con 58%)	-	**NS** perception of risk of harm **NS** drug beliefs	-

*p<0.05; **p<0.01; ***p<0.001; ¶p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

Table 5.4. Programmes delivered in social, healthcare and community settings: effects on health and social outcomes related to alcohol use

Study	Rating	Intervention	Comparator	Follow-up	Health and social outcomes		
					Alcohol use	Heavy alcohol use	Other
Elder et al., 2002	RCT (cluster) +	Sembrano Salud n=NR	First aid/home safety educational programme n=NR	PT (97%)	**NS** 30-day drinking	-	-
				1 yr (89%)	**NS** 30-day drinking	-	-
				2 yr (81%)	**NS** 30-day drinking	-	-
Schinke et al., 2005	RCT (cluster) -	Thinking Not Drinking n=329	No intervention n=160	PT (100%)	**NS** alcohol use	-	-
Tebes et al., 2007	CBA +	ADM-PYDC n=149	Other after-school activities n=155	1 yr (Int 62%; Con 58%)	↓ alcohol use[¶]	-	-

*p<0.05; **p<0.01; ***p<0.001; [¶]p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

5.3 Programmes delivered to families

5.3.1 Overview of evidence identified

Fifteen articles were identified that evaluated nine programmes delivered to families, which focused on alcohol or substance use, all of which were implemented in the USA. Three programmes, evaluated in three studies (Loveland-Cherry et al., 1999; Schinke et al 2004; Schinke et al., 2009), were alcohol use prevention interventions while the remaining seven programmes, examined in twelve studies (Bauman et al., 2000; Brody et al., 2004; 2006; Gerrard et al., 2006; Johnson et al., 1996; Jones et al., 2005; Mason et al., 2009; Murry et al., 2007; Spoth et al., 1999; Spoth et al., 2001; 2004; Stevens et al., 2002), focused on substance use prevention, including alcohol. Four studies (Spoth et al., 1999; 2001; 2004; Mason et al., 2009) reported on the large-scale evaluation of two brief, family-focused programmes, the ISFP and PFDY. Two papers evaluated participants from both programmes (Spoth et al., 2001; 2004), one paper evaluated ISFP participants only (Spoth et al., 1999) and one paper provided a long-term evaluation of the PDFY participants only (Mason et al., 2009). Four studies (Brody et al., 2004; 2006; Gerrard et al., 2006; Murry et al., 2007) reported on an evaluation of the Strong African American Families programme, which targeted parenting practices. Two studies (Jones et al., 2005; Stevens et al., 2002) reported on the Dartmouth Prevention Project that examined the effects of two physician-led interventions delivered in a primary care setting, one of which sought to prevent early drinking and smoking.

Interventions took place in settings including at home, primary care settings and community centres; although for the majority of studies the setting was not detailed. Similarly, the person or persons providing the interventions was poorly reported. Three studies (Spoth et al., 1999; 2001; 2004) examined interventions based on video presentations and two interventions (Schinke et al., 2004; Schinke et al., 2009) were delivered via CD-ROM.

Eight studies (Bauman et al., 2000; Loveland-Cherry et al., 1999; Mason et al., 2009; Schinke et al., 2004; 2009; Spoth et al., 1999; 2001; 2004) reported the theoretical basis for intervention. The ISFP and PDFY programmes (Spoth et al., 1999; Spoth et al., 2001; Mason et al., 2009) were based upon the biopsychosocial model and social development model, respectively. For two CD-ROM based interventions (Schinke et al., 2004; Schinke et al., 2009), a CD-ROM intervention with and without parental involvement component drew on social learning theory, problem behaviour theory and family interaction theory, and a gender-specific, computer mediated intervention was informed by family interaction theory. Bauman and colleagues (2000) reported a combination of social and health theories including the health belief model, social learning theory and social inoculation theory in the development of materials for the Family Matters programme and the alcohol use prevention intervention examined by Loveland-Cherry and colleagues (1999) was based on theories of social cognition and problem behaviours.

The number of participants taking part in studies ranged from 120 adolescents and their parents (Johnson et al., 1996) to 3,111 families (Stevens et al., 2002). Young people taking part in programmes were generally in early adolescence, aged 11-15, with the exception of one alcohol

misuse prevention intervention (Loveland Cherry, 1999) that was implemented in the 4th grade (aged 9-10 years). Programme evaluations varied in length. One programme (Schinke et al., 2009) was based on short-term follow-up only, but all other studies included a medium- or- long term evaluation. Long-term evaluations (>12 months follow-up) were provided for the following programmes: SAAF (Brody et al., 2004; 2006), PDFY (Spoth et al., 2001; 2004; Mason et al., 2009), ISFP (Spoth et al., 2001; 2004), physician-led primary care-based intervention (Jones et al., 2005; Stevens et al., 2002), an alcohol misuse prevention intervention (Loveland-Cherry, 1999) and a CD-ROM intervention (Schinke et al., 2004).

5.3.2 Quality assessment

All 15 studies identified were RCTs and included three studies that were based on individual randomisation (Bauman et al., 2000; Loveland-Cherry 1999; Schinke et al., 2009). The remaining twelve studies were based on cluster randomisation at the level of county (SAAF: Brody et al., 2004; 2006; Gerrard et al., 2006; Murry et al., 2007); family (Johnson et al., 1996); clinic (Jones et al., 2005; Stevens et al., 2002); school (ISFP/PDFY: Mason et al., 2009; Spoth et al., 1999; 2001; 2004) or community site (Schinke et al., 2004). None of the RCTs were rated good quality and three were rated poor quality (Bauman et al., 2000; Johnson et al., 1996; Loveland-Cherry, 1999), with the remainder rated moderate quality. All 12 studies described allocation to intervention and control groups as randomised but failed to detail further methods of randomisation and concealment of allocation was only detailed in the evaluations of the ISFP and PDFY (Mason et al., 2009; Spoth et al., 1999; 2001; 2004). Studies were generally rated as good or moderate for quality relating to outcome measures but two studies did not report on reliability of outcomes (Bauman et al., 2000; Loveland-Cherry et al., 1999) and three studies were rated as not assessing all important outcomes (Bauman et al., 2000; Johnson et al., 1996; Jones et al., 2005). The study by Stevens et al (2002) was generally a good quality study but the authors did not discuss attrition although it was clear that not all participants were followed up. The study was therefore rated moderate. Outcomes across all studies were deemed relevant and only one study (Schinke et al., 2009) was rated moderate for length of follow-up time. However, the length of follow-up was generally good, with medium to long-term follow-up results across all other studies. One study (Loveland-Cherry et al., 1999) did not report on baseline comparability between groups but this was undertaken in the remaining studies. Analytical methods were poorly reported in two studies (Bauman et al., 2000; Johnson et al., 1996) where effect sizes for outcomes were not presented or calculable and levels of significance not presented for all outcomes. In seven studies analytical methods were generally rated as good (Brody et al., 2001; 2004; Mason et al., 2009; Schinke et al., 2004; Spoth et al., 1999; 2001; 2004).

5.3.3 Findings

5.3.3.1 Knowledge and understanding

One study (Johnson et al., 1996) examined intervention effects on knowledge and understanding. Johnson and colleagues (1996) reported a positive intervention effect ($p<0.001$) on knowledge of

alcohol and other drugs at post-test and the 12-month follow-up, among those who participated in the community-based, Creating Lasting Connections programme.

5.3.3.2 Attitudes and values

Measures relating to attitudes and values were reported in evaluations of three programmes: SAAF (Brody et al., 2001; 2004); a substance misuse prevention intervention (Jones et al., 2005) and a CD-ROM based intervention (Schinke et al., 2009). Brody and colleagues (2004; 2009) reported finding positive post-test effects of the SAAF on youth protective factors ($p<0.05$) that included resistance efficacy, goal-directed future orientation, images of drinkers and negative attitudes about sex and alcohol, but these effects were non-significant at the long-term follow-up. Short-term evaluation of a CD-ROM intervention for girls and their mothers (Schinke et al., 2009) suggested positive effects of the intervention on girls' beliefs about underage drinking, intentions not to drink and self-efficacy to avoid alcohol (all $p<0.05$) compared to control participants. Jones and colleagues (2005) evaluated a physician-led primary care-based intervention. At the 3-year follow-up, the authors found a negative association between intervention group boys and externalizing problem behaviour ($p<0.01$). Effects for girls were non-significant, as were effects on internalising of problems.

5.3.3.3 Personal and social skills

For four programmes, SAAF (Brody et al., 2001; 2004), Creating Lasting Connections (Johnson et al., 1996) and two CD-ROM based interventions (Schinke et al., 2004; 2009), measures relating to personal and social skills were reported. Brody and colleagues (2004) reported a positive effect of the SAAF on communicative parenting ($p<0.05$) at post-test, but the effect was no longer significant at long-term follow-up. Two CD-ROM based interventions (Schinke et al., 2004; 2009) produced positive effects on skills outcomes. Schinke and colleagues (2009) reported positive short-term intervention effects on a range of measures including mother and daughter reported parental rules, daughter's reported parental monitoring, family conflict management skills and communication with mother (all $p<0.05$). Mother-reported communication with daughter and parental monitoring did not significantly differ between intervention and control groups. Long-term evaluation of a CD-ROM intervention with and without a parent involvement component (Schinke et al., 2004) revealed positive intervention effects on levels of family involvement ($p<0.05$) among those who received the additional parental component, and a positive effect on peer influence outcomes ($p<0.001$). Johnson and colleagues (2006) reported non-significant effects of the Creating Lasting Connections programme on family communication, and youth- and parent-reported levels of bonding at post-test and long-term follow-up. However, there were positive programme effects on youth involvement in the setting up of rules about alcohol and other drugs ($p<0.001$) at post-test. This effect was no longer significant by long-term follow-up, and no significant intervention effects were found on the existence of rules about alcohol and other drugs or for non-substance use behaviours.

5.3.3.4 Health and social outcomes related to sexual health

Measures related to alcohol behaviour were evaluated for eight programmes: Family Matters (Bauman et al., 2000); SAAF (Brody et al., 2004; 2006); a physician-led primary care-based intervention (Stevens et al., 2002; Jones et al., 2005); a home-based family intervention (Loveland-

Cherry et al., 1999); ISFP and PDFY (Mason et al., 2009; Spoth et al., 1999; 2001; 2004); a CD-ROM intervention with and without a parent involvement component (Schinke et al., 2004); and a CD-ROM intervention for girls and their mothers (Schinke et al., 2009). Studies examined alcohol use over a period of time and/or initiation of alcohol use.

Eight studies evaluated the impact of seven programmes on alcohol use (Bauman et al., 2000; Stevens et al., 2002; Jones et al., 2005; Loveland-Cherry, 1999; Schinke et al., 2004; 2009; Spoth et al., 2001; Mason et al., 2009). Three of these programmes had no effects on alcohol use among young people who had already initiated alcohol use. There were non-significant effects of the Family Matters programme (Bauman et al., 2000) on past 30-day drinking at 3- and 12-month follow-up, and no long-term effects of a home-based family intervention (Loveland-Cherry et al., 1999). There were positive effects of two CD-ROM interventions (Schinke et al., 2004; 2009). Young people who received a CD-ROM intervention with and without a parental involvement component reported less monthly alcohol use than controls over medium- to long-term follow-up (all $p<0.001$), and at the 3-year follow-up, participants in the CD-ROM plus parental involvement condition reported less monthly use that those who received the CD-ROM intervention only ($p<0.05$). In addition, short-term positive effects of a CD-ROM intervention for girls and their mothers (Schinke et al., 2009) were found for alcohol use in the past week ($p<0.01$), month ($p<0.05$) and year ($p<0.05$). Long-term evaluation of the ISFP and PDFY (Spoth et al., 2001) revealed positive long-term effects of both programmes on alcohol use in the past 30 days and on a composite index of alcohol use[2], compared to controls ($p<0.05$ and $p<0.01$, respectively). Mason and colleagues (2009) examined the long-term impact on PDFY on rates of alcohol abuse. Based on ten years of follow-up, women who received the intervention were significantly less likely than controls to report alcohol abuse at age 22 ($p<0.05$), while the intervention had no significant effect on alcohol abuse among men. There were potentially harmful effects of the intervention examined in the Dartmouth Prevention Project (Stevens et al., 2002; Jones et al., 2005). Participants who received a physician-led health consultation designed to promote parental communication about alcohol and smoking reported significantly higher levels of drinking than participants who received a consultation about bicycle helmet use, seatbelt use or gun storage at both the 24- and 36-month follow-up (24 months: OR 1.27; 95% CI 1.03, 1.55 and 36 months: OR 1.30; 95% CI 1.07, 1.57).

Six studies (Brody et al., 2004; 2006; Loveland-Cherry et al., 1999; Spoth et al., 1999; 2001; 2004) evaluated the impact of four programmes on initiation of alcohol use. At post-test and 24-months follow-up, Brody and colleagues (2004; 2006) found positive effects of the SAAF on initiation of alcohol use ($p<0.05$) and Loveland-Cherry and colleagues (1999) reported significant long-term effects on alcohol initiation ($p<0.05$) of a home-based family intervention. Similarly, medium- and long-term evaluations of the ISFP programme (Spoth et al., 1999; 2001) found positive intervention effects on initiation of alcohol use (1-year follow-up: $p<0.05$; 2-years follow-up: $p<0.01$; 3-years follow-up:

[2] Composite measure of three items concerning lifetime behaviours and one concerning recent use: lifetime use, lifetime use without parental permission, lifetime drunkenness, and past month use.

p<0.01); although no significant effect was seen among PDFY participants. Spoth and colleagues (2004) also examined the impact of the ISFP and PDFY on growth in initiation of alcohol use over 6 years from the 6th to the 12th grade (age 11-12 to 17-18 years) finding that the ISFP delayed alcohol initiation among intervention participants (p<0.05). Spoth and colleagues (2001) also found that in 10th grade (age 15-16 years), ISFP participants who had initiated alcohol use during the study were less likely to have been drunk and to have drank without parental permission (both p<0.01), but again no significant programme effects on these behaviours were demonstrated among PDFY participants.

5.3.4 Summary and evidence statements

Outcomes relating to knowledge were examined in one study (Johnson et al., 1996), which reported a positive intervention effect at post-test and 1-year follow-up (both p<0.001) on knowledge of alcohol and other drugs among participants in the Creating Lasting Connections programme. Four studies evaluated intervention effects on attitudes and values (Brody et al., 2004; 2009; Jones et al., 2005; Schinke et al., 2009). Positive effects on attitudes about drinking were reported at short-term follow-up for SAAF (Brody et al., 2004) and a CD-ROM intervention for mothers and their daughters (Schinke et al., 2009). However, at long-term follow-up of SAAF (Brody et al., 2009) no significant effects were reported on attitudes. Evaluations of two CD-ROM based interventions (Schinke et al., 2004; 2009) showed positive programme effects on family communication skills and involvement skills. The SAAF (Brody et al., 2004) had a short-term positive effect on parental communication, but this finding was no longer significant at long-term follow-up (Brody et al., 2006). The Creating Lasting Connections programme (Johnson et al., 2006) had non-significant effects on family communication, bonding and rule setting at both short- and long-term follow-up times for all but one measure of youth involvement in rule setting.

Eleven studies examined intervention effects on health and social outcomes related to alcohol use across eight programmes. Three programmes (Bauman et al., 2000; Jones et al., 2005; Loveland-Cherry, 1999) demonstrated non-significant effects on alcohol use, but across four programmes (Schinke et al., 2004; 2009; Spoth et al., 2001; Mason et al., 2009), short- and long-term positive effects on alcohol use were reported. In addition, six studies (Brody et al., 2004; 2006; Loveland-Cherry et al., 1999; Spoth et al., 1999; 2001; 2004) of four programmes reported positive intervention effects on initiation of alcohol use in the medium- to long-term. In addition, to its effects on alcohol use and initiation of alcohol use, the ISFP had long-term positive effects on drunkenness and drinking without parental permission (Spoth et al., 2004). Long-term follow-up of the PDFY (Mason et al., 2009) revealed a positive programme effect on women's alcohol abuse in early adulthood.

Evidence statement 3

3 (a) There is no evidence from one RCT[1] to determine the effect of programmes aimed at families on knowledge and understanding relating to alcohol use

3 (b) There is moderate evidence from two RCTs[2] to suggest that programmes delivered to families may have short-term positive effects on attitudes and values related to alcohol. Findings may

only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

3 (c) There is moderate evidence from two RCTs[3] to suggest that programmes delivered to families which target family interaction may have positive effects on family communication, parental monitoring and parental rules about alcohol. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

3 (d) There is moderate evidence from 11 RCTs[4] to suggest that programmes delivered to families may have mixed effects on health outcomes related to alcohol use. Three RCTs[5] showed no intervention effects on alcohol use. One RCT[6] of a brief, family focused intervention (Iowa Strengthening Families Program) showed long-term reductions in alcohol use, initiation of alcohol use, and drunkenness and one RCT[7] of a culturally-tailored family-based programme (Strong African American Families) showed a long-term effect on initiation of alcohol use. In addition, one RCT[8] of a CD-ROM intervention with parental involvement showed long-term reductions in monthly alcohol use. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

3 (e) There is weak evidence from one RCT[9] to suggest that physician-led interventions may have a long-term negative impact on alcohol use. Findings may only be partially applicable to the UK as the study was conducted in the USA and may not be generalisable beyond the populations studied.

1 Johnson et al., 1996 (RCT -)

2 Brody et al., 2004 (RCT +); Schinke et al., 2009 (RCT +)

3 Schinke et al., 2004 (RCT +); Schinke et al., 2009 (RCT +)

4 Bauman et al., 2000 (RCT -); Brody et al., 2004; 2006 (RCT +); Jones et al., 2005 (RCT +); Loveland-Cherry, 1999 (RCT -); Schinke et al., 2004 (RCT +); Schinke et al., 2009 (RCT +); Spoth et al., 1999 (RCT +); Spoth et al., 2001; 2004 (RCT +); Mason et al., 2009 (RCT +)

5 Bauman et al., 2000 (RCT -); Jones et al., 2005 (RCT +); Loveland-Cherry, 1999 (RCT -)

6 Spoth et al., 1999 (RCT +); Spoth et al., 2001; 2004 (RCT +)

7 Brody et al., 2004; 2006 (RCT +)

8 Schinke et al., 2004 (RCT +)

9 Stevens et al., 2002 (RCT +)

Table 5.5. Summary of programme content: programmes delivered in families

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
Bauman et al., 2000	RCT (individual) -	USA n=203 families 73% White; 13% Black; 9% Hispanic; 5% other 12-14 years	Family	**Family Matters**: families received four booklets aimed at preventing the onset of substance use	Theories of socialisation; value expectancy theory; health belief model; social learning theory; social inoculation theory	NR
Brody et al., 2004; 2006; Gerrard et al., 2006; Murry et al., 2007	RCT (cluster) +	USA n=332 100% African American mean 11.2 years	Family	**Strong African American Families Program**: seven two-hour meetings to prevent drinking including separate and joint parent and child components.	NR	NR
Johnson et al., 1996	RCT (cluster) -	USA n=120 families 16% African American 12-14 years	Family; church communities	**Creating Lasting Connections:** three training modules for parents and adolescents and case-management services focusing on delaying the onset and reducing the frequency of alcohol and other drug use	NR	NR
Jones et al., 2005	RCT (cluster) +	USA n=2153 families 97% White mean 11 years	Family	Substance use prevention education and family communication intervention; family discussion and mailed brochures and quarterly newsletters	NR	Physician and nurse
Stevens et al., 2002	RCT (cluster) +	USA n=3,111 Ethnicity=NR mean 11 years	Primary care (paediatric)	**Dartmouth Prevention Project**: Single session health consultation and 12 newsletters over 36 months; child and parent discussions about alcohol and tobacco use; family signed contract agreeing to talk about the risks at home and develop a family policy; mailed print materials; biannual telephone call and incentives.	NR	Physician
Loveland-Cherry et al.,1999	RCT (individual) -	USA n=892 families 86% European American 10-11 years	Family; in the home	Alcohol misuse prevention intervention including three-hour sessions at home; family meetings and phone calls; booster sessions; semi-annual newsletters	Social cognitive theory; problem behaviour theory	NR

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
Schinke et al., 2004	RCT (cluster) +	USA n=514 youths 54% black, 30% Hispanic, 11% white, 5% Asian or other mean 12 years	Family	CD-ROM based alcohol prevention intervention for adolescents including 10 45-minute sessions plus booster sessions. The parent intervention consisted of a video and two newsletters plus a workshop booster session. A second intervention group were not exposed to the parent intervention.	Family interaction theory; social learning theory; problem behaviour theory	CD-ROM
Schinke et al., 2009	RCT (individual) +	USA n=202 mother and daughter (mean age 12.2 years) dyads 67.8% White, 14.1% Latina, 9.5% Black, .5% Asian, 8% other	Family; in the home	Computer modules aiming to reduce underage alcohol consumption through improving mother-daughter relationships and teaching skills to avoid drinking. Dyads undertook 14 modules over 3 weeks focusing on communication; relationships; conflict management; alcohol refusal skills; peer norms and the media	Family interaction theory; social learning theory	CD-ROM
Spoth et al., 1999; Spoth et al., 2001; 2004	RCT (cluster) +	USA n=446 families 10-12 years 98% White	Family	**Iowa Strengthening Families Program (ISFP):** Seven weekly two-hour sessions aiming to prevent substance use. Parents and children attended separate and joint sessions where they were exposed to a skills-based curriculum and engaged in activities to increase family cohesiveness	Biopsychosocial model	Video
Spoth et al., 2001; 2004 Mason et al., 2009	RCT (cluster) +	USA n=429 families 10-12 years 98% White	Family	**Preparing for the Drug Free Years (PDFY):** Parents attended four education and skill-based sessions and were accompanied by their children for one additional session	Social development model	Video

Table 5.6. Programmes delivered in families: effects on knowledge, attitudes and skills

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
Brody et al., 2004; 2006	RCT +	SAAF n=182	Received 3 leaflets n=150	PT n=NR	-	↑ youth protective factors*	↑ communicative parenting**
				24 months n=305 (92%)	-	**NS** youth protective factors	**NS**
Johnson et al., 1996	RCT -	Creating Lasting Connections n=59 (Post-test n given only)	Received no intervention n=61 (Post-test n given only)	PT n=120	↑ alcohol and other drug knowledge***	-	↑ youth involvement in setting up AOD rules*** **NS** family communication or bonding with mother, father or siblings (youth and parent reports), family meeting practices
				12 months n=120	↑ alcohol and other drug knowledge***	-	**NS** family meeting practices, family rules about ATOD, family rules about non-AOD youth behaviour, youth involvement in setting non-AOD rules, family communication (parent or youth report), bonding with mother (parent report), bonding with father (youth report), bonding with siblings (parent report)
Jones et al., 2005	RCT +	Physician-led intervention n=1,235 families[a]	Discussed safety issue n=918 families[a]	36 months n=2,153 (70%)	-	↓ externalizing of problems (boys) **NS** externalizing of problems (girls) **NS** internalizing of problems	-
Schinke et al., 2004	RCT +	CD ROM + parent intervention n=NR	No intervention n=NR	3 years n=469 (91%)	-	-	↑ family involvement* ↑ peer influence outcomes***

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
Schinke et al., 2009	RCT +	NR n=NR	Waiting list control group n=NR	2 months n=199 (99%)	-	↑ girls' beliefs about underage drinking* ↑ girls' self-efficacy for avoiding alcohol* ↑ intention not to drink alcohol until adulthood*	↑ girls' communication with mother* ↑ girls reported parental rules about drinking* ↑ girls reported parental monitoring* ↑ girls reported family conflict management skills* ↑ girls' alcohol refusal skills* ↑ mother reported rules about drinking* **NS** mother reported communication; parental monitoring

*p<0.05; **p<0.01; ***p<0.001; [¶]p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported
[a]Follow-up sample

Table 5.7. Programme delivered to families: effects on health and social outcomes related to alcohol use

Study	Rating	Intervention	Comparator	Follow-up	Health and social outcomes		
					Alcohol use	Heavy alcohol use	Other
Bauman et al., 2000	RCT -	Family Matters n=99 families	No intervention n=104 families	3 mo n=NR	**NS** past 30 day drinking	-	-
				12 mo n=74 (71%)	**NS** past 30 day drinking	-	-
Brody et al., 2004; 2006	RCT +	Strong African American Families Program n=182	Received 3 leaflets n=150	PT n=NR	↓ alcohol initiation*	-	-
				24 mo n=305 (92%)	↓ alcohol initiation*	-	-
Stevens et al., 2002	RCT (cluster) +	Dartmouth Prevention Project n=1,780	Consultation on bicycle helmet, seatbelt use or gun storage n=1,331	12 mo (NR)	**NS** drinking	-	-
				24 mo (NR)	↑ drinking¶	-	-
				36 mo (NR)	↑ drinking¶	-	-
Jones et al., 2005	RCT +	NR At FU n=1,235 families	Discussed with doctor an unrelated safety issue At FU n=918 families	36 mo n=2,153 (70%)	**NS** alcohol use	-	-
Loveland-Cherry et al., 1999	RCT -	NR n=90 at FU	No intervention n=338 at FU	4 yrs n=428 (48%)	↓ alcohol initiation** **NS** alcohol use (among prior drinkers)	-	-
Schinke et al., 2004	RCT +	CD ROM + parent intervention n=NR	No intervention n=NR	3 yrs n=469 (91%)	↓ past 30-day alcohol use***	-	-
Schinke et al., 2009	RCT +	NR n=NR	Waiting list control group n=NR	2 mo n=199 (99%)	↓ past week alcohol consumption** ↓ past month alcohol consumption* ↓ past year alcohol consumption**		

Study	Rating	Intervention	Comparator	Follow-up	Health and social outcomes		
					Alcohol use	**Heavy alcohol use**	**Other**
Spoth et al., 1999	RCT +	ISFP n=238	Minimal contact n=208	1 yr n=317 (71%)	↓ alcohol initiation index scores*	-	-
				2 yrs n=294 (66%)	↓ alcohol initiation index scores**	-	-
Spoth et al., 2001	RCT +	ISFP n=238	Minimal contact n=208	4 yrs[a] n=447 (67%)	↓ alcohol initiation** ↓ past 30-day alcohol use* ↓ alcohol composite use index score**	↓ new user ever been drunk**	↓ new user drank without parental permission**
Spoth et al., 2004	RCT +	ISFP n=238	Minimal contact n=208	6 yrs[a] n=304 (46%)	↓ growth in lifetime alcohol use*	-	-
Spoth et al., 2001	RCT +	PDFY n=221	Minimal contact n=208	4 yrs[a] n=447 (67%)	**NS** alcohol initiation ↓ past 30-day alcohol use* ↓ alcohol composite use index score*	**NS** new user ever been drunk	**NS** new user drank without parental permission;
Spoth et al., 2004	RCT +	PDFY n=221	Minimal contact n=208	6 yrs[a] n=304 (46%)	**NS** growth in lifetime alcohol use	-	-
Mason et al., 2009	RCT +	PDFY n=221	Minimal contact n=208	10 yrs[a] n=313 (73%)	-	-	↓ rate of alcohol abuse (women only*)

*p<0.05; **p<0.01; ***p<0.001; ¶p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported
[a]Follow-up from baseline

5.4 Programmes delivered to parents

5.4.1 Overview of evidence identified

A total of five studies (Beatty et al., 2008; Carlson et al., 2000; Cohen and Rice, 1995; Koutakis et al., 2008; Toomey et al., 1996) reported on alcohol prevention programmes which targeted parents. Three studies were conducted in North America (Carlson et al., 2000; Cohen and Rice, 1995; Toomey et al., 1996), one was conducted in Australia (Beatty et al., 2008) and one was conducted in Sweden (Koutakis et al., 2008).

Two programmes were delivered solely in the home; Carlson and colleagues (2000) examined information postcards that addressed alcohol risk and protective factors (Carlson et al., 2000) and Beatty and colleagues (2008) examined a parent-directed intervention designed to encourage parent-child communication. Two programmes used home-delivered materials in conjunction with community-based group sessions (Koutakis et al., 2008; Toomey et al., 1996) and one programme was delivered in schools to parents (Cohen and Rice, 1995).

No theoretical base for intervention was reported for two studies (Koutakis et al., 2008; Toomey et al., 1996). Diffusion of Social Innovations theory and social cognitive theory underpinned the intervention examined by Beatty and colleagues (2008), whilst cognitive behavioural theory was used in an unnamed alcohol prevention programme (Cohen and Rice, 1995) and social cognitive theory was used in conjunction with the health belief model in the STARS for Families programme (Carlson et al., 2000).

The overall number of participants recruited in the included studies ranged from 478 (Carlson et al., 2000) to 2,278 (Cohen and Rice, 1995). Overall, two studies (Beatty et al., 2008; Cohen and Rice, 1995) were based on samples of over 1,000 parents, however, one other study (Toomey et al., 1996) included a sample student population over 1,000. The use of power calculations or an appropriate sample size to detect a significant effect was discussed in only one study (Beatty et al., 2008), a further two studies provided enough information to determine that sample sizes were appropriate (Koutakis et al., 2008; Toomey et al., 1996). However, two additional studies (Cohen and Rice, 1995; Carlson et al., 2000) did not provide sufficient information to determine if the sample was sufficiently powered.

The included studies focused primarily on parents of young people aged between 10-13 years old. However one study (Koutakis et al., 2008) was aimed at parents with children aged 13-16 years. Follow-up times varied with two studies (Cohen and Rice, 1995; Koutakis et al., 2008) reporting post-test data using mean longitudinal data; one (Carlson et al., 2000) reported a short follow-up time of two months; another study (Beatty et al., 2008) did not clearly report the follow-up time used and one study reported findings at post-test and after one year (Toomey et al., 1996).

5.4.2 Quality assessment

Of the five included studies three were RCTs, one was based on an NRCT design and one was a CBA study. All three RCTs (Beatty et al., 2008; Cohen and Rice, 1995; Toomey et al., 1996) were based on cluster randomisation with randomisation conducted at school level in all three studies. The unit of analysis did not match the unit of allocation in two studies (Beatty et al., 2008; Cohen & Rice, 1995); Beatty and colleagues (2008) examined the effect of clustering but within-school correlations were not found to be significant and no adjustments were made, while Cohen and Rice (1995) did not describe how any potential clustering effect was accounted for. One study (Koutakis et al., 2008) was rated good quality presenting a high quality matched study design which controlled for study bias and clearly presented study details. One RCT (Beatty et al., 2008) was rated moderate quality providing details of power calculations and accounting for attrition levels. Three studies (Carlson et al., 2000; Cohen and Rice, 1995; Toomey et al., 1996) were rated poor quality (- rating). Methodological data were limited and in some instances the internal validity of the study was not clear. Outcome measures were reported to be reliable in four studies (Beatty et al., 2008; Carlson et al., 2000; Cohen and Rice, 1995; Toomey et al., 1996) and relevant in all studies.

5.4.3 Findings

5.4.3.1 Knowledge

None of the included studies examined intervention effects on knowledge and understanding.

5.4.3.2 Attitudes and values

Three studies (Cohen and Rice, 1995; Koutakis et al., 2008; Toomey et al., 1996) examined intervention effects on alcohol-related attitudes and values. Cohen and Rice (1995) examined effects on attitudes and values among two cohorts. In relation to the impact of the intervention on parental attitudes and values, there was no difference in parenting behaviours between groups across time. When children's perceptions of parenting behaviours were stratified by the onset of children's alcohol use (drinker vs. non-drinker), children who became drinkers showed larger declines in parental respect, parental rapport and parental monitoring compared with children who remained non-drinkers. However, parents whose children reported having substance-using peers consistently perceived their parents-child relationship as having higher indexes of rapport ($p<0.001$), respect ($p<0.001$), and monitoring ($p<0.001$). Comparing drinkers to non-drinkers across the two cohorts revealed an increase in students' perceptions of parents' respect for their child and students' perceptions of parental monitoring (Cohort 1: $p<0.001$, $p<0.01$; Cohort 2: both $p<0.01$ respectively). However, within cohort 1 there were no programme effects on students' perceptions of parent-child rapport, whereas cohort 2 showed a significant increase in perception ($p<0.01$). There were no programme effects on students' perceptions of their parents' knowledge of their friends in either cohort. Koutakis and colleagues (2008) found significant programme effects of a zero tolerance alcohol prevention programme (the Örebro Prevention Programme) on the maintenance of strict parental attitudes towards underage drinking in the intervention group compared to the control group ($p<0.001$). The Amazing Alternatives! Home Programme (Toomey et al., 1996) showed no effect on parental attitudes

regarding young people aged 18-20 drinking; allowing teens to drink when they are seniors in school; family rules about drinking; perception of how many parents of their children's friends they knew; their contact with other parents regarding alcohol-related issues; rules or systems for unsupervised periods; the frequency at which they check parties have adult supervision; and whether they always monitored their teen's whereabouts. At post-test no programme effects were seen on students' alcohol use intentions for the next week, month, year or when they were 21 years old. Furthermore, no intervention effects were seen on students' views that their parents would allow them to drink alcohol when they were high school seniors. At post-test students reported significant increases in family rules against drinking ($p<0.01$); talking about the consequences if caught drinking ($p<0.05$) and parents' rules as a reason not to drink alcohol ($p<0.05$). However, these effects were not sustained at the long-term follow-up (>1 year).

5.4.3.3 Personal and social skills

Three studies (Beatty et al., 2008; Carlson et al., 2000; Toomey et al., 1996) reported intervention effects on personal and social skills. All outcome measures for personal and social skills focused on communication. Beatty and colleagues (2008) reported greater parent-child discussion about drinking alcohol; recent discussion about alcohol; more alcohol-related topics discussed in the intervention group compared to the control. Furthermore, the intervention group reported a greater perception of engagement with their child. Findings from the STARS programme (Carlson et al., 2000) showed short-term effects on the frequency at which parents spoke to their child about avoiding alcohol ($p<0.05$) and on how recently parents had spoken to their child (last 30 days; $p<0.05$). At long-term follow-up (>1 year) Toomey and colleagues (1996) found that more parents reported a higher proportion of parent-child discussion about the consequences if caught drinking ($p<0.05$); alcohol-related situations ($p<0.01$); alcohol messages in the mass media ($p<0.01$); and encouraged their child and friends to gather at home ($p<0.05$). Students also reported a higher proportion of parent-child discussion related to family rules about alcohol ($p<0.001$); consequences for breaking the rules ($p<0.01$); and problems they could have with alcohol use ($p<0.05$). However, students reported non-significant changes in discussions about having friends over to the house; alcohol messages in the mass media; good eating habits and sex education.

5.4.3.4 Health outcomes related to alcohol use

Two studies (Koutakis et al., 2008; Toomey et al., 1996) reported alcohol-related health outcomes. The Örebro Prevention Programme (Koutakis et al., 2008) was found to result in a decrease in reported youth drinking, drunkenness and past 30 day drunkenness ($p<0.001$) in the intervention group. Furthermore, subgroup analysis revealed that of those categorised as early starters in alcohol use, those in the intervention group reported lower rates of drunkenness ($p<0.01$). The Amazing Alternatives! Home Program (Toomey et al., 1996) found no programme effects on lifetime alcohol use; past year alcohol use; or past month alcohol use at either post-test or at long-term follow-up.

5.4.4 Summary and evidence statements

Five studies (Beatty et al., 2008; Carlson et al., 2000; Cohen and Rice, 1995; Koutakis et al., 2008; Toomey et al., 1996) were identified that examined alcohol prevention interventions aimed at parents of young people. Two studies (Carlson et al., 2000; Toomey et al., 1996) were primarily delivered using postcards or booklets and one additional study (Beatty et al., 2008) used information tools in conjunction with workshops. The remaining two studies (Cohen and Rice, 1995; Koutakis et al., 2008) used trained facilitators or project workers to deliver the programme.

None of the included studies presented outcomes relating to knowledge or understanding. Three studies (Cohen and Rice, 1995; Koutakis et al., 2008; Toomey et al., 1996) examined programme effects on attitudes and values. Intervention effects on parental attitudes towards underage drinking were seen in one study (Koutakis et al., 2008). However, Toomey and colleagues reported no programme effects on parental attitudes to young people's drinking. Improvements in parents' perceptions of their parent-child monitoring and parental respect for their child were reported in one study (Cohen and Rice, 1995). Short-term intervention effects on parent-child communication about alcohol and family rules were reported in one study (Toomey et al., 1996). However, effects were not maintained long-term. Three studies (Beatty et al., 2008; Carlson et al., 2000; Toomey et al., 1996) reported intervention effects on personal and social skills relating to alcohol use. All three studies reported increases in parent-child communication about alcohol. Two studies (Beatty et al., 2008; Carlson et al., 2000) either increased frequency or reported more recent parent-child communication about alcohol. One study (Toomey et al., 1996) showed positive long-term effects on parent-child communication regarding family rules about alcohol and alcohol related situations (reported by both parents and their children).

Two studies (Koutakis et al., 2008, Toomey et al., 1996) reported health outcomes relating to alcohol use. No programme effects were reported by Toomey and colleagues. However, Koutakis and colleagues reported positive intervention effects on youth drinking, past month drunkenness and drunkenness. Positive intervention effects on drunkenness also extended to a subgroup categorised as early starters in alcohol use.

Evidence statement 4

4 (a) There is inconsistent evidence from one NRCT and two RCTs[1] to determine the effects of interventions delivered to parents on attitudes and values relating to alcohol. However, there is weak evidence from one RCT[2] to suggest that programmes aimed at parents can have positive short-term effects on young people's attitudes towards family rules and their influence as a deterrent for drinking. These findings may be only partially applicable to the UK as this study was implemented in the USA and may not be generalisable beyond this population.

4 (b) There is moderate evidence from two RCTs and one CBA study[3] to suggest that interventions delivered to parents may have a positive short- to potentially long-term effect on parent-child communication about alcohol. These findings may be only partially applicable to the UK as they

were not implemented in a UK setting and may not be generalisable beyond the populations studied.

4 (c) There is insufficient and inconsistent evidence from one NRCT and one RCT[4] to determine the effect of interventions delivered to parents on health and social outcomes relating to alcohol use among young people.

1 Koutakis et al., 2008 (NRCT ++); Toomey et al., 1996 (RCT -); Cohen and Rice, 1995 (RCT -)
2 Toomey et al., 1996 (RCT -)
3 Beatty et al., 2008 (RCT -); Toomey et al., 1996 (RCT -); Carlson et al., 2000 (CBA -)
4 Koutakis et al., 2008 (NRCT ++); Toomey et al., 1996 (RCT -)

Table 5.8. Summary of programme content: programmes delivered to parents

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
Beatty et al., 2008	RCT (cluster) +	Australia n=1,201 Ethnicity=NR 10-11 years	Home, community	Self-directed intervention; parents received five communication sheets containing self-help information and activities.	Diffusion of social innovation theory	Communication sheets/Peer leaders
Carlson et al., 2000	CBA -	USA n=478 parents 65% Black, 30% White, 5% Other 6th grade	Home	**STARS for Families:** 10 postcards were mailed, two per week. With parents using an average of 6.49 cards to facilitate discussion.	Health belief model, Social cognitive theory	Postcards
Cohen and Rice, 1995	RCT (cluster) -	USA Cohort 1= 1,034; 15% Asian, 32% Hispanic, 38% White, 4 % black, 11% other 5th Grade Cohort 2 = 1,244, 15% Asian, 27% Hispanic, 40% White, 4% Black, 15% Other NR	Schools	Substance use prevention focusing on parental skills training around substances; Drug refusal skills, family rules about drugs. It incorporated 4 sessions for cohort 1 and 3 sessions for cohort 3.	Cognitive-behavioural model	Facilitators
Koutakis et al., 2008	NRCT ++	Sweden n= 811 children; n= 651 parents, 13-16 yrs old Ethnicity=NR	Schools	**The Örebro Prevention Programme**: An alcohol prevention programme promoting zero-tolerance to alcohol use, promoting leisure activities, parental influence on adolescents, parent-child contracts. Conducted over five semesters, with one 30 minute long meeting per semester.	Not reported	External project workers
Toomey et al., 1996	RCT (cluster) -	USA n=1,028 children n=521 parents, grade 7 Primarily White	Home, community	**Amazing Alternatives! Home Programme**: Aim was to improve communication between parents and their 7th graders concerning alcohol-related issues, to improve parenting skills like monitoring and to reduce underage drinking. The intervention was delivered in four booklets to parents and two focus groups with parents.	Not reported	Booklets/other

Table 5.9. Programmes delivered to parents: effects on knowledge, attitudes and skills

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
Beatty et al., 2008	RCT (cluster) +	Self-directed intervention n=353 (29%)	No intervention n=848 (71%)	1 mo n=830 (69%)	-	-	↑ discussions with child about drinking alcohol*** ↑ spoken with child about alcohol recently*** ↑ perceived engagement with child** ↑ discussion alcohol-related topics***
Carlson et al., 2000	CBA-	STARS n=237 (parents)	No intervention n=237 (parents)	2 mo (NR)	-	-	↑ talked to their child about avoiding alcohol 10+ times in the past year* ↑ talked to their child in past 30 days*
Cohen & Rice, 1995	RCT (cluster) -	Cohort 1 n=NR (drinkers vs. non-drinkers)	No intervention n=NR	PT, annually over 4 years (NR)	-	↑ perception of parent respect for child*** **NS** perception of parent-child rapport ↑ perception of parental monitoring*** **NS** perception of parent's knowledge of children's friends	-
		Cohort 2 n=NR (drinkers vs. non-drinkers)			-	↑ perception of parent respect for child** ↑ perception of parent-child rapport** ↑ perception of parental monitoring** **NS** perception of parent's knowledge of children's friends	-
Koutakis et al., 2008	NRCT ++	Örebro Prevention Programme n= 393 children; n= 339 parents	No intervention n=418 students; n=312 parents	PT (Mean over time) (students=85%; parents=71%)	-	↑ strict parental attitudes towards underage drinking***	-

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	**Attitudes and values**	**Personal and social skills**
Toomey et al., 1996	RCT (cluster) -	Amazing Alternatives! Home Program n=257 parents (49%)	No intervention n= 264 parents (51%)	PT	-	**NS** parental attitudes[a] ↑ young person's attitudes to: family rules against youth drinking**; talked about consequences if caught drinking*; parents' rules as a reason not to use alcohol* **NS** My parents will allow me to drink when I am a high school senior; **NS** alcohol use intentions	-
				>1 year (students=83%; parents=>90%)	-	**NS** young person's attitudes **NS** alcohol use intentions	↑ parental discussion with child: consequences if caught drinking*; alcohol-related situations**; alcohol messages in the mass media**; encourage child and friends to gather at home* ↑ young person's discussion with parent: family rules about alcohol***; consequences for breaking rules**; problems could have with alcohol use*; (**NS** having friends over to house; **NS** alcohol messages in the mass media; **NS** good eating habits; **NS** sex education)

*p<0.05; **p<0.01; ***p<0.001; ¶p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported
[a]Included: not allowing teens to drink when senior; family rules against drinking; how many parents of your child's friends do you know?; how often do you contact other parents about alcohol-related situations?; special rules or systems for unsupervised periods; check parties for adult supervision; always monitor teen's whereabouts

Table 5.10. Programmes delivered to parents: effects on health and social outcomes related to alcohol use

Study	Rating	Intervention	Comparator	Follow-up	Health and social outcomes		
					Alcohol use	Heavy alcohol use	Other
Koutakis et al., 2008	NRCT ++	Örebro Prevention Programme students= 1,183; parents= 1,022	No intervention students=122; parents= 999	PT (Mean over time) students=85%; Parents=71%)	↓ youth drinking***	↓ drunkenness*** ↓ past month drunkenness*** Early starters - ↓ drunkenness**	-
Toomey et al., 1996	RCT (cluster) -	Amazing Alternatives! Home Program youth= NR; parents= 257	No intervention youth= NR; parents= 264	PT	**NS** lifetime alcohol use **NS** past year alcohol use **NS** past month alcohol use	-	-
				>1 year (students=83%; parents=>90%)	**NS** lifetime alcohol use **NS** past year alcohol use **NS** past month alcohol use	-	-

*p<0.05; **p<0.01; ***p<0.001; ¶p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

5.5 Programmes involving the wider community or mass media

5.5.1 Overview of the evidence identified

Three studies (Cheadle et al., 1995; Flynn et al., 2006; Kypri et al., 2005) were identified that examined programmes involving the wider community or mass media. Cheadle and colleagues (1995) examined a 5-year community-based health promotion programme for adolescents on an American Indian Reservation. Programme components included classes, skills development programmes, alcohol- and drug-free events and a public information campaign. Flynn and colleagues (2006) and Kypri and colleagues (2005) examined mass media intervention programmes delivered in communities in the USA and New Zealand, respectively. The campaign examined by Flynn and colleagues (2006) was delivered over four years and included television and radio messages directed at young people, in addition to messages directed at parents and training videos for alcohol retailers. The focus of the campaign examined by Kypri and colleagues (2005) was on highlighting the risks of supplying alcohol to young people. The campaign lasted one and half months and included advertisements and publicity via local media outlets in addition to media events.

Only one study reported the theoretical base for intervention. The mass media programme examined by Flynn et al., (2006) was based on social cognitive theory. Two studies examined programmes that were targeted at the wider community (Cheadle et al., 1995; Kypri et al., 2005) and Flynn and colleagues (2006) examined a mass media intervention directed towards young people as they matured from Grades 4-5 into Grades 7-8 (approximately from age 10 to age 12-14 years).

5.5.2 Quality assessment

All three studies (Cheadle et al., 1995; Flynn et al., 2006; Kypri et al., 2005) were based on a CBA design and the quality of all three studies was rated moderate. The interventions and comparisons examined were well described and appropriate, contamination was acceptably low, and all three studies examined important and relevant outcomes.

5.5.3 Findings

5.5.3.1 Knowledge and understanding

None of the included studies examined intervention effects on knowledge.

5.5.3.2 Attitudes and values

One study (Flynn et al., 2006) examined intervention effects on alcohol-related attitudes and values. There were no effects of the media campaign on mediators of alcohol use, which included expectations related to alcohol use, perceived parental and peer norms, perceived peer prevalence, perceived access to alcohol and whether or not participants felt confident refusing offers of alcohol.

5.5.3.3 Personal and social skills

None of the included studies examined intervention effects on personal and social skills

5.5.3.4 Health and social outcomes related to alcohol use

There were no effects of either mass media programme (Flynn et al., 2006; Kypri et al., 2005) on alcohol use and the community-wide campaign targeting American Indian adolescents also failed to show any effects on alcohol consumption.

5.5.4 Summary and evidence statements

Three studies (Cheadle et al., 1995; Flynn et al., 2006; Kypri et al., 2005) were identified that examined programmes involving the wider community or mass media. Two studies (Flynn et al., 2006; Kypri et al., 2005) examined mass media intervention programmes delivered in communities in the USA and New Zealand, respectively, and one study (Cheadle et al., 1995) a 5-year community-based health promotion programme for adolescents on an American Indian Reservation.

None of the included studies examined intervention effects on knowledge and understanding, or on personal and social skills. There were no effects of a long-term mass media programme (Flynn et al., 2006) on mediators of alcohol use. There were no effects of either mass media programme (Flynn et al., 2006; Kypri et al., 2005) or a community-wide campaign targeting American Indian adolescents on alcohol use.

Evidence statement 5

5 (a) There is weak evidence from one CBA study[1] to suggest interventions and programmes involving mass media have no effect on attitudes and values related to alcohol use. Findings may only be partially applicable to the UK as the study was conducted in the USA and may not be generalisable beyond the populations studied.

5 (b) There is moderate evidence from three CBA studies[2] to suggest that interventions and programmes involving the wider community or mass media have no effects on young people's alcohol use. Findings may only be partially applicable to the UK as all the studies were set outside the UK and may not be generalisable beyond the populations studied.

1 Flynn et al., 2006 (CBA +)
2 Flynn et al., 2006 (CBA +); Kypri et al., 2005 (CBA +); Cheadle et al., 1995 (CBA +)

Table 5.11. Summary of programme content: programmes involving the wider community or mass media

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
Flynn et al., 2006	CBA +	USA n=16 school districts Ethnicity=NR 12-14 years	Mass media	32 television and 23 radio messages over 4 years; directed to youth as they matured from Grades 4-5 into Grades 7-8; radio messages directed toward their parents; training video for retail clerks	Social cognitive theory	NA
Kypri et al., 2005	CBA +	New Zealand n=872 New Zealand European (82%), Maori (8%), Samoan (1%), Chinese (1%) and Other (9%) 15-19 years	Mass media	**'Think before you buy under-18s drink' campaign**: Local newspaper and radio advertisements; radio and print media interviews with community workers; media events, billboard advertisements, distribution of printed material and presentation of campaign information at point of sale.	NR	NA
Cheadle et al., 1995	CBA +	USA n=6 communities Ethnicity not fully reported but included American Indian, White Hispanic and Asian 9th and 12th grade	American Indian Reservation	Classes, skills development programs, alcohol- and drug-free events, and public campaigns.	NR	Various

Table 5.12. Programmes involving the wider community or mass media: effects on knowledge, attitudes and skills

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
Flynn et al., 2006	CBA +	Media campaign n=8 school districts	No intervention n=8 school districts	Annual surveys (NA)	-	**NS** mediators of alcohol use	-

*p<0.05; **p<0.01; ***p<0.001; ¶p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

Table 5.13. Programmes involving the wider community or mass media: effects on health and social outcomes related to alcohol use

Study	Rating	Intervention	Comparator	Follow-up	Health and social outcomes		
					Alcohol use	Heavy alcohol use	Other
Cheadle et al., 1995	CBA +	Unnamed n=1 community	No intervention n=5 nonurban, communities	Annual surveys over 3 years (NA)	**NS** alcohol use measures	-	-
Flynn et al., 2006	CBA +	Media campaign n=8 school districts	No intervention n=8 school districts	Annual surveys (NA)	**NS** beer drinking	-	-
Kypri et al., 2005	CBA +	Media campaign n=2 communities	No intervention n=1 community	PT (NA)	-	**NS** binge drinking	**NS** supplied alcohol for unsupervised drinking

*p<0.05; **p<0.01; ***p<0.001; ¶p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

5.6 Review of published economic evaluations

One study (Spoth et al., 2002) was identified that met the criteria for inclusion in the review of published economic evaluations. Spoth and colleagues (2002) evaluated the cost-effectiveness and net benefits of the ISFP and PDFY.

5.6.1 Review of Spoth and colleagues (2002)

5.6.1.1 Overview

The purpose of the study was to evaluate two interventions designed for general populations by estimating: (1) the cost per case of alcohol-use disorder prevented; (2) benefit-cost ratios; and (3) net benefits per participating family.

5.6.1.2 Summary of effectiveness data

Effectiveness estimates were drawn from a cluster randomised trial of two universal, family focused interventions, the seven-session ISFP and the five-session PDFY (Spoth et al., 1999). At the end of the 4-year study (Spoth et al., 2004), data were available from 478 (72%) of the original participants (study details and effectiveness data are presented in section 5.3)

Estimates of the number of alcohol-use disorder cases prevented per 100 families treated were calculated. For each age, the total number of children who had initiated alcohol use was multiplied by the proportion of future alcohol-use disorders expected among persons who initiated alcohol use at that age (taken from Grant & Dawson, 1997). The rate of future alcohol-use disorders expected for each condition was calculated by dividing the number of cases expected by the total number of persons assigned to each condition and multiplying by 100 to give the number of alcohol use disorder cases expected per 100 families treated. To estimate the number of future alcohol-use disorder cases prevented per 100 families, the rate for each intervention group was subtracted from the rate for the control condition. The projected disorder rate for participants who had not reported alcohol-use onset by the 4-year follow-up was calculated as the average of all of the rates associated with ages 18 and older (also taken from Grant & Dawson, 1997).

The projected lifetime alcohol use disorder rate calculated for the two intervention and control groups were: ISFP 37.65% (SE 3.59); PDFY 40.46% (SE 3.74); and control 43.17% (SE 3.68). Therefore the number of alcohol use disorder cases prevented per 100 families treated was estimated to be 5.53 for the ISFP and 2.72 for the PDFY.

5.6.1.3 Summary of resource utilisation and cost data

Both direct and indirect costs were assessed and expressed in dollars spent per participant (adjusted for inflation into 1992 dollar equivalents). Facility costs were not included, and the authors ignored the costs of providing informational materials to the minimal contact control group ($1.25 per family) as they considered there to be no appreciable opportunity costs associated with participation in the control arm of the study. Intervention costs are summarised in Table 5.11. Intervention costs per 100 families for ISFP and PDFY were $68,856 and $55,567, respectively.

Table 5.14. Summary of intervention costs (Spoth et al., 2002)

	Intervention cost[a]	
Cost source	**ISFP[b]**	**PDFY[c]**
Facilitator ads	$550	$550
Facilitator training[d]	$25,758	$32,648
Family training materials[e]	$2,776	$10,602
Family participation incentives[f]	$13,620	$10,994
Site management[g]	$5,385	$3,715
Programme facilitation[h]	$31,972	$10,875
Child care	$4,620	$2,948
Parent travel	$455	$483
Total costs (1994 $)	$85,136	$72,815
Inflation adjusted costs (1992 $)[i]	$80,562	$68,903

[a]Intervention costs include those incurred by additional participating families who did not complete study assessments. [b]Among pretested families, 117 participated in the ISFP. [c]Among pretested families, 124 participated in the PDFY. [d]Includes trainer travel, time and lodging; facilitator travel, time and meals; training materials (manuals and videotapes). [e]For ISFP, duplication of materials in facilitator manuals and supplies; for PDFY, cost of family activity books. [f]Grocery and video rental coupons, snacks. [g]Local staff providing access to rooms where training held, setting up rooms, making arrangements for audiovisual equipment. [h]Preparation, facilitator time, travel. [i]Adjustment accounts for increases in the Consumer Price Index of 3.0% from 1992 to 1993 and 2.6% from 1993 to 1994 (Bureau of Labor Statistics, 2000).

Reproduced from Spoth and colleagues (2002)

5.6.1.4 Summary of cost-effectiveness data

The cost per case prevented was calculated by dividing the number of alcohol-use disorder cases prevented per 100 families into the cost per 100 families treated. For the ISFP, the estimated cost for each case of alcohol-use disorder prevented was $12,459 ($68,856/5.53). Corresponding costs for the PDFY condition were $20,439 ($55,567/2.72).

The present value of the total lifetime benefit realised by the prevention of a single alcohol-use disorder was calculated to be $119,633. The benefit-cost ratio equalled the benefit per case prevented, divided by the cost per case prevented. For the ISFP the benefit-cost ratio was 9.60 (i.e. $ 9.60 was saved for every dollar invested). For PDFY, the benefit-cost ratio equalled 5.85.

The net benefit in the ISFP condition was $5,923 per family (0.0553 cases prevented per family treated x $119,633 benefit per case prevented - $689 in intervention costs per family treated). The corresponding net benefit in the PDFY condition was $2,697 per family (0.0272 × $119,633 - $556).

5.6.1.5 Comments

The economic evaluation answered a well-defined question, evaluating the cost-effectiveness and net benefits of two brief, family-focused interventions, the ISFP and PDFY, compared to a minimal intervention approach. Effectiveness estimates were drawn from a good-quality cluster RCT and used to estimate the impact of the programme on adult alcohol use disorder. The authors reported that the methods used in their analyses were likely to have resulted in a conservative estimate of the number of future alcohol use disorder cases. Costs were considered from a societal perspective, but although

the costs included were reported there was little description of how costs were valued. The generalisability of the study to a UK context is unclear as the data used in the evaluation is based on studies conducted in the USA. In addition, projected alcohol use disorder rates were calculated based on US population data.

5.6.2 Summary and evidence statements

One study (Spoth et al., 2002) was identified that met the criteria for inclusion in the review of published economic evaluations. Spoth and colleagues (2002) examined the cost-effectiveness and cost benefits of two family-focused interventions, the ISFP and the PDFY. Evaluations of the effectiveness of these programmes were identified and are included in Section 5.3.

Overall the net benefit was $5,923 per family for the ISFP and $2,697 per family for PDFY. The benefit-cost ratios were 9.60 and 5.85, indicating that for every $1 spent on the ISFP and PDFY, $9.60 and $5.85, respectively, were saved in medical costs.

Evidence statement 6

There is moderate evidence from one economic evaluation study[1] to suggest that programmes delivered to families may be cost-effective and cost saving. This evidence may be of limited applicability to a UK context because cost and benefit estimates were based on data from studies conducted in the USA.

[1] Spoth et al., 2002 (CEA/CBA +)

6 Programmes targeting sexual health

A total of 49 articles met the criteria for inclusion in the review of community-based programmes targeting young people's sexual health. Nine articles were systematic reviews and/or meta-analyses, 20 articles reported on studies that examined intervention or programmes delivered within social, healthcare and community settings, 15 articles reported on studies that examined programmes or interventions delivered to families or parents, two articles reported on studies that examined interventions or programmes that involved the wider community or mass media, and three articles reported on studies which examined interventions for vulnerable young people.

6.1.1 Systematic reviews and meta-analyses

6.1.2 Overview of evidence identified

Nine systematic reviews and meta-analyses were identified that examined the effectiveness of interventions and programmes that targeted young people's sexual health behaviours. One review (Arnold and Rotheram-Borus, 2007). All nine reviews examined interventions and programmes delivered across a range of settings.

6.1.3 Quality assessment

Four reviews (DiCenso et al., 2002; Franklin et al., 1997; Underhill et al., 2007; 2008) were rated good quality (++ rating) and covered all of the criteria on the quality assessment tool indicating a high standard of methodology. Four reviews (Guyatt et al., 2000; Pedlow & Carey, 2003; Robin et al., 2004; Sales et al., 2006) were rated moderate quality (+ rating), which although generally good quality, did not assess and/or take into account the quality of the included studies. One review (Arnold and Rotheram-Borus, 2009) was rated poor quality as the authors did not provide a detailed description of the methodology used, and it was not clear whether the literature searches undertaken were sufficiently rigorous. In addition, this review neither assessed nor took into account the quality of the included studies.

6.1.4 Findings

DiCenso and colleagues (2002) concluded from the findings of their review that primary prevention strategies do not delay the initiation of sexual intercourse or improve the use of birth control among young men and women. However, across three reviews (Franklin et al., 1997; Robin et al., 2004; Sales et al., 2006) there was consensus that HIV prevention and sexual risk reduction programmes were effective in increasing condom use and reducing pregnancy, but that there was a limited impact of these programmes on adolescent sexual activity. There were different findings across these three reviews in relation to the impact of setting on effectiveness. Franklin and colleagues (1997) reported that community-based programmes were more effective than school-based programmes in terms of increasing contraceptive use and reducing pregnancy, and that clinic-based programmes more effectively influenced contraceptive behaviour outcomes than non-clinic programmes. However, Robin and colleagues (2004) concluded from the findings of their review that no key study features or programme characteristics clearly distinguished studies with positive, null, and negative effects from

each other. Sales and colleagues (2006) didn't examine the relative comparability of setting but did highlight features of successful community- and clinic-based interventions and programmes. Successful community-based interventions were theoretically based, tailored to the target population, implemented by trained facilitators, and the content was diverse and delivered using a wide variety of methods. The characteristics of successful clinic-based programmes included a focus on a single gender or ethnic group, HIV/STI education with skills building activities (e.g. condom application), condom negotiation and sexual communication components, and personalised risk assessments. The reviews conducted by Underhill and colleagues (2007; 2008) and Pedlow and Carey (2003) leant further support to the evidence that community-based programmes can affect risk behaviours.

Guyatt and colleagues (2000) compared the results of RCTs and observational studies of interventions to prevent adolescent pregnancy in order to explore study design as a possible determinant of outcome. They found that observational studies yielded systematically greater estimates of treatment effects than RCTs. The authors cautioned that where feasible, recommendations for practice should be derived from randomised trials.

Arnold & Rotheram-Borus (2009) included evaluations of six programmes in their review of HIV prevention programmes for young homeless people. The authors reported that all six programmes identified were relatively intensive, including a range of 5 to 35 sessions (minimum of 5) and all programmes supported the notion that homeless youth are in need of intensive and prolonged help. All six programmes were designed as adjuncts to existing services, and intervention approaches included a runaway shelter, services delivered by mental health providers or social services and community outreach. The authors found that programmes which demonstrated success in recruiting and retaining youth were present/future-oriented, skill-based interventions aimed at increasing the youth's ability to reduce behaviours that lead to HIV.

6.1.5 Summary and evidence statements

Nine systematic reviews and meta-analyses were identified that examined the effectiveness of interventions and programmes across a range of settings and populations that targeted young people's sexual health behaviours. One review (Arnold & Rotheram-Borus, 2007) focused on interventions and programmes that targeted sexual risk taking among young homeless people.

Findings from six reviews (Franklin et al., 1997; Pedlow & Carey, 2003; Robin et al., 2004; Sales et al., 2006; Underhill et al., 2007; 2008) indicated that community-based programmes can affect sexual risk behaviours of young people. In particular, HIV prevention and sexual risk reduction programmes were effective in increasing condom use and reducing pregnancy (Franklin et al., 1997; Robin et al., 2004; Sales et al., 2006). However, they may have a limited impact on adolescent sexual activity. According to Sales and colleagues (2006) successful community-based interventions were theoretically based, tailored to the target population, implemented by trained facilitators, and the content was diverse and delivered using a wide variety of methods.

Evidence statement 7

7 (a) There is strong evidence from five systematic reviews and meta-analyses[1] to suggest that interventions and programmes delivered in a range of community settings can have a positive impact on young people's sexual risk behaviours, in particular, condom use and pregnancy.

7 (b) There is strong evidence from one systematic review[2] to suggest that effective community-based interventions and programmes are: (1) theoretically based; (2) tailored to the target population, (3) implemented by trained facilitators; (4) based on diverse content; and (5) delivered using a wide variety of methods.

1 Franklin et al., 1997 (SR +); Pedlow & Carey, 2003 (SR +); Robin et al., 2004 (SR +); Sales et al., 2006 (SR ++); Underhill et al., 2007; 2008 (both SR ++)

2 Sales et al., 2006 (SR ++)

Table 6.1. Summary of findings from systematic reviews and meta-analyses: Sexual health

Author (Year)	Design	Inclusion/exclusion	Number of studies	Findings
Arnold & Rotheram-Borus, 2009	SR -	Programmes that had an HIV prevention focus and targeted homeless youth.	6 studies	Programmes with demonstrated success in recruiting and retaining youth are present/future-oriented, skill-based interventions aimed at increasing the youth's ability to reduce behaviours that lead to HIV.
DiCenso et al., 2002	SR ++	Primary prevention strategies aimed at delaying sexual intercourse, improving use of birth control and reducing incidence of unintended pregnancy in adolescents	26 studies	Primary prevention strategies do not delay the initiation of sexual intercourse or improve the use of birth control among young men and women.
Franklin et al., 1997	SR +	Studies with a primary focus on the primary prevention of adolescent pregnancy	32 studies	Programmes had a greater effect on contraceptive use and pregnancy rates, than on sexual activity. Contraceptive knowledge building programmes and contraceptive distribution programmes are more effective than other sex education programmes (e.g. abstinence-only programmes).
Guyatt et al., 2000	SR +	Randomised trials and observational studies of interventions to prevent adolescent pregnancy	30 studies	Summary odds ratios for the observational studies showed a significant intervention benefit ($p<0.05$) while the randomised trials did not show a benefit for any outcome in either females or males. Observational studies yield systematically greater estimates of treatment effects than randomized trials of adolescent pregnancy prevention interventions.
Pedlow & Carey, 2003	SR +	HIV risk reduction interventions targeting teenagers	22 studies	HIV risk reduction interventions have been shown to be effective but are associated with small effect sizes. Most effective studies emphasised a theoretical framework, most often Social Cognitive Theory. Interventions with multiple sessions or long doses have been no more successful than those with shorter doses.
Robin et al., 2004	SR +	Behavioural interventions targeting HIV, STI, and pregnancy for young people aged 13 years or younger	39 studies; 2 community-based; 2 clinic-based; 1 home based; 4 mixed settings	Programmes that produced positive effects: (1) used trained adult facilitators, and two other programmes with positive effects also used trained peer facilitators; (2) included content that was specific to reducing sexual risk behaviour such as refusal of unwanted sex and condom-use skills; and (3) commonly employed interactive and participatory educational strategies.
Sales et al., 2006	SR ++	School, community or clinic based interventions or interventions developed for special populations	24 studies; 12 clinic-based; 9 special populations; 5 community-based	Most successful community based interventions were theoretically based, tailored to the target population, implemented by trained facilitators, and the content was diverse and delivered using a wide variety of methods.

Author (Year)	Design	Inclusion/exclusion	Number of studies	Findings
Underhill et al., 2007	SR ++	Abstinence-only interventions with HIV prevention as stated goal	2 family-based studies; 1 community-based study	No evidence that abstinence-only programs can effectively encourage abstinent behaviour; although programs did not appear to cause harm. Overall, programmes were ineffective for preventing or decreasing sexual activity.
Underhill et al., 2008	SR ++	Abstinence-plus programs designed to influence behaviour change on at least one outcome measure related to HIV transmission	21 community-based studies; 5 family-based studies	No conclusive evidence that abstinence-plus programmes can reduce STI incidence and limited evidence that abstinence-plus programmes can reduce pregnancy incidence; however, direction of effects consistently favoured abstinence-plus programmes. Programmes had mixed effects on sexual behaviour. Authors reported that the results from the studies of community-based programmes suggest that a number of community-based abstinence-plus programs can affect risk behaviour

6.2 Programmes delivered within social and community settings

6.2.1 Overview of evidence identified

Fourteen studies examined interventions or programmes delivered within social and community setting that focused on preventing risky sexual behaviours among young people. These studies were conducted within various community-based agencies including youth agencies (Di Noia & Schinke, 2007; Elliott et al., 1996; Ferguson, 2000; Kipke et al., 1993; Philliber, 2002; Postrado & Nicholson, 1992), schools (Jemmott et al., 1992; 1998; Pearlman et al., 2002; Smith et al., 2000; Villarruel et al., 2006), recreation centres (Stanton et al., 1996; 1997) and a housing development (Sikkema et al., 2005).

Of the 14 studies, seven (Di Noia & Schinke, 2007; Jemmott et al., 1992; Jemmott et al., 1998; Postrado & Nicholson, 1992; Stanton et al., 1996; 1997; Villarruel et al., 2006) examined interventions based on group education sessions targeting risky sexual behaviours and two (Kipke et al., 1993; Sikkema et al., 2005) examined skills-based training interventions. Three studies (Ferguson, 2000; Pearlman et al., 2002; Smith et al., 2000) examined peer-led interventions, including a peer counselling programme (Ferguson, 2000) and peer-led leadership programmes (Pearlman et al., 2002; Smith et al., 2000), respectively. Philliber and colleagues (2002) examined the Children's AID Society (CAS) Carrera programme that focused on youth development for young people enrolled in after school programmes and Elliott and colleagues (1996) examined a theatre production designed to inform young people about HIV.

The theoretical basis for intervention was not reported in seven studies (Elliott et al., 1996; Ferguson, 2000; Jemmott et al., 1992; Pearlman et al., 2002; Philliber et al, 2002; Postrado & Nicholson, 1992; Sikkema et al., 2005). Interventions examined in five studies (Di Noia & Schinke, 2007; Jemmott et al., 1998; Kipke et al., 1993; Smith et al., 2000; Villarruel et al., 2006) were based on multiple theories. The most commonly applied theories were the theory of reasoned action and the theory of planned behaviour. The intervention examined by Stanton and colleagues (1996; 1997) was based on a single theory, protection motivation theory.

The number of participants recruited ranged from 74 (Smith et al., 2000) to 1,172 (Sikkema et al., 2005) adolescents. A range of different age groups were targeted across the included studies. The youngest age targeted was 9 years (Stanton et al., 1996; 1997) and the oldest age targeted was 18 (Villarruel et al., 2006). Eight studies (Di Noia & Schinke, 2007; Elliott et al., 1996; Ferguson, 2000; Jemmott et al., 1992; Kipke et al., 1993; Pearlman et al., 2002; Postrado & Nicholson, 1992; Sikkema et al., 2005) were based on short-term follow-up only (<6 months), three studies (Jemmott et al., 1998; Smith et al., 2000; Villarruel et al., 2006) were based on medium-term follow-up (up to 12 months) and two studies (Philliber et al, 2002; Stanton et al., 1996; 1997) reported long term results (>12 months).

6.2.2 Quality assessment

Of the 14 studies identified, nine were RCTs (Di Noia and Schinke, 2007; Jemmott et al., 1992; 1998; Kipke et al., 1993; Philliber et al., 2002; Sikkema et al., 2005; Stanton et al., 1996; 1997; Villarruel et al., 2006), three were NRCTs (Elliott et al., 1996; Ferguson, 2000; Pearlman et al., 2002), and two were CBA studies (Postrado & Nicholson, 1992; Smith et al., 2000). Of the nine RCTs, four were based on cluster randomisation (Di Noia and Schinke, 2007; Sikkema et al., 2005; Stanton et al., 1996; 1997); two studies (Di Noia and Schinke, 2007; Sikkema et al., 2005) randomised at the community site level and two studies (Stanton et al.,1996; 1997) of the Focus on Kids programme randomised groups of friends. Two well-reported and conducted RCTs (Jemmott et al., 1998; Villarruel et al., 2006) based on individual randomisation, were rated strong for quality. These studies appropriately allocated participants to intervention and control conditions, reported a range of relevant and reliable outcomes and conducted appropriate analyses. Seven RCTs (Jemmott et al., 1992; Kipke et al., 1993; Philliber et al., 2002; Di Noia and Schinke, 2007; Sikkema et al., 2005; Stanton et al., 1996, 1997), including four cluster RCTs were rated moderate quality. Although these studies were generally well-reported and reported appropriate methods for allocation, and relevant and reliable outcomes, none of these studies reported whether they were sufficiently powered to detect an intervention effect and only one (Stanton et al., 1996) reported that an ITT analyses had been undertaken. The quality of the three NRCTs was moderate and they were generally well reported. However, the study by Elliott et al (1996) was subject to large losses to follow-up and only reported short-term follow-up and was consequently rated poorly. The two CBA studies (Postrado and Nicholson, 1992; Smith et al., 2000) were rated poorly. The study conducted by Postrado and Nicholson (1992) was at risk of bias as participants self-selected into the intervention and control conditions, and the method of allocation was not clear in the study by Smith et al (2000).

6.2.3 Findings

6.2.3.1 Knowledge and understanding

Ten studies (Di Noia and Schinke, 2007; Elliott et al., 1996; Ferguson, 2000; Jemmott et al., 1992; 1998; Kipke et al., 1993; Pearlman et al., 2002; Philliber et al., 2002; Smith et al., 2000; Stanton et al., 1996) examined intervention effects on knowledge across a range of follow-up periods. For four of the five studies that examined group education sessions or skills-based interventions there were positive intervention impacts on knowledge. The Keepin' it Safe CD-ROM intervention (Di Noia and Schinke, 2007), which specifically targeted females, was shown to have improved knowledge at post-test among intervention participants compared to wait-list controls ($p<0.001$). At post-test and the 3-month follow-up, black male adolescents who participated in the BPBR programme (Jemmott et al., 1992) had greater knowledge about AIDS than controls who received a career opportunities intervention ($p<0.001$ and $p<0.01$, respectively). In a second evaluation of the BPBR programme (Jemmott et al., 1998), African American male and female adolescents who received a safer sex education version of the programme had significantly higher condom use knowledge compared to those who received the control or an abstinence only version of the programme (both $p<0.001$). Participants in both the abstinence and safer sex intervention groups reported significantly greater knowledge about HIV risk

reduction than controls (both p<0.001). Kipke and colleagues (1993) reported that adolescents who participated in the ARREST programme had significantly higher levels of knowledge at post-test than controls (p<0.001). Only one programme failed to have an impact on knowledge. Stanton et al (1996) found that there was no difference in knowledge at either the 6- or 12-month follow-up among African American adolescents who participated in the Focus on Kids programme and controls who received weekly HIV prevention sessions.

Three studies examined peer-led interventions. There was no effect of a peer counselling programme for African American females (Ferguson et al., 2000) on knowledge at post-test, and at the 3-month follow-up, control participants reported a significant increase in knowledge compared to the intervention group (p<0.01). Pearlman et al (2002) found an effect of a peer leadership intervention on knowledge among the peer leaders themselves. At 9-months, new peer leaders reported significantly higher levels of knowledge about HIV/AIDS than comparison youth (p<0.01). In addition, Smith et al (2000) found that a peer leadership intervention, Students Together Against Negative Decisions (STAND), had a significant effect on participants knowledge of risk behaviours relative to comparison students (p<0.05). There were no effects of a theatre production on participants' knowledge about HIV (Elliott et al., 1996). Philliber and colleagues (2002) found that gains in knowledge were significantly greater among Carrera programme participants than controls (p<0.001).

6.2.3.2 Attitudes and values

Seven studies (Di Noia and Schinke, 2007; Elliott et al., 1996; Jemmott et al., 1992; 1998; Kipke et al., 1993; Stanton et al., 1996; Smith et al., 2000) examined programme effects on attitudes and values. This included four studies (Di Noia and Schinke, 2007; Jemmott et al., 1992; 1998; Stanton et al., 1996) that examined interventions based on group education sessions targeting risky sexual behaviours and one study (Kipke et al., 1993) that examined a skills-based intervention.

Di Noia and Schinke (2007) examined a CD-ROM mediated HIV prevention intervention for adolescent females. At post-test, intervention participants reported higher scores on the following attitudinal measures: perceived vulnerability to HIV (p<0.01), perceived efficacy and enjoyment of condoms (p<0.01 and p<0.05, respectively), and perceived efficacy and enjoyment of abstinence (p<0.01 and p<0.001, respectively). There was no difference between groups on the measure of partner norms or participants' self-efficacy for low-risk activities. At post-test, compared to a career opportunities intervention, Black male adolescents who participated in the BPBR programme (Jemmott et al., 1992) expressed less favourable attitudes toward risky sexual behaviours (p<0.01) and reported weaker intentions to engage in such behaviours (p<0.001). At 3-months, BPBR participants reported weaker intentions to engage in risky sexual behaviour in the next 3 months compared to control participants (p<0.01), but there was no difference in attitudes regarding risky sexual behaviours. In a further study of the BPBR programme, Jemmott and colleagues (1998) examined two versions of the programme. At post-test, compared to participants in the control group and those who received the safer-sex intervention, adolescents in the abstinence group believed more strongly that practicing abstinence would prevent pregnancy and AIDS (p<0.001 and p<0.05, respectively), expressed less favourable attitudes toward sexual intercourse (p<0.001 and p<0.01,

respectively) and reported weaker intentions of having sexual intercourse (both p<0.05) in the next 3 months. There was no difference between abstinence and control participants on attitudinal measures related to condom use. However, participants who received the safer sex intervention were more likely than participants in the control and abstinence groups to report condom prevention beliefs (both p<0.001), condom hedonistic beliefs (both p<0.001), condom availability control beliefs (p<0.05 and p<0.001, respectively). They also reported significantly higher impulse beliefs than controls and higher self-efficacy to use condoms (both p<0.05, respectively). There was no effect of either the abstinence or safer sex intervention on participant's intentions to use condoms compared to controls. At post-test, adolescents who received AIDS education and skills training in the ARREST programme (Kipke et al., 1993) reported a significant decrease in negative attitudes towards AIDS compared to the control group, (p<0.05) and an increase in the perception that adolescents are at risk of becoming HIV infected (p<0.01). At the 6-month follow-up, compared to control participants, African American adolescents who participated in Focus on Kids (FOK; Stanton et al., 1996) were significantly more likely to report an intention to use condoms (p<0.05). However this difference was not apparent at the 12 month follow-up. The authors also examined perceptions, finding that intervention participants perceived greater peer use of condoms (p<0.05) and perceived themselves as more vulnerable to HIV infection at the 6-month, but not the 12-month follow-up. There were no differences between intervention and control students at either follow-up on other attitudinal measures, which included perceptions of extrinsic and intrinsic rewards relevant to condom use, vulnerability and self-efficacy.

Elliott and colleagues (1996) examined the effects of a theatre production designed to teach young people about HIV. There was no impact of the intervention on attitudes at post-test or 2-month follow-up. Smith et al (2000) examined the effects of a peer leadership intervention, but at follow-up there were no differences on the HIV Prevention Attitude Scale or on the Condom Attitude Scale between intervention and control participants. However, STAND participants had significantly greater gains in condom use self-efficacy compared to the comparison group (p<0.01), but there was no difference in refusal skills self-efficacy.

6.2.3.3 Personal and social skills

Three studies (Di Noia and Schinke, 2007; Kipke et al., 1993; Smith et al., 2000) examined programme effects on skills. Di Noia and Schinke (2007) examined the effects of a CD-ROM intervention on sexual assertiveness and sexual communication. Females who received the intervention reported higher scores at post-test on sexual assertiveness than wait-list controls (p<0.001), but there was no difference between the groups in levels of communication. Kipke and colleagues (1993) found that compared to controls, ARREST participants had increased behavioural skills at post-test for giving a reason for refusing to engage in risk-related activities (p<0.001) and for proposing alternative lower risk activities (p<0.001). Young people who participated in the peer leadership programme, STAND (Smith et al., 2000), were significantly more likely than comparison students to report speaking with their friends about birth control/condoms and STIs (both p<0.01), but there was no difference in the frequency of conversations with parents or other adults, or on the Dyadic Sexual Communication Scale or Health Protection Communication Scale.

6.2.3.4 Health and social outcomes related to sexual health

Eight studies (Jemmott et al., 1992; Jemmott et al., 1998; Kipke et al., 1993; Postrado and Nicholson, 1992; Stanton et al., 1996; 1997; Sikkema et al., 2005; Villarruel et al., 2006) that tested the effects of interventions based on group education sessions or skills training examined their effects on health outcomes related to sexual health. Controlling for pre-intervention behaviour, at 3-months follow-up, black adolescents who participated in the BPBR programme (Jemmott et al., 1992) were less likely than controls to report having engaged in risky sexual behaviours ($p<0.01$). Across different sexual behaviours the effects of the intervention were fairly consistent. There was no difference between groups in whether participants had sex, but intervention participants reported having sex on fewer days, with fewer women, and with fewer women who were involved in sexual relationships with other men. Intervention participants also reported fewer occasions of sex without a condom and were less likely to report having had anal intercourse with women. In a further evaluation of the effects of the BPBR programme, Jemmott and colleagues (1998) examined an abstinence and safer sex version of the programme. At 3-months follow-up, abstinence intervention participants were significantly less likely to report having sexual intercourse compared to controls (OR 0.45; 95% CI 0.23, 0.86; $p<0.05$) but not safer sex intervention participants (OR 0.54; 95% CI 0.28, 1.07). At the 3-month follow-up, those who received the safer sex intervention were more likely to report consistent condom use relative to the control group (OR 3.38; 95% CI 1.25, 9.16; $p<0.05$) and the abstinence group (OR 3.10; 95% CI 0.99, 9.73; $p<0.05$). In addition, safer sex intervention participants reported a higher frequency of condom use than controls ($p<0.05$), were less likely to report having unprotected sexual intercourse (OR 0.35; 95% CI 0.13, 0.95; $p<0.05$) and reported fewer days of unprotected intercourse ($p<0.05$). At the 6-month follow-up there were no significant differences between adolescents in the abstinence group and adolescents in the control or safer sex group on any of the sexual behaviour measures (in past 3 months), except that adolescents in the safer sex group reported a higher frequency of condom use relative to controls ($p<0.05$). At 12-months follow-up, compared to adolescents in the control group, there was a higher frequency of condom use among adolescents in both the abstinence group ($p<0.05$) and the safer sex group ($p<0.01$). Postrado and Nicholson (1992) examined interventions targeting young females enrolled in Girls Incorporated member organisations. Girls who did not participate in the Growing Together programme were more likely to have initiated sexual intercourse at post-test than those who did participate (OR 2.6; $p<0.05$). Participation in the Will Power Won't Power programme was not associated with initiation of sexual intercourse. There was no difference in risk-related sexual behaviours between participants who received the ARREST education and skills training programme (Kipke et al., 1993) and the control group on the following measures: number of sexual encounters, number of sexual partners, and use of condoms. Sikkema and colleagues (2005) examined the effects of an HIV prevention intervention, with and without the addition of a community-level intervention. At long-term follow-up, adolescents who received the additional community intervention were more likely to have remained abstinent compared to the comparison group (adjusted OR 1.97; 95% CI 1.06, 3.67; $p<0.05$), although the difference between community and workshop participants was not significant (OR 1.72; 95% CI 0.94, 3.16). In addition, compared to the comparison group, condom use rates were higher in both the community (OR 2.50;

95% CI 1.01, 6.22) and workshop (OR 2.23; 95% CI 0.99, 5.03) condition groups. The difference between the community and workshop groups was not significant. Stanton and colleagues (1996) examined the effects of the Focus on Kids programme on self-reported condom use. At the 6-month follow-up, condom use was significantly greater overall among intervention participants than control participants ($p<0.05$), but at 12-months this difference was no longer significant. Further analysis of the data up to the 18 months follow-up found that at 6- and 18-months follow-up, control youth were more likely than intervention youths to have engaged in unprotected sex, and cumulatively in the post-intervention period, intervention youth were less likely to have engaged in unprotected sex than control youths. Villarruel and colleagues (2006) examined the ¡Cuidate! programme, an adaptation of the BPBR programme for Latino adolescents. At 12-months follow-up, adolescents who participated in the programme were less likely to report sexual intercourse (OR 0.66; 95% CI 0.46, 0.96), multiple partners (OR 0.53; 95% CI 0.31, 0.90), fewer days of unprotected intercourse (RR 0.47; 95% CI 0.26, 0.84) and more likely to report using condoms consistently (OR 1.91; 95% CI 1.24, 2.93). There were no significant effects of the intervention on condom use at last sex (OR 1.45; 95% CI 0.97, 2.15) or the proportion of days of protected sex.

Three studies (Ferguson, 2000; Pearlman et al., 2002; Smith et al., 2000) examined the effects of peer-led programmes on health and social outcomes related to sexual health. Ferguson (2000) examined the impact of peer counselling in a pregnancy prevention programme. At the 3-month follow-up, none of the participants in either the intervention or control group had become pregnant. There was no significant delay in sexual intercourse for participants in either group and there was no difference between groups in the use of effective methods of contraception. There were also limited effects of a peer leadership intervention examined by Pearlman and colleagues (2002). At 9-months follow-up, there were no significant differences between new peer leaders and a comparison group on a measure of sexual risk taking behaviour. Smith and colleagues (2000) examined STAND, a peer leadership programme targeting high school students. At the 8-month follow-up, there was no significant difference between the intervention and comparison groups in the number of participants who were 'non-virgins' at follow-up. However, STAND participants were more likely to be 'consistent' condom users ($p<0.05$). There was no difference in the number of participants who reported condom use at last intercourse or in the number of condom-protected or unprotected instances of intercourse. In addition, there was no difference in the number of participants who reported being involved in a pregnancy, but STAND participants were less likely to have been diagnosed with an STI ($p<0.01$). Alcohol and other drug use in conjunction with intercourse were not frequently reported in either the intervention or comparison group.

Philliber and colleagues (2002) examined the effects of the CAS-Carrera youth development programme which targeted disadvantaged adolescents. At the end of the three year programme, the odds of becoming pregnant (or causing pregnancy) were significantly reduced among female, but not male, programme participants compared with controls (OR 0.31; $p<0.01$). Female programme participants were also less likely to be sexually active (OR 0.52; $p<0.05$) and were more likely to have

used a condom and a hormonal method at last intercourse (OR 2.37; p<0.05). There were no significant programme effects on males.

There were no significant effects of a theatre production on the number of participants who reported having unprotected sex in the previous 2-months (Elliott et al., 1996). However, at the 2-month follow-up, significantly more theatre participants than seminar participants reported changing their behaviour in response to the intervention (p<0.01). Those reporting a behavioural change in both groups said that they had become more cautious about sex or at least bought and carried condoms more than before.

6.2.4 Summary and evidence statements

Fourteen studies examined interventions or programmes delivered within social and community setting that focused on preventing risky sexual behaviours among young people. Nine studies (Di Noia and Schinke, 2007; Jemmott et al., 1992; Jemmott et al., 1998; Kipke et al., 1993; Postrado and Nicholson, 1992; Sikkema et al., 2005; Stanton et al., 1996; 1997; Villarruel et al., 2006) examined group education sessions or skills-based training interventions. Three studies (Ferguson, 2000; Pearlman et al., 2002; Smith et al., 2000) examined peer-led interventions, including a peer counselling programme (Ferguson, 2000) and peer leader leadership programmes (Pearlman et al., 2002; Smith et al., 2000), respectively. Philliber and colleagues (2002) examined the CAS-Carrera programme that focused on youth development for disadvantaged young people enrolled in after school programmes and Elliott et al (1996) examined a theatre production designed to inform young people about HIV.

Across four studies (Di Noia and Schinke, 2007; Jemmott et al., 1992; 1998; Kipke et al., 1993), that examined group education sessions or skills-based training interventions there were positive intervention effects on knowledge and understanding over the short- to medium-term. In addition, the three-year, Carrera programme (Philliber et al., 2002) had a positive impact on knowledge. There was no effect of a peer counselling intervention (Ferguson, 2000) on knowledge, but two peer leadership interventions (Pearlman et al., 2002; Smith et al., 2000) had positive effects on levels of knowledge among the peer leaders themselves.

Seven studies (Di Noia and Schinke, 2007; Elliott et al., 1996; Jemmott et al., 1992; 1998; Kipke et al., 1993; Stanton et al., 1996; Smith et al., 2000) examined intervention effects on a range of attitudes and values related to sexual health. Short-term decreases in intentions to engage in risky sexual intercourse were reported in the study of the BPBR programme which targeted black male adolescents (Jemmott et al., 1992) and an abstinence-based version of the programme resulted in short-term reductions in intentions to engage in any sexual intercourse. Across three studies (Di Noia and Schinke, 2007; Kipke et al., 1993; Stanton et al., 1996) there were short-term increases in intervention participants' perception of their vulnerability to HIV infection. However, this effect was not sustained in the medium-term (Stanton et al., 1996). Two studies (Elliott et al., 1996; Smith et al., 2000) found no effects of a theatre production intervention or peer leadership intervention, respectively, on HIV attitudes at follow-up. Across four studies (Di Noia and Schinke, 2007; Jemmott

et al., 1998; Smith et al., 2000; Stanton et al., 1996) there were indications of positive intervention effects on attitudes and values related to condom use. However, these effects did not appear to be consistent and were not maintained over the medium-term (Stanton et al., 1996). Two studies (Di Noia and Schinke, 2007; Jemmott et al., 1998) found short-term positive intervention effects of a CD-ROM mediated intervention and an abstinence-based version of the BPBR curriculum, respectively, on attitudes towards abstinence.

Intervention effects on personal and social skills were examined across three studies (Di Noia and Schinke, 2007; Kipke et al., 1993; Smith et al., 2000). A CD-ROM intervention (Di Noia and Schinke, 2007) and education and skills training programme (Kipke et al., 1993) had positive effects on behavioural skills but results from two studies (Di Noia and Schinke, 2007; Smith et al., 2000) presented mixed findings in relation to effects on communication.

Eight studies (Ferguson, 2000; Jemmott et al., 1992; 1998; Philliber et al., 2002; Postrado and Nicholson, 1992; Sikkema et al., 2005; Smith et al., 2000; Villarruel et al., 2006) examined intervention effects on sexual activity. Across five studies (Jemmott et al., 1992; 1998; Postrado and Nicholson, 1992; Sikkema et al., 2005; Villarruel et al., 2006) that examined group-based sessions and/or skills training, short- to medium-term effects on sexual intercourse were reported in four studies (Jemmott et al., 1992; Postrado and Nicholson, 1992; Sikkema et al., 2005; Villarruel et al., 2006), and one study (Jemmott et al., 1998) reported no programme effects. The Carrera programme (Philliber et al., 2002) had a positive effect on sexual activity among females but there were no effects of two peer interventions (Ferguson, 2000; Smith et al., 2000). Intervention effects on frequency of sexual intercourse and number of sexual partners was limited. Across four studies (Jemmott et al., 1998; Kipke et al., 1993; Pearlman et al., 2002; Villarruel et al., 2006) that examined these outcomes only one study (Villarruel et al., 2006) reported a positive intervention effect. Nine studies (Elliott et al., 1996; Ferguson, 2000; Jemmott et al., 1998; Kipke et al., 1993; Philliber et al., 2002; Sikkema et al., 2005; Smith et al., 2000; Stanton et al., 1996; Villarruel et al., 2006) examined intervention effects on contraceptive use. Across four of the five studies that examined group-based sessions and/or skills training, there were positive short-term intervention effects on measures of condom use (Jemmott et al., 1998; Sikkema et al., 2005; Stanton et al., 1996; Villarruel et al., 2006), and some evidence from two studies (Jemmott et al., 1998; Villarruel et al., 2006) of a positive intervention effect on frequency of unprotected intercourse. However, over the longer term, intervention effects appeared to diminish. There were no effects on a HIV theatre production (Elliott et al., 1996) or peer counselling intervention (Ferguson, 2000) on contraceptive use or frequency of unprotected sex, but the Carrera programme (Philliber et al., 2002) positively influenced both condom and hormonal contraceptive use among females. There was no effect of a peer counselling intervention (Ferguson, 2000) or peer leadership programme (Smith et al., 2000) on pregnancy rates, but again the Carrrea programme (Philliber et al., 2002) had a positive effect, with a reduction in pregnancies among intervention females.

Evidence statement 8

8 (a) There is moderate evidence from five RCTs, one NRCT and one CBA study[1] to suggest that group-based education and/or skills-based interventions, youth development programmes and peer leadership interventions delivered in social and community settings may have a positive short- to medium-term impact on knowledge and understanding related to sexual health. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

8 (b) There is inconsistent evidence from five RCTs, one NRCT and one CBA study[2] on which to determine the effects of interventions and programmes delivered in social and community settings on attitudes and values related to sexual health. There was moderate evidence from three RCTs[3] to suggest that group-based education and/or skills-based interventions may have positive short-, but not long-term, effects on attitudes and values related to condom use. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

8 (c) There is weak evidence from two RCTs[4] to suggest that group-based education and/or skills-based interventions delivered in social and community settings may have a positive short-term impact on behavioural skills related to sexual health. There was no evidence on which to determine intervention effects on communication skills. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

8 (d) There is moderate evidence from four RCTs and one CBA study[5] to suggest that group-based education and/or skills-based interventions may have limited effects on sexual activity. Although reductions in the likelihood of sexual intercourse were reported across four RCTs[6] there was only evidence from one RCT[7] of intervention effects on frequency of sexual intercourse or number of sexual partners. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

8 (e) There is weak evidence from four RCTs[8] to suggest that group-based education and/or skills-based interventions delivered in social and community settings may have positive short-term impacts on condom use and frequency of unprotected intercourse. There is weak evidence from one RCT[9] to suggest that these effects may diminish over the medium term. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

8 (f) There is moderate evidence from one RCT[10] to suggest that youth development programmes that target disadvantaged young people may have a positive impact on sexual behaviours among females, including sexual activity, condom use and pregnancy. This evidence may only be partially applicable because these studies were conducted in the USA and focused on

ethnic populations, specific to the USA.

[1] Di Noia and Schinke, 2007 (RCT +); Jemmott et al., 1992 (RCT +); Jemmott et al., 1998 (RCT ++); Kipke et al., 1993 (RCT +); Pearlman et al., 2002 (NRCT +); Philliber et al., 2002 (RCT +); Smith et al., 2000 (CBA -)

[2] Di Noia and Schinke, 2007 (RCT +); Elliott et al., 1996 (NRCT -); Jemmott et al., 1992 (RCT +); Jemmott et al., 1998 (RCT ++); Kipke et al., 1993 (RCT +); Stanton et al., 1996 (RCT +); Smith et al., 2000 (CBA -)

[3] Di Noia and Schinke, 2007 (RCT +); Jemmott et al., 1998 (RCT ++); Stanton et al., 1996 (RCT +)

[4] Di Noia and Schinke, 2007 (RCT +); Kipke et al., 1993 (RCT +)

[5] Jemmott et al., 1992 (RCT +); Jemmott et al., 1998 (RCT ++); Postrado and Nicholson, 1992 (CBA -); Sikkema et al., 2005 (RCT +); Villarruel et al., 2006 (RCT ++)

[6] Jemmott et al., 1992 (RCT +); Jemmott et al., 1998 (RCT ++); Sikkema et al., 2005 (RCT +); Villarruel et al., 2006 (RCT ++)

[7] Villarruel et al., 2006 (RCT ++)

[8] Jemmott et al., 1998 (RCT ++); Sikkema et al., 2005 (RCT +);Stanton et al., 1996 (RCT +); Villarruel et al., 2006 (RCT ++)

[9] Stanton et al., 1996 (RCT +)

[10] Philliber et al., 2002 (RCT +)

Table 6.2. Summary of programme content: programmes delivered in social and community settings

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
Di Noia and Schinke, 2007	RCT (cluster) +	USA n=204 females 29% Hispanic; 54% Black; 4% White or other; 15% NR 11-14 years	Youth agencies	**Keepin' it Safe**: Six weekly sessions; HIV/AIDS knowledge and perceived vulnerability to HIV infection, sexual decision making, self-efficacy, sexual communication and assertiveness, and risk reduction skills building.	Health Belief Model, theory of reasoned action, theory of planned behaviour, self-efficacy theory	CD-ROM
Elliott et al., 1996	NRCT -	UK n=10 projects Ethnicity NR mean 15-16 years	Youth agency	Theatre production designed to inform young people about HIV, especially the modes of transmission; explore attitudes and emotional issues associated with HIV and inform participants about safer sex practices, in particular proper condom use.	NR	Theatre company
Ferguson, 2000	NRCT -	USA n=63 females 100% African American 12-16 years	Youth agency	Eight weekly, 2-hour peer counselling sessions including group discussions and role play. Focus on sexual behaviour, reproduction, STIs, contraceptives and hygiene.	NR	Trained peer counsellors
Jemmott et al., 1992	RCT (individual) +	USA n=157 males 100% Black mean 15 years	School (weekends)	**Be Proud! Be Responsible! (BPBR)**: Five hour AIDS risk reduction course covering information about risks associated with intravenous drug use and specific sexual activities	NR	Trained facilitators
Jemmott et al., 1998	RCT (individual) ++	USA n=659 100% African American mean 12 years	School (weekends)	**BPBR:** Eight, 1-hour modules delivered over consecutive Saturdays; (1) abstinence intervention designed to increase HIV/STI knowledge, strengthen behavioural beliefs and skills supporting abstinence; (2) safer sex intervention designed to increase HIV/STI knowledge and condom use.	Social cognitive theory, reasoned action, theory of planned behaviour.	Adult facilitator or peer co-facilitator
Kipke et al., 1993	RCT (individual) +	USA n=87 59% Latino; 41% African American 12-16 years	Youth agencies	**ARREST (AIDS Risk Reduction Education and Skills Training):** Three training sessions; AIDS education; instruction on how to use condoms; and decision-making, communication and assertiveness skills training. Take home exercises.	Health Belief Model, Social Learning Theory	NR
Pearlman et al., 2002	NRCT +	USA n=168 36% Hispanic; 28% White; 17% Black; 18% other mean 15-16 years	School	**Project Teen Health**: peer leadership course; ongoing group work with an adult advisor to learn about HIV and related skills	NR	NR

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
Philliber et al., 2002	RCT (individual) +	USA n=484 56% Black; 42% Hispanic; 2% other 13-15 years	Youth agencies	**Children's AID Society-Carrera programme**: Five days/week over the school year; Work-related intervention; academic component; comprehensive family life and sexuality education; arts component; individual sports component. Supplemented by mental health care and medical care.	NR	Community organisers
Postrado and Nicholson, 1992	CBA -	USA n=412 females 75% Black; 15% White; 11% Hispanic or other 12-17 years	Youth agency	**Will Power/Won't Power (WPWP):** 6 sessions; Group-building exercises, introduction to relationships and basic assertiveness skills **Growing Together (GT):** 5 sessions; one parents only session; other sessions focused on physical and emotional changes during puberty, anatomy of reproduction, myths and facts about sexuality and getting pregnant, and other related topics.	NR	NR
Sikkema et al., 2005	RCT (cluster) +	USA n=1,172 51% African American; 20% Asian; 10% East African; 5% White; 3% Hispanic; 11% other mean 15 years	Housing developments	Two, three-hour training sessions; (1) Workshop intervention; HIV/STI education, skills training, sexual negotiation skills, condom use skills, and risk behaviour self-management; (2) Community-level intervention; as workshop condition, followed by a multi-component community intervention	NR	NR
Smith et al., 2000	CBA -	USA n=74 58% African American; 39% White; 3% other mean 16 years	School (evenings)	**STAND:** Peer leadership programme; 36 hours over 4 months; team-building exercises, contraceptive demonstrations, visit to local health department, skills practice, visits from an AIDS specialist physician and nurse, and optional parent/teen activities	Diffusion of innovations theory, transtheoretical model	AIDS Education Specialist, middle school counsellor, college interns
Stanton et al., 1996; 1997	RCT (cluster) +	USA n=383 100% African American 9-15 years	Recreation centres	**Focus on Kids**: Eight weekly meetings; sessions focused on one or more Protection Motivation Theory constructs from difference perspectives. Facts regarding AIDS, STIs, contraception and human development were also provided, as were condoms.	Protection Motivation Theory	Interventionists
Villarruel et al., 2006	RCT (individual) ++	USA n=656 100% Latino 13-18 years	School (weekends)	**¡Cuidate!**: Eight hours over two consecutive Saturdays; abstinence and condom use were presented as culturally accepted and effective ways to prevent STIs.	Social cognitive theory, theories of reasoned action and planned behaviour.	Trained facilitators

Table 6.3. Programme delivered in social and community settings: effects on knowledge, attitudes and skills

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
Di Noia and Schinke, 2007	RCT (cluster) +	Keepin' it Safe n=111	Wait list control n=93	PT (75%)	↑***	↑ vulnerability to HIV** ↑ condom use efficacy** ↑ enjoyment of condoms* ↑ abstinence efficacy** ↑ enjoyment of abstinence***	↑ sexual assertiveness*** **NS** communication
Elliott et al., 1996	NRCT -	HIV theatre production n=132	Health education seminars n=85	PT (NR)	**NS**	**NS** attitudes	-
				2 mo (int=34%; con=43%)	**NS**	**NS** attitudes	-
Ferguson, 2000	NRCT -	Peer counselling n=33	No intervention n=30	PT (NR)	**NS**	-	-
				3 mo (int=91%; con=73%)	↑**	-	-
Jemmott et al., 1992	RCT (individual) +	Be Proud! Be Responsible! n=85	Career opportunities n=72	PT (NR)	↑ AIDS***	↓ favourable attitudes toward risky sexual behaviours** ↓ intentions to engage in risky sexual behaviours***	-
				3 mo (NR)	↑ AIDS**	**NS** favourable attitudes toward risky sexual behaviours** ↓ intentions to engage in risky sexual behaviours**	-
Jemmott et al., 1998	RCT (individual) ++	Be Proud! Be Responsible! Safer sex, n=218	Health promotion control n=214	PT (NR)	↑ condom use*** ↑ HIV risk reduction***	↑ condom prevention beliefs*** ↑ condom hedonistic beliefs*** ↑ condom availability control beliefs* ↑ impulse control beliefs* **NS** negotiation skills beliefs **NS** technical skills beliefs ↑ condom use self-efficacy* **NS** condom use intentions **NS** abstinence-related outcomes	-

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
Jemmott et al., 1998	RCT (individual) ++	Be Proud! Be Responsible! Abstinence, n=215	Health promotion control n=214	PT (NR)	**NS** condom use ↑ HIV risk reduction***	↑ abstinence prevention beliefs*** ↑ abstinence goal-attainment beliefs* ↓ attitudes toward sexual intercourse*** ↓ intentions to have sexual intercourse, next 3 mo* **NS** condom-related outcomes	-
Jemmott et al., 1998	RCT (individual) ++	Be Proud! Be Responsible! Safer sex, n=218	Be Proud! Be Responsible! Abstinence, n=215	PT (NR)	↑ condom use*** ↑ HIV risk reduction***	↓ abstinence prevention beliefs* **NS** abstinence goal-attainment beliefs ↑ attitudes toward sexual intercourse** ↑ intentions to have sexual intercourse* ↑ condom prevention beliefs*** ↑ condom hedonistic beliefs*** ↑ condom availability control beliefs*** **NS** impulse control beliefs **NS** negotiation skills beliefs **NS** technical skills beliefs **NS** condom use self-efficacy **NS** condom use intentions	-
Kipke et al., 1993	RCT (individual) +	ARREST n=41	Wait list control n=46	PT (99%)	↑***	↓ negative attitudes towards AIDS* ↑ perception that adolescents are at risk of becoming HIV infected	↑ behavioural skills***
Pearlman et al., 2002	NRCT +	Project Teen Health n=97	Usual sex education n=71	PT (NR)	↑**	↑ perception of oneself as a 'change agent'**	-
Philliber et al., 2002	RCT (individual) +	CAS-Carrera programme n=242	Regular youth programme n=242	3 yr (81%)	↑¶	-	-

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	**Attitudes and values**	**Personal and social skills**
Smith et al., 2000	CBA -	STAND n=21	NR n=53	PT, 8 mo (NR)	↑ risk behaviour*	**NS** HIV prevention attitudes **NS** condom attitudes ↑ condom use self-efficacy** **NS** refusal skills self-efficacy	**NS** communication with parents, other adults or partners
Stanton et al., 1996; 1997	RCT (cluster) +	Focus on Kids n=206	Weekly HIV prevention sessions n=177	6 mo (79%)	**NS**	↑ condom use intentions* ↑ perception of peer condom use[¶] ↑ perceived vulnerability to HIV infection[¶]	-
				12 mo (73%)	**NS**	**NS** condom use intentions **NS** perception of peer condom use **NS** perceived vulnerability to HIV infection	-

*p<0.05; **p<0.01; ***p<0.001; [¶] p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

Table 6.4. Programme delivered in social and community settings: effects on health and social outcomes related to sexual health

Study	Rating	Intervention	Comparator	Follow-up	Sexual health outcomes				
					Age of initiation	Frequency/ Number of partners	Contraceptive use	STIs/ Conceptions	Other
Elliott et al., 1996	NRCT -	HIV theatre production n=132	Health education seminars n=85	2 mo (int=34%; con=43%)	-	-	**NS** unprotected sex	-	↑ changed behaviour in response to intervention**
Ferguson, 2000	NRCT -	Peer counselling n=33	No intervention n=30	PT (NR)	**NS** delay in sexual intercourse	-	**NS** use of effective methods of contraception	**NS** pregnancy	-
				3 mo (int=91%; con=73%)	**NS** delay in sexual intercourse	-	**NS** use of effective methods of contraception	**NS** pregnancy	-
Jemmott et al., 1992	RCT (individual) +	BPBR n=85	Career opportunities n=72	3 mo (NR)	↓ risky sexual behaviour**		-	-	-
Jemmott et al., 1998	RCT (individual) ++	BPBR Safer sex, n=218	Health promotion control n=214	3 mo (int=99%; con=97%)	**NS** sexual intercourse	**NS** frequency of intercourse	↑ consistent condom use* ↑ frequency condom use* ↓ unprotected sex* ↓ frequency of unprotected sex*	-	-
				6 mo (int=95%; con=99%)	**NS** sexual intercourse	**NS** frequency of intercourse	**NS** consistent condom use ↑ frequency condom use* **NS** unprotected sex **NS** frequency of unprotected sex	-	-

Study	Rating	Intervention	Comparator	Follow-up	Sexual health outcomes				
					Age of initiation	Frequency/ Number of partners	Contraceptive use	STIs/ Conceptions	Other
Jemmott et al., 1998	RCT (individual) ++	BPBR Safer sex, n=218	Health promotion control n=214	12 mo (int=94%; con=95%)	**NS** sexual intercourse	**NS** frequency of intercourse	**NS** consistent condom use ↑ frequency condom use** **NS** unprotected sex **NS** frequency of unprotected sex	-	-
Jemmott et al., 1998	RCT (individual) ++	BPBR Abstinence, n=215	Health promotion control n=214	3, 6, 12 mo (int=93%; con=95%)	↓ sexual intercourse (3 mo only*)	**NS** frequency of intercourse	**NS** consistent condom use ↑ frequency condom use (12 mo only*) **NS** frequency of unprotected sex	-	-
Jemmott et al., 1998	RCT (individual) ++	BPBR Safer sex, n=218	Be Proud! Be Responsible! Abstinence, n=215	3, 6, 12 mo	**NS** sexual intercourse	**NS** frequency of intercourse	↑ consistent condom use (3 mo only*) **NS** frequency condom use **NS** frequency unprotected sex	-	-
Kipke et al., 1993	RCT (individual) +	ARREST n=41	Wait list control n=46	PT (99%)	-	**NS** number of sexual partners **NS** number of sexual encounters	**NS** use of condoms	-	-
Pearlman et al., 2002	NRCT +	Project Teen Health n=97	Usual sex education n=71	PT (NR)	-	**NS** sexual risk taking behaviour	-	-	-

Study	Rating	Intervention	Comparator	Follow-up	Sexual health outcomes				
					Age of initiation	**Frequency/ Number of partners**	**Contraceptive use**	**STIs/ Conceptions**	**Other**
Phillber et al., 2002	RCT (individual) +	Carrera programme n=242	Regular youth programme n=242	3 yr (81%)	↓ sexually active (females only¶)	-	↑ condom use at last intercourse (females only¶) ↑ hormonal contraceptive at last intercourse (females only¶)	↓ pregnancy (females only¶)	-
Postrado and Nicholson, 1992	CBA -	WPWP n=257	No intervention n=155	PT (NR)	**NS** initiation of sexual intercourse	-	-	-	-
		GT n=84	No intervention n=328	PT (NR)	↓ initiation of sexual intercourse*	-	-	-	-
Sikkema et al., 2005	RCT (cluster) +	HIV prevention intervention Workshop, n=428 Community, n=392	Standard AIDS education session n=352	2 mo (65%)	↑ abstinence (Community vs. control*)	-	↑ condom use (community vs. control¶; workshop vs. control¶)	-	-
Smith et al., 2000	CBA -	STAND n=21	NR n=53	PT, 8 mo (NR)	**NS** 'non-virgins'	-	↑ consistent condom use*	↓ STI diagnosis** **NS** pregnancy	-
Stanton et al., 1996; 1997	RCT (cluster) +	Focus on Kids n=206	HIV prevention n=177	6 mo (79%)	-	-	↑ condom use*	-	
				12 mo (73%)	-	-	**NS** condom use	-	-

Study	Rating	Intervention	Comparator	Follow-up	Sexual health outcomes				
					Age of initiation	Frequency/ Number of partners	Contraceptive use	STIs/ Conceptions	Other
Villarruel et al., 2006	RCT (individual) ++	¡Cuidate! n=312	Health promotion control n=344	12 mo (84%)	↓ sexual intercourse	↓ multiple partners	↑ consistent condom use **NS** condom use at last intercourse ↓ days of unprotected intercourse **NS** proportion of days of unprotected sex	-	-

*p<0.05; **p<0.01; ***p<0.001; ¶ p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

6.3 Programmes delivered within healthcare settings

6.3.1 Overview of the evidence identified

Six studies (Boekeloo et al., 1999; Danielson et al., 1990; DiClemente et al., 2004; Downs et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al., 2005) were identified that examined interventions and programme delivered in healthcare settings including family planning clinics and primary care practices.

DiClemente and colleagues (2004) and Morrison-Beedy and colleagues (2005) both examined group education sessions for sexually active young females attending family planning clinics. Two other studies based in healthcare settings (Downs et al., 2004; Jemmott et al., 2005) also specifically targeted sexually experienced young females. Downs and colleagues (2004) examined an interactive video intervention and Jemmott and colleagues (2005) examined a skills-based HIV prevention intervention. Two studies (Boekeloo et al., 1999; Danielson et al., 1990) examined interventions based on health consultations. Boekeloo and colleagues (1999) examined a sexual risk assessment and education intervention and Danielson and colleagues (1990) examined a reproductive health consultation and slide tape programme, which specifically targeted young males.

The number of participants included in the studies ranged from 62 (Morrison-Beedy et al., 2005) to 682 (Jemmott et al., 2005), and a range of different age groups were targeted. The youngest age targeted was 12 years (Boekeloo et al., 1999; Jemmott et al., 2005) and the oldest was 19 (Morrison-Beedy et al., 2005; Jemmott et al., 2005). Five of the six studies examined gender specific interventions, with four studies (DiClemente et al., 2004; Downs et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al., 2005) focusing on interventions targeting females, and one study (Danielson et al., 1990) focusing on an intervention for males. Two studies (DiClemente et al., 2004; Jemmott et al., 2005) targeted African American, and African American and Latino adolescents, respectively. One study (Morrison-Beedy et al., 2005) was based on short-term follow-up only (<6 months) and four studies (Boekeloo et al., 1999; DiClemente et al., 2004; Downs et al., 2004; Jemmott et al., 2005) were based on medium-term follow-up (up to 12 months). The length of follow-up for the study by Danielson and colleagues (1990) was not reported.

6.3.2 Quality assessment

All six studies were RCTs and based on individual randomisation. Two well-reported and conducted studies (DiClemente et al., 200; Jemmott et al., 2005) were rated strong for quality. These studies appropriately allocated participants to intervention and control conditions, reported a range of relevant and reliable outcomes and conducted appropriate analyses. Three studies (Boekeloo et al., 1999; Downs et al., 2004; Morrison-Beedy et al., 2005) were rated moderate quality. Although these studies were generally well-reported and reported appropriate methods for allocation, and relevant and reliable outcomes, none of these studies reported whether they were sufficiently powered to detect an intervention effect or whether an ITT analyses had been undertaken. One study (Danielson et al., 1990) was rated poor quality. The authors did not report the overall sample size for the study, the length of follow-up was not clear and the authors did not discuss attrition.

6.3.3 Findings

6.3.3.1 Knowledge and understanding

All six studies (Boekeloo et al., 1999; Danielson et al., 1990; DiClemente et al., 2004; Morrison-Beedy et al., 2005; Jemmott et al., 2005; Downs et al., 2004) examined intervention effects on knowledge and understanding.

Four studies (DiClemente et al., 2004; Morrison-Beedy et al., 2005; Jemmott et al., 2005; Downs et al., 2004) examined interventions that specifically targeted sexually active young females. Two studies, delivered in family planning clinics had significant effects on HIV knowledge. DiClemente et al (2004) reported that intervention participants had higher HIV prevention knowledge scores than control participants at both the 6- and 12-month follow-ups (both $p<0.001$). Morrison-Beedy and colleagues (2005) found that at the 3-month follow-up, the intervention group scored significantly higher on HIV-related knowledge ($p<0.001$). A skills-based HIV prevention intervention (Jemmott et al., 2005) was also found to have impacted on knowledge. African American and Latino females who received a skills-based intervention scored higher on HIV/STI knowledge and condom use knowledge post-intervention, compared to those who received a health promotion control ($p<0.01$), and reported greater gains in condom use knowledge compared to those who received an information-based intervention ($p<0.01$). However, there were no effects of an interactive video intervention at any follow-up (1-, 3- and 6-months) on general or specific knowledge related to STIs (Downs et al., 2004). The authors noted that knowledge improved in the both the intervention and control conditions over time. In this particular study the two control conditions were content-matched and topic-matched to the intervention, respectively.

Two studies (Boekeloo et al., 1999; Danielson et al., 1990) that examined personal health consultations both reported intervention impacts on knowledge. At immediate post-test, Boekeloo and colleagues (1999) reported that adolescents in the intervention group were more likely than control adolescents to know that HIV is transmitted through oral and anal intercourse. However, the significance of this finding was not reported. Danielson and colleagues (1990) did not report the period over which participants were followed up but found that knowledge about ways to protect against STIs was significantly associated with the intervention ($p<0.001$).

6.3.3.2 Attitudes and values

Five studies (Boekeloo et al., 1999; Danielson et al., 1990; DiClemente et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al., 2005) examined intervention effects on attitudes and values.

Two studies (Boekeloo et al., 1996; Danielson et al., 1990) examined the impact of health consultations. Boekeloo and colleagues (1999) reported that at immediate post-test, adolescents in the intervention group were more likely than control adolescents to believe that their doctor thought they should use condoms if they had sexual intercourse ($p<0.05$), believe that they should use condoms if they had sexual intercourse ($p<0.05$), and less likely to believe it would be hard to refuse sex with a partner who refused condom use ($p<0.05$). Perceived susceptibility to HIV and other STIs,

condom use self-efficacy, and beliefs about abstinence did not differ between groups. Danielson and colleagues (1990) examined intervention effects on sexual attitudes. Coercive sexual attitudes[3] were inversely associated with the intervention (OR 0.74; p<0.05). The association was weak and not statistically significant among those who had already been sexually active at baseline, but was stronger and statistically significant among those who had not yet become sexually active at baseline (OR 0.67; p<0.01).

Three studies (DiClemente et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al., 2005) examined interventions specifically targeting sexually active young women. DiClemente and colleagues (2004) found that over a 12-month follow-up period, African American females who received group education sessions focusing on HIV prevention reported fewer barriers to condom use (p<0.01), more favourable attitudes toward using condoms (p<0.001), and higher condom use self-efficacy scores (p<0.001). Jemmott and colleagues (2005) also reported positive effects for a skills-based intervention that targeted African American and Latino adolescent females. At post-test, compared to a health promotion control group, skills-based intervention group participants reported greater intentions to use condoms (p<0.01), greater condom use hedonistic beliefs[4] (p<0.01), greater sexual partner approval of condoms (p<0.01), higher technical skills beliefs (p<0.05), and higher impulse control beliefs (p<0.05). Participants who received the information-based intervention also reported higher scores compared to the health promotion control group on the following measures: condom use intentions (p<0.01); condom use hedonistic beliefs (p<0.01); technical skills beliefs (p<0.05), and impulse control beliefs (p<0.05). Based on 3-months of follow-up, Morrison-Beedy and colleagues (2005) found that females who received an HIV prevention intervention scored significantly higher than the control group on confidence in condom use (p<0.05), and lower on the cons of condom use (p<0.05). However, there was no difference between groups in risk perception, readiness, behavioural intentions, or pros of condom use.

6.3.3.3 Personal and social skills

Three studies (Boekeloo et al., 1999; DiClemente et al., 2004; Morrison-Beedy et al., 2005) examined intervention effects on skills. Boekeloo and colleagues (1999) found that at post-test, intervention participants who received a health consultation reported significantly more discussion with their physician about 11 of 13 topics regarding sexuality than control adolescents (all p<0.05). However, there was no difference between intervention and control adolescents in their discussions with their parents on these topics. Two studies (DiClemente et al., 2004; Morrison-Beedy et al., 2005) examined interventions which specifically targeted sexually experienced young females. Over 12-months of follow-up, African American females who received an HIV prevention intervention (DiClemente et al., 2004) reported more frequent discussions with male sex partners about HIV prevention compared to controls (p<0.01) and scored significantly higher on a measure of the condom use skills (p<0.001). Morrison-Beedy and colleagues (2004) found a potentially negative effect of a group-based HIV

[3] Based on two items: "A girl who leads you on should go all the way", and "I might stop seeing some if she refused me".

[4] A measure concerning the belief that condoms do not interfere with sexual enjoyment

intervention. At the 3-month follow-up, control participants reported talking with their partners about safer sex more often than did intervention participants ($p<0.05$).

6.3.3.4 Health and social outcomes related to sexual health

All six studies (Boekeloo et al., 1999; Danielson et al., 1990; DiClemente et al., 2004; Downs et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al 2005) examined intervention effects on health and social outcomes related to sexual health.

Boekeloo and colleagues (1999) and Danielson and colleagues (1990) examined the effects of health practitioner-led sexual health consultations. Boekeloo and colleagues (1999) examined whether an STI risk assessment and education intervention had an impact on sexual activity, condom use and STI rates. Bivariate analyses, revealed that there were no statistically significant differences between groups regarding vaginal, anal, and/or oral sexual intercourse in the last 3 months or lifetime, or the number of vaginal intercourse partners (last 3 months or lifetime), at either the 3- or 9-month follow-up. Based on a mixed model regression, which controlled for baseline sexual experience and doctor, intervention participants were found to be more likely to have had vaginal intercourse at the 3-month follow-up than controls (OR 2.46; 95% CI 1.04, 5.84), but not at the 9-month follow-up (OR 1.64; 95% CI 0.81, 3.34). Among adolescents sexually active in the last 3 months, there were no significant differences between intervention and control participants regarding condom use at last intercourse at 9-months follow-up (OR 1.00; 95% CI: 0.31, 3.24), but the rate was greater among intervention participants at the 3-month follow-up (OR 18.1; 95% CI 1.3, 256.0). There was no difference between intervention and control participants in their reported STI diagnoses, STI treatment or pregnancies during the last 3 months at either follow-up. At the 9-month follow-up, more control participants reported genital signs of possible STIs than intervention participants ($p<0.05$). Danielson and colleagues (1990) reported that there was no statistically significant effect of the intervention, which specifically targeted male adolescents, on sexual activity status at follow-up. When confounding variables were controlled for, the association between the intervention and contraceptive effectiveness was statistically significant among the larger population of all males who were sexually active at follow-up (OR 1.51; $p<0.05$), and particularly among those who were not sexually active at baseline (OR 2.53; $p<0.01$). A partner's use of the pill at last intercourse was significantly associated with the intervention among all participants who were sexually active at follow-up (OR 1.66; $p<0.05$).

Four studies (DiClemente et al., 2004; Downs et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al., 2005) examined interventions specifically targeting sexually active young females. DiClemente and colleagues (2004) found that relative to participants who received a general health promotion intervention, African American females who received a group-based HIV intervention were more likely to report using condoms consistently in the past 30 days and 6 months, and to have used a condom at last vaginal sexual intercourse, at both the 6- and 12-month follow-up and in analyses conducted over the entire 12-month follow-up. Intervention participants were less likely to report having a new vaginal sex partner at the 6-month follow-up, and over the 12-month follow-up period. In addition, participants who received the intervention were significantly less likely to self-report a pregnancy at the 6-month follow-up, but there was no difference between groups on this outcome at 12-months, or

over the entire follow-up period. Compared to controls, HIV intervention participants were more likely to report condom protected sex acts, both in the 30 days and 6-months preceding the 6- and 12-month follow-up, and over the entire 12-month follow-up. They also reported significantly fewer unprotected vaginal intercourse episodes and a higher frequency of putting condoms on their partners. The results presented by the authors suggested that the intervention had an effect on Chlamydia infections (OR 0.17; 95% CI 0.03, 0.92; p<0.05), but no difference between groups were observed for Trichomonas vaginalis (OR 0.37; 95% CI 0.09, 1.46) or Gonorrhoea (OR 0.14; 95% CI 0.01, 3.02). Downs and colleagues (2004) examined an interactive video intervention, finding that intervention participants were more likely to have been completely abstinent between baseline and the 3-month follow-up than controls (OR 2.50; p<0.05). However, at the 6-month follow-up there was no difference between groups on this measure. There was no significant difference between intervention and control participants in how often they reported using condoms between baseline and the 3-month follow-up, or at the 6-month follow-up. There was no difference in the number of condom failures between conditions at the 3-month follow-up, but at the 6-month follow-up, participants in the video condition reported fewer condom failures in the past 3 months compared to controls (p<0.05). Participants in the video condition were significantly less likely to report having been diagnosed with an STI compared to controls (OR 2.79; p=0.05). However, the only disease with sufficient power to detect a difference was Chlamydia (OR 7.75; p=0.05). Jemmott and colleagues (2005) reported that participants who received a skill-based HIV intervention reported less frequent unprotected sexual intercourse at the 12-month follow-up compared to those who received a health-promotion control (p<0.01) or an information-based intervention (p<0.05). There was no difference between the groups on these measures at the 3- or 6-month follow-up. At the 12-month follow-up, skill-based intervention participants reported fewer sexual partners than controls (p<0.05), and they were less likely to report having multiple partners (p<0.01). No differences in the reported number of sexual partners were observed at the 3- or 6-month follow-up. There was no difference in STI rates between groups at the 6-month follow-up. However, at 12-months, participants who received the skill-based intervention were significantly less likely to have an STI than were those in the health promotion control group (p<0.05). Morrison-Beedy and colleagues (2005) found that a group-based HIV intervention for sexually active females had limited effects on sexual risk behaviours. Although overall risk behaviour scores were lower within the HIV intervention group relative to the control group, none of the individual risk outcomes, (including vaginal sex with/without condom, received/gave oral sex, alcohol or drug use before sex, and number of partners) were significantly different between the two groups.

6.3.4 Summary and evidence statements

Six studies (Boekeloo et al., 1999; Danielson et al., 1990; DiClemente et al., 2004; Downs et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al., 2005) were conducted in healthcare settings including family planning clinics and primary care practices. Four studies (DiClemente et al., 2004; Downs et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al., 2005) examined group-based education and/or skills-based interventions that specifically targeted sexually active young women. Two studies (Boekeloo et al., 1999; Danielson et al., 1990) examined interventions based around a health practitioner-led sexual health consultation.

All six studies (Boekeloo et al., 1999; Danielson et al., 1990; DiClemente et al., 2004; Morrison-Beedy et al., 2005; Jemmott et al., 2005; Downs et al., 2004) examined intervention effects on knowledge and understanding. Across four studies (DiClemente et al., 2004; Morrison-Beedy et al., 2005; Jemmott et al., 2005; Downs et al., 2004) of interventions that specifically targeted sexually active young females, there were consistent short- to medium-term improvements in sexual health-related knowledge among intervention participants. In addition, two studies (Boekeloo et al., 1999; Danielson et al., 1990) of health consultations reported significant short-term increases in knowledge among intervention participants relative to controls. Five studies (Boekeloo et al., 1999; Danielson et al., 1990; DiClemente et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al., 2005) examined intervention effects on attitudes and values. There were fairly consistent positive intervention effects on condom use attitudes across three studies (DiClemente et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al., 2005), which examined group-based education and/or skills-based interventions specifically targeting sexually active young women, and one study (Boekeloo et al., 1996) that examined a sexual risk assessment and education intervention. Three studies (Boekeloo et al., 1999; DiClemente et al., 2004; Morrison-Beedy et al., 2005) examined intervention effects on personal and social skills related to communication. There were inconsistent effects on communication; one study (DiClemente et al., 2004) reported medium-term positive effects on intervention participants' communication with their partners and a further study (Boekeloo et al., 1999) found positive short-term effects on adolescents' communication with their doctor, but not their parents. One study (Morrison-Beedy et al., 2005) found a potentially negative effect of a group-based HIV intervention.

All six studies (Boekeloo et al., 1999; Danielson et al., 1990; DiClemente et al., 2004; Downs et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al 2005) examined intervention effects on health and social outcomes related to sexual health. Two studies (Boekeloo et al., 1999; Danielson et al., 1990) of health practitioner-led sexual health consultations found no intervention effects on sexual activity, but there were weak short-term effects on condom and other contraceptive use. Across four studies (DiClemente et al., 2004; Downs et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al 2005) that examined interventions specifically targeting sexually active young females, there were inconsistent intervention effects on sexual activity, frequency of intercourse and number of partners. However, intervention effects on condom use and unprotected intercourse were more consistent, with two studies (DiClemente et al., 2004; Jemmott et al., 2005) reporting medium-term positive effects on these outcomes. Three studies (Boekeloo et al., 1999; Downs et al., 2004; Jemmott et al., 2005) examined intervention effects on STI infection and/or diagnosis, finding mixed intervention effects. However, medium-term positive effects on STI diagnosis were reported in one study (Jemmott et al., 2005) of a skills-based HIV/STI intervention.

Evidence statement 9

9 (a) There is strong evidence from six RCTs[1] to suggest that interventions and programmes delivered in healthcare settings may produce short- to medium-term improvements in sexual health-related knowledge. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

9 (b) There is strong evidence from three RCTs[2] to suggest that group-based education and/or skills-based interventions specifically targeting sexually active young women in healthcare settings may have short- to medium-term positive effects on condom use attitudes. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

9 (c) There is inconsistent evidence from three RCTs[3] on which to determine the effects of interventions and programmes delivered in healthcare settings on sexual health-related communication. However, there is strong evidence from one RCT[4] to suggest that a gender- and culturally-tailored intervention for African American females may have a positive impact on communication with sexual partners and condom use skills. This evidence may only be partially applicable because this study were conducted in the USA and focused on an ethnic population specific to the USA.

9 (d) There is moderate evidence from two RCTs[5] to suggest that interventions and programmes based on health practitioner-led sexual health consultations may have a limited impact on sexual behaviours, including sexual activity and condom and other contraceptive use. This evidence may only be partially applicable because these studies were conducted in the USA.

9 (e) There is strong evidence from four RCTs[6] to suggest that group-based education and/or skills-based interventions specifically targeting sexually active young women in healthcare settings may not have a consistent impact on sexual activity or numbers of sexual partners. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

9 (f) There is strong evidence from four RCTs[6] to suggest that group-based education and/or skills-based interventions specifically targeting sexually active young women in healthcare settings may have a short- to medium-term positive impact on condom and other contraceptive use, and unprotected intercourse. This evidence may only be partially applicable because these studies were conducted in the USA and focused on ethnic populations, specific to the USA.

9 (g) There is inconsistent evidence from three RCTs[3] on which to determine the effects of interventions and programmes delivered in healthcare settings on STIs. However, there is strong evidence from one RCT[8] to suggest that a skill-based HIV/STI intervention may have a positive medium-term impact on STI diagnosis. This evidence may only be partially applicable because this study were conducted in the USA and focused on ethnic populations specific to the USA.

[1] Boekeloo et al., 1999 (RCT +); Danielson et al., 1990 (RCT -); DiClemente et al., 2004 (RCT ++); Downs et al., 2004 (RCT +); Jemmott et al., 2005 (RCT ++); Morrison-Beedy et al., 2005 (RCT +)

[2] DiClemente et al., 2004 (RCT ++); Jemmott et al., 2005 (RCT ++); Morrison-Beedy et al., 2005 (RCT +)

[3] Boekeloo et al., 1999 (RCT +); DiClemente et al., 2004 (RCT ++); Morrison-Beedy et al., 2005 (RCT +)

[4] DiClemente et al., 2004 (RCT ++);

[5] Boekeloo et al., 1999 (RCT +); Danielson et al., 1990 (RCT -)

[6] DiClemente et al., 2004 (RCT ++); Downs et al., 2004 (RCT +); Jemmott et al., 2005 (RCT ++); Morrison-Beedy et al., 2005 (RCT +)

[7] Boekeloo et al., 1999 (RCT +); Downs et al., 2004 (RCT +); Jemmott et al., 2005 (RCT ++)

[8] Jemmott et al., 2005 (RCT ++)

Table 6.5. Summary of programme content: programmes delivered within healthcare settings

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
Boekeloo et al., 1999	RCT (individual) +	USA n=215 ~70% African American 12-15 years	Primary care	**ASSESS:** Sexual risk assessment and education intervention. Single session with doctor two brochures that addressed skills and self-efficacy for sexual health, community resources brochures, and two brochures for parents about how to discuss sex and drug risks with teens.	Social cognitive theory, Theory of Reasoned Action	Primary care doctors
Danielson et al., 1990	RCT (individual) -	USA n=522 males Ethnicity NR 15-18 years	Primary care	Reproductive health consultation and slide tape programme. Included information on reproductive anatomy, fertility, hernia, testicular self-examination, STIs, contraception, couple communication and access to health services.	NR	Health care practitioner
DiClemente et al., 2004	RCT (individual) ++	USA n=522 females 100% African American 14-18 years	Family medicine clinic	Four, 4-hour sessions; ethnic and gender pride, HIV risk reduction strategies and the importance of healthy relationships.	Social cognitive theory, theory of gender and power	Trained African American female health educator and two African American peer educators
Downs et al., 2004	RCT (individual) +	USA n=300 females 75% African American; 15% White; 10% other 14-18 years	Healthcare settings	Interactive video intervention, which covered negotiation behaviours with sexual partners, condom efficacy, and information about reproductive health and viral and bacterial STIs	NR	Video
Jemmott et al., 2005	RCT (individual) ++	USA n=682 females 68% African American; 32% Latino 12-19 years	Hospital-based family planning clinic	Single session interventions. (1) Educational videotapes illustrated correct condom use with a demonstration model and depicted effective negotiation of condom use; (2) Participants practiced the skills needed to use condoms	Cognitive behavioural theory	Female, African American facilitators
Morrison-Beedy et al., 2005	RCT (individual) +	USA n=62 females 59% White; 29% Black; 10% Hispanic; 2% Asian 15-19 years	Family planning centre	Four, 2-hour sessions; HIV-related information and behavioural skills components (assertiveness, self-efficacy, and negotiation) combined with motivational enhancement strategies.	Information-Motivation-Behavioural Skills Model	Trained female interventionists

Table 6.6. Programme delivered in healthcare settings: effects on knowledge, attitudes and skills

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
Boekeloo et al., 1999	RCT (individual) +	ASSESS n=101	No intervention n=114	PT (NR)	↑ HIV transmission¶	↑ beliefs about condom use¶ **NS** condom use self-efficacy **NS** perceived HIV susceptibility **NS** abstinence beliefs	↑ discussion with physician about sexuality topics¶
Danielson et al., 1990	RCT (individual) -	Reproductive health consultation n=262	Wait list control n=260	NR	↑ ways to protect against STIs***	↓ coercive sexual attitudes*	-
DiClemente et al., 2004	RCT (individual) ++	HIV prevention n=251	General health promotion n=271	6 mo	↑ HIV prevention**	↑ condom attitudes** ↓ condom barriers** ↑ condom use self-efficacy**	↑ condom use skills*** ↑ communication frequency**
				12 mo	↑ HIV prevention**	↑ condom attitudes** **NS** condom barriers ↑ condom use self-efficacy**	↑ condom use skills*** ↑ communication frequency*
Downs et al., 2004	RCT (individual) +	Video intervention n=NR	Alternative delivery formats n=NR	3 mo	**NS** general STI **NS** specific STI	-	-
				6 mo	**NS** general STI **NS** specific STI	-	-
Jemmott et al., 2005	RCT (individual) ++	Skills-based n=235	Health promotion control n=219	3, 6, 12 mo	↑ HIV/STI risk reduction*** ↑ condom use***	↑ condom use intention** ↑ condom use hedonistic beliefs*** ↑ sexual partner approval** ↑ technical skills beliefs* ↑ impulse control beliefs* **NS** negotiation skill beliefs	-
		Information n=228	Health promotion control n=219	3, 6, 12 mo	↑ HIV/STI risk reduction*** ↑ condom use***	↑ condom use intention*** ↑ condom use hedonistic beliefs*** **NS** sexual partner approval ↑ technical skills beliefs* ↑ impulse control beliefs* **NS** negotiation skill beliefs	-

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
Jemmott et al., 2005	RCT (individual) ++	Skills-based n=235	Information n=228	3, 6, 12 mo	**NS** HIV/STI risk reduction*** ↑ condom use***	**NS** condom use intention **NS** condom use hedonistic beliefs **NS** sexual partner approval **NS** technical skills beliefs **NS** impulse control beliefs **NS** negotiation skill beliefs	-
Morrison-Beedy et al., 2005	RCT (individual) +	HIV risk reduction intervention n=33	Health promotion control n=29	3 mo	↑***	↑ confidence in condom use* ↓ cons of condom use* **NS** risk perception **NS** readiness **NS** behavioural intentions **NS** pros of condom use	↓ communication with partners about safe sex*
*p<0.05; **p<0.01; ***p<0.001; ¶ p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported							

Table 6.7. Programme delivered in healthcare settings: effects on health and social outcomes related to sexual health

Study	Rating	Intervention	Comparator	Follow-up	Health and social outcomes				
					Age of initiation	Frequency/ Number of partners	Contraceptive use	STIs/ Conceptions	Other
Boekeloo et al., 1999	RCT (individual) +	ASSESS n=101	No intervention n=114	3 mo (int=92%; con=94%)	**NS** vaginal, anal or oral sexual intercourse	**NS** number of vaginal intercourse partners	↑ condom use¶	**NS** STI diagnoses/ treatment **NS** pregnancy	-
				9 mo (int=93%; con=90%)	**NS** vaginal, anal or oral sexual intercourse	**NS** number of vaginal intercourse partners	**NS** condom use	↓ genital signs of possible STIs¶ **NS** STI treatment **NS** pregnancy	-
Danielson et al., 1990	RCT (individual) -	Unnamed n=262	Wait list control n=260	NR	**NS** sexual activity status	-	↑ effective contraception* ↑ partner's use of pill at last intercourse*	-	-

Study	Rating	Intervention	Comparator	Follow-up	Health and social outcomes				
					Age of initiation	**Frequency/ Number of partners**	**Contraceptive use**	**STIs/ Conceptions**	**Other**
DiClemente et al., 2004	RCT (individual) ++	HIV prevention intervention n=251	General health promotion n=271	6 mo (int=90%; con=90%)	-	↓ new vaginal sex partner, past 30 d*	**NS** consistent condom use, past 30 d ↑ consistent condom use, past 6 mo** ↑ condom use at last intercourse***	-	-
				12 mo (int=87%; con=89%)	-	**NS** new vaginal sex partner in past 30 days	↑ consistent condom use, past 30 d* ↑ consistent condom use, past 6 mo* ↑ condom use at last intercourse***	-	-
Downs et al., 2004	RCT (individual) +	Interactive video intervention n=NR	Alternative delivery formats n=NR	3 mo (NR)	↑ abstinence*		**NS** condom use frequency **NS** condom failures	-	-
				6 mo (NR)	**NS** abstinence		**NS** condom use frequency ↓ condom failures, past 3 mo*	↓ diagnosed with Chlamydia*	-

Study	Rating	Intervention	Comparator	Follow-up	Health and social outcomes				
					Age of initiation	**Frequency/ Number of partners**	**Contraceptive use**	**STIs/ Conceptions**	**Other**
Jemmott et al., 2005	RCT (individual) ++	HIV/STI reduction intervention Skills-based, n=235	Health promotion control n=219	3, 6 mo (NR)	-	**NS** number of partners, past 3 mo **NS** multiple partners, past 3 mo	**NS** frequency sex without condom use, past 3 mo	-	↓ frequency sex drugs/alcohol (both*) **NS** frequency unprotected sex drugs/alcohol
				12 mo (NR)	-	↓ multiple partners, past 3 mo** ↓ number of partners, past 3 mo*	↓ frequency sex without condom use, past 3 mo**	↓ tested positive STI*	**NS** frequency sex drugs/alcohol ↓ frequency unprotected sex drugs/alcohol*
Jemmott et al., 2005	RCT (individual) ++	HIV/STI reduction intervention Information, n=228	Health promotion control n=219	3, 6, 12 mo (NR)	-	**NS** multiple partners, past 3 mo **NS** number of partners, past 3 mo	**NS** frequency sex without condom use, past 3 mo	**NS** tested positive STI	**NS** frequency sex drugs/alcohol **NS** frequency unprotected sex drugs/alcohol
Jemmott et al., 2005	RCT (individual) ++	HIV/STI reduction intervention Skills-based, n=235	HIV/STI reduction intervention Information, n=228	3, 6, 12 mo (NR)	-	**NS** multiple partners, past 3 mo **NS** number of partners, past 3 mo	↓ frequency sex without condom use, past 3 mo (12 mo FU only*)	**NS** tested positive STI	↓ frequency sex drugs/alcohol (3 mo only*) **NS** frequency unprotected sex drugs/alcohol
Morrison-Beedy et al., 2005	RCT (individual) +	HIV risk reduction intervention n=33	Health promotion control n=29	3 mo (48%)	**NS** received/ gave oral sex **NS** vaginal sex with/without condom	**NS** number of partners	-	-	**NS** alcohol or drug use before sex

*p<0.05; **p<0.01; ***p<0.001; ¶ p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

6.4 Programmes delivered to families

6.4.1 Overview of evidence identified

Ten studies (Anderson et al., 1999; Dilorio et al., 2006; Lederman et al., 2004; 2008; McBride et al., 2007; McKay et al., 2004; Miller et al., 1993; Scheinberg et al., 1997; Winett et al., 1992; 1993) evaluated seven programmes delivered to families which targeted adolescent sexual health, all of which were conducted in the USA. Two studies (Winett et al., 1992; 1993) evaluated interventions that aimed to prevent HIV and AIDS while eight studies (Anderson et al., 1999; Dilorio et al., 2006; Lederman et al., 2004; 2008, McKay et al., 2004; McBride et al., 2007; Miller et al., 1993; Scheinberg et al., 1997) evaluated programmes that focused on delaying sexual initiation and reducing sexual risk behaviours. Two studies (Anderson et al., 1999; Miller et al., 1993) included a specific focus on improving family communication about sexual behaviours. The setting where the intervention or programme was delivered varied, and included sessions after school, in the home and in community centres. The person or persons providing the intervention was poorly reported across the included studies, and were reported for only one programme, the CHAMP family programme (McKay et al., 2004; McBride et al., 2007), which was provided by a variety of providers including mental health interns, parents and community consultants respectively.

Six evaluations detailed the theory or theories that were the basis for intervention. Three programmes including RAP (Anderson et al., 1999), PARE (Lederman et al., 2008) and SHAPE (Scheinberg et al., 1997) were based on social learning theory. The development of the SHAPE programme (Scheinberg et al., 1997) also informed by social cognitive theory. Keepin' It R.E.A.L (Dilorio et al., 2006) was based on social cognitive theory and problem behavioural theory.

Sample size varied between studies, ranging from 49 families (Winett et al., 1992) to 804 adolescent-parent dyads (Lederman et al., 2004). All programmes involved children in early adolescence aged between 10 to 15 years and their parents, and all programmes had at least one session for both parent and child together. One programme (Keepin' It R.E.A.L, Dilorio et al., 2006) only included mothers while all other programmes recruited both mothers and fathers, or an appropriate other adult. Post-intervention follow-up time varied across the included studies. The period of follow-up for three programmes (CHAMP Family Program, McKay et al., 2004; McBride et al., 2007; an HIV prevention video, Winett et al., 1992; Winett et al., 1993; SHAPE, Scheinberg et al., 1997) was six months or less, with the CHAMP family programme and SHAPE evaluated at post-test only. Two studies, including evaluations of Facts and Feelings (Miller et al., 1993) and one evaluation of PARE (Lederman et al., 2004) reported follow-up periods of 12 months or less. Long-term evaluation (>12 months) was reported by three studies including evaluations of RAP (Anderson et al., 1999), Keepin' It R.E.A.L (Dilorio et al., 2006), and the second evaluation of PARE (Lederman et al., 2008).

6.4.2 Quality assessment

Of the 10 studies identified, seven were RCTs, one was an NRCT and two were CBA studies. Five RCTs (Lederman et al., 2004; 2008; Miller et al., 1993; Winett et al., 1992; 1993) were based on individual randomisation while the remaining two RCTs (Anderson et al., 1999; Dilorio et al., 2006)

were based on cluster randomisation, by group (Anderson et al., 1999) and community site (Dilorio et al., 2006). Quality of the RCTs varied with one study rated good for quality (Dilorio et al., 2006), two studies rated as moderate (Miller et al., 1993; Winett et al., 1993) and four rated as poor (Anderson et al., 1999; Lederman et al., 2004; 2008; Winett et al., 1992). The quality of the NRCT was rated as poor (Scheinberg et al., 1997). Two CBA studies that evaluated the CHAMP family programme (McKay et al., 2004; McBride et al., 2007) were rated poor quality due to being based on post-test follow-up only and poor reporting of outcomes. All seven RCTs were reported as randomised, but did not detail methods of randomisation or describe whether allocation was appropriately concealed. Outcome measures were reliable in all studies and rated good quality in three studies (Lederman et al., 2008; Miller et al., 1993; Winett et al., 1993). In all RCT studies, outcomes were rated as being relevant and generally all important outcomes were assessed. RCTs were rated as moderate or good for length of follow-up time, with the exception of one study (Winett et al., 1993) where follow-up time was less than six months. Baseline comparability of groups was poorly reported or not reported in five RCTs (Anderson et al., 1999; Dilorio et al., 2006; Lederman et al., 2004; Lederman et al., 2008; Miller et al., 1993) and an ITT analysis was only reported to have been undertaken in one study (Dilorio et al., 2006).

6.4.3 Findings

6.4.3.1 Knowledge and understanding

For six programmes, eight studies (Dilorio et al., 2006; Lederman et al., 2008; McKay et al., 2004; McBride et al., 2007; Miller et al., 1993; Scheinberg et al., 1997; Winett et al., 1992; 1993) reported outcomes relating to knowledge and understanding. For four programmes including Keepin' It R.E.A.L (Dilorio et al., 2006), CHAMP family programme (McKay et al., 2004; McBride et al., 2007), SHAPE (Scheinberg et al., 1997) and an HIV prevention video intervention (Winett 1992; 1993) only short-term follow-up results, at six months or less were presented. Two studies (Miller et al., 1993; Lederman et al., 2009) reported medium- to long-term follow-up results, at 1- and 2-years, respectively.

Across the eight studies that examined intervention effects on knowledge and understanding, there were generally positive intervention effects. Evaluations of four programmes (Keepin' It R.E.A.L; CHAMP family programme; an unnamed HIV prevention video and PARE) examined knowledge about HIV and AIDS. Positive intervention effects were reported for both adolescent ($p<0.05$) and mother's ($p<0.01$) HIV knowledge following the Keepin' It R.E.A.L programme (Dilorio et al., 2006), for those who received the social cognitive theory-based intervention (SCT) in comparison to controls and those who received the life skills intervention (LSK). In two studies (Winett et al., 1992; 1993) of a home-based HIV prevention video, positive intervention effects were found on knowledge about HIV for both adolescents and their parents in the short-term (all comparisons, $p<0.001$). Lederman and colleagues (2008) also found that PARE had long-term positive effects on knowledge about preventing HIV and pregnancy (2-years follow-up; $p<0.05$). The CHAMP family programme (McKay et al., 2004; McBride et al., 2007) had no impact on knowledge about HIV at post-test, and although

SHAPE (Scheinberg et al., 1997) had a positive effect on children's knowledge at post-test ($p<0.05$) there was no significant impact upon parents. Miller and colleagues (1993) reported that the Facts and Feelings intervention had positive effects on child ($p<0.001$) and father ($p<0.01$) sexual knowledge, but had no significant impact on mother's knowledge.

6.4.3.2 Attitudes and values

Eight studies (Anderson et al., 1999; Dilorio et al., 2006; Lederman et al., 2004; 2008; McKay et al., 2004; McBride et al., 2007; Miller et al., 1993; Scheinberg et al., 1997) examined intervention effects on attitudes and values for six programmes. Adolescent attitudes and intentions regarding abstinence was the most common outcome evaluated and on the whole non-significant programme effects were reported. There was no significant effect of RAP (Anderson et al., 1999) on reasons why not to have sex in the short- or medium-term and there was no effect of Facts and Feelings (Miller et al., 1993) on intentions to have sex, or attitudes towards abstinence or sex. However, this programme positively influenced father's ($p<0.05$) and mother's ($p<0.01$) abstinence values in comparison to control participants. Dilorio and colleagues (2006) found a non-significant association between participation in Keepin' It R.E.A.L and adolescent intentions to have sex or use condoms at the 2-year follow-up. Based on short-term follow-up, Scheinberg and colleagues (1997) found that participation in SHAPE had no significant effects on adolescent attitudes towards abstinence or parent attitudes towards sex. Based on short-term follow-up, adolescent intentions to postpone sex were positively associated with participation in PARE (Lederman et al., 2004; $p<0.01$), however the programme did not impact upon attitudes towards risk behaviours. Long-term evaluation of PARE (Lederman et al., 2008) revealed that there was no significant effect of the programme on self-efficacy to resist sex.

Two studies (McKay et al., 2004; McBride et al., 2007) examined the impact of the CHAMP family programme on attitudes towards HIV and AIDS, finding no significant programme effects. One study (Dilorio et al., 2006) examined attitudes related to parent-child communication. Based on 2-year follow-up of Keepin' It R.E.A.L participants, Dilorio and colleagues (2006) found positive intervention effects on mothers' intentions to communicate about sex with their child ($p<0.01$) and on their comfort in doing so ($p<0.001$).

6.4.3.3 Personal and social skills

Ten studies (Anderson et al., 1999; Dilorio et al., 2006; Lederman et al., 2004; 2008; McKay et al., 2004; McBride et al., 2007; Miller et al., 1993; Scheinberg et al., 1997; Winett et al., 1992; 1993) examined the impact of eight programmes on personal and social skills. Nine studies (Anderson et al., 1999; Dilorio et al., 2006; Lederman et al., 2004; 2008; McKay et al., 2004; McBride et al., 2007; Miller et al., 1993; Scheinberg et al., 1997) examined intervention effects on parent-child communication. Two studies (Lederman et al., 2004; Scheinberg et al., 1997) of the PARE and SHAPE programmes, respectively, found no significant effects on communication about sexual behaviours at short-term follow-up in intervention families compared to controls. The CHAMP family programme (McKay et al., 2004; McBride et al., 2007) was found to have had significant short-term effects on family decision making ($p<0.05$), parental monitoring, family decision making and comfort in communication (all $p<0.01$). However, CHAMP intervention families also reported significantly higher

levels of family conflict compared to controls (p<0.01). At post-test, there was a positive effect of the RAP programme (Anderson et al., 1999) on parent-child communication (p<0.05), but at the 1-year follow-up this difference was no longer significant between intervention and control families. Two studies (Lederman et al., 2008; Dilorio et al., 2006) examined intervention effects on communication over the long-term. Long-term evaluation of the PARE programme (Lederman et al., 2008) revealed a non-significant effect of the programme on parent-child communication, in addition, although the Keepin' It R.E.A.L programme (Dilorio et al., 2006) had a significant, positive effect on mother-daughter discussion as reported by mothers, there was no significant effect on communication as reported by daughters.

Winett and colleagues (1992; 1993) evaluated two home-based HIV video interventions. Both evaluations found a short-term positive effect of the interventions on family problem-solving skills (both p<0.05), but no effect on teen assertiveness or teen problem solving skills. Scheinberg and colleagues (1997) found that the SHAPE programme had no impacts in the short-term on adolescent's comfort accessing contraception, sexual decision-making or assertiveness.

6.4.3.4 Health and social outcomes related to sexual health

Five studies (Anderson et al., 1999; Dilorio et al., 2006; McKay et al., 2004; McBride et al., 2007; Miller et al., 1993) examined the effects of six programmes (RAP, Facts and Feelings, Keepin' It R.E.A.L, and the CHAMP family programme) on health and social outcomes related to sexual health.

Long-term evaluation of Keepin' It R.E.A.L (Dilorio et al., 2006) indicated no significant effects of either intervention condition on abstinence or involvement in intimate sexual behaviours, however, among sexually active participants, those in the SCT and LSK groups were more likely than controls to report that they had used a condom the last time they had sex, although the significance of this finding was not clearly reported. Two studies (Miller et al., 1993; Anderson et al., 1999) examined intervention effects on outcomes related to sexual health in the medium-term finding no effect of either intervention at follow-up, on sexual behaviours and pregnancy, respectively. Short-term evaluation of the CHAMP family programme (McKay et al., 2004; McBride et al., 2007) revealed a significant reduction in the time adolescents spent in situations of sexual possibility (p<0.01).

6.4.4 Summary and evidence statements

Ten studies (Anderson et al., 1999; Dilorio et al., 2006; Lederman et al., 2004; 2008; McBride et al., 2007; McKay et al., 2004; Miller et al., 1993; Scheinberg et al., 1997; Winett et al., 1992; 1993) evaluated seven programmes delivered to families which targeted adolescent sexual health. All ten studies were conducted in the USA and the young people involved were in early adolescence. Across the included studies there was a focus on delaying sexual initiation, reducing sexual risk behaviours and improving parent-child communication about sexual behaviours.

Seven studies (Dilorio et al., 2006; McKay et al., 2004; McBride et al., 2007; Miller et al., 1993; Scheinberg et al., 1997; Winett et al., 1992; Winett et al., 1993) examined intervention effects on knowledge and understanding. The results of these studies demonstrated that interventions and

programmes delivered to families can have positive influences on knowledge related to sexual health in the short- (Scheinberg et al., 1997; Winett 1992; Winett et al., 1993), medium- (Miller et al., 1993) and long-term (Dilorio et al., 2006; Lederman et al., 2008). Improvements were reported in adolescent knowledge and knowledge among mothers (Dilorio et al., 2006) and fathers (Miller et al., 1993). Only one programme, CHAMP (McKay et al., 2004; McBride et al., 2007), was found to have had no impact on knowledge at follow-up. Eight studies (Anderson et al., 1999; Dilorio et al., 2006; Lederman et al., 2004; 2008; McKay et al., 2004; McBride et al., 2007; Miller et al., 1993; Scheinberg et al., 1997) examined intervention effects on attitudes and values. The most common outcomes examined were attitudes towards abstinence and adolescent's intentions to remain abstinent or have sex. Generally, across six studies (Anderson et al., 1999; Dilorio et al., 2006; Lederman et al., 2004; 2008; Miller et al., 1993; Scheinberg et al., 1997), the results suggested that programmes and interventions delivered to families were not effective at influencing adolescent's attitudes and intentions regarding resisting or delaying sex. Six studies reported finding no significant differences between intervention and control groups at follow-up regarding adolescent's attitude towards abstinence (Anderson et al., 1999; Miller et al., 1993; Scheinberg et al., 1997), or intentions to have sex (Dilorio et al., 2006; Miller et al., 1993), self-efficacy to resist sex (Lederman et al., 2008), and one study (Lederman et al., 2004) reported inconsistent effects, with effects on intentions to delay sex at medium-term follow-up but not on attitudes towards risk behaviours. Ten studies (Anderson et al., 1999; Dilorio et al., 2006; Lederman et al., 2004; 2008; McKay et al., 2004; McBride et al., 2007; Miller et al., 1993; Scheinberg et al., 1997; Winett et al., 1992; 1993) examined the impact of eight programmes on personal and social skills. Across nine studies, which examined effects on parent-child communication, no clear intervention effects were found.

Five studies (Anderson et al., 1999; Miller et al., 1993; Dilorio et al., 2006; McKay et al., 2004; McBride et al., 2007) examined effects on health and social outcomes related to sexual health for four programmes. The results suggested that programmes and interventions delivered to families do not affect sexual behaviour. Two studies (Anderson et al., 1999; Miller et al., 1993) found no intervention effects on pregnancy rates or sexual behaviour, respectively, and long-term evaluation of Keepin' It R.E.A.L (Dilorio et al., 2006) found no intervention effects on abstinence or involvement in intimate sexual behaviours. There were, however, limited but positive effects of this programme on condom use.

Evidence statement 10

10 (a) There is moderate evidence from five RCTs and one NRCT[1] to suggest that interventions and programmes delivered to families may improve knowledge in the short- to long-term. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

10 (b) There is moderate evidence from five RCT and one NRCT[2] to suggest that interventions and programmes delivered to families may not influence adolescent's attitudes or intentions regarding abstinence or delaying sex. Findings may only be partially applicable to the UK as

all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

10 (c) There is moderate evidence from seven studies[2] to suggest that programmes and interventions delivered to families may not influence parent-child communication. There is weak evidence from two CBA studies[3] to suggest that intensive, family-focused interventions may have positive short-term effects on family communication. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

10 (d) There is weak evidence from three RCT and two CBA studies[4] to suggest that programmes delivered to families may not have effects on adolescent sexual behaviour. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

1 Dilorio et al., 2006 (RCT ++); Scheinberg et al., 1997 (NRCT -); Winett et al., 1992 (RCT -); Winett et al., 1993 (RCT +); Miller et al., 1993 (RCT +); Lederman et al., 2008 (RCT -)

2 Anderson et al., 1999 (RCT -); Dilorio et al., 2006 (RCT ++); Lederman et al., 2004 (RCT -); Lederman et al., 2008 (RCT -); Miller et al., 1993 (RCT +); Scheinberg et al., 1997 (NRCT -)

3 McKay et al., 2007, McBride et al., 2007 (CBA -)

4 Anderson et al., 1999 (RCT -); Miller et al., 1993 (RCT +); Dilorio et al., 2006 (RCT ++); McKay et al., 2004 (CBA -); McBride et al., 2007 (CBA -)

Table 6.8. Summary of programme content: programmes delivered to families

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
Anderson et al., 1999	RCT (cluster) -	USA n=251 adolescents (mean age 10.6) and their parents 46% Hispanic; 21% African American; 13% European-American; 6% Asian American; 2% Native American; 5% other; 8% unknown	Family; summer; after-school and in-school classes	**RAP Reaching Adolescents and Parents:** six adolescent-only; one adult-only and one joint sessions to improve parent-child communication and delay sexual debut	Social learning theory	NR
Dilorio et al., 2006	RCT (cluster) ++	USA n=582 adolescents (mean age 12 years) and their mothers Ethnicity=NR	Family; boys and girls club members	**Keepin' It R.E.A.L:** seven two-hour sessions over 14 weeks. Participants received either a life skills or social cognitive theory based intervention that aimed to delay sexual initiation and increase condom use	Social cognitive theory; problem behaviour theory	NR
Lederman et al., 2004	RCT (individual) -	USA n=804 parent and child dyads 38% Hispanic; 26% African American; 25% White; 10% Other (children aged 11-15 years)	Family; after-school	**PARE Parent-Adolescent Relationship Education:** participants received four two and a half-hour sessions over a four week period plus three booster sessions to reduce sexual risk behaviours	NR	NR
Lederman et al., 2008	RCT (individual) -	USA n=192 families 36% Hispanic; 29% African American; 24% White; 11% Asian or Other (adolescents aged 11-15 years)	Family	**PARE Parent-Adolescent Relationship Education:** participants received four two and a half-hour sessions over a four week period plus three booster sessions to reduce sexual risk behaviours	Social learning theory; cognitive behavioural theory	NR

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
McKay et al., 2004; McBride et al., 2007	CBA -	USA n=564 4th and 5th grade children and their families ~99% African American	Family	**CHAMP Family Programme:** 12 90-minute weekly meetings aimed at delaying initiation of sexual intercourse and reducing time spent in situations of sexual possibility	NR	Mental health interns; community consultants; parents
Miller et al., 1993	RCT (individual) +	USA n=548 families Mothers and fathers were 93% and 97% White respectively (adolescent mean age 13.9 years)	Family; in the home	**Facts and Feelings:** intervention included six 15-20 minute videos to increase parent-child communication about sexual issues and to delay the likelihood of sexual initiation with or without accompanying newsletters that provided supplementary information	NR	NR
Scheinberg et al., 1997	NRCT -	USA n=122 participants from n=61 families Majority White, 5% Latino, 4% Asian	Family; classroom curriculum	**SHAPE (Sharing Healthy Adolescent and Parent Experiences):** Parents and children attended six two-hour sessions together where they were exposed to a curriculum aiming to delay sexual intercourse and to prevent risky sexual behaviours	Social learning theory; social cognitive theory, relational ethics	NR
Winett et al., 1992	RCT (individual) -	USA n=49 families (adolescents aged 12-14 years) Ethnicity=NR	Family; in the home	**NR:** families viewed four HIV prevention videos at home that focused on educating about HIV; problem-solving, assertiveness, coping and communication skills	NR	Video
Winett et al., 1993	RCT (individual) +	USA n=69 families (adolescents aged 12-14 years) Ethnicity=NR	Family; in the home	**NR:** families viewed 135 minutes of HIV prevention video that included education about HIV and teen risk behaviour and health issues; family and problem-solving skills and teen assertiveness	NR	Video

Table 6.9. Programmes delivered to families: effects on knowledge, attitudes and skills

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
Anderson et al., 1999	RCT (cluster) -	RAP n=185	Delayed intervention n=66	PT (NR)	-	**NS** reasons why participants "would not have sex now"	↑ parent child communication*
				12 mo n=251 (54%)	-	**NS** reasons why participants "would not have sex now"	**NS** parent child communication
Dilorio et al., 2006	RCT (cluster) ++	Keepin' It R.E.A.L n=381 (LSK n=187; SCT n=194)	1 hour HIV session n=201	4 mo n=547 (94%)	↑ adolescent HIV knowledge[a]* ↑ mother's HIV knowledge[a]*	-	-
				24 months n=524 (90%)	-	↑ mothers' intentions to discuss sex with child** ↑ mothers' comfort in discussing sex with child*** **NS** child's comfort talking to mother about sex **NS** would end sexual activity until older **NS** would use a condom every time they have sex **NS** outcome expectations and self-efficacy for abstinence	↑ mothers reporting discussion with child about sex in past 3 months** **NS** child's reported communication with mother
Lederman et al., 2004	RCT (individual) -	PARE n=90	Traditional intervention delivery n=714	3-6 mo n=NR	-	↑ intentions to postpone sexual involvement** **NS** expectancies about consequences of sexual behaviour; **NS** attitudes towards risk behaviours **NS** perceptions of parents' disapproval to involvement in risk behaviours	**NS** discourse with parents about sexual and other risk behaviours
Lederman et al., 2008	RCT (individual) -	PARE n=90	Attention Control n=102	2 yrs n=NR	↑ protection against pregnancy and HIV transmission*	**NS** self-efficacy for resisting sex	↑ parents reported having definite rules about child's behaviour* **NS** parent child communication

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
McKay et al., 2004; McBride et al., 2007	CBA -	CHAMP n=274	Did not receive intervention n=290	PT n=465 (82%)	**NS** knowledge about HIV/AIDS	**NS** attitudes towards HIV/AIDS	↑ family decision making* ↑ parental monitoring and supervision** ↑ family communication regarding sensitive issues** ↑ communication comfort** ↑ children reported higher family conflict**
Miller et al., 1993	RCT (individual) +	Facts & Feelings n=258 (video only n=132; video + newsletter n=126)	Did not receive intervention n=290	1 yr n=504 (92%)	↑ child's sexual knowledge*** ↑ father's sexual knowledge** **NS** mother's sexual knowledge	↑ father's abstinence values* ↑ mother's abstinence values*** **NS** child's abstinence values; intentions to have sex before marriage or in the next year **NS** child's acceptability for pressuring for sex; child's peer's sexual values; child's family's sexual values; family or peer influence on child's sexual values	↑ child, father and mother reported parent child communication about sex*** ↑ frequency in communication **NS** frequency in communication at delayed post-test
Scheinberg et al., 1997	NRCT -	SHAPE II n=NR	Reduced intervention n=NR	PT n=118 (97%)	↑ children's' knowledge test scores* **NS** parent's knowledge test scores	↑ attitudes towards homosexuality* ↑ child's satisfaction with social relationships* **NS** child's attitudes about birth control; sexuality; gender roles; abstinence **NS** child's self-esteem; satisfaction with sexuality **NS** parent attitudes towards sexual behaviour	↓ children's social decision making scores* **NS** child engaging in social activities **NS** child's comfort engaging in social activities; talking with parents or friends about sex or birth control; comfort accessing or using birth control **NS** child's sexual decision making; communication; assertiveness; birth control assertiveness skills

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	**Attitudes and values**	**Personal and social skills**
Winett et al., 1992	RCT (individual) -	NR n=NR	Waiting list control n=NR	PT n=NR	↑ teen knowledge about HIV*** ↑ parent knowledge about HIV***	-	↑ family problem solving skills*** **NS** teen assertiveness skills **NS** teen problem-solving skills
				6 mo n=NR (94%)	↑ teen knowledge about HIV* ↑ parent knowledge about HIV***	-	↑ family problem-solving skills* **NS** teen assertiveness skills **NS** teen problem-solving skills
Winett et al., 1993	RCT (individual) +	NR n=NR	Reduced intervention n=NR	PT n=69 families (100%)	↑ knowledge about HIV***	-	↑ family problem-solving skills*** **NS** teen assertiveness skills **NS** teen problem-solving skills
				4 mo n=46 families (67%)	↑ knowledge about HIV***	-	↑ family problem-solving skills*** **NS** teen assertiveness skills **NS** teen problem-solving skills

*p<0.05; **p<0.01; ***p<0.001; ¶ p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported
[a]SCT and control groups in comparison to LSK group [b]SCT group in comparison to LSK and control groups [c]video plus group in comparison to video only group

Table 6.10. Programmes delivered to families: intervention effects on health and social outcomes related to sexual health

Study	Rating	Intervention	Comparator	Follow-up	Health and social outcomes			
					Age of initiation	Frequency/ Number of partners	Contraceptive use	STIs/ Conceptions
Anderson et al., 1999	RCT (cluster) -	RAP n=185	Delayed intervention n=66	12 months n=251 (54%)	-	-	-	**NS** pregnancy rates
Dilorio et al., 2006	RCT (cluster) ++	Keepin' It R.E.A.L n=381 LSK, n=187; SCT, n=194)	1 hour HIV prevention session n=201	24 months n=524 (90%)	**NS** abstinence; intimate behaviours; sexual possibility situations	-	↑ condom use at last sex*	-
McKay et al., 2004; McBride et al., 2007	CBA -	CHAMP n=274	Did not receive intervention n=290	Post-test n=465 (82%)	↓ time in situations of sexual possibility**	-	-	-
Miller et al., 1993	RCT (individual) +	Facts & Feelings n=258 (video only n=132; video + newsletter n=126)	Did not receive intervention n=290	12 mo n=504 (92%)	**NS** sexual behaviour	-	-	-

*p<0.05; **p<0.01; ***p<0.001; [¶] p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported
[a]LSK group compared to SCT and control groups

6.5 Programmes delivered to parents

6.5.1 Overview of evidence identified

Five studies (Dancy et al., 2006; Dilorio et al., 2007; Forehand et al., 2007; Gustafson, 1998; O'Donnell et al., 2005) examined interventions and programmes delivered to parents that targeted adolescent sexual health. All five studies were conducted in the USA. Programmes were delivered in a variety of settings, with parents as the focus. One intervention was delivered at home to parents via CD-ROM (Saving Sex for Later; O'Donnell et al., 2005), others were delivered in community-based settings using facilitators to provide training sessions to parents and their children (Parents Matter!; Forehand et al., 2007), health experts (The Mother/Daughter HIV risk-reduction [MDRR]; Dancy et al., 2006), parish nurses (Let's Talk: Sex is for Love; Gustafson, 1998) or community-based workers (REAL Men programme; Dilorio et al., 2007).

The theoretical base underpinning the intervention was not reported in two studies (Forehand et al., 2007; Gustafson, 1998), cognitive behavioural skills theory was used in one study (Dancy et al., 2006), social cognitive theory was reported in another study (Dilorio et al., 2007), and the Saving Sex for Later programme (O'Donnell et al., 2005) was reportedly based on both diffusion of innovations theory and the theory of planned behaviour.

The numbers of participating parents and children were not clear for all studies. The total number of parents and youth involved was reported for three studies (Dilorio et al., 2007; O'Donnell et al., 2005; Gustafon, 1998), and ranged from 58 to 674 parents and 63 to 846 children. For the MDRR programme (Dancy et al., 2006), the authors reported only the numbers of daughters included (n=262). A total number of 1,115 participants was reported for the Parents Matter! Programme (Forehand et al., 2007). Power calculations or sample size was mentioned in only one study (REAL Men programme; Dilorio et al., 2007) and was reported to be poor due to small numbers and clusters. A further two studies provided enough information to determine that sample sizes were appropriate (O'Donnell et al., 2005; Forehand et al., 2007). However, insufficient information was provided to determine the appropriate size of the samples in two studies (Dancy et al., 2006; Gustafson, 1998).

The majority of studies focused on young people aged between 9-14 years. However, one study (Gustafson, 1998) focused on a slightly other population aged 12-16 years with a mean age of 14 years. One study (Gustafson, 1998) reported immediate post-test results only and Dancy and colleagues (2006) reported follow-up within 1-2 weeks after participating children had completed their training. A short follow-up time of three months was reported by O'Donnell and colleagues. Thus only two studies (Forehand et al., 2007; Dilorio et al., 2007) reported both short and medium term follow-up.

6.5.2 Quality assessment

Of the five included studies four were based on an RCT design and one used an NRCT design. Of the four RCTs, two were based on cluster randomisation (Dancy et al., 2006; Dilorio et al., 2007) and two were based on individual randomisation (Forehand et al., 2007; O'Donnell et al., 2005). Cluster

randomisation was conducted at community-based intervention site level. The unit of analysis did not match the unit of allocation in one study (Forehand et al., 2007) and no adjustment was reported. All studies were reported as moderate quality (+ rating) and two studies (Forehand et al., 2007; O'Donnell et al., 2005) reported intent to treat analysis. Outcome measures were reported to be reliable in all studies. Relevant outcomes were reported across all included studies.

6.5.3 Findings

6.5.3.1 Knowledge and understanding

Knowledge outcomes were reported in one study (Dancy et al., 2006), which found no significant increase in HIV transmission knowledge in the MDRR group, in comparison to a group who received HIV education delivered by a health expert. However, a significant increase in HIV transmission knowledge was found in the MDRR group in comparison to a group who received a nutrition and exercise intervention.

6.5.3.2 Attitudes and values

Four studies (Dancy et al., 2006; Dilorio et al., 2007; Gustafson, 1998; O'Donnell et al., 2005) examined intervention effects on attitudes and values related to sexual health.

Dancy and colleagues (2006) found no effects of the MDRR intervention on intentions to refuse sex in comparison to a group receiving HIV education taught by health experts (Health Expert HIV Risk Reduction curriculum; HERR). However, in comparison to a group receiving a nutrition and exercise intervention (Mother/Daughter Health Promotion curriculum; MDHP), MDRR participants reported greater intentions to refuse sex ($p<0.05$). The REAL Men Programme (Dilorio et al., 2007) had non-significant short-term effects on fathers' intentions to discuss sex-related topics and sons' intentions to delay sexual intercourse. However, medium-term findings showed significant increases in both reported intentions among intervention participants compared to controls who participated in a nutrition and exercise programme (both $p<0.05$). Gustafson (1998), reported post-tests results indicating positive programme effects of the Let's Talk programme on Satisfaction with Personal Sexuality scale ($p<0.05$) and Clarity of Personal Sexual Values scale ($p<0.05$). Hoever, there was no change in young people's attitudes towards sexuality, values of fidelity, attitude towards the use of force in sexual activity or in their intentions regarding sexual intercourse. O'Donnell and colleagues (2005) reported positive programme effects of the Saving Sex for Later programme on parents' views of their influence over their child's risk-taking behaviour. In logistic regression analyses, parents in the intervention group scored higher than controls on parental influence (adjusted OR 2.15; 95% CI 1.36, 3.41; $p<0.001$)..

6.5.3.3 Personal and social skills

All five studies reported outcomes relating to personal and social skills. Most studies reported intervention effects on communication. The REAL Men programme (Dilorio et al., 2007) had inconsistent short- and medium-term effects on father and son reports of sexual health-related communication. In comparison to controls who participated in a nutrition and exercise programme, at

both the 3- and 12-month follow-up, intervention fathers reported a positive increase in discussion ($p<0.05$), with no difference reported at 6-month follow-up. However, sons in the intervention group reported no significant increases, in sex-related communication compared to controls at any follow-up period. Forehand and colleagues (2007) found higher mean changes ($p<0.05$) in parental reports of sexual communication and parental responsiveness to sexual communication in the short- to medium-term among parents who received an enhanced communication intervention compared those who received a single session communication intervention and controls who received a general health intervention. The effects of the enhanced intervention on children's reports of sexual communication and parental responsiveness to sexual communication were less consistent; higher mean changes were observed at post-test for both measures compared to the single session and control groups, but not at subsequent follow-ups. Compared to a no intervention control, parents who participated in the Let's Talk programme (Gustafson, 1998) had a significantly greater improvement in their scores on a scale measuring the quality of communication with their child ($p<0.05$). However, there was no difference on other measures of parental norms (sexual values of fidelity, frequency of communication, and monitoring) or on measures of social support behaviours (family cohesion and shared family activities). O'Donnell and colleagues (2005) found positive intervention effects of the Saving Sex for Later programme on parents' reports of communication (adjusted OR 2.45; 95% CI 1.53, 3.92; $p<0.001$) and self-efficacy (adjusted OR 1.94; 95% CI 1.21, 3.11; $p<0.01$), but not on parental monitoring (adjusted OR 1.84; 95% CI 0.91, 3.72). Children whose parents participated in the programme reported positive programme effects on family rules and family support (both $p<0.05$).

6.5.3.4 Health and social outcomes related to sexual health

Four studies (Dancy et al., 2006; Dilorio et al., 2007; Forehand et al., 2007; O'Donnell et al., 2005) examined intervention effects on health and social outcomes related to sexual behaviours. Dancy and colleagues (2006) reported that there was no difference in sexual activity among MDRR participants and in those who received HIV education taught by health experts (HERR). However, in comparison to a group receiving a nutrition and exercise intervention (MDHP), MDRR participants were less likely to be sexually active at post-test ($p<0.05$). The REAL Men Programme (Dilorio et al., 2007) had no short or medium-term programme effects on intimate behaviours, or on sexual abstinence rates. However, positive medium-term programme effects were reported for unprotected intercourse. Intervention participants were less likely than controls who participated in a nutrition and exercise programme to report ever having sexual intercourse without a condom ($p<0.05$). Forehand and colleagues (2007) found that children whose parents attended an enhanced communication intervention group were no more or less likely to be at sexual risk than those in the control group (RR 1.04; 95% CI 0.73, 1.46) or the single session groups (RR 0.98; 95% CI, 0.69, 1.39). Youth in the Saving Sex for Later programme (O'Donnell et al., 2005) showed significant decreases in behavioural risks compared to controls ($p<0.05$).

6.5.4 Summary and evidence statements

Five studies (Dancy et al., 2006; Dilorio et al., 2007; Forehand et al., 2007; Gustafson, 1998; O'Donnell et al., 2005) were identified that examined sexual health interventions aimed at parents.

One study (O'Donnell et al., 2005) examined intervention effects on a programme delivered via CD-ROM. Two studies (Dancy et al., 2006; Gustafson, 1998) used medically trained people to deliver the programme and two others (Dilorio et al., 2007; Forehand et al., 2007) used community-based workers and facilitators respectively.

One study (Dancy et al., 2006) found that, compared to a nutrition and exercise programme, an intervention which trained mother's to be their daughters' primary HIV educators had short-term significant effects on knowledge of HIV transmission. Four studies (Dancy et al., 2006; Dilorio et al., 2007; Gustafson, 1998; O'Donnell et al., 2005) examined intervention effects on sexual behaviour attitudes and values. Across three studies (Dancy et al., 2006; Dilorio et al., 2007; Gustafson, 1998) that examined effects on intentions there were inconsistent results. Dancy and colleagues (2006) found short-term positive effects of an HIV risk reduction intervention and positive medium-term programme effects were seen in one study (Dilorio et al., 2007). However, Gustafson (1998) found no programme effects on intentions towards sexual intercourse. O'Donnell and colleagues (2005) reported positive programme effects on parents attitudes, including an increase in parents' reported of parental influence on their children's risk-taking behaviour. All five studies (Dancy et al., 2006; Dilorio et al., 2007; Forehand et al., 2007; Gustafson, 1998; O'Donnell et al., 2005) examined outcomes relating to personal and social skills. Dancy and colleagues (2006) found short-term positive effects of an HIV risk reduction intervention on self-efficacy to refuse sex. In addition, generally positive programme effects were reported across the remaining studies with regards to communication, with the exception of the study by Dilorio and colleagues (2007). They found that reports were inconsistent between fathers and sons regarding the communication of sex-related topics with fathers reporting more positively than their sons. Gustafson (1998) reported a positive programme effect on quality of communication and Forehand and colleagues (2007) reported an increase in sexual communication based on reports from both parents and their children who received an enhanced communication intervention; although parent reports were found to be more positive over the medium term. O'Donnell and colleagues (2005) reported positive programme effects on communication across a range of measures including communication, self-efficacy and monitoring.

Four studies (Dancy et al., 2006; Dilorio et al., 2007; Forehand et al., 2007; O'Donnell et al., 2005) examined health and social outcomes related to sexual behaviour. There were positive short-term effects of two parent education programmes (Dancy et al., 2006; O'Donnell et al., 2005) on initiation of sexual activity and behavioural risks related to early sexual initiation, respectively. However, lack of clear intervention effects were reported in two further studies (Dilorio et al., 2007; Forehand et al., 2007).

Evidence statement 11

11 (a) There is moderate evidence from one RCT[1] to suggest that training for mothers to be their daughters' primary HIV educator may produce short-term improvements in sexual health-related knowledge and understanding. The evidence may only be partially applicable to the UK as this study was conducted in the USA and focused on ethnic populations specific to the USA.

11 (b) There is inconsistent evidence from three RCTs and one NRCT[2] on which to determine the effects of intervention and programmes delivered to parents on sexual health-related attitudes and values.

11 (c) There is weak evidence from three RCTs and one NRCT[3] to suggest that interventions delivered to parents may improve parent-child communication about sexual health topics. Findings may only be partially applicable to the UK as all the studies were conducted in the USA and may not be generalisable beyond the populations studied.

11 (d) There is inconsistent evidence from four RCTs[4] on which to determine the effects of programme delivered to parents on their children's sexual behaviour.

11 (e) There is moderate evidence from one RCT[1] to suggest that delivery of HIV prevention content by mothers may be as equally effective as that of health experts. The evidence may only be partially applicable to the UK as this study was conducted in the USA and focused on ethnic populations specific to the USA.

1 Dancy et al., 2006 (RCT +)

2 Dancy et al., 2006 (RCT +); Dilorio et al., 2007 (RCT +); Gustafson, 1998 (NRCT +); O'Donnell et al., 2005 (RCT +)

3 Dilorio et al., 2007 (RCT +); Forehand et al., 2007 (RCT +); O'Donnell et al., 2005 (RCT +); Gustafson, 1998 (NRCT +)

4 Dancy et al., 2006 (RCT +); Dilorio et al., 2007 (RCT +); Forehand et al., 2007 (RCT +); O'Donnell et al., 2005 (RCT +)

Table 6.11. Summary of programme content: programme delivered to parents

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
Dancy et al., 2006	RCT (cluster) +	USA n=262 daughters, 100% African American mean 12.4 years	Community	**The Mother/Daughter HIV risk-reduction (MDRR)**: Aimed to reduce sexual activity, increase HIV transmission knowledge, self-efficacy and intention to refuse sex. Mother's were actively involved with the programme and had 12 weeks training.	Cognitive behavioural skills, Fishbein and Ajzen's behavioural intentions; Collins' community-other-mothers	Health experts
Dilorio et al., 2007	RCT (cluster) +	USA n=554 (fathers and sons) primarily African American 13-14 years old	Boys and Girls Clubs	**REAL Men programme:** Programme consisted of lectures, discussions, role-plays, games, videotapes and homework as well as weekly goals. Fathers received seven two hour sessions and their sons received one (final) session.	Social cognitive theory	NR
Forehand et al., 2007	RCT (individual) +	USA n=1,115 100% African American 9-12 years old	Community	**Parents Matter!**: Sexual risk-reduction programme including group sessions focussing on increasing parents' communication about sexual topics. The programme was delivered over five, 2.5 hour sessions using enhanced communication.	Not Reported	Facilitators
Gustafson, 1998	NRCT +	USA n=58 families Majority White 12-16 yrs	Community	**Let's Talk: Sex is for Love:** Parenting workshop and in-home exercises to complete as a family. Three hour workshop session; four weekly in-home exercises.	Not Reported	Parish nurse
O'Donnell et al., 2005	RCT (individual) +	USA n=846 children n=674 parents 62% Black; 29% Hispanic; 8% other 5^{th} or 6^{th} grade	Home	**Saving Sex for Later**: A CD-based intervention to improve parental communication relating to sexual behaviour. The programme disseminated one CD every 10 weeks for six months.	Diffusion of innovation model, theory of planned behaviour	CD-ROM

Table 6.12. Programme delivered to parents: effects on knowledge, attitudes and skills

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
Dancy et al., 2006	RCT (cluster) +	MDRR n=103	MDHP n=62	PT (91%)	↑ knowledge of HIV transmission**	↑ intention to refuse sex*	↑ self-efficacy to refuse sex**
			HERR n=97	PT (91%)	**NS** knowledge of HIV transmission	**NS** intention to refuse sex	**NS** self-efficacy to refuse sex
Dilorio et al., 2007	RCT (cluster) +	REAL Men programme n=141 fathers (52%)	7 session nutrition and exercise programme n= 132 fathers (48%)	3 mo (NR)	-	**NS** intent to discuss sex-related topics (fathers) **NS** intentions about delaying sexual intercourse (youth)	↑ discussion of sex-related topics (fathers)* **NS** discussion of sex-related topics (youth)
				6 mo (NR)	-	**NS** Intent to discuss sex-related topics (fathers) **NS** intentions about delaying sexual intercourse (youth)#	**NS** discussion of sex-related topics (fathers) **NS** discussion of sex-related topics (youth)
				12 mo (80%)	-	↑ intent to discuss sex-related topics (fathers)* ↑ Intentions about delaying sexual intercourse (youth)*	↑ discussion of sex-related topics (fathers)* **NS** discussion of sex-related topics (youth)
Forehand et al., 2007	RCT (individual) +	Parents Matter! Enhanced n=378	Communication /General health n= 366	PT (NR)	-	-	↑ sexual communication (parent and child report)* ↑ responsiveness
				6 mo (NR)	-	-	↑ sexual communication (parent report)
				12 mo (int=84%; con=70%)	-	-	↑ sexual communication (parent report)
		Parents Matter! Single session n=371	Communication /General health n= 366	PT (NR)	-	-	↑ sexual communication (parent and child report)* ↑ responsiveness
				6 mo (NR)	-	-	-
				12 mo (int=74%; con=70%)	-	-	-

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	**Attitudes and values**	**Personal and social skills**
Forehand et al., 2007	RCT (individual) +	Parents Matter! Enhanced n=378	Parents Matter! Single session n=371	PT (NR)	-	-	↑ sexual communication (parent report) ↑ sexual communication (child report)*
				6 mo (NR)	-	-	↑ sexual communication (parent report)
				12 mo (Enhanced =84%; Single=74 %)	-	-	↑ sexual communication (parent report)
Gustafson, 1998	NRCT +	Let's Talk: Sex is for Love n= 34 families	No intervention n= 24 families	PT (int=78%; con=97%)	-	↑ 'Satisfaction with Personal Sexuality' scale* ↑ 'Clarity of Personal Sexual Values'* **NS** attitude toward sexuality **NS** sexual values of fidelity **NS** attitude toward the use of pressure and force in sexual activity **NS** intentions of sexual intercourse	↑ Quality of Communication with Teen scale* **NS** sexual values of fidelity **NS** frequency of communication **NS** frequency of monitoring **NS** family cohesion **NS** shared familiy activities **NS** quality of communication with mother or father **NS** frequency of communication, understanding personal sexual response **NS** skills to avoid sexual pressure
O'Donnell et al., 2005	RCT (individual) +	Saving Sex for Later n=423 children n=337 parents	No intervention n=423 children n= 337 parents	3 mo (68%)	-	↑ parental influence (parent report)***	Parents reports - ↑ communication*** **NS** monitoring ↑ self-efficacy** Youth reports – ↑ family rules* ↑ family support*

*p<0.05; **p<0.01; ***p<0.001; ¶ p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported; #Limited to those not sexually active

Table 6.13. Programme delivered to parents: effects on health and social outcomes related to sexual health

Study	Rating	Intervention	Comparator	Follow-up	Health and social outcomes			
					Age of initiation	Frequency/ Number of partners	Contraceptive use	STIs/ Conceptions
Dancy et al., 2006	RCT (cluster) +	MDRR n=103	MDHP n=62	PT (91%)	↓ sexual activity*	-	-	-
			HERR n=97	PT (91%)	**NS** sexual activity			
Dilorio et al., 2007	RCT (cluster) +	REAL Men programme n=141 fathers (52%)	7 session nutrition and exercise programme n= 132 fathers (48%)	3 mo (NR)	**NS** intimate behaviours **NS** sexual abstinence	-	**NS** ever sexual intercourse without condom	-
				6 mo (NR)	**NS** intimate behaviours **NS** sexual abstinence	-	**NS** ever sexual intercourse without condom	-
				12 mo (80%)	**NS** intimate behaviours **NS** sexual abstinence	-	↓ ever sexual intercourse without condom	-
Forehand et al., 2007	RCT (individual) +	Parents Matter! Enhanced n=378	Communication/ general health n= 366	12 mo (int=84%; con=70%)	**NS** at sexual risk	-	-	-
		Parents Matter! single session n=371	Communication/ general health n= 366	12 mo (int=74%; con=70%)	**NS** at sexual risk	-	-	-
		Parents Matter! Enhanced n=378	Parents Matter! single session n=371	12 mo (Enhanced=84%; Single=74%)	**NS** at sexual risk	-	-	-
O'Donnell et al., 2005	RCT (individual)+	Saving Sex for Later n= 423 children n= 337 parents	No intervention n= 423 children n= 337 parents	3 mo (68%)	↓ behavioural risks*	-	-	-

*p<0.05; **p<0.01; ***p<0.001; ¶ p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

6.6 Programmes involving the wider community or mass media

6.6.1 Overview of evidence identified

Two studies were identified (Doniger et al., 2001; Sieverding et al., 2005) that examined interventions that involved the wider community or mass media. Both studies were conducted in the USA. Doniger et al (2001) examined a mass media intervention, Not Me, Not Now, which involved paid television and radio advertising, billboards, posters distributed in schools in addition to educational materials for parents and education programming in schools. The duration of the programme was five years. Sieverding et al (2005) examined the Youth United through Health Education (YUTHE) outreach programme. Peer educators targeted young people between the ages of 12 and 22 years to undertake sexual risk assessment and provide information on STIs and STI screening. Young people who participated in the intervention were also provided with condoms.

Neither study reported the theoretical model underpinning intervention. As the interventions examined targeted the wider community it was not clear how many young people received the intervention in either study.

6.6.2 Quality assessment

Both studies were based on cross-sectional time series (Doniger et al., 2001; Sieverding et al., 2005). Sieverding and colleagues (2005) examined Chlamydia rates over a 5-year period (1998-2002) and Doniger and colleagues (2001) examined pregnancy rates for 15-17 year olds over a 3-year period (1993-1996). The study by Doniger and colleagues (2001) was rated poorly as the study was likely to be subject to bias, as the analyses did not appear to adequately account for natural variations in the data over time. The study by Sieverding and colleagues (2005) appeared to have been appropriately conducted and was rated moderate quality.

6.6.3 Findings

6.6.3.1 Knowledge and understanding

None of the included studies examined intervention effects on knowledge and understanding.

6.6.3.2 Attitudes and values

None of the included studies examined intervention effects on attitudes and values.

6.6.3.3 Personal and social skills

None of the included studies examined intervention effects on personal and social skills.

6.6.3.4 Health and social outcomes related to sexual health

Doniger et al (2001) examined the effects of Not Now, Not Me, an abstinence-oriented communications programme. Based on the analysis of pregnancy rates for 15-17 year olds across five geographic areas, the authors noted a statistically significant downward trend between 1993 and 1996 in four areas, including the intervention area. Based on further analyses of the slope of a regression line the authors reported that the rate of decline was fastest in the intervention area.

Sieverding and colleagues (2005) examined the impact of a community outreach programme on STI rates over a 5-year period. For both males and females in the intervention neighbourhood, Chlamydia rates remained relatively stable over the 5-year period (1998-2002) and both males and females in the comparison neighbourhood were significantly more likely to have Chlamydia than those in the intervention neighbourhoods (females: OR 3.0; 95% CI 2.3, 3.9; p<0.001 / males: OR 2.9; 95% CI 2.0, 4.4; p<0.001). As there were much fewer cases of Chlamydia in the youngest adolescents, the authors further examined rates in the older youth aged 18–22. Among females and males aged 18–22, those in the comparison neighbourhood were significantly more likely to have Chlamydia than their counterparts in the intervention neighbourhood (females: OR 2.3; 95% CI 1.7, 3.2; p<0.001 / males: OR 2.3; 95% CI 1.5, 3.5; p<0.001).

6.6.4 Summary and evidence statements

Two studies were identified (Doniger et al., 2001; Sieverding et al., 2005) that examined interventions that involved the wider community or mass media. Doniger and colleagues (2001) examined a mass media intervention, Not Me, Not Now, and Sieverding and colleagues (2005) examined the Youth United through Health Education (YUTHE) outreach programme.

Neither of the included studies examined intervention effects on knowledge, attitudes and skills. Both studies analyses population-level changes, in pregnancy (Doniger et al., 2001) and STI rates (Sieverding et al., 2005), respectively. Both studies reported positive intervention effects at a population level, however the study by Doniger and colleagues (2001) did not adequately control for natural fluctuations in the data and therefore it is not clear whether these or intervention effects were responsible for the differences seen in the intervention and control communities.

Evidence statement 12

12 (a) There is no evidence from two CTS[1] on which to determine the effects of interventions and programmes involving the wider community or mass media on knowledge, attitudes and skills related to sexual health.

12 (b) There is weak evidence from one CTS[2] to suggest that a programme of community outreach may have a positive impact on STI rates among young people. Findings may only be partially applicable to the UK as the study was conducted in the USA and may not be generalisable beyond the population studied.

[1] Doniger et al., 2001 (CTS –); Sieverding et al., 2005 (CTS +)

[2] Sieverding et al., 2005 (CTS +)

Table 6.14. Summary of programme content: programme involving the wider community or mass media

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
Sieverding et al., 2005	CTS +	USA n=NR 87% African American 12-22 years	Community outreach	**Youth United Through Health Education**: Outreach programme; sexual risk assessment, information on STIs and STI screening sites, role model stories and condoms	NR	Peer educators
Doniger et al., 2001	CTS -	USA n=NR Ethnicity=NR 15-17 years	Mass media	**Not Me, Not Now**: Paid television and radio advertising, billboards, posters distributed in schools, educational materials for parents and an educational series presented in schools (Postponing Sexual Involvement), sponsorship of community events, website	Social learning theory, consumer information processing theory	NA

Table 6.15. Programme involving the wider community or mass media: effects on health and social outcomes related to sexual health

Study	Rating	Intervention	Comparator	Follow-up	Sexual health outcomes			
					Age of initiation	Frequency/ Number of partners	Contraceptive use	STIs/ Conceptions
Doniger et al., 2001	CTS -	Not Me, Not Now n=NR	No intervention n=NR	1993-1996	-	-	-	↑ rate of decline in pregnancy rates[¶]
Sieverding et al., 2005	CTS +	YUTHE n=1 neighbourhood	No intervention n=1 neighbourhood	1998-2002	-	-	-	↓ rate of Chlamydia infection***

*p<0.05; **p<0.01; ***p<0.001; [¶] p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

6.7 Programmes targeting vulnerable young people

6.7.1 Overview of evidence identified

Three studies (Gleghorn et al., 1997; Rew et al., 2007; Slesnick and Kang, 2008) examined community interventions aimed at vulnerable groups. All three studies examined interventions which specifically targeted young homeless people. Gleghorn and colleagues (1997) examined an HIV prevention intervention that combined street outreach, storefront prevention services and tailored prevention materials including posters, T-shirts, condom packets and magazines. Rew and colleagues (2007) examined a brief sexual health intervention, which consisted of group sessions based around role-play and discussion. The study by Slesnick and Kang (2008) examined an integrated cognitive-behavioural and HIV prevention intervention, which combined a community reinforcement approach with HIV prevention content drawn from the Becoming a Responsible Teen programme.

All three studies were conducted in North America and were delivered in the community using outreach workers (Gleghorn et al., 1997), trained health educators (Rew et al., 2007) or therapists (Slesnick and Kang, 2008). One study (Gleghorn et al., 1997) did not report a theoretical basis. Rew and colleagues (2007) reported using theory of reasoned action and social cognitive theory and Slesnick and Kang (2008) reported using cognitive behavioural theory. The sample size was small in one study (Slesnick and Kang, 2008; n=180; n=96 intervention, n=84 control) and reasonably large in two studies (Gleghorn et al., 1997; T1=429, T2=717: Rew et al., 2007; n=572). However, no studies reported power calculations or limitations based on sample size.

All three studies examined homeless youth aged over 19 years. However, samples also included youth aged 12 years thus justifying the studies' inclusion. Follow-up times were unclear in one study (Gleghorn et al., 1997), Rew and colleagues (2007) reported follow-up assessments at immediate post-test and 3-6 weeks after the end of the programme. Slesnick and Kang (2008) reported follow-up assessments at 3 and 6 months after baseline assessment, however data were presented as changes over time.

6.7.2 Quality assessment

Of the three studies, one (Slesnick and Kang, 2008) was an RCT design based on individual randomisation. The two remaining studies were based on NRCT study designs. The RCT study was rated moderate quality (+ rating) and used an intent-to-treat design. However, the possibility of contamination was mentioned. One NRCT study (Rew et al., 2007) was also rated moderate quality and considered the possibility of contamination in the choice of research design. The NRCT study by Gleghorn and colleagues (1997) was rated poor quality as details of the study were not fully reported and scales used were not validated. Relevant outcomes were reported across all three studies.

6.7.3 Findings

6.7.3.1 Knowledge and understanding

Only one study (Rew et al., 2007) reported outcomes relating to knowledge and understanding. The authors reported an increase in HIV and STI knowledge in both the intervention and control groups at follow-up (both $p<0.001$). However, findings showed that for the intervention group, knowledge decreased from baseline to post-test and remained stable to the 3-6 week follow-up. For the control group, knowledge remained stable from baseline to post-test and then decreased at the 3-6 week follow-up.

6.7.3.2 Attitudes and values

None of the included studies examined intervention effects on attitudes and values.

6.7.3.3 Personal and social skills

Only one study (Rew et al., 2007) reported outcomes relating to personal and social skills. Self-efficacy for breast self-examination in women and testicular self-examination in men increased from baseline to post-test then remained stable. However, this was also the case for the control group reporting self-efficacy for testicular self-exam. No programme effects were seen for condom self-efficacy or assertive communication.

6.7.3.4 Health and social outcomes related to sexual health

All three studies examined health and social outcomes related to sexual health. Gleghorn and colleagues (1997) found no significant effects of a street outreach programme on young homeless people's use of condoms with either a main or casual partner and there was no effect of the programme on HIV-related referrals. In addition, Rew and colleagues (2007) found no effects of a group-based brief sexual health intervention on safe sex behaviours or on sexual risk-taking behaviours. Slesnick and Kang (2008) found that although there was no overall effect of combined community reinforcement therapy and HIV prevention sessions, frequency of condom use increased among subpopulations in both the intervention and control groups. Younger intervention participants (14-18 years) and older control and intervention participants (18-22 years) increased their condom use frequency at 6 months post-baseline. Intervention youths aged 14-18 years were more likely than control youths to report more frequent condom use ($p<0.01$).

6.7.4 Summary and evidence statements

Three studies (Gleghorn et al., 1997, Rew et al., 2007, Slesnick and Kang, 2008) were identified that examined the effectiveness of community-based programmes on vulnerable populations. One programme (AESOP) was delivered by outreach workers, another (unnamed sexual health intervention) used healthcare educators and a third (community reinforcement approach) used therapists to deliver the intervention.

Intervention effects on knowledge and skills were examined by one study (Rew et al., 2007) and none of the included examined intervention effects on attitudes and values. There were limited effects of a brief sexual health intervention (Rew et al., 2007) on knowledge relating to AIDS and other STIs, and

on communication and self-efficacy. Health and social outcomes related to sexual health were examined in all three studies, two of which reported no intervention effects (Gleghorn et al., 1997, Rew et al., 2007). Slesnick and Kang (2008) found a positive effect on the frequency of condom use among younger participants in a programme which combined a community reinforcement approach with HIV prevention content.

Evidence statement 13

13 (a) There is insufficient evidence from one NRCT[1] to determine effects of interventions and programmes targeting vulnerable populations on sexual health-related knowledge and understanding, and personal and social skills.

13 (b) There is inconsistent evidence from two NRCT and one RCT[2] on which to determine effects of interventions and programmes targeting vulnerable populations on health and social outcomes relating to sexual health.

1 Rew et al., 2007 (NRCT +)

2 Gleghorn et al., 1997 (NRCT -); Rew et al., 2007 (NRCT +); Slesnick and Kang, 2008 (RCT +)

Table 6.16. Summary of programme content: programmes targeting vulnerable young people

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
Gleghorn et al., 1997	NRCT -	USA T1, n=429, T2, n=717, White: T1=155, T2=169 12-23 years	Outreach with homeless/ contact at youth centre	**AIDS Evaluation of Street outreach Project (AESOP)**: This programme aimed to reduce youth HIV risk behaviours in homeless populations with the use of outreach workers. The intervention was compared to sites with limited HIV services and no regular outreach with no subculture-specific interventions and no youth-oriented HIV prevention centres	NR	Outreach workers
Rew et al., 2007	NRCT +	USA n=572, majority White ~58%, also African American, Asian American, Hispanic, American Indian, Multi-ethnic, Other 16-23 years	Community	A sexual health promotion intervention with homeless youth using eight one hour taught sessions to increase sexual health knowledge and self-efficacy.	Theory of reasoned action, Social cognitive theory	Healthcare educators
Slesnick and Kang, 2008	RCT (individual) +	USA n=180, 13% native American, 1% Asian, 3% African American, 30% Hispanic, 41% White, 12% Other 14-22 years	Community	**Community reinforcement approach**: An HIV risk-reduction programme using trained therapists to provide skills building and education to homeless youth. Compared to youth only accessing drop-in centres with links to case management, support, youth and community services and HIV testing and counselling.	Cognitive behavioural theory	Therapists

Table 6.17. Programmes targeting vulnerable young people: effects on knowledge, attitudes and skills

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
Rew et al., 2007	NRCT +	Unnamed - sexual health intervention n=196	No intervention n= control only: 287, both int & cont:89	PT, 3-6 weeks (NR)	**NS** HIV/STI knowledge	-	**NS** Condom self-efficacy **NS** Assertive communication ↑ self-efficacy for breast self-exam in women** ↑ self-efficacy for testicular self exam in men***

*p<0.05; **p<0.01; ***p<0.001; ¶p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

Table 6.18. Programmes targeting vulnerable young people: effects on health and social outcomes related to sexual health

Study	Rating	Intervention	Comparator	Follow-up	Sexual health outcomes			
					Age of initiation	Frequency/ Number of partners	Contraceptive use	STIs/ Conceptions Other
Gleghorn et al., 1997	NRCT -	AESOP n= T1=246, T2=392	Sites without regular outreach n= T1=183, T2=325	NR	-	-	**NS** condom use at last sex with main partner **NS** condom use at last sex with casual partner	**NS** HIV referrals
Rew et al., 2007	NRCT +	Brief sexual health intervention n=196	No intervention n= control only: 287, both int & cont:89	PT, 3-6 weeks (NR)	-	**NS** safe sex behaviours **NS** sexual risk-taking behaviours	-	-
Slesnick and Kang, 2008	RCT (individual) +	Community reinforcement approach + HIV prevention n= 96	Treatment as usual n= 84	3 mo (73%), 6 mo (86%)	-	-	↑ frequency of condom use (younger participants only**)	-

*p<0.05; **p<0.01; ***p<0.001; ¶p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

7 Programmes targeting multiple health behaviours

No systematic reviews or meta-analyses were identified for inclusion in the review of programmes targeting multiple health behaviours, and in addition no economic evaluation studies were identified. Five articles, which reported on evaluations of programmes and interventions that addressed both alcohol use and sexual health, were identified. Two articles reported on studies that examined interventions or programmes delivered in social, healthcare or community settings and three articles reported on studies that examined interventions or programmes delivered to families or parents.

7.1 Programmes delivered within social, healthcare and community settings

7.1.1 Overview of evidence identified

Two studies (St Pierre et al., 1995; Wiggins et al., 2009) examined programmes which targeted both sexual health and alcohol use. St Pierre et al (1995) examined the effects of Stay SMART, which targeted young people enrolled in Boys and Girls Clubs, with and without the addition of a peer leadership component. Wiggins et al (2009) evaluated the effectiveness of the Young People's Youth Development (YPYD) programme in reducing teenage pregnancy, substance use and other outcomes. The programme targeted young people considered to be at risk of teenage conception, substance misuse or exclusion from school.

The numbers of participants included in the two studies (St Pierre et al., 1995; Wiggins et al., 2009) were 359 and 2,724, respectively, and both studies targeted young people between the ages of 13 and 15 years. Both studies reported long-term follow-up, of 27- and 18-months, respectively.

7.1.2 Quality assessment

The study by St Pierre and colleagues (1995) was an NRCT. Participants were allocated to the intervention and control groups within club groupings by the researchers. Overall, the study design used was rated poorly. The authors excluded participants who did not complete a set number of sessions, which limited the generalisibility of the study, and resulted in large losses to follow-up. The study by Wiggins and colleagues (2009) was based on a CBA design. Allocation was not controlled by the research team and participants for a comparison group were recruited from agencies that had not received funds to run the YPYD programme. Overall, given the limitations of the study design it was well reported and appeared to have been well conducted. The study was rated moderate quality.

7.1.3 Findings

7.1.3.1 Knowledge and understanding

None of the included studies examined intervention effects on knowledge and understanding.

7.1.3.2 Attitudes and values

Both studies examined intervention effects on attitudes and values. St Pierre et al (1995) reported that Stay SMART only participants who were sexually active at baseline perceived significantly fewer social benefits from engaging in sexual activity across all three follow-ups compared to the Stay

SMART + boosters participants (p<0.01) and control participants (p<0.01). Among participants who were virgins at baseline there were no significant effects of either intervention condition. Wiggins et al (2009) found that female participants were more likely than control participants to report that they expected to be a parent by age 20 (weighted adjusted OR 1.61; 95% CI: 1.07, 2.41; p<0.05).

7.1.3.3 Personal and social skills

None of the included studies examined intervention effects on personal and social skills.

7.1.3.4 Health and social outcomes related to sexual health

Both studies examined intervention effects on health and social outcomes relating to sexual health and alcohol use. St Pierre et al (1995) reported that there was no impact on sexual behaviour at the 15-months follow-up of either intervention condition among all participants. Stay SMART participants who were sexually active at baseline reported significantly less sexual behaviour compared to the Stay SMART + booster group and the control group at 27-months (both p<0.05). No statistically significant effects were observed among participants who were virgins at baseline. Wiggins et al (2009) found that the YPYD programme had a negative impact on participant's sexual behaviour. At follow-up, significantly more pregnancies were reported among females in the YPDP groups than in the comparison group (weighted adjusted OR 5.48; 95% CI 2.18, 13.75; p<0.01) and significantly more females in the YPDP group than in the comparison group reported heterosexual sex at follow-up 2 (weighted adjusted OR 3.48; 95% CI 1.49, 8.12). There was no difference in rates of monthly drunkenness among programme and comparison participants.

7.1.4 Summary and evidence statements

Two studies (St Pierre et al., 1995; Wiggins et al., 2009) examined programmes which targeted both sexual health and alcohol use. St Pierre et al (1995) examined the effects of Stay SMART, which targeted young people enrolled in Boys and Girls Clubs, with and without the addition of a peer leadership component. Wiggins et al (2009) evaluated the effectiveness of the Young People's Youth Development (YPYD) programme in reducing teenage pregnancy, substance use and other outcomes.

Neither of the included studies examined intervention effects on knowledge and understanding, or on personal and social skills. However, both studies examined intervention effects on attitudes and values. St Pierre and colleagues (1995) found a favourable reduction in sexual attitudes but only among sexually experienced participants who received the intervention without the additional booster sessions. The YPYD programme (Wiggins et al., 2009) had potentially harmful effects on attitudes, with female intervention participants more likely than control participants to report that they expected to be a parent by age 20.

Both studies examined intervention effects on health and social outcomes related to sexual health, and Wiggins and colleagues (2009) examined effects on alcohol use. The effects of the Stay SMART intervention were inconsistent across the two intervention conditions examined. The YPYD programme (Wiggins et al., 2009) had a negative impact on participant's sexual behaviour, particularly among intervention females who were significantly more likely than controls to engage in

heterosexual sexual intercourse and more likely to become pregnant. There was no effect of the programme on male participants or on participant's alcohol use.

Evidence statement 14

14 (a) There is weak and inconsistent evidence from one NRCT and one CBA study[1] on which to determine the effects of programmes delivered in social and community settings on attitudes and values related to sexual health and alcohol use.

14 (b) There is weak and inconsistent evidence from one NRCT[2] on which to determine the effects of programmes delivered in social and community settings that seek to address both sexual health and alcohol use.

14 (c) There is weak evidence from one CBA study[3] to suggest that youth development programmes, which target young females at behavioural risk, may have a negative effect on sexual behaviours. This evidence is applicable as the study was conducted in the UK.

1 St Pierre et al., 1995 (NRCT -); Wiggins et al., 2009 (CBA +)

2 St Pierre et al., 1995 (NRCT -)

3 Wiggins et al., 2009 (CBA +)

Table 7.1. Summary of programme content: programmes delivered in social, healthcare or community settings

Author	Study design and rating	Baseline population	Setting	Programme components	Theoretical base	Provider(s)
St Pierre et al., 1995	NRCT -	USA n=359 45% White, 14% Hispanic, 42% Black 13-14 years	Boys & Girls Clubs	**Stay SMART:** 12 sessions + 8 booster sessions; including components of LST. SMART leaders peer leader programme designed to build upon skills and knowledge.	NR	NR
Wiggins, 2009	CBA +	UK n=2,724 Int/Con: Black or minority ethnic 23%/20% 13-15 years	Youth agencies	**Young People's Youth Development programme:** 6-10 hours, one week a year; Education, training/employment opportunities, life skills, mentoring, volunteering, health education, arts, sports and advice on accessing services.	NR	Youth agency staff

Table 7.2. Programmes delivered in social, healthcare or community settings: effects on knowledge, attitudes and skills

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
St Pierre et al., 1995	NRCT -	Stay SMART only n=119 Stay SMART + boosters n=117	No intervention n=123	3, 15, 27 mo (76%, 55% 42%)	-	↓ perceived social benefits from engaging in sexual activity (Stay SMART only vs. control; non-virgins only**)	-
		Stay SMART + boosters n=117	Stay SMART only n=119	3, 15, 27 mo (NR)	-	↑ perceived social benefits from engaging in sexual activity (non-virgins only**)	-
Wiggins, 2009	CBA +	YPYDP n=1,637	No intervention n=1,087	9, 18 mo (int=43%; con=31%)	-	↑ expected to be parent by age 20 (females only*)	

*p<0.05; **p<0.01; ***p<0.001; ¶ p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

Table 7.3. Programmes delivered in social, healthcare or community settings: effects on health and social outcomes related to sexual health and alcohol use

Study	Rating	Intervention	Comparator	Follow-up	Health and social outcomes	
					Sexual health	**Alcohol use**
St Pierre et al., 1995	NRCT -	Stay SMART only n=119 Stay SMART + boosters n=117	No intervention n=123	3, 15 mo (NR)	**NS** sexual intercourse	-
				27 mo (76%, 55% 42%)	↓ sexual intercourse (Stay SMART only vs. control; non-virgins only*)	-
		Stay SMART + boosters n=117	Stay SMART only n=119	3, 15 mo (NR)	**NS** sexual intercourse	-
				27 mo (NR)	↑ sexual intercourse (non-virgins only*)	-
Wiggins, 2009	CBA +	YPYDP n=1,637	No intervention n=1,087	9, 18 mo (int=43%; con=31%)	↑ pregnancy (females only**) ↑ heterosexual sex (females only[¶])	**NS** drunkenness

*p<0.05; **p<0.01; ***p<0.001; [¶] p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

7.2 Programmes delivered to families or parents

7.2.1 Overview of evidence identified

Five studies (Haggerty et al., 2007; Prado et al., 2007; Stanton et al., 2000; 2004; Wu et al., 2003) examined interventions and programmes delivered to families or parents, which targeted both alcohol use and sexual health. Haggerty and colleagues (2007) examined the Parents Who Care programme, which was designed to prevent substance use and other problem behaviours. Stanton and colleagues (2000; 2004; Wu et al., 2003) examined a parental monitoring intervention, Informed Parents and Children Together (ImPACT) that was designed to reduce substance use, sexual risk behaviours and truancy. Prado and colleagues (2007) examined Familias Unidas + Parent Preadolescent Training for HIV Prevention (PATH), a programme that specifically targeted Hispanic parents and aimed to prevent adolescent substance use and unsafe sexual behaviours.

All five studies were conducted in North America and were delivered in a community setting by trained facilitators, project staff or family consultants. One study, of the Familias Unidas + PATH programme (Prado et al., 2007), reported using an ecodevelopmental theory to underpin the programme, whereas Stanton and colleagues (2000; 2004; Wu et al., 2003) reported using a social cognitive model in conjunction with protection motivation theory, and the basis for intervention in the study by Haggerty and colleagues (2007) was the social development model.

Sample sizes ranged from 237 parent-child dyads (Stanton et al., 2000) to 817 families (Stanton et al., 2004; Wu et al., 2003). Prado and colleagues (2007) reported acceptable power calculations of 80% and, although power was not specified in the study write up, enough information was provided in the study by Stanton and colleagues (2004) to determine that the sample size was appropriate. Haggerty and colleagues (2007) did not specify whether their study was sufficiently powered.

The mean age of youth participants recruited to participate in the included studies was a mean 13-14 years. Evaluations of all three programmes (Haggerty et al., 2007; Prado et al., 2007; Stanton et al., 2004) were based on short and medium-term follow-up (6 and 12 months) and two studies (Haggerty et al., 2007; Stanton et al., 2004; Wu et al., 2003) also reported data from long-term follow-up assessments up to 24 months.

7.2.2 Quality assessment

All five studies were based on an RCT design. Two articles of the FOK + ImPACT evaluation (Stanton et al., 2004; Wu et al., 2003) utilised cluster randomisation and three were based on individual randomisation (Haggerty et al., 2007; Prado et al., 2007; Stanton et al., 2000). The unit of analysis matched the unit of allocation in the cluster RCT and intraclass correlations were used to adjust the findings (Stanton et al., 2004; Wu et al., 2003). Of the RCTs based on individual randomisation, two (Prado et al., 2007; Haggerty et al., 2007) reported that their analyses were based on an intention to treat design. The study by Stanton and colleagues (2004; Wu et al., 2003) was rated good quality (++ rating) as it presented a good research design and the methodology and results were well reported. The remaining three studies (Prado et al., 2007; Haggerty et al., 2007; Stanton et al., 2000) were

rated moderate quality (+ rating) and were also clearly presented. However, validity of scales were not reported in the study by Prado and colleagues (2007), two studies (Prado et al., 2007; Haggerty et al., 2007) lacked information to judge whether allocation to intervention and control groups had been adequately concealed, and the study by Stanton and colleagues (2000) did not carry out their analyses on an intent to treat basis and power calculations were lacking. Outcomes were deemed relevant in all five studies.

7.2.3 Findings

7.2.3.1 Knowledge and understanding

None of the included examined intervention effects on knowledge and understanding.

7.2.3.2 Attitudes and values

Four studies (Haggerty et al., 2007; Stanton et al., 2000; Wu et al., 2003; Stanton et al., 2004) examined intervention effects on attitudes and values towards risk behaviour. Haggerty and colleagues (2007) evaluation of Parents Who Care found no significant programme effects at post-test and medium-term follow-up on attitudes towards and perceived harm of substance abuse. However, by long-term follow-up significantly less favourable attitudes to substance abuse were reported ($p<0.05$), but differences between groups' perceived harms of substance abuse remained non-significant. There were limited effects of ImPACT (Stanton et al., 2000) on parent and adolescent agreement regarding their involvement in risky behaviours and Wu and colleagues (2003) found no difference in risk taking intentions between FOK + ImPACT and FOK only participants at 6- and 12-month follow-up. Based on longer term follow-up of FOK + ImPACT participants (Stanton et al., 2004), compared to the FOK only group, there were positive programme effects on self-efficacy for stopping having sex until older ($p<0.01$), getting condoms ($p<0.05$), refusing sex without a condom ($p<0.01$), refusing sex if asked by a partner ($p<0.05$), not feeling the need to have sex with a long-time partner ($p<0.05$), not needing to have sex even if all friends are having sex ($p<0.05$), and overall response efficacy ($p<0.05$).

7.2.3.3 Personal and social skills

Three studies (Prado et al., 2007; Stanton et al., 2000; 2004) reported outcomes relating to personal and social skills. Growth curve analysis from the Familias Unidas + PATH programme (Prado et al., 2007) showed that compared to the ESOL (English for Speakers of Other Languages) + PATH the intervention group showed increased family functioning ($p<0.05$), positive parenting ($p<0.05$), and parent-adolescent communication ($p<0.05$). In comparison, relative to a second control group ESOL + HEART (HeartPower! For Hispanics), the intervention group compared showed greater increases in family functioning ($p<0.001$) and positive parenting ($p<0.05$). However, there was no difference in parent-adolescent communication between these groups. Two studies (Stanton et al., 2000; Wu et al., 2003) examined intervention effects on adolescent and parent perceptions of parental monitoring and communication. There were no effects of participation in ImPACT on adolescent and parent perceptions of parental monitoring and communication, and there were mixed effects of FOK + ImPACT on adolesent's perceptions of parental communication and monitoring. At 6-month follow-up,

FOK + ImPACT participants reported significantly higher perceptions of parental monitoring, but there were no differences in perceptions of monitoring or open communication at the 12-month follow-up. Stanton and colleagues (2004) found a positive programme effect for communication with the family about HIV/AIDS, but only in the FOK + ImPACT + boosters intervention group in comparison to the FOK only group. No effects of FOK + ImPACT were seen for condom-related skills, which included asking for condoms in a clinic or store, putting condoms on correctly, feeling able to convince a sexual partner to use a condom, asking partner about past relationships, or wanting to wait until they were older to have sex again.

7.2.3.4 Health and social outcomes related to sexual health

Four studies (Haggerty et al., 2007; Prado et al., 2007; Wu et al., 2003; Stanton et al., 2004) presented findings related to health outcomes for both alcohol and sexual behaviours. No programme effects were seen for Familias Unidas + PATH (Prado et al., 2007) for past 90-day alcohol use, or unprotected sexual behaviours when compared to either control group (ESOL + PATH; HEART + PATH). Compared to the ESOL + PATH control group, the intervention group showed decreased rates of STIs and unsafe sex at last intercourse ($p<0.05$). However, compared to the ESOL + HEART control group, the intervention group showed better outcomes only for decreased incidence of STIs ($p<0.05$). Haggerty and colleagues (2007) reported no significant effects of either version of Parents Who Care on substance use initiation at long-term follow-up and a reduction in sexual initiation was only seen among African American participants who received the group administered version of the programme. There were also limited effects of ImPACT + FOK (Wu et al., 2003; Stanton et al., 2004). At the 6-month follow-up, compared to FOK only participants. FOK + ImPACT participants were less likely to report having had sexual intercourse ($p<0.05$), unprotected intercourse ($p<0.01$) and drinking alcohol ($p<0.05$). However, at 12-month follow-up, the only significant difference that remained between FOK + ImPACT and FOK only participants was on the measure of alcohol use ($p<0.01$). At the 24-month follow-up (Stanton et al., 2004) there were no significant differences between FOK + ImPACT and FOK only participants on any of the sexual health or alcohol use measures, but participants who received FOK + ImPACT + boosters were less likely to report being pregnant or getting a girl pregnant ($p<0.05$) compared to FOK only participants. Participants who received FOK + ImPACT + boosters also showed a positive effect only in the proportion of people asking a recent partner if they always used condoms ($p<0.01$).

7.2.4 Summary and evidence statements

Five studies (Haggerty et al., 2007; Prado et al., 2007; Stanton et al., 2000; 2004; Wu et al., 2003) examined interventions and programmes delivered to families or parents, which targeted both alcohol use and sexual health. All five studies were conducted in the USA and were delivered by either project staff or trained facilitators.

None of the included studies examined intervention effects on knowledge and understanding. Across four studies (Haggerty et al., 2007; Stanton et al., 2000; Wu et al., 2003; Stanton et al., 2004) that examined intervention effects on attitudes and values towards risky behaviours there were indications

of mixed intervention effects. Haggerty and colleagues (2007) found positive long-term effects of the Parents Who Care programme on attitudes towards substance use and there were also long-term positive programme effects of FOK + ImPACT (Stanton et al., 2004) on attitudes and values related to a range of risky behaviours. Three studies (Prado et al., 2007; Stanton et al., 2000; 2004) examined intervention effects on personal and social skills, finding mixed programme effects on parent/family-child communication. Prado and colleagues (2007) found positive intervention effects on communication, family functioning and positive parenting, and Stanton and colleagues (2004) found a positive effect of the FOK + ImPACT + boosters condition on parent-child communication about HIV/AIDS.

Four studies (Haggerty et al., 2007; Prado et al., 2007; Wu et al., 2003; Stanton et al., 2004) examined intervention effects on health outcomes related to alcohol use and sexual health. Short-term to medium-term reductions in alcohol drinking were found for participants who received FOK + ImPACT, but this reduction was not sustained and no other significant programme effects were found for health outcomes related to alcohol use. One study (Prado et al., 2007) reported a decrease in incidence rates for STIs and unsafe sex at last sexual intercourse in the intervention group compared to controls (ESOL + PATH). Although, short-term benefits of FOK + ImPACT were also reported, these differences were not sustained and over the longer term there were no additional positive effects on sexual behaviour of the ImPACT programme among young people who had received a risk reduction programme (FOK; Stanton et al., 2004).

Evidence statement 15

15 (a) There is mixed evidence from four RCTs[1] regarding the effects of intervention and programmes delivered to families and parents on attitudes and values related to risky behaviours.

15 (b) There is moderate evidence from two RCTs[2] to suggest that interventions and programme delivered to families and parents, and which target alcohol use and sexual health, may improve parent-child communication and family functioning. This evidence may only be partially applicable to the UK as these studies were conducted in the USA and focused on ethnic populations specific to the USA.

15 (c) There is moderate evidence from two RCTs[2] to suggest that interventions and programme delivered to parents and which target alcohol use and sexual health, may not provide long-term additional benefits in terms of health and social outcomes related to sexual health and alcohol use beyond those conferred through interventions and programmes which directly target young people. This evidence may only be partially applicable to the UK as these studies were conducted in the USA and focused on ethnic populations specific to the USA.

[1] Haggerty et al., 2007 (RCT +); Stanton et al., 2000 (RCT +); Wu et al., 2003 (RCT +); Stanton et al., 2004 (RCT ++)

[2] Prado et al., 2007 (RCT +); Stanton et al., 2004 (RCT +)

Table 7.4. Summary of programme components: programmes delivered to families and parents

Author	Study design and rating	Baseline population	Setting	Programme components	Theory	Provider
Haggerty et al., 2007	RCT (individual) +	USA n=331 families; 51% European American; 49% African American mean 13.8 years	Family	**Parents Who Care:** Participants received either a self-administered or parent and adolescent administered substance abuse and problem behaviours prevention intervention	Social development theory	Family consultants
Prado et al., 2007	RCT (individual) +	USA n=266 youth n=266 parents 100% Hispanic mean 13.4 years	Schools	**Familias Unidas + PATH**: HIV and sexual risk-reduction programme. Included two parent centred modules which also included adolescent participation in family visits and discussion circles with facilitators. The programme was conducted over 49 hours, in a 36 month period.	Eco-developmental theory	Trained facilitators
Stanton et al., 2000	RCT (individual) +	USA n=237 dyads 100% African American median 13.6 years	Family	**Informed Parents and Children Together (ImPACT):** Parents and children viewed a 22-minute educational video about AIDS, condoms and risky behaviours.	NR	Video
Wu et al., 2003; Stanton et al., 2004	RCT (cluster) ++	USA n=817 adolescents 100% African American 13-16 years	Community	**Focus on Kids (FOK) + ImPACT**: Risk reduction programme for alcohol, smoking, drugs and sexual behaviour. Included parent and school components delivered over eight 1.5 hour sessions and conducted four 90 minute booster sessions, role play and 20 minute video sessions.	Social cognitive model; Protection motivation theory	Other

Table 7.5. Programmes delivered to families and parents: effects on knowledge, attitudes and skills

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	Attitudes and values	Personal and social skills
Haggerty et al., 2007	RCT (individual) +	Parents Who Care n=225 (SA n=107; PA n=118)	No intervention n=106	PT n=313 (95%)	-	**NS** attitudes towards substance abuse; perceived harm of substance abuse	-
				12 months n=306 (92%)	-	**NS** attitudes towards substance abuse; perceived harm of substance abuse	-
		PWC: SA n=107	No intervention n=106	24 months n=304 (92%)	-	↓ favourable attitudes towards substance abuse* **NS** perceived harm of substance abuse	-
		PWC: PA n=118	No intervention n=106	24 months n=304 (92%)	-	↓ favourable attitudes towards substance abuse* **NS** perceived harm of substance abuse	-
Prado et al., 2007	RCT (individual) +	Familias Unidas + PATH n=91	ESOL + PATH n=84	36 mo (80%)	-	-	↑ family functioning* ↑ positive parenting* ↑ parent-adolescent communication*
			ESOL + HEART n=91	36 mo (80%)	-	-	↑ family functioning*** ↑ positive parenting* **NS** parent-adolescent communication
Stanton et al., 2000	RCT (individual) +	ImPACT n=NR	Goal for IT! n=NR	2 months n=209 dyads (88%)	-	**NS** parent and youth agreement regarding having a boyfriend/girlfriend/drank alcohol/had sex	**NS** youth and parental reports of communication and monitoring
				6 months n=204 dyads (86%)	-	↑ parent and youth agreement regarding having a boyfriend/girlfriend* **NS** parent and youth agreement regarding having drank alcohol/had sex	↑ youth performing condom skills correctly*** ↑ parents performing condom skills correctly** **NS** youth and parental reports of communication and monitoring

Study	Rating	Intervention	Comparator	Follow-up	Outcomes		
					Knowledge and understanding	**Attitudes and values**	**Personal and social skills**
Wu et al., 2003	RCT (cluster) +	FOK + ImPACT (with or without boosters) n=496	FOK only n=321	6 mo n=608 (74%)	-	-	**NS** risk taking intention ↑ perceptions of parental monitoring** **NS** perceptions of parental communication
				12 mo n=580 (71%)	-	-	**NS** risk taking intention **NS** perceptions of parental monitoring **NS** perceptions of open communication ↑ perceptions of problem communication
Stanton et al., 2004	RCT (cluster) +	FOK + ImPACT n=258	FOK only n=321	24 mo (60%)	-	-	**NS** talked with family member/other adult about AIDS/HIV **NS** asked recent sexual partner if condom always used
		FOK + ImPACT + boosters n=238	FOK only n=321	24 mo (60%)	-	-	↑ talked with family member/other adult about AIDS/HIV* ↑ asked recent sexual partner if condom always used**
Stanton et al., 2004	RCT (cluster) +	FOK + ImPACT + boosters n=238	FOK + ImPACT n=258	24 mo (60%)	-	-	↑ talked with family member/other adult about AIDS/HIV* **NS** asked recent sexual partner if condom always used
		Both intervention groups n=496	FOK only n=321	24 mo (60%)	-	↑ overall self-efficacy** ↑ overall response efficacy* **NS** overall response cost	**NS** talked with family member/other adult about AIDS/HIV ↑ asked recent sexual partner if condom always used*

*p<0.05; **p<0.01; ***p<0.001; ¶ p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported

Table 7.6. Programmes delivered to families and parents: effects on health and social outcomes related to sexual health and alcohol use

Study	Rating	Intervention	Comparator	Follow-up	Health and social outcomes	
					Sexual health	Alcohol use
Haggerty et al., 2007	RCT (individual) +	Parents Who Care: SA n=107	No intervention n=106	24 mo n=304 (92%)	**NS** sexual initiation	**NS** initiation of alcohol use
		Parents Who Care: PA n=118	No intervention n=106	24 mo n=304 (92%)	↓ sexual initiation (African American youth only*)	**NS** initiation of alcohol use
Prado et al., 2007	RCT (individual) +	Familias Unidas + PATH n=91	ESOL + PATH n=84	36 mo (80%)	**NS** unprotected sexual behaviour ↓ rates of incidence of STIs* ↓ unsafe sex at last sexual intercourse*	**NS** past 90-day alcohol use
			ESOL + HEART n=91	36 mo (80%)	**NS** unprotected sexual behaviour ↓ rates of incidence of STIs* **NS** unsafe sex at last sexual intercourse	**NS** past 90-day alcohol use
Wu et al., 2003	RCT (cluster) +	Focus on Kids plus ImPACT n=496	Received Focus on Kids intervention only n=321	6 mo n=608 (74%)	↓ sexual intercourse* ↓ unprotected sex** **NS** sexual risk behaviour	↓ drank alcohol*
				12 mo n=580 (71%)	**NS** sexual intercourse **NS** unprotected sex **NS** sexual risk behaviour	↓ drank alcohol**
Stanton et al., 2004	RCT (cluster) +	FOK + ImPACT n=258	FOK only n=321	24 mo (60%)	**NS** sexual intercourse ↓ anal sex* ↓ been, or gotten a girl, pregnant* **NS** used birth control at last intercourse **NS** used condom at last intercourse	**NS** drank alcohol
		FOK + ImPACT + boosters n=238	FOK only n=321	24 mo (60%)	**NS** sexual intercourse **NS** anal sex **NS** been, or gotten a girl, pregnant **NS** used birth control at last intercourse **NS** used condom at last intercourse	**NS** drank alcohol

Study	Rating	Intervention	Comparator	Follow-up	Health and social outcomes	
					Sexual health	**Alcohol use**
Stanton et al., 2004	RCT (cluster) +	FOK + ImPACT + boosters n=238	FOK + ImPACT n=258	24 mo (60%)	**NS** sexual intercourse **NS** anal sex ↑ been, or gotten a girl, pregnant* **NS** used birth control at last intercourse **NS** used condom at last intercourse	**NS** drank alcohol
		Both intervention groups n=496	FOK only n=321	24 mo (60%)	**NS** sexual intercourse **NS** anal sex **NS** been, or gotten a girl, pregnant **NS** used birth control at last intercourse **NS** used condom at last intercourse	**NS** drank alcohol
*p<0.05; **p<0.01; ***p<0.001; ¶ p value not reported; ↑ increase relative to comparator; ↓ decrease relative to comparator; **NS** not significant; - outcome not reported						

8 Discussion

8.1 Programmes targeting alcohol use

A total of 31 articles met the criteria for inclusion in the review of community-based programmes targeting alcohol use by young people. Four articles were systematic reviews and/or meta-analyses, three articles reported on studies that examined intervention or programmes delivered within social, healthcare and community settings, 20 articles reported on studies that examined programmes or interventions delivered to families or parents, and three studies examined interventions or programmes that involved the wider community or mass media. One economic evaluation study was also identified that examined the cost-effectiveness and cost-benefits of the Iowa Strengthening Families Programme (ISFP) and Preparing for the Drug Free Years (PDFY).

8.1.1 Systematic reviews and meta-analyses

Three systematic reviews and meta-analyses examined community-based interventions and programmes that targeted alcohol use among young people. One review (Foxcroft et al., 2002; 2003) examined interventions and programmes aimed at the primary prevention of alcohol use across a range of populations and settings. Two further reviews (Petrie et al., 2007; Smit et al., 2008) examined interventions and programmes delivered to parents and families, respectively. Foxcroft et al (2002; 2003) found that although there was no consistent evidence to determine which programmes were effective over the short to medium-term, one family-based programme, the ISFP, was effective over the longer term. The reviews by Petrie and colleagues (2007) and Smit and colleagues (2008) also highlighted the long-term effectiveness of the ISFP.

8.1.2 Programmes delivered in social, healthcare and community settings

Three studies were identified that examined interventions and programmes targeting alcohol use, which were delivered in social, healthcare and community settings. All three studies (Elder et al., 2002; Schinke et al., 2005; Tebes et al., 2007) were conducted within youth and after school agencies and were based in the USA.

None of the studies examined intervention effects on knowledge and understanding. Short-term increases in perception of harm were reported in two studies (Schinke et al., 2005; Tebes et al., 2007), but this effect was not sustained over the longer term. One study (Tebes et al., 2007) also found no impact of an after-school, youth development programme on participants' drug beliefs and there was no impact of a culturally tailored programme (Elder et al., 2002) on participants' susceptibility to alcohol. One study (Schinke et al., 2005) examined intervention effects on personal and social skills, finding a short-term intervention impact of an interactive CD-ROM intervention on assertion skills. Two studies (Elder et al., 2002; Schinke et al., 2005), conducted within youth agencies, found no intervention effects on health and social outcomes related to alcohol use. However, substance use remained low among both intervention and control participants throughout the study. One study (Tebes et al., 2007), which targeted older children (mean age 15 years) in after school programmes reported a positive short- to medium-term effect on alcohol use.

8.1.3 Programmes delivered to parents and families

A total of 20 studies were identified that examined programmes and interventions delivered to parents and families, which targeted adolescent alcohol or substance use. Evaluations of nine programmes delivered to families were reported on across fifteen studies (Bauman et al., 2000; Brody et al., 2004; 2006; Gerrard et al., 2006; Johnson et al., 1996; Jones et al., 2005; Loveland-Cherry et al., 1999; Mason et al., 2009; Murry et al., 2007; Schinke et al., 2004; 2009; Spoth et al., 1999; 2001; 2004; Stevens et al., 2002) and five studies (Beatty et al., 2008; Carlson et al., 2000; Cohen and Rice, 1995; Koutakis et al., 2008; Toomey et al., 1996) examined parent-targeted interventions.

Effects on knowledge and understanding were only examined in one study of a family-based programme and none of the parent-targeted interventions examined this outcome. Short-term intervention effects on attitudes and values related to alcohol use were found for two family-based programmes (Brody et al., 2004; 2009; Schinke et al., 2009) but for parent-targeted interventions there was no clear effect on parental attitudes to adolescent drinking (Cohen and Rice, 1995; Koutakis et al., 2008; Toomey et al., 1996). Both family-based and parent-targeted interventions appeared to produce short-term improvements in parent-child communication. Two CD-ROM based interventions (Schinke et al., 2004; 2009) showed positive programme effects on family communication skills and involvement skills and the culturally tailored SAAF (Brody et al., 2004) had a short-term positive effect on parental communication. Short-term intervention effects on parent-child communication were found for three studies (Beatty et al., 2008; Carlson et al., 2000; Toomey et al., 1996) of parent-targeted interventions; two studies (Beatty et al., 2008; Carlson et al., 2000) reported more frequent or recent parent-child communication about alcohol and one study (Toomey et al., 1996) showed positive long-term effects on parent-child communication regarding family rules about alcohol and alcohol related situations. Eleven studies examined intervention effects of family-based programmes on health and social outcomes related to alcohol use across eight programmes. Three programmes (Bauman et al., 2000; Jones et al., 2005; Loveland-Cherry, 1999) demonstrated non-significant effects on alcohol use, but across four programmes (Schinke et al., 2004; 2009; Spoth et al., 2001; Mason et al., 2009) short- and long-term positive effects on alcohol use were reported. In addition, six studies (Brody et al., 2004; 2006; Loveland-Cherry et al., 1999; Spoth et al., 1999; 2001; 2004) of four family-based programmes reported positive intervention effects on initiation of alcohol use in the medium- to long-term. The ISFP also had long-term positive effects on drunkenness and drinking without parental permission (Spoth et al., 2004), and long-term follow-up of the PDFY (Mason et al., 2009) revealed a positive effect of this programme on women's alcohol abuse in early adulthood. Two studies (Koutakis et al., 2008, Toomey et al., 1996) examined the effects of parent-targeted interventions. One study (Toomey et al., 1996) found no intervention effects but a second study (Koutakis et al., 2008) reported positive intervention effects on youth drinking, and past month drunkenness.

8.1.4 Programmes involving the wider community or mass media

Three studies (Cheadle et al., 1995; Flynn et al., 2006; Kypri et al., 2005) were identified that examined programmes involving the wider community or mass media. Two studies (Flynn et al., 2006;

Kypri et al., 2005) examined mass media intervention programmes delivered in communities in the USA and New Zealand, respectively, and one study (Cheadle et al., 1995) examined a 5-year community-based health promotion programme for adolescents on an American Indian Reservation. None of the included studies examined intervention effects on knowledge and understanding, or on personal and social skills. Only one study (Flynn et al., 2006) examined impacts on attitudes and values towards alcohol use, findings no effects of a long-term mass media programme on mediators of alcohol use. In addition, there were no effects of either mass media programme (Flynn et al., 2006; Kypri et al., 2005) or a community-wide campaign targeting American Indian adolescents on alcohol use.

8.1.5 Review of published economic evaluations

One study (Spoth et al., 2002) was identified that met the criteria for inclusion in the review of published economic evaluations. The study evaluated the cost-effectiveness and net benefits of two brief, family-focused interventions, the ISFP and PDFY, compared to a minimal intervention approach. Overall the net benefit was $5,923 per family for the ISFP and $2,697 per family for PDFY. The benefit-cost ratios were 9.60 and 5.85, indicating that for every $1 spent on the ISFP and PDFY, $9.60 and $5.85, respectively, were saved in medical costs. The generalisability of the study to a UK context was unclear as the data used in the evaluation is based on studies conducted in the USA. In addition, projected alcohol use disorder rates were calculated based on US population data.

8.2 Programmes targeting sexual health

A total of 49 articles met the criteria for inclusion in the review of community-based programmes targeting young people's sexual health. Nine articles were systematic reviews and/or meta-analyses, 20 articles reported on studies that examined intervention or programmes delivered within social, healthcare and community settings, 15 articles reported on studies that examined programmes or interventions delivered to families or parents, two articles reported on studies that examined interventions or programmes that involved the wider community or mass media, and three articles reported on studies which examined interventions for vulnerable young people.

8.2.1 Systematic reviews and meta-analyses

Nine systematic reviews and meta-analyses were identified that examined the effectiveness of interventions and programmes across a range of settings and populations that targeted young people's sexual health behaviours. One review (Arnold and Rotheram-Borus, 2007) focused on interventions and programmes that targeted sexual risk taking among young homeless people. Findings from six reviews (Franklin et al., 1997; Pedlow and Carey, 2003; Robin et al., 2004; Sales et al., 2006; Underhill et al., 2007; 2008) indicated that community-based programmes can affect sexual risk behaviours of young people. In particular, HIV prevention and sexual risk reduction programmes were effective in increasing condom use and reducing pregnancy (Franklin et al., 1997; Robin et al., 2004; Sales et al., 2006). However, they may have a limited impact on adolescent sexual activity. According to Sales and colleagues (2006) successful community-based interventions were

theoretically based, tailored to the target population, implemented by trained facilitators, and the content was diverse and delivered using a wide variety of methods.

8.2.2 Programmes delivered in social, healthcare and community settings

A total of 20 studies were identified that examined interventions or programmes delivered within social, healthcare or community settings. Nine studies (Di Noia and Schinke, 2007; Jemmott et al., 1992; Jemmott et al., 1998; Kipke et al., 1993; Postrado and Nicholson, 1992; Sikkema et al., 2005; Stanton et al., 1996; 1997; Villarruel et al., 2006) examined group education sessions or skills-based training interventions delivered in community settings. Three studies (Ferguson, 2000; Pearlman et al., 2002; Smith et al., 2000) examined peer-led interventions, including a peer counselling programme (Ferguson, 2000) and peer leader leadership programmes (Pearlman et al., 2002; Smith et al., 2000), respectively. Philliber and colleagues (2002) examined the CAS-Carrera programme that focused on youth development for disadvantaged young people enrolled in after school programmes and Elliott et al (1996) examined a theatre production designed to inform young people about HIV. Six studies (Boekeloo et al., 1999; Danielson et al., 1990; DiClemente et al., 2004; Downs et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al., 2005) were conducted in healthcare settings including family planning clinics and primary care practices. Four studies (DiClemente et al., 2004; Downs et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al., 2005) examined group-based education and/or skills-based interventions that specifically targeted sexually active young women. Two studies (Boekeloo et al., 1999; Danielson et al., 1990) examined interventions based around a health practitioner-led sexual health consultation.

Across four studies (Di Noia and Schinke, 2007; Jemmott et al., 1992; 1998; Kipke et al., 1993), that examined group education sessions or skills-based training interventions in community settings there were positive intervention effects on knowledge and understanding over the short- to medium-term. In addition, the three-year, CAS-Carrera programme (Philliber et al., 2002) had a positive impact on knowledge. There was no effect of a peer counselling intervention (Ferguson, 2000) on knowledge, but two peer leadership interventions (Pearlman et al., 2002; Smith et al., 2000) had positive effects on levels of knowledge among the peer leaders themselves. Four studies (DiClemente et al., 2004; Morrison-Beedy et al., 2005; Jemmott et al., 2005; Downs et al., 2004) of interventions that specifically targeted sexually active young females in healthcare setting, reported consistent short- to medium-term improvements in sexual health-related knowledge among intervention participants. In addition, two studies (Boekeloo et al., 1999; Danielson et al., 1990) of health practitioner-led sexual health consultations reported significant short-term increases in knowledge among intervention participants relative to controls. Short-term decreases in intentions to engage in risky sexual intercourse were reported in the study of the community-based, BPBR programme which targeted Black male adolescents (Jemmott et al., 1992) and an abstinence-based version of the programme resulted in short-term reductions in intentions to engage in any sexual intercourse. Across three studies group that examined group education sessions and skills-based training interventions in community settings (Di Noia and Schinke, 2007; Kipke et al., 1993; Stanton et al., 1996) there were short-term increases in intervention participants' perception of their vulnerability to HIV infection.

However, this effect was not sustained in the medium-term (Stanton et al., 1996). Two studies (Elliott et al., 1996; Smith et al., 2000) found no effects of a theatre production intervention or peer leadership intervention, respectively, on HIV attitudes at follow-up. There were indications of positive intervention effects of group education sessions and skills-based training interventions (Di Noia and Schinke, 2007; Jemmott et al., 1998; Smith et al., 2000; Stanton et al., 1996) in community settings on attitudes and values related to condom use. However, these effects did not appear to be consistent and were not maintained over the medium-term (Stanton et al., 1996). There were fairly consistent positive intervention effects on condom use attitudes across three studies (DiClemente et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al., 2005), which examined group-based education and skills-based interventions specifically targeting sexually active young women in healthcare settings, and one study (Boekeloo et al., 1996) that examined a primary care-based sexual risk assessment and education intervention. Two studies (Di Noia and Schinke, 2007; Jemmott et al., 1998) found short-term positive intervention effects of a CD-ROM mediated intervention and an abstinence-based version of the BPBR curriculum, respectively, on attitudes towards abstinence. A CD-ROM intervention (Di Noia and Schinke, 2007) and education and skills training programme (Kipke et al., 1993) had positive effects on behavioural skills but results from five studies (Di Noia and Schinke, 2007; Smith et al., 2000; Boekeloo et al., 1999; DiClemente et al., 2004; Morrison-Beedy et al., 2005) presented mixed findings in relation to effects on communication.

Across five studies (Jemmott et al., 1992; 1998; Postrado and Nicholson, 1992; Sikkema et al., 2005; Villarruel et al., 2006) that examined group-based sessions and/or skills training in community settings, short- to medium-term effects on sexual intercourse were reported in four studies (Jemmott et al., 1992; Postrado and Nicholson, 1992; Sikkema et al., 2005; Villarruel et al., 2006), and one study (Jemmott et al., 1998) reported no programme effects. The CAS-Carrera programme (Philliber et al., 2002) had a positive effect on sexual activity among females, but there were no effects of health practitioner-led sexual health consultations (Boekeloo et al., 1999; Danielson et al., 1990) or peer interventions (Ferguson, 2000; Smith et al., 2000). Intervention effects on frequency of sexual intercourse and number of sexual partners were limited. Across four studies (Jemmott et al., 1998; Kipke et al., 1993; Pearlman et al., 2002; Villarruel et al., 2006) conducted in community settings, only one study (Villarruel et al., 2006) reported a positive intervention effect and across four studies (DiClemente et al., 2004; Downs et al., 2004; Jemmott et al., 2005; Morrison-Beedy et al 2005) conducted in healthcare settings, there were inconsistent intervention effects on these outcomes. Intervention effects on condom use and unprotected intercourse were more consistent. Across six studies that examined group-based sessions and skills training in community and healthcare settings, there were positive short- to medium-term intervention effects on measures of condom use (DiClemente et al., 2004; Jemmott et al., 1998; 2005; Sikkema et al., 2005; Stanton et al., 1996; Villarruel et al., 2006), and some evidence from three studies (Jemmott et al., 1998; 2005; Villarruel et al., 2006) of a positive intervention effect on frequency of unprotected intercourse. There were no effects of an HIV theatre production (Elliott et al., 1996) or peer counselling intervention (Ferguson, 2000) on contraceptive use or frequency of unprotected sex, but the CAS-Carrera programme (Philliber et al., 2002) positively influenced both condom and hormonal contraceptive use among

females. There was no effect of a peer counselling intervention (Ferguson, 2000) or peer leadership programme (Smith et al., 2000) on pregnancy rates, but the CAS-Carrrea programme (Philliber et al., 2002) had a positive effect, with a reduction in pregnancies among intervention females. Three studies (Boekeloo et al., 1999; Downs et al., 2004; Jemmott et al., 2005) examined intervention effects on STI infection and/or diagnosis, finding mixed intervention effects. However, medium-term positive effects on STI diagnosis were reported in one study (Jemmott et al., 2005) of a skills-based HIV/STI intervention delivered in a healthcare setting.

8.2.3 Programmes delivered to parents and families

Fifteen studies were identified that examined intervention and programmes delivered to parents and families, which targeted adolescent sexual health. Ten studies (Anderson et al., 1999; Dilorio et al., 2006; Lederman et al., 2004; 2008; McBride et al., 2007; McKay et al., 2004; Miller et al., 1993; Scheinberg et al., 1997; Winett et al., 1992; 1993) evaluated seven programmes delivered to adolescents and their families and five studies (Dancy et al., 2006; Dilorio et al., 2007; Forehand et al., 2007; Gustafson, 1998; O'Donnell et al., 2005) examined parent-targeted interventions.

Both family-based and parent-targeted interventions demonstrated positive influences on knowledge related to sexual health in the short- (Dancy et al., 2006; Scheinberg et al., 1997; Winett 1992; Winett et al., 1993), medium- (Miller et al., 1993) and long-term (Dilorio et al., 2006; Lederman et al., 2008), with improvements seen in both parent and adolescent knowledge (Dilorio et al., 2006; Miller et al., 1993) related to sexual health. Programmes and interventions delivered to families (Anderson et al., 1999; Dilorio et al., 2006; Lederman et al., 2004; 2008; Miller et al., 1993; Scheinberg et al., 1997) did not appear to be effective at influencing adolescent's attitudes and intentions towards resisting or delaying sex and across three studies (Dancy et al., 2006; Dilorio et al., 2007; Gustafson, 1998) that examined effects of parent-targeted interventions on intentions there were inconsistent results. There were mixed effects on parent-child communication across both family-based and parent-targeted interventions. Eight studies (Anderson et al., 1999; Dilorio et al., 2006; Lederman et al., 2004; 2008; McKay et al., 2004; McBride et al., 2007; Miller et al., 1993; Scheinberg et al., 1997), which examined family-programmes found no clear intervention effects on communication, but in general positive effects were found across four studies (Dilorio et al., 2007; Forehand et al., 2007; O'Donnell et al., 2005; Gustafson, 1998) that examined parent-targeted interventions.

Across five studies (Anderson et al., 1999; Miller et al., 1993; Dilorio et al., 2006; McKay et al., 2004; McBride et al., 2007) that examined the effects of family-based programmes on health and social outcomes related to sexual health the results suggested that programmes and interventions delivered to families may not affect sexual behaviour. Two studies (Anderson et al., 1999; Miller et al., 1993) found no intervention effects on pregnancy rates or sexual behaviour, respectively, and one study (Dilorio et al., 2006) found no long-term effects of an intervention aimed at mothers and their adolescent children on abstinence or involvement in intimate sexual behaviours. There were, however, limited but positive effects of this programme on condom use. There were positive short-term effects of two parent education programmes (Dancy et al., 2006; O'Donnell et al., 2005) on initiation of sexual

activity and behavioural risks related to early sexual initiation, respectively. However, lack of clear intervention effects were reported in two further studies (Dilorio et al., 2007; Forehand et al., 2007).

8.2.4 Programmes involving the wider community or mass media

Two studies were identified (Doniger et al., 2001; Sieverding et al., 2005) that examined interventions that involved the wider community or mass media. Doniger and colleagues (2001) examined a mass media intervention, Not Me, Not Now, and Sieverding and colleagues (2005) examined the Youth United through Health Education (YUTHE) outreach programme. Neither of the included studies examined intervention effects on knowledge, attitudes and skills. Both studies analysed population-level changes, in pregnancy (Doniger et al., 2001) and STI rates (Sieverding et al., 2005), respectively, as measures of effectiveness. Both studies reported positive intervention effects at a population level, however the study by Doniger and colleagues (2001) did not adequately control for natural fluctuations in the data and therefore it is not clear whether these or intervention effects were responsible for the differences seen in the intervention and control communities.

8.2.5 Programmes targeting vulnerable populations

Three studies (Gleghorn et al., 1997, Rew et al., 2007, Slesnick and Kang, 2008) were identified that examined the effectiveness of community-based programmes on vulnerable populations. All three studies examined interventions which specifically targeted young homeless people. Intervention approaches examined were street outreach (Gleghorn et al., 1997), a brief group-based sexual health intervention (Rew et al., 2007), and a community reinforcement approach combined with HIV prevention (Slesnick and Kang, 2008). Intervention effects on knowledge and skills were examined in one study (Rew et al., 2007) and none of the included studies examined intervention effects on attitudes and values. There were limited effects of a brief sexual health intervention (Rew et al., 2007) on knowledge relating to AIDS and other STIs, and on communication and self-efficacy. Health and social outcomes related to sexual health were examined in all three studies, two of which reported no intervention effects (Gleghorn et al., 1997, Rew et al., 2007). Slesnick and Kang (2008) found a positive effect on the frequency of condom use among younger participants in a programme which combined a community reinforcement approach with HIV prevention content.

8.3 Programmes targeting multiple behaviours

No systematic reviews or meta-analyses were identified for inclusion in the review of programmes targeting multiple health behaviours. Five articles were identified that reported on evaluations of programmes and interventions that addressed both alcohol use and sexual health. Two articles reported on studies that examined interventions or programmes delivered in social, healthcare or community settings and three articles reported on studies that examined interventions or programmes delivered to families or parents.

8.3.1 Programmes delivered within social, healthcare and community settings

Two studies (St Pierre et al., 1995; Wiggins et al., 2009) examined programmes which targeted both sexual health and alcohol use. St Pierre and colleagues (1995) examined the effects of Stay SMART,

which targeted young people enrolled in Boys and Girls Clubs, with and without the addition of a peer leadership component, and Wiggins and colleagues (2009) evaluated the effectiveness of the Young People's Youth Development (YPYD) programme in reducing teenage pregnancy, substance use and other outcomes.

Neither of the included studies examined intervention effects on knowledge and understanding, or on personal and social skills. However, both studies examined intervention effects on attitudes and values. St Pierre and colleagues (1995) found a favourable reduction in sexual attitudes but only among sexually experienced participants who received the intervention without the additional booster sessions. The YPYD programme (Wiggins et al., 2009) had potentially harmful effects on attitudes, with female intervention participants more likely than control participants to report that they expected to be a parent by age 20. Both studies examined intervention effects on health and social outcomes related to sexual health, and Wiggins and colleagues (2009) also examined intervention effects on alcohol use. The effects of the Stay SMART intervention were inconsistent across the two intervention conditions examined. The YPYD programme (Wiggins et al., 2009) had a negative impact on participant's sexual behaviour, particularly among intervention females who were significantly more likely than controls to engage in heterosexual sexual intercourse and more likely to become pregnant. There was no effect of the programme on male participants or on participant's alcohol use.

8.3.2 Programmes delivered to families or parents

Five studies (Haggerty et al., 2007; Prado et al., 2007; Stanton et al., 2000; 2004; Wu et al., 2003) examined three programmes delivered to families or parents, which targeted both alcohol use and sexual health, in addition to other risk behaviours. None of the included studies examined intervention effects on knowledge and understanding. Across four studies (Haggerty et al., 2007; Stanton et al., 2000; Wu et al., 2003; Stanton et al., 2004) that examined intervention effects on attitudes and values towards risky behaviours there were indications of mixed intervention effects. Haggerty and colleagues (2007) found positive long-term effects of both self-directed and group-based versions of a universal substance use and problem behaviour prevention programme on attitudes towards substance use and there were also long-term positive programme effects of a parental monitoring intervention (Stanton et al., 2004) on attitudes and values related to a range of risky behaviours. Three studies (Prado et al., 2007; Stanton et al., 2000; 2004) examined intervention effects on personal and social skills, finding mixed programme effects on parent/family-child communication. Prado and colleagues (2007) found positive effects of a culturally-tailored programme on communication, family functioning and positive parenting, and Stanton and colleagues (2004) found a positive effect of a parental monitoring programme on parent-child communication about HIV/AIDS. Four studies (Haggerty et al., 2007; Prado et al., 2007; Wu et al., 2003; Stanton et al., 2004) examined intervention effects on health outcomes related to alcohol use and sexual health. Short-term to medium-term reductions in alcohol drinking were found for participants who received a parental monitoring intervention (Wu et al., 2003; Stanton et al., 2004), but this reduction was not sustained and no other significant programme effects were found for health outcomes related to alcohol use. One study (Prado et al., 2007) of a culturally-tailored programme reported a long-term

decrease in incidence rates for STIs and unsafe sex at last sexual intercourse among those who received an additional parent-targeted component. Although, short-term benefits of a parental monitoring intervention (Wu et al., 2003) were also reported, these differences were not sustained and over the longer term there were no additional positive effects on sexual behaviour of the intervention among young people who had received a risk reduction intervention (Stanton et al., 2004).

8.4 Strengths and limitations

This review of the effectiveness and cost-effectiveness of community-based interventions and programmes that address health literacy and personal skills in relation to alcohol use and sexual health was based on a comprehensive and systematic literature review. Over 12,000 titles and abstracts were screened for inclusion in the review, and over 400 full text articles were reviewed. In addition, the review has been conducted using a standardised and transparent approach, adhering to NICE protocols for the development of public health programme guidance.

8.4.1 Quality of the included studies

The studies identified for inclusion in the review were based on a range of study designs. However, the vast majority were based on an RCT design, of which half were cluster RCTs. The quality of the included studies was generally moderate or good, with approximately 30% of studies receiving a poor rating for quality. In general studies did not describe the source population or source area from which study participants were drawn, and it was therefore, frequently not possible to determine the eligibility of the selected populations or areas included. Methods of randomisation were well described in approximately one fifth of RCTs, which generally also reported that allocation was adequately concealed and that participants and/or investigators were blinded. Across the remaining RCTs, the authors reported that randomisation had been undertaken but did not describe the actual method of randomisation or how allocation was concealed. For studies based on non-random assignment, authors rarely reported how confounding and bias were minimised or how individuals or clusters were allocated to intervention or comparison groups. Few authors examined or commented on contamination and it was therefore difficult to judge whether contamination was acceptably low across the included studies. Attrition rates varied across the included studies, but over half of studies accounted for all participants at follow-up. Outcome measures were reported to be reliable across the majority of the included studies, and were deemed to be relevant. Follow-up times varied across the included studies, from immediate post-test to ten years, but two thirds of studies reported what was judged to be a meaningful follow-up time. Intervention and comparison groups were similar at baseline, or adjustments were made for differences, across the vast majority of studies. Few studies reported undertaking an intention to treat analysis (~25%) or reported whether studies were adequately powered (~20%). Analytical methods appeared to be appropriate in the majority of studies, but estimates of effect sizes were not reported or calculable in approximately one third of the included studies.

8.4.2 Applicability and transferability

As highlighted in previous reviews conducted by the lead author and colleagues, there is a lack of prevention initiatives originating from the UK which have been subject to evaluation and peer-reviewed publication. The research literature identified for this review was, as in previous reviews, dominated by programmes conducted in the USA, which focused on minority ethnic populations specific to the USA. Both African American and Hispanic adolescents have been identified as populations at high risk of HIV infection (Jemmott et al., 2005), and Hispanic adolescents report higher levels of substance use and unprotected sexual intercourse than non-Hispanic White and African American adolescents (Prado et al., 2007). However in the UK, although black and minority ethnic (BME) groups may be at higher risk of STI infection (DH, 2001) survey data indicates that drug use is generally lower among BME populations (Edmonds et al., 2005). In this review we identified the YPYD programme (Wiggins et al., 2009) which was implemented in England and whose development was informed by the US-based, Carrera programme. Despite promising effects of the Carrera programme, Wiggins and colleagues (2009) found an adverse effect of the intervention among an English population.

8.5 Research recommendations

The review has identified a number of gaps in the evidence and future research should aim to address the following key research recommendations:

- There needs to be further evaluation of the effectiveness and cost-effectiveness of alcohol education and SRE approaches delivered in community settings, which are currently being delivered or planned in the UK;
- Full economic evaluation studies are required of community-based approaches focusing on both SRE and alcohol education that consider both the costs and consequences of implementing these types of interventions and programmes.
- Future research should consider the relationship between alcohol use and sexual health.

Improvements in study design and the quality of reporting are required with respect to all types of studies and the following are recommendations to improve the methodology of future studies:

- Improved reporting of methods is required, particularly with regard to methods for the allocation of participants and clusters (e.g. methods of randomisation), allocation concealment, procedures for blinding, and follow-up of participants. Reporting standards could be improved by following guidelines on reporting, such as the CONSORT statement for RCTs and TREND statement for non-randomised studies.
- Standardisation of outcomes is required. Across the included studies a range of attitudinal and behavioural measures were reported and consequently it was not possible to synthesise outcomes across studies. Also when considering which outcomes to incorporate, there needs to be a consideration of the age and level maturity of the sample targeted (e.g. with regard to

studies of SRE programmes consideration should be made of the relationship status of participants).

- Some studies were conducted with inadequate sample sizes, and future research studies should be sufficiently powered to detect intervention effects.
- Future research studies should incorporate an adequate length of follow-up.

9 Conclusions

9.1 Programmes targeting alcohol use

There was a lack of evidence on which to draw conclusions about the effects of programmes and interventions that targeted adolescent alcohol use on knowledge and understanding. There were positive effects of programmes and interventions delivered to families on attitudes and values related to alcohol use, but programmes and interventions delivered to parents or within social, healthcare and community settings appeared to have no impact on these outcomes. Programmes and interventions delivered to families and parents produced short- and long-term improvements in parent-child communication, and programmes and interventions delivered to families had positive effects on both alcohol use and initiation of alcohol use. Programme effects on health and social outcomes related to alcohol use were mixed and inconsistent across programmes and interventions delivered to parents, in social, healthcare or community settings, or to the wider community. The family-focused ISFP was highlighted across three systematic reviews as showing particular promise; this programme, which was designed to enhance family protective and resiliency processes and to reduce family-based risk factors associated with child behaviour problems, had positive, long-term effects on a range of outcomes related to alcohol use and has been shown to be cost-effective and potentially cost saving.

9.2 Programmes targeting sexual health

The evidence suggests that programmes and interventions delivered in social, healthcare and community settings and to families and parents may have beneficial effects on sexual health-related knowledge in the short- to long-term. A range of outcomes were reported with regards to attitudes and values and programmes effects were mixed across these measures. The evidence suggests that while programmes and interventions targeting adolescent sexual health may not impact on attitudes towards sexual intercourse, programmes and interventions delivered in healthcare settings may positively impact on condom use attitudes. Programmes and interventions delivered to families and in social, healthcare and community settings had mixed and inconsistent effects on communication, but programmes and interventions delivered to parents appeared to have positive effects on parent-child communication. There appeared to be no effects of programmes and interventions delivered to families and parents on adolescent sexual behaviour, and programmes and interventions delivered in social, healthcare and community settings had limited and inconsistent effects on sexual activity including frequency of intercourse and number of sexual partners. However, the evidence suggests that group-based sessions and/or skills training programmes in community and healthcare settings may increase condom use and reduce the frequency of unprotected sex. In addition, a youth development approach showed promise, with effects on a range of sexual health outcomes for females. There was a lack of evidence on which to draw conclusions about the effects on programmes involving the wider community or mass media or those targeting vulnerable populations.

9.3 Programmes targeting multiple behaviours

There was a lack of evidence on which to draw conclusions about the effects of programmes and interventions that targeted multiple behaviours on knowledge and understanding, and there was evidence of mixed and inconsistent effects of these programmes on attitudes and values. Programmes and interventions delivered to parents and families had long-term positive effects on communication, but intervention effects on health and social outcomes related to sexual health were less clear. There was no evidence supporting the effectiveness of programmes and interventions delivered in social, healthcare and community settings and interventions and programmes delivered to parents did not appear to provide additional long-term benefits beyond those conferred through interventions and programmes which directly target young people.

9.4 Summary

The results of this systematic review suggest that programmes and interventions delivered to families may be effective in reducing adolescent alcohol consumption and that group-based sessions and/or skills training programmes in community and healthcare settings may be effective in increasing condom use and reducing the frequency of unprotected intercourse among adolescents. In addition, programmes and interventions delivered to families and parents appeared to be effective in increasing parent-child communication about alcohol use and sexual health. However, the applicability of the evidence identified may not be generalisable to the UK and good quality UK-based research of promising or novel intervention approaches, including assessment of cost-effectiveness, is required in order to build the evidence base on which to make UK-based policy and practice recommendations.

10 References

Brown JD, Halpern CT, L'Engle KL (2005) Mass media as a sexual super peer for early maturing girls. Journal of Adolescent Health 36:420-427.

DCSF (2008) Review of sex and relationship education (SRE) in schools. London, DCSF.

DfES (2004) Drugs, guidance for schools. London, DfES.

DfES (2004) Healthy living blueprint for schools. London, DfES.

DfES (2006) Extended schools and health services – working together for better outcomes for children and families. London, DfES.

DfES (2006) Teenage pregnancy: Accelerating the strategy to 2010. London, DfES.

DH (2001) Better prevention, better services, better sexual health. The national strategy for sexual health and HIV. London, DH.

Duncan SC, Duncan TE, Strycker LA (2006) Alcohol use from ages 9 to 16: a cohort-sequential latent growth model. Drugs and Alcohol Dependence.81:71-81.

L'Engle KL, Jackson C (2008) Socialization influences on early adolescents' cognitive susceptibility and transition to sexual intercourse. Journal of Research on Adolescence 18(2):353-378.

Lindsay G, Davies H, Band S, et al (2008) Parenting Early Intervention Pathfinder Evaluation. London, DCSF.

MedFASH (2008) Progress and priorities – working together for high quality sexual health. Review of the National Strategy for Sexual Health and HIV. London, MedFASH.

NICE (2007) Behaviour change at population, community and individual levels. London, NICE.

Ramm J, Coleman L (2008) Evaluation of the effects of the Birmingham Speakeasy course. East Sussex, Trust for the Study of Adolescence.

Sieving RE, Eisenberg ME, Pettingell S, Skay C (2006) Friends' influence on adolescents' first sexual intercourse. Perspectives on Sexual and Reproductive Health 38(1):13-19.

The Strategy Unit (2004) Alcohol Harm Reduction Strategy for England. London, the Strategy Unit.

van der Vorst H, Engles RCME, Meeus W, Dekovic M (2006) The impact of alcohol-specific rules, parental norms about early drinking and parental alcohol use on adolescents' drinking behavior. Journal of Child Psychology and Psychiatry 47(12):1299-1306.

van der Vorst H, Engles RCME, Meeus W, et al (2005) The role of alcohol-specific socialization in adolescents' drinking behaviour. Addiction 100:1464-1476.

van der Vorst H, Vermulst AA, Meeus W, et al (2009) Identification and predication of drinking trajectories in early and mid-adolescence. Journal of Clinical Child & Adolescent Psychology, 38(3):329-341.

White HR, Johnson V, Buyske S (2000) Parental modelling and parenting behaviour effects on offspring alcohol and cigarette use, a growth curve analysis. Journal of Substance Abuse 12:287-310.

Appendix 1. References to included studies

Anderson NLR, Koniak-Griffin D, Keenan CK, et al (1999) Evaluating the outcomes of parent-child family life education.... Scholarly Inquiry for Nursing Practice 13(3):211-239.

Arnold EM, Rotheram-Borus MJ (2009) Comparisons of prevention programs for homeless youth. Prevention Science 10(1):76-86.

Bauman KE, Ennett ST, Foshee VA, et al (2000) Influence of a family-directed program on adolescent cigarette and alcohol cessation. Prevention Science 1:227-237.

Beatty SE, Cross DS, Shaw TM (2008) The impact of a parent-directed intervention on parent-child communication about tobacco and alcohol. Drug and Alcohol Review 27(6):591-601.

Boekeloo BO, Schamus LA, Simmens SJ, et al (1999) A STD/HIV prevention trial among adolescents in managed care. Pediatrics 103:107-115.

Brody GH, Murry VM, Gerrard M, et al (2004) The Strong African American Families Program: Translating Research into Prevention Programming. Child Development 75(3):917.

Brody GH, Murry VM, Kogan SM, et al (2006) The Strong African American Families Program: A Cluster-Randomized Prevention Trial of Long-Term Effects and a Mediational Model. Journal of Consulting and Clinical Psychology 74(2):356-366.

Carlson JM, Moore MJ, Pappas DM, et al (2000) A pilot intervention to increase parent-child communication about alcohol avoidance. Journal of Alcohol & Drug Education 45(2):59-71.

Cheadle A, Pearson D, Wagner E, et al (1995) A community-based approach to preventing alcohol use among adolescents on an American Indian reservation. Public Health Reports 110(4):439-447.

Cohen DA, Rice JC (1995) A Parent-targeted Intervention for Adolescent Substance Use Prevention: Lessons Learned. Evaluation Review 19(2):159-180.

Dancy BL, Crittenden KS, Talashek M (2006) Mother's effectiveness as HIV risk reduction educators for adolescent daughters. Journal of Health Care for the Poor & Underserved 17(1):218-240.

Danielson R, Marcy S, Plunkett A, et al (1990) Reproductive health counseling for young men: what does it do? Family Planning Perspectives 22(3):115-121.

Di Noia J, Schinke SP (2007) Gender-specific HIV prevention with urban early-adolescent girls: outcomes of the Keepin' It Safe Program. AIDS Education & Prevention 19(6):479-488.

DiCenso A, Guyatt G, Willan A, Griffith L (2002) Interventions to reduce unintended pregnancies among adolescents: systematic review of randomised controlled trials. BMJ 324(7351):1426.

DiClemente RJ, Wingood GM, Harrington KF, et al (2004) Efficacy of an HIV prevention intervention for African American adolescent girls: a randomised controlled trial. JAMA 292(2):171-179.

Dilorio C, Resnicow K, McCarty F, et al (2006) Keepin' It R.E.A.L.! Results of a Mother-Adolescent HIV Prevention Program. Nursing Research 55(1):43-51.

Dilorio C, McCarty F, Resnicow K, et al (2007) REAL Men: a group randomised trial of an HIV prevention intervention for adolescent boys. American Journal of Public Health 97:1084-1089.

Doniger AS, Adams E, Utter CA, Riley JS (2001) Impact evaluation of the "Not me, Not now" abstinence-oriented, adolescent pregnancy prevention communications program, Monroe County, New York. Journal of Health Communication 6(1):45-60.

Downs JS, Murray PJ, Bruine de Bruin W, et al (2004) Interactive video behavioral intervention to reduce adolescent females' STD risk: a randomized controlled trial. Social Science & Medicine 59:1561-1572.

Elder JP (2002) Tobacco and alcohol use-prevention program for Hispanic migrant adolescents. American Journal of Preventive Medicine 23(4):269-275.

Elliott L, Gruer L, Farrow K, et al (1996) Theatre in AIDS education -- a controlled study. AIDS Care 8(3):321-341.

Ferguson SL (2000) Evaluation of the effects of peer counseling in a culturally-specific adolescent pregnancy prevention program for African American females. Unpublished dissertation. University of Virginia, Charlottesville, VA.

Flynn BS, Worden JK, Bunn JY, et al (2006) Mass media and community interventions to reduce alcohol use by early adolescents. Journal of Studies on Alcohol 67(1):66-74.

Forehand R, Armistead L, Long N, et al (2007) Efficacy of a parent-based sexual-risk prevention program for African American preadolescents: a randomized controlled trial. Archives of Pediatrics & Adolescent Medicine 161(12):1123-1130.

Foxcroft D, Ireland D, Lowe G, Breen R (2002) Primary prevention for alcohol misuse in young people. Cochrane Database of Systematic Reviews, Issue 3.

Foxcroft DR, Ireland D, Lister-Sharp DJ, Lowe G, Breen R (2003) Longer-term primary prevention for alcohol misuse in young people: a systematic review. Addiction 98(4):397-412.

Franklin C, Grant D, Corcoran J, et al (1997) Effectiveness of prevention programs for adolescent pregnancy: a meta-analysis. Journal of Marriage and the Family 59:551-567.

Gerrard M, Gibbons FX, Brody GH, et al (2006) A theory-based dual-focus alcohol intervention for preadolescents: the Strong African American Families Program. Psychology of Addictive Behaviors 20(2):185-195.

Gleghorn AA, Clements KD, Marx R, et al (1997) The impact of intensive outreach on HIV prevention activities of homeless, runaway, and street youth in San Francisco: the AIDS Evaluation of Street Outreach Project (AESOP). AIDS & Behavior 1(4):261-272.

Gustafson CZ (1998) The effects of a health promotion program on parental attitudes and behaviors and adolescent sexual well-being. Unpublished dissertation. University of Michigan, Dearborn, MI.

Guyatt GH, DiCenso A, Farewell V, et al (2000) Randomized trials versus observational studies in adolescent pregnancy prevention. Journal of Clinical Epidemiology 53(2):167-174.

Haggerty KP, Skinner ML, MacKenzie EP, Catalano RF (2007) A randomized trial of Parents Who Care: effects on key outcomes at 24-month follow-up. Prevention Science 8(4):249-260.

Jemmott JB, Jemmott LS, Fong GT (1992) Reductions in HIV Risk-Associated Sexual Behaviors among Black Male Adolescents: Effects of an AIDS Prevention Intervention. American Journal of Public Health 82:372-377.

Jemmott J, Jemmott L (1998) Abstinence and safer sex: HIV risk-reduction interventions for African American adolescents. Journal of the American Medical Association 279:1529-1536.

Jemmott JB, Jemmott LS, Braverman PK, Fong GT (2005) HIV/STD risk reduction interventions for African American and Latino adolescent girls at an adolescent medicine clinic. A randomized controlled trial. Archives of Pediatrics & Adolescent Medicine 159:440-449.

Johnson K, Bryant D, Strader T, Bucholtz G, et al. (1996) Reducing alcohol and other drug use by strengthening community, family, and youth resiliency: An evaluation of the Creating Lasting Connections Program. Journal of Adolescent Research 11(1):36-67.

Jones DJ, Olson AL, Forehand R, et al (2005) Original research: A family-focused randomized controlled trial to prevent adolescent alcohol and tobacco use: The moderating roles of positive parenting and adolescent gender. Behavior Therapy 36(4):347-355.

Kipke MD, Boyer C, Hein K (1993) An evaluation of an AIDS risk reduction education and skills training (ARREST) program. Journal of Adolescent Health 14(7):533-539.

Koutakis N, Stattin H, Kerr M (2008) Reducing youth alcohol drinking through a parent-targeted intervention: The Orebro Prevention Program. Addiction 103(10):1629-1637.

Kypri K, Dean J, Kirby S, et al (2005) 'Think before you buy under-18s drink': evaluation of a community alcohol intervention. Drug & Alcohol Review 24(1):13-20.

Lederman RP, Chan W, Roberts-Gray C (2004) Sexual risk attitudes and intentions of youth aged 12-14 years: survey comparisons of parent-teen prevention and control groups. Behavioral Medicine 29(4):155-163.

Lederman RP, Chan W, Roberts-Gray C (2008) Parent-adolescent relationship education (PARE): program delivery to reduce risks for adolescent pregnancy and STDs. Behavioral Medicine 33(4):137-145.

Loveland-Cherry CJ, Ross LT, Kaufman SR (1999) Effects of a home-based family intervention on adolescent alcohol use and misuse. Journal of Studies on Alcohol - Supplement (S13):94-102.

Mason WA, Kosterman R, Haggerty KP, et al (2009) Gender moderation and social developmental mediation of the effect of a family-focused substance use preventive intervention on young adult alcohol abuse. Addictive Behaviors 34(6-7):599-605.

McBride CK, Baptiste D, Traube D, et al (2007) Family-based HIV preventive intervention: child level results from the CHAMP family program. Social Work in Mental Health 5(1-2):203-221.

McKay MM, Chasse KT, Paikoff R, et al (2004) Family-level impact of the CHAMP Family Program: a community collaborative effort to support urban families and reduce youth HIV risk exposure. Family Process 43(1):79-94.

Miller BC, Norton MC, Jenson GO, et al (1993) Impact evaluation of Facts & Feelings: a home-based video sex-education curriculum. Family Relations 42:392-400.

Morrison-Beedy D, Carey MP, Kowalski J, Tu X (2005) Group-based HIV risk reduction intervention for adolescent girls: evidence of feasibility and efficacy. Research in Nursing & Health 28(1):3-15.

Murry VM, Berkel C, Brody GH, et al (2007) The Strong African American Families Program: longitudinal pathways to sexual risk reduction. Journal of Adolescent Health 41(4):333-342.

O'Donnell L, Stueve A, Agronick G, et al (2005) Saving sex for later: an evaluation of a parent education intervention. Perspectives on Sexual & Reproductive Health 37(4):166-174.

Pearlman DN, Camberg L, Wallace LJ, et al (2002) Tapping youth as agents for change: evaluation of a peer leadership HIV/AIDS intervention. Journal of Adolescent Health 31(1):31-39.

Pedlow CT, Carey MP (2003) HIV sexual risk-reduction interventions for youth: A review and methodological critique of randomized controlled trials. Behavior Modification 27(2):135-190.

Petrie J, Bunn F, Byrne G (2007) Parenting programmes for preventing tobacco, alcohol or drugs misuse in children <18: a systematic review. Health Education Research 22(2):177-191.

Philliber S, Kaye JW, Herrling S, West E (2002) Preventing pregnancy and improving health care access among teenagers: an evaluation of the Children's Aid Society-Carrera Program. Perspectives on Sexual & Reproductive Health 34(5):244-252.

Postrado LT, Nicholson HJ (1992) Effectiveness in delaying the initiation of sexual intercourse of girls aged 12-14. Two components of the Girls Incorporated Preventing Adolescent Pregnancy Program. Youth & Society 23(3):356-379.

Prado G, Pantin H, Briones E, et al (2007) A randomized controlled trial of a parent-centered intervention in preventing substance use and HIV risk behaviors in Hispanic adolescents. Journal of Consulting and Clinical Psychology 75(6):914-926.

Rew L, Fouladi RT, Land L, Wong YJ (2007) Outcomes of a Brief Sexual Health Intervention for Homeless Youth. Journal of Health Psychology 12:818-832.

Robin L, Dittus P, Whitaker D, et al (2004) Behavioral interventions to reduce incidence of HIV, STD, and pregnancy among adolescents: a decade in review. Journal of Adolescent Health 34(1):3-27.

Sales JM, Milhausen RR, DiClemente RJ (2006) A decade in review: building on the experiences of past adolescent STI/HIV interventions to optimise future prevention efforts. Sexually Transmitted Infections 82(6):431-436.

Scheinberg CA (1997) The impact of parent participation in sex education on adolescent sexual knowledge, attitudes, locus of control, and behavior. Unpublished doctoral dissertation. Pacifica Graduate Institute, Carpinteria CA.

Schinke SP (2005) Alcohol abuse prevention among high-risk youth: computer-based intervention. Journal of Prevention & Intervention in the Community 29(1-2):117-130.

Schinke SP, Cole KC, Fang L (2009) Gender-specific intervention to reduce underage drinking among early adolescent girls: a test of a computer-mediated, mother-daughter program. Journal of Studies on Alcohol and Drugs 70:70-77.

Schinke SP, Schwinn TM, Di Noia J, Cole KC (2004) Reducing the risks of alcohol use among urban youth: three-year effects of a computer-based intervention with and without parent involvement. Journal of Studies on Alcohol 65(4):443-449.

Sieverding J, Boyer CB, Siller J, et al (2005) Youth United Through Health Education: building capacity through a community collaborative intervention to prevent HIV/STD in adolescents residing in a high STD prevalent neighborhood. AIDS Education & Prevention 17(4):375-386.

Sikkema KJ, Anderson ES, Kelly JA, et al (2005) Outcomes of a randomized, controlled community-level HIV prevention intervention for adolescents in low-income housing developments. AIDS 19(14):1509-1516.

Slesnick N, Kang MJ (2008) The impact of an integrated treatment on HIV risk behavior among homeless youth: a randomized controlled trial. Journal of Behavioral Medicine 31(1):45-59.

Smit E, Verdurmen J, Monshouwer K, Smit F (2008) Review: Family interventions and their effect on adolescent alcohol use in general populations; a meta-analysis of randomized controlled trials. Drug and Alcohol Dependence 97(3):195-206.

Smith MU, Dane FC, Archer ME, et al (2000) Students Together Against Negative Decisions (STAND): evaluation of a school-based sexual risk reduction intervention in the rural South. AIDS Education & Prevention 12(1):49-71.

Spoth R, Redmond C, Lepper H (1999) Alcohol initiation outcomes of universal family-focused preventive interventions: One- and two-year follow-ups of a controlled study. Journal of Studies on Alcohol S13:103-111.

Spoth RL, Redmond C, Shin C (2001) Randomized trial of brief family interventions for general populations: Adolescent substance use outcomes 4 years following baseline. Journal of Consulting and Clinical Psychology 69(4).

Spoth RL, Guyll M, Day SX (2002) Universal family-focused interventions in alcohol-use disorder prevention: Cost-effectiveness and cost-benefit analyses of two interventions. Journal of Studies on Alcohol 63(2):219-228.

Spoth R, Redmond C, Shin C, Azevedo K (2004) Brief family intervention effects on adolescent substance initiation: school-level growth curve analyses 6 years following baseline. Journal of Consulting and Clinical Psychology 72(3):535-542.

St Pierre TL, Mark MM, Kaltreider L, Aikin KJ (1995) A 27-Month Evaluation of a Sexual Activity Prevention Program in Boys & Girls Clubs across the Nation Family Relations 44(1):69-77.

Stanton BF, Li X, Ricardo I, et al (1996) A randomized, controlled effectiveness trial of an AIDS prevention program for low-income African-American youths. Archives of Pediatrics & Adolescent Medicine 150(4):363-372.

Stanton B, Fang X, Li X, et al (1997) Evolution of risk behaviors over 2 years among a cohort of urban African American adolescents. Archives of Pediatrics & Adolescent Medicine 151(4):398-406.

Stanton BF, Li X, Galbraith J, et al (2000) Parental underestimates of adolescent risk behavior: a randomized, controlled trial of a parental monitoring intervention. The Journal of adolescent health : official publication of the Society for Adolescent Medicine 26(1):18-26.

Stanton BC, Cole M, Galbraith J, et al (2004) Randomized trial of a parent intervention: Parents can make a difference in long-term adolescent risk behaviors, perceptions, and knowledge. Archives of Pediatrics and Adolescent Medicine 158(10):947-955.

Stevens MM, Olson AL, Gaffney CA, et al (2002) A pediatric, practice-based, randomized trial of drinking and smoking prevention and bicycle helmet, gun, and seatbelt safety promotion. Pediatrics 109(3):490-498.

Tebes JK, Feinn R, Vanderploeg JJ, et al (2007) Impact of a positive youth development program in urban after-school settings on the prevention of adolescent substance use. Journal of Adolescent Health 41(3):239-248.

Toomey TL, Williams CL, Perry CL, et al (1996) An alcohol primary prevention program for parents of 7th graders: the Amazing Alternatives! Home Program. Journal of Child & Adolescent Substance Abuse 5(4):35-54.

Underhill K, Montgomery P, Operario D (2008) Abstinence-plus programs for HIV infection prevention in high-income countries. Cochrane Database of Systematic Reviews, Issue 1.

Underhill K, Operario D, Montgomery P (2007) Abstinence-only programs for HIV infection prevention in high-income countries. Cochrane Database of Systematic Reviews, Issue 4.

Villarruel AM, Jemmott JB, Jemmott LS (2006) A randomized controlled trial testing an HIV prevention intervention for Latino youth. Archives of Pediatrics & Adolescent Medicine 160(8):772-777.

Wiggins M, Bonell C, Sawtell M, et al (2009) Health outcomes of youth development programme in England: prospective matched comparison study. BMJ 339:b2534.

Winett RA, Anderson ES, Moore JF, et al (1992) Family/media approach to HIV prevention: results with a home-based, parent-teen video program. Health Psychology 11(3):203-206.

Winett RA, Anderson ES, Moore JF, et al (1993) Efficacy of a home-based human immunodeficiency virus prevention video program for teens and parents. Health Education Quarterly 20(4):555-567.

Wu Y, Stanton BF, Galbraith J, et al (2003) Sustaining and broadening intervention impact: a longitudinal randomized trial of 3 adolescent risk reduction approaches. Pediatrics 111(1):e32-e38.

Appendix 2. References to excluded studies

1. Study did not meet design criteria for inclusion (n=213)

Aguilera S, Plasencia AV, Aguilera S, Plasencia AV (2005) Culturally appropriate HIV/AIDS and substance abuse prevention programs for urban Native youth. Journal of Psychoactive Drugs 37(3):299-304.

Allamani A, Sani IB, Centurioni A, Ammannati P (2007) Preliminary evaluation of the educational strategy of a community alcohol use action research project in Scandicci (Italy). Substance Use & Misuse 42(12-13):2029-2040.

Allen D, Coombes L, Foxcroft D, Foxcroft DR (2007) Cultural accommodation of the Strengthening Families Programme 10-14: UK Phase I study. Health Education Research 22(4):547-560.

Allen JP, Philliber S, Hoggson N (1990) School-based prevention of teen-age pregnancy and school dropout: process evaluation of the national replication of the Teen Outreach Program. American Journal of Community Psychology 18(4):505-524.

Andreasson S, Sjostrom E, Branstrom R, Andreasson S, Sjostrom E, Branstrom R (2007) A six-community prevention trial to reduce alcohol and drug use-related problems in Sweden: planning and early findings. Substance Use & Misuse 42(12-13):2017-2027.

Anon (1991) Drug-Free Schools & Communities: Program Planning Guidelines & Community Inventory.

Anon (1993) Reaching African-American Youth Who Live in High-Risk Environments. Technical Assistance Bulletin.

Anon (1998) Reaching young men: 2 successful approaches. Contracept Technol Update 19(8):101-102.

Anon (1999a) Compendium of HIV Prevention Interventions with Evidence of Effectiveness. From CDC's HIV/AIDS Prevention Research Synthesis Project.

Anon (1999b) Tennessee KIDS COUNT: The State of the Child in Tennessee, 1999. Tennessee Commission on Children and Youth, Tennessee KIDS COUNT, Andrew Johnson Tower, 9th Floor, 710 James Robertson Parkway, Nashville, TN 37243-0800. Tel: 800-264-0904 (Toll Free); Tel: 615-741-2633; Fax: 615-741-5956; e-mail: tccy@mail.state.tn.us; Web site: http://www.state.tn.us/tccy.

Anon (2001a) A Community Case Study on Underage Drinking Prevention.

Anon (2001b) Halfway There: A Prescription for Continued Progress in Preventing Teen Pregnancy. National Campaign To Prevent Teen Pregnancy, 1776 Massachusetts Avenue, NW, #200, Washington, DC 20036 ($5). Tel: 202-478-8500; Fax: 202-478-8588; e-mail: campaign@teenpregnancy.org;. Web site: http://www.teenpregnancy.org.

Anon (2004) Interventions for alcohol use and alcohol use disorders in youth. Alcohol Research & Health: the Journal of the National Institute on Alcohol Abuse & Alcoholism 28(3):163-174.

Anon (2008) Study assesses impact of parent intervention about tobacco and alcohol. DATA: The Brown University Digest of Addiction Theory & Application 27(8):NaN.

Ashcraft C (2008) So Much More than "Sex Ed": Teen Sexuality as Vehicle for Improving Academic Success and Democratic Education for Diverse Youth. American Educational Research Journal 45(3):631-667.

As-Sanie S, Gantt A, Rosenthal MS, As-Sanie S, Gantt A, Rosenthal MS (2004) Pregnancy prevention in adolescents.[see comment]. American Family Physician 70(8):1517-1524.

August GJ (2001) Prevention of adolescent drug abuse: Targeting high-risk children with a multifaceted intervention model -- The early risers "Skills for success" program. Applied & Preventive Psychology 10(2).

Bailey KA (2004) Pilot randomized controlled trial of a brief alcohol intervention group for adolescents. Drug and Alcohol Review.23(2).

Baldwin JA, Daley E, Brown EJ, August EM, Webb C, Stern R, Malow R, DÇ¸vieux JG (2008) Knowledge and perception of STI/HIV risk among rural African-American youth: lessons learned in a faith-based pilot program. Journal of HIV/AIDS Prevention in Children & Youth 9(1):97-115.

Baptiste DR, Paikoff RL, McKay MM, Madison-Boyd S, Coleman D, Bell C, Baptiste DR, Paikoff RL, McKay MM, Madison-Boyd S, Coleman D, Bell C (2005) Collaborating with an urban community to develop an HIV and AIDS prevention program for black youth and families. Behavior Modification 29(2):370-416.

Barnes ND, Harrod SE (1993) Teen pregnancy prevention: a rural model using school and community collaboration. School Counselor 41(2):137-140.

Barth RP (1991) Preventing adolescent abuse: Effective intervention strategies and techniques. Journal of Primary Prevention 11(3):193-205.

Bauman KE, Ennett ST, Foshee VA, Pemberton M, Hicks K (2001) Correlates of participation in a family-directed tobacco and alcohol prevention program for adolescents. Health Education & Behavior 28(4):440-461.

Bearinger LH, Sieving RE, Ferguson J, Sharma V, Bearinger LH, Sieving RE, Ferguson J, Sharma V (2007) Global perspectives on the sexual and reproductive health of adolescents: patterns, prevention, and potential. Lancet 369(9568):1220-1231.

Beatty SE (2003) A randomised comparison trial to evaluate an in-home parent-directed drug education intervention. Publisher: Curtin University of Technology, Bentley WA, 2003., Bentley-WA.

Benshoff JM, Alexander SJ (1993) The Family Communication Project: Fostering Parent-Child Communication about Sexuality. Elementary School Guidance and Counseling 27(4):288-300.

Biglan A, Hinds E, Biglan A, Hinds E (2009) Evolving prosocial and sustainable neighborhoods and communities. Annual Review of Clinical Psychology 5:169-196.

Boothroyd RI Analyzing the contribution of environmental change to prevent adolescent pregnancy: A study of three multi-component community initiatives in Kansas. Dissertation Abstracts International: Section B: The Sciences and Engineering.65(4-B).

Bosworth K (1997) Drug Abuse Prevention: School-based Strategies That Work. ERIC Digest.

Boyer CB, Sieverding J, Siller J, Gallaread A, Chang YJ (2007) Youth United Through Health Education: community-level, peer-led outreach to increase awareness and improve noninvasive sexually transmitted infection screening in urban African American youth. Journal of Adolescent Health 40(6):499-506.

Brock GC, Beazley RP (1995) Using the Health Belief Model to Explain Parents' Participation in Adolescents' At-Home Sexuality Education Activities. Journal of School Health 65(4):124-128.

Brown-Peterside P, Laraque D (1997) A community research model: a challenge to public health. American Journal of Public Health 87(9):1563-1564.

Brown EJ (2002) Recruitment feasibility and HIV prevention intervention acceptability among rural North Florida blacks. Journal of Community Health Nursing 19(3):147-161.

Brown EJ, Wells S (2005) A faith-based integrated substance abuse and HIV prevention program for rural African American adolescents. Journal of the American Psychiatric Nurses Association 11(6):344-351.

Brown HN, Saunders RB, Brown HN, Saunders RB (2002) College-bound sisters. Exploring one pregnancy prevention program. AWHONN Lifelines 6(2):146-151.

Brown SA (2001) Facilitating change for adolescent alcohol problems: A multiple options approach. [References], in Innovations in Adult Substance Abuse Interventions,(Wagner EFW, Holly B (Ed) ed. Elsevier.

Burrows MO (1998) A holistic peer education program to reduce STD infection among transient young adults in a resort community. Canadian Journal of Human Sexuality 7(4):365-370.

Busen NH, Engebretson JC, Busen NH, Engebretson JC (2008) Facilitating risk reduction among homeless and street-involved youth. Journal of the American Academy of Nurse Practitioners 20(11):567-575.

Butts JB, Hartman S (2002) Project BART: effectiveness of a behavioral intervention to reduce HIV risk in adolescents... Becoming a Responsible Teen. MCN: The American Journal of Maternal Child Nursing 27(3):163-171.

Cagampang HH, Barth RP, Korpi M, Kirby D (1997) Education Now and Babies Later (ENABL): life history of a campaign to Postpone Sexual Involvement. Family Planning Perspectives 29(3):109-114.

Caldera DB (2007) Impact of a statewide home visiting program on parenting and on child health and development. Child Abuse and Neglect 31(8):801-827.

Callaway M, Suedfeld P (1995) Residents' assessment of a community-based alcohol initiative in the Canadian Arctic. Arctic Medical Research 54(4):184-191.

Card JJ (1999) Teen pregnancy prevention: do any programs work? Annual Review of Public Health 20:257-285.

Carlson CE (1990) HIPP: A comprehensive school-based substance abuse program with cooperative community involvement. Journal of Primary Prevention 10(4):289-302.

Carter R (1998) Evaluation Research in Context: A Community Application for Youth and Family Programs. Family & Consumer Sciences Research Journal 26(3):346-363.

Chandler RK, Baker JG, Griffin M (1996) The impact of home-based sex education on rural adolescents sexual behavior and attitudes. Journal of Adolescent Health 18(2):136-136.

Cheadle AW (2001) The effect of neighborhood-based community organizing: Results from the Seattle Minority Youth Health Project. Health Services Research 36(4).

Christopher FS (1995) Adolescent Pregnancy Prevention. Family Relations 44(4):384-391.

Coggan C, Disley B, Patterson P (1998) Reports from the field. Community based intervention on adolescent risk taking: using research for community action. Injury Prevention 4(1):58-62.

Coombes L, Allen D, Marsh M, Foxcroft D (2009) The Strengthening Families Programme (SFP) 10-14 and substance misuse in Barnsley: The perspectives of facilitators and families. Child Abuse Review 18(1).

Cornelius JB, Lawrence JS (2009) Receptivity of African American adolescents to an HIV-prevention curriculum enhanced by text messaging. Journal for Specialists in Pediatric Nursing 14(2):123-132.

Cremeens JL, Usdan SL, Brock-Martin A, Martin RJ, Watkins K (2008) Parent-Child Communication to Reduce Heavy Alcohol Use among First-Year College Students. College Student Journal 42(1):152-163.

D'Onofrio CN (1997) The Prevention of Alcohol Use by Rural Youth. For full text: http://www.nida.nih.gov/PDF/Monographs/Monograph168/Download168.html.

D'Souza CM, Shrier LA (1999) Prevention and intervention of sexually transmitted diseases in adolescents. Current Opinion in Pediatrics 11(4):287-291.

de Anda D (2002) The GIG: An Innovative Intervention to Prevent Adolescent Pregnancy and Sexually Transmitted Infection in a Latino Community. Journal of Ethnic & Cultural Diversity in Social Work 11(3-4).

Deas DEMA, Deas Ddme (2008) Evidence-based treatments for alcohol use disorders in adolescents. Pediatrics 121(S4).

Delgado HM, Austin SB (2007) Can media promote responsible sexual behaviors among adolescents and young adults? Current Opinion in Pediatrics 19(4):405-411.

DeLisle S, Wasserheit JN (1999) Accelerated Campaign to Enhance STD Services (ACCESS) for youth: successes, challenges, and lessons learned. Sexually Transmitted Diseases 26(4 Suppl):S28-S41.

DeMairo P, Dischell J, Jouthe SA, Horner A (2008) The Teen Outreach Reproductive Challenge: Improving Adolescent Health Care Delivery through Peer Education Projects. American Journal of Sexuality Education 3(1):1-17.

Diamond S, Diamond Ssdio (2009) Building Xperience: A multilevel alcohol and drug prevention intervention. American Journal of Community Psychology 43(3-4):292-312.

DiCenso AG (2003) Review: Primary prevention strategies do not improve contraceptive use or reduce pregnancies in adolescents. Evidence-Based Medicine 8(1).

DiClemente RJ, Crosby RA (2006) Preventing sexually transmitted infections among adolescents: 'the glass is half full'. Current Opinion in Infectious Diseases 19(1):39-44.

Dolcini MM, Harper GW, Boyer CB, Watson SE, Anderson M, Pollack LM, Chang JY (2008) Preliminary findings on a brief friendship-based HIV/STI intervention for urban African American youth: Project ORE. Journal of Adolescent Health 42(6):629-633.

Doolittle M, Smith R (1997) Planning a Comprehensive Approach to Safe and Drug-Free Schools and Communities. Title IV Safe and Drug-Free Schools and Communities Evaluation, 1996-97. Publication Number 96.15.

Doswell WM (1999) Sexually risky behaviour in adolescents was reduced by a safer sex, condom based intervention [commentary on Jemmott JB 3rd, Jemmott LS, Fong GT. Abstinence and safer sex HIV risk-reduction interventions for African American adolescents: a randomized controlled trial. JAMA 1998 May 20;279(19):1529-36]. Evidence-Based Nursing 2(1):14-15.

Dryfoos JG (1990) A review of interventions to prevent pregnancy. Advances in Adolescent Mental Health 4:121-135.

Edwards ED, Seaman J (1995) A community approach for Native American drug and alcohol prevention programs: A logic model framework. Alcoholism Treatment Quarterly 13(2):43-62.

Ertle V (1993) Sharing Your Success III. Summaries of Successful Programs and Strategies Supporting Drug-Free Schools and Communities. Volume III.

Feudo R, Vining-Bethea S, Shulman LC, Shedlin MG, Burleson JA (1998) Bridgeport's Teen Outreach and Primary Services (TOPS) Project: a model for raising community awareness about adolescent HIV risk. Journal of Adolescent Health 23(2):49-59.

Fischer RL (2003) Getting the Word Out: Evaluating the Effectiveness of a Pregnancy PreventionCampaign for Pre-Teens. Journal of Community Practice 10(3):1-22.

Fisher DA (2000) Environmental Strategies To Prevent Alcohol Problems on College Campuses. For full text: http://www.udetc.org/documents/EnviroStrat.pdf.

Fluhr JD, Oman RF, Allen JR, Lanphier MG, McLeroy KR (2004) A collaborative approach to program evaluation of community-based teen pregnancy prevention projects. Health Promotion Practice 5(2):127-138.

Foster DG, Klaisle CM, Blum M, Bradsberry ME, Brindis CD, Stewart FH (2004) Expanded state-funded family planning services: estimating pregnancies averted by the Family PACT Program in California, 1997-1998. American Journal of Public Health 94(8):1341-1347.

Foster HW, And O (1990) A Model for Increasing Access: Teenage Pregnancy Prevention. Journal of Health Care for the Poor and Underserved:46.

Franklin C, Corcoran J (2000) Preventing adolescent pregnancy: a review of programs and practices. Social Work 45(1):40-53.

Fulkerson JA, Pasch KE, Perry CL, Komro K (2008) Relationships Between Alcohol-related Informal Social Control, Parental Monitoring and Adolescent Problem Behaviors Among Racially Diverse Urban Youth. Journal of Community Health 33:425-433.

Fullilove RE, Green L, Fullilove MT (2000) The Family to Family program: a structural intervention with implications for the prevention of HIV/AIDS and other community epidemics. AIDS 14(S1):S63-S67.

Galbraith J, Ricardo I, Stanton B, Black M, et al. (1996) Challenges and rewards of involving community in research: An overview of the "Focus on Kids" HIV risk reduction program. Health Education Quarterly 23(3):393-394.

Gardner SE, And O (1994) Signs of Effectiveness II: Preventing Alcohol, Tobacco, and Other Drug Use: A Risk Factor/Resiliency-Based Approach.

Gebhardt TL, Kaphingst K, DeJong W (2000) A campus-community coalition to control alcohol-related problems off campus: an environmental management case study.[see comment]. Journal of American College Health 48(5):211-215.

Giesbrecht N (2003) Preventing Alcohol-Related Problems in the US Through Policy: Media Campaigns, Regulatory Approaches and Environmental Interventions. Journal of Primary Prevention.24(1).

Gil AG, Tubman JG, Wagner EF (2004) Culturally sensitive substance abuse intervention for Hispanic and African American adolescents: empirical examples from the Alcohol Treatment Targeting Adolescents in Need (ATTAIN) project. Addiction 99(S2):140-150.

Gillis HL (1991) Project Choices: Update on the Effectiveness of Adventure Activities Used for Treating Addictions.

Glik D, Halpert-Schilt E, Zhang W (2001) Narrowcasting risks of drinking during pregnancy among African American and Latina adolescent girls. Health Promotion Practice 2(3):222-233.

Glik DPMMAEK (2008) Fetal alcohol syndrome prevention using community-based narrowcasting campaigns. Health Promotion Practice 9(1):93-103.

Goplerud EN (1991) Preventing Adolescent Drug Use: From Theory to Practice. OSAP Prevention Monograph-8.

Goulart M, Madover S (1991) An Aids Prevention Program for Homeless Youth. Journal of Adolescent Health 12(7):573-575.

Gould JR A prevention program for adolescent substance abuse: Self-agency, community participation and religious perception. Dissertation Abstracts International Section A: Humanities and Social Sciences.64(10-A).

Green HH, DocumÇ¸t PI (2005) Parent peer education: lessons learned from a community-based initiative for teen pregnancy prevention. Journal of Adolescent Health 37(3S):S100-SNaN.

Greening L, Stoppelbein L, Jackson M (2001) Health education programs to prevent teen pregnancy. Journal of Adolescent Health 28(4):257-258.

Greenwood P (2008) Prevention and Intervention Programs for Juvenile Offenders. Future of Children 18(2):185-210.

Gregor MAS (2003) Feasibility of using an interactive laptop program in the emergency department to prevent alcohol misuse among adolescents. Annals of Emergency Medicine 42(2):276-284.

Gronbaek M, Stroger U, Strunge H, Moller L, Graff V, Iversen L (2001) Impact of a 10-year nation-wide alcohol campaign on knowledge of sensible drinking limits in Denmark. European Journal of Epidemiology 17(5):423-427.

Guyll M, Guyll Mgie (2004) Family-Focused Preventive Interventions: Evaluating Parental Risk Moderation of Substance Use Trajectories. Journal of Family Psychology 18(2):293-301.

Harrington M (2001) Evaluation of Free To Grow, Phase II: Detailed Profile of the Free To Grow Project in California. Final Report. Publications Department, Mathematica Policy Research, Inc., P.O. Box 2393, Princeton, NJ 08543-2393 (Document no. PR01-14, $3.40). Tel: 609-799-3535; Fax: 609-799-0005. For full text: http://www.mathematica-mpr.com/PDFs/ftgcaprofile.pdf.

Hawkins EH Preventing substance abuse in American Indian and Alaska native youth: Promising strategies for healthier communities. Marlatt, G Alan(Ed):New-621.

Hernandez LP (1996) DAYS La Familia Community Drug and Alcohol Prevention Program: Family-centered model for working with inner-city Hispanic families. Journal of Primary Prevention 16(3):255-272.

Hillman E, Hovell MF, Williams L, Hofstetter R, Burdyshaw C, Rugg D, Atkins C, Elder J, Blumberg E (1991) Pregnancy, STDS, and AIDS prevention: evaluation of New Image Teen Theatre. AIDS Education & Prevention 3(4):328-340.

Holder HD (2000) Community prevention of alcohol problems. Addictive Behaviors 25(6):843-859.

Holder HD (2004) Community prevention of young adult drinking and associated problems. Alcohol Research & Health 28(4):245-250.

Holder HD, Gruenewald PJ, Ponicki WR, Treno AJ, Grube JW, Saltz RF, Voas RB, Reynolds R, Davis J, Sanchez L, Gaumont G, Roeper P (2000) Effect of community-based interventions on high-risk drinking and alcohol-related injuries. JAMA 284(18):2341-2347.

Holder HD, Reynolds RI (1997) Application of local policy to prevent alcohol problems: experiences from a community trial. Addiction 92(S2):S285-S292.

Holder HD, Saltz RF, Grube JW, Voas RB, Gruenewald PJ, Treno AJ (1997) A community prevention trial to reduce alcohol-involved accidental injury and death: overview. Addiction 92(S2):S155-S171.

Holleran LK, Taylor-Seehafer MA, Pomeroy EC, Neff JA (2005) Substance Abuse Prevention for High-Risk Youth: Exploring Culture and Alcohol and Drug Use. Alcoholism Treatment Quarterly 23(2-3):165-184.

Holmila M (1995) Community action on alcohol: Experiences of the Lahti Project in Finland. Health Promotion International 10(4):283-291.

Huckle T, Conway K, Casswell S, Pledger M (2005) Evaluation of a regional community action intervention in New Zealand to improve age checks for young people purchasing alcohol. Health Promotion International 20(2):147-156.

Hutchinson MK, Hutchinson MKk (2007) Reconceptualizing adolescent sexual risk in a parent-based expansion of the theory of planned behavior. Journal of Nursing Scholarship 39(2):141-146.

Ichiyama MA, Fairlie AM, Wood MD, Turrisi R, Stanger L, Francis D, Ray AE (2008) A randomized trial of a parent-based intervention with incoming college students. Alcoholism-Clinical and Experimental Research 32(6):244A-244A.

James WH (1992) A Report on Restructuring Schools: Reducing Alcohol and Other Drug Abuse among Adolescents through a School-Community-University Partnership Program in the Federal Way School District.

Janz NK, Zimmerman MA, Wren PA, Israel BA, Freudenberg N, Carter RJ (1996) Evaluation of 37 AIDS prevention projects: Successful approaches and barriers to program effectiveness. Health Education Quarterly 23(1):80-97.

Jason LA, Curie CJ, Townsend SM, Pokorny SB, Katz RB, Sherk JL (2002) Health promotion interventions. Child & Family Behavior Therapy 24(1/2):67-83.

Johns MJ, Moncloa F, Gong EJ (2000) Teen Pregnancy Prevention Programs: Linking Research and Practice. Journal of Extension 38(4).

Johnson K, Noe T, Collins D, Strader T, Bucholtz G (2000) Mobilizing church communities to prevent alcohol and other drug abuse: a model strategy and its evaluation. Journal of Community Practice 7(2):1-28.

Johnson RL, Stanford PD, Douglas W, Jr., Botwinick G, Marino E (2001) High-risk sexual behaviors among adolescents engaged through a street-based peer outreach program--(the Adolescent HIV Project). Journal of the National Medical Association 93(5):170-177.

Kaplan C (2009) Review: behavioural counselling reduces sexually transmitted infections in adults and adolescents. Evidence-Based Nursing 12(2):46-47.

Kemp M (2006) Promoting the Health and Wellbeing of Young Black Men Using Community-Based Drama. Health Education 106(3):186-200.

Kerber CS, Schlenker E, Kerber CS, Schlenker E (2006) Use of a breathalyzer in a local bar: A community education project. Journal of Nursing Education 45(11):455-457.

King W, Nu'Man J, Fuller TR, Brown M, Smith S, Howell AV, Little S, Patrick P, Glover L, King W, Nu'Man J, Fuller TR, Brown M, Smith S, Howell AV, Little S, Patrick P, Glover L (2008) The diffusion of a community-level HIV intervention for women: lessons learned and best practices. Journal of Women's Health 17(7):1055-1066.

Kirby D, Kirby D (2002) Effective approaches to reducing adolescent unprotected sex, pregnancy, and childbearing. Journal of Sex Research 39(1):51-57.

Kirby D, Miller BC (2002) Interventions Designed To Promote Parent-Teen Communication about Sexuality. New Directions for Child and Adolescent Development 97:93-110.

Klein JD, Matos AM, Matos Auerbach M (2002) Improving adolescent health outcomes. Minerva Pediatrica 54(1):25-39.

Klitzner M, And O (1990) The Assessment of Parent-Led Prevention Programs: A National Descriptive Study. Journal of Drug Education:25.

Klitzner M, Gruenewald PJ, Bamberger E (1990) The assessment of parent-led prevention programs: a preliminary assessment of impact. Journal of Drug Education 20(1):77-94.

Komro KA (2002) Strategies to prevent underage drinking. Alcohol Research & Health 26(1):5-12.

Koo HP, Dunteman GH, George C, Green Y, Vincent M (1994) Reducing adolescent pregnancy through a school- and community-based intervention: Denmark, South Carolina, revisited. Family Planning Perspectives 26(5):206-213.

Kourtis APK (2006) Prevention of sexually transmitted human immunodeficiency virus (HIV) infection in adolescents. Current HIV Research 4(2):Apr.

Kumpfer KL, Alvarado R, Whiteside HO, Kumpfer KL, Alvarado R, Whiteside HO (2003) Family-based interventions for substance use and misuse prevention. Substance Use & Misuse 38(11-13):1759-1787.

LaBrie JW, Pedersen ER, Lamb TF, Bove L (2006) HEADS UP! A nested intervention with freshmen male college students and the broader campus community to promote responsible drinking. Journal of American College Health 54(5):301-305.

Lederman RP, Mian TS (2003) The Parent-Adolescent Relationship Education (PARE) Program: a curriculum for prevention of STDs and pregnancy in middle school youth. Behavioral Medicine 29(1):33-42.

Lesesne CA, Lewis KM, White CP, Green DC, Duffy JL, Wandersman A, Lesesne CA, Lewis KM, White CP, Green DC, Duffy JL, Wandersman A (2008) Promoting science-based approaches to teen pregnancy prevention: proactively engaging the three systems of the interactive systems framework. American Journal of Community Psychology 41(3-4):379-392.

Letters P, Stathis S, Letters P, Stathis S (2004) A mental health and substance abuse service for a youth detention centre. Australasian Psychiatry 12(2):126-129.

Lewis RK, Paine-Andrews A, Fawcett SB, Francisco VT, Richter KP, Copple B, Copple JE (1996) Evaluating the effects of a community coalition's efforts to reduce illegal sales of alcohol and tobacco products to minors. Journal of Community Health 21(6):429-437.

Little PMD, Harris E (2003) A Review of Out-of-School Time Program Quasi-Experimental and Experimental Evaluation Results. Out-of-School Time Evaluation Snapshot. Harvard Family Research Project, Harvard Graduate School of Education, 3 Garden Street, Cambridge, MA 02138. Tel: 617-495-9108; Fax: 617-495-8594; e-mail: hfrp@gse.harvard.edu; Web site: http://www.hfrp.org. For full text: http://www.gse.harvard.edu/hfrp/content/projects/afterschool/resources/snapshot1.pdf.

Logan BN (1991) Adolescent Substance Abuse Prevention: An Overview of the Literature. Family & Community Health 13(4):25-36.

MacKinnon DP, Nohre L, Pentz MA, Stacy AW (2000) The alcohol warning and adolescents: 5-year effects. American Journal of Public Health 90(10):1589-1595.

Maguin E, Safyer A, Nochajski T, Dewit D, Macdonald S (2003) The impact of a family-based alcohol prevention program on children's externalizing behavior problems. Alcoholism Clinical and Experimental Research 27(5 Supplement):72A.

Manlove J, Terr-Humen E, Papillo AR, Franzetta K, Williams S, Ryan S (2002) Preventing Teenage Pregnancy, Childbearing, and Sexually Transmitted Diseases: What the Research Shows. American Teens. Child Trends Research Brief. Child Trends, 4301 Connecticut Ave., NW, Suite 100, Washington, DC 20008 (Stock no. 2002-31, $5). Tel: 202-362-5580; Fax: 202-362-5533; Web site: http://www.childtrends.org. For full text: http://www.childtrends.org/PDF/KnightReports/K1Brief.pdf.

Marcus MT, Walker T, Swint JM, Smith BP, Brown C, Busen N, Edwards T, Liehr P, Taylor WC, Williams D, Von SK (2004) Community-based participatory research to prevent substance abuse and HIV/AIDS in African-American adolescents. Journal of Interprofessional Care 18(4):347-360.

Mattox JR, II (1997) A Review of Interventions To Increase Driving Safety among Teenage Drivers.

McKay MBMMCTDEBCE (2007) Adapting a family-based HIV prevention program for HIV-infected preadolescents and their families: Youth, families and health care providers coming together to address complex needs. Social Work in Mental Health 5(3-4):146.

Melton AP, Chino M, May PA, Gossage JP (2000) Promising Practices and Strategies To Reduce Alcohol and Substance Abuse among American Indians and Alaska Natives. An OJP Issues & Practices Report. Full text at Web site: http://www.ojp.usdoj.gov/americannative/promise.pdf.

Meltzer IJ, Fitzgibbon JJ, Leahy PJ, Petsko KE (2006) A youth development program: lasting impact. Clinical Pediatrics 45(7):655-661.

Mikhailovich K, Arabena K (2005) Evaluating an indigenous sexual health peer education project. Health Promotion Journal of Australia 16(3):189-194.

Miller T, Blewden M, Zhang J-fEMA, Miller Tmpo (2004) Cost savings from a sustained compulsory breath testing and media campaign in New Zealand. Accident Analysis & Prevention 36(5).

Mizuno Y, Kennedy M, Weeks-Norton K, Myllyluoma J, Mizuno Y, Kennedy M, Weeks-Norton K, Myllyluoma J (2002) An examination of adolescents who were and were not exposed to "Teens Stopping AIDS": reaching the hard-to-reach. Journal of Health Communication 7(3):197-203.

Montoya ID, Atkinson J, McFaden WC (2003) Best characteristics of adolescent gateway drug prevention programs. Journal of Addictions Nursing 14(2):75-84.

Moore KA, And O (1995) Adolescent Pregnancy Prevention Programs: Interventions and Evaluations.

Mosena PW (2004) Peer Advocates for Health: A Community-Based Program to Improve Reproductive Health Knowledge and Lifestyle Choices among Adolescent Males. International Journal of Men's Health 3(3):221-240.

Nissen LB, Nissen LB (2007) Reclaiming futures: communities helping teens overcome drugs, alcohol and crime--a new practice framework for juvenile justice. Journal of Psychoactive Drugs 39(1):51-58.

Nitz K (1999) Adolescent pregnancy prevention: a review of interventions and programs. Clinical Psychology Review 19(4):457-471.

Norman J (1999) Peer sexuality education. Social Policy 30(1):30-31.

O'Donnell L, Wilson-Simmons R, Dash K, Jeanbaptiste V, Myint U, Moss J, Stueve A (2007) "Saving Sex for Later": Developing a Parent-Child Communication Intervention to Delay Sexual Initiation among Young Adolescents. Sex Education: Sexuality 7(2):107-125.

Ottenritter N, Barnett L (2002) HIV Prevention Strategies for Community Colleges: Lessons Learned from Bridges to Healthy Communities. AACC Project Brief. Community College Press, P.O. Box 311, Annapolis Junction, MD 20701 (Order # 1546: pack of 20, $20). Tel: 800-250-6557 (Toll Free); Fax: 301-604-0158; e-mail: aaccpub@pmds.com. For full text: http://www.aacc.nche.edu.

Paikoff RL (1996) Adapting developmental research to intervention design: Applying developmental psychology to an AIDS prevention model for urban African American youth. Journal of Negro Education 65(1):44-59.

Paine-Andrews A, Fisher J, Paine-Andrews Aake (2002) Analyzing the contribution of community change to population health outcomes in an adolescent pregnancy prevention initiative. Health Education & Behavior 29(2):183-193.

Paine-Andrews A, Vincent M (1996) Replicating a community initiative for preventing adolescent pregnancy: From South Carolina to Kansas. Family & Community Health 19(1):14-30.

Parker L (1990) The Missing Component in Substance Abuse Prevention Efforts: A Native American Example. Contemporary Drug Problems no. 2:251-270

Pearson JF (1991) Preventing unwanted pregnancies. BMJ 303(6803):598.

Peckham S Community development interventions for the prevention of teenage pregnancy and supporting young women and lone mothers, in Promoting the health of teenage and lone mothers: setting a research agenda/ A report of a Health Education Authority Expert Working Group chaired by Kaye Wellings. Health Education Authority, London.

Peckham S (1993) Preventing unintended teenage pregnancies. Public Health 107(2):125-133.

Perez SM, Duany LA (1992) Reducing Hispanic Teenage Pregnancy and Family Poverty: A Replication Guide. Final Version. National Council of La Raza, Publications Department, 810 First Street, N.E., Suite 300, Washington, DC 20002 ($15).

Perry CL, Williams CL, Komro KA, Veblen-Mortenson S, Forster JL, Bernstein-Lachter R, Pratt LK, Dudovitz B, Munson KA, Farbakhsh K, Finnegan J, McGovern P (2000) Project Northland high school interventions: community action to reduce adolescent alcohol use. Health Education & Behavior 27(1):29-51.

Pierre N, Cox J (1997) Teenage pregnancy prevention programs. Current Opinion in Pediatrics 9(4):310-316.

Pilgrim C, Abbey A, Hendrickson P, Lorenz S (1998) Implementation and impact of a family-based substance abuse prevention program in rural co/mmunities. Journal of Primary Prevention 18(3):341-361.

Pinkerton SD, Cecil H, Holtgrave DR (1998) HIV/STD prevention interventions for adolescents: cost-effectiveness considerations. Journal of HIV/AIDS Prevention & Education for Adolescents & Children 2(2):5-32.

Plotnick RD (1993) The effect of social policies on teenage pregnancy and childbearing. Families in Society 74(6):324-328.

Podschun GD (1993) Teen Peer Outreach-Street Work Project: HIV prevention education for runaway and homeless youth. Public Health Reports 108(2):150-156.

Puentes WJ, Wassel M (2003) Using peer health education to enhance family life education. Journal of School Nursing (Allen Press) 19(6):313-319.

Rebchook GM, Kegeles SM, Huebner D, Team TR, Rebchook GM, Kegeles SM, Huebner D (2006) Translating research into practice: the dissemination and initial implementation of an evidence-based HIV prevention program. AIDS Education & Prevention 18(4 Suppl A):119-136.

Rector R (2002) The Effectiveness of Abstinence Education Programs in Reducing Sexual Activity among Youth. The Heritage Foundation Backgrounder. Heritage Foundation, 214 Massachusetts Avenue, N.W., Washington, DC 20002-4999. Tel: 202-546-4400. For full text: http://www.heritage.org/library/backgrounder.

Rehnman C, Larsson J, Andreasson S, Rehnman C, Larsson J, Andreasson S (2005) The beer campaign in Stockholm--Attempting to restrict the availability of alcohol to young people. Alcohol 37(2):65-71.

Resnick MD (2007) Challenges and prospects for community-partnered research. Journal of Adolescent Health.40(6):487-488.

Rohrbach LA (1997) Alcohol-related outcomes of the Day One Community Partnership. Evaluation and Program Planning 20(3):315-322.

Rotheram-Borus MJ (1991) HIV and adolescents. Journal of Primary Prevention 12(1):65-82.

Rotheram-Borus MJ (2000) Expanding the Range of Interventions to Reduce HIV among Adolescents. AIDS 14(S1):S33-S40.

Rotheram-Borus MJ, O'Keefe Z, Kracker R, Foo HH (2000) Prevention of HIV among adolescents. Prevention Science 1(1):15-30.

Roye CF, Hudson M (2003) Developing a culturally appropriate video to promote dual-method use by urban teens: rationale and methodology. AIDS Education & Prevention 15(2):148-149.

Safer LA, Harding CG (1993) Under pressure program: using live theatre to investigate adolescents' attitudes and behavior related to drug and alcohol abuse education and prevention. Adolescence 28(109):135-148.

Sallett AJ (1990) A Proactive Alcohol and Drug Abuse Prevention Program.

Schilling RF, McAlister AL (1990) Preventing drug use in adolescents through media interventions. Journal of Consulting & Clinical Psychology 58(4):416-424.

Schinke SP (1992) Multicomponent, school-based strategies to prevent HIV infection and sexually transmitted diseases among adolescents: Theory and research into practice. Research on Social Work Practice 2(3):364-379.

Segest E, And O (1990) Free Condoms in Youth Clubs in Copenhagen. Journal of Adolescence 13(1):17-24.

Shaffer HJD (2005) The epidemiology of college alcohol and gambling policies. Harm Reduction Journal 2(1):1-20.

Share RA, Stacks JS (2006) From the field. Youth-adult partnership in community organizing: a case study of the My Voice Counts! campaign. Journal of Community Practice 14(4):113-128.

Silvern J (1991) Strengthening Youth and Family Resistance to Alcohol and Other Drug Abuse. Special Focus. Family Resource Coalition Report 10(3).

Smith MU (2000) STAND: A peer educator training curriculum for sexual risk reduction in the rural south. Preventive Medicine: An International Journal Devoted to Practice and Theory 30(6):441-449.

StafstrÇôm M, Ostergren P, Larsson S, Lindgren B, Lundborg P (2006) A community action programme for reducing harmful drinking behaviour among adolescents: the Trelleborg Project. Addiction 101(6):813-824.

Stafstrom M, Ostergren PO, Stafstrom M, Ostergren PO (2008) A community-based intervention to reduce alcohol-related accidents and violence in 9th grade students in southern Sweden: the example of the Trelleborg project. Accident Analysis & Prevention 40(3):920-925.

Stephens TT, Braithwaite R, Robillard A, Finnie R, Colbert SJ (2002) A community-based approach to eliminating racial and health disparities among incarcerated populations: the HIV example for inmates returning to the community. Health Promotion Practice 3(2):255-264.

Stevens MM, Mott LA, Youells F (1996) Rural adolescent drinking behavior: three year follow-up in the New Hampshire substance abuse prevention study. Adolescence 31(121):159-166.

Summerville G, Canova K (2006) The Power of Plain Talk: Exploring One Program' Influence on the Adolescent Reproductive Health Field, in Public/Private Ventures, pp Dec.

Svenson GR, Ç-stergren P, Merlo J, RÇ¾stam L (2002) Action control and situational risks in the prevention of HIV and STIs: individual, dyadic, and social influences on consistent condom use in a university population. AIDS Education & Prevention 14(6):515-532.

Thomas MH (2000) Abstinence-based programs for prevention of adolescent pregnancies: a review. Journal of Adolescent Health 26(1):5-17.

Torrence WA, Guidry JJ (2007) An initiative for the development of a rural church-based adolescent sexuality education intervention. American Journal of Health Education 38(3):172-175.

Townsend J, Richards R (2000) Promoting the positive: the Northern Territory's "Choose Yourself" youth alcohol and smoking campaign. Health Promotion Journal of Australia 10(2):135-140.

Treno AJ, Remer LG (2007) The Sacramento Neighborhood Alcohol Prevention Project: Outcomes From a Community Prevention Trial. Journal of Studies on Alcohol and Drugs 68(2):197-207.

Trimble JE, Beauvais F (2001) Prevention of Alcoholism, Drug Abuse, and Health Problems among American Indians and Alaska Natives: An Introduction and Overview.

Van Stelle KR (1998) Alcohol and drug prevention among American Indian families: The Family Circles Program. Drugs & Society 12(1-2):53-60.

Vincent ML, Paine-Andrews A, Fisher J, Devereaux RS, Dolan HG, Harris KJ, Reininger B (2000) Replication of a community-based multicomponent teen pregnancy prevention model: Realities and challenges. Family & Community Health 23(3):28-45.

Visser AP, van BP, van Bilsen P (1994) Effectiveness of sex education provided to adolescents. Patient Education & Counseling 23(3):147-160.

Wagenaar AC (1999) Communities Mobilizing for Change on Alcohol: Lessons and results from a 15-community randomized trial. Journal of Community Psychology 27(3):315-326.

Wagenaar AC, Murray DM, Gehan JP, Wolfson M, Forster JL, Toomey TL, Perry CL, Jones WR (2000) Communities mobilizing for change on alcohol: outcomes from a randomized community trial. Journal of Studies on Alcohol 61(1):85-94.

Wagenaar AC, Perry CL (1994) Community Strategies for the Reduction of Youth Drinking: Theory and Application. Journal of Research on Adolescence 4(2):319-345.

Walker-Shaw M (1993) Applying community organization to developing health promotion programs in the school community. Journal of School Health 63(2):109-111.

Wang B, Meier A, Shah I, Li X (2006) The impact of a community-based comprehensive sex education program on Chinese adolescents' sex-related knowledge and attitudes. Journal of HIV/AIDS Prevention in Children & Youth 7(2):43-65.

Ward K, Waters J (1999) The impact of targeted prevention programs for adolescents at high risk for HIV transmission. Journal of HIV/AIDS Prevention & Education for Adolescents & Children 3(1/2):51-78.

Weiss R (2001) Realistic program for teens discourages drunk driving. Health Progress 82(6):10-11.

Williams CLP (1998) Design and implementation of parent programs for a community-wide adolescent alcohol use prevention program. Journal of Prevention and Intervention in the Community 17(2):1998.

Wilson N, Minkler M, Dasho S, Wallerstein N, Martin AC (2008) Getting to social action: the Youth Empowerment Strategies (YES!) project. Health Promotion Practice 9(4):395-404.

Wren PA, Janz NK, Carovano K, Zimmerman MA, Washienko KM (1997) Preventing the spread of AIDS in youth: principles of practice from 11 diverse projects. Journal of Adolescent Health 21(5):309-317.

Zane NA (1998) Dosage-related changes in a culturally-responsive prevention program for Asian American youth. Drugs and Society 12(1-2).

Zibalese-Crawford M (1997) A creative approach to HIV/AIDS programs for adolescents. Social Work in Health Care 25(1/2):73-89.

Zweig JM, Van Ness A (2001) The National Study of Girl Neighborhood Power: An Out-of-School Program for Girls Ages 9 to 14. Urban Institute, 2100 M Street, N.W., Washington, DC 20037. Tel: 202-833-7200; Fax: 202-429-0687; e-mail: pubs@ui.urban.org. For full text: http://www.urban.org/pdfs/GNP-Study.pdf.

2. Population targeted by the intervention(s) did not meet review criteria (n=64)

(1995) A Hispanic/Latino Family Approach to Substance Abuse Prevention. CSAP Cultural Competence Series 2.

(2002) How To Reduce High-Risk College Drinking: Use Proven Strategies, Fill Research Gaps. Final Report of the Panel on Prevention and Treatment. For full text: http://www.collegedrinkingprevention.gov/Reports/Panel02/Panel02_TOC.aspx.

Anderko L, Uscian M (2000) The effectiveness of a community-level HIV/STD prevention program in a three-county rural area. Family & Community Health 23(3):46-58.

Boyer CB, Barrett DC, Peterman TA, Bolan G (1997) Sexually transmitted disease (STD) and HIV risk in heterosexual adults attending a public STD clinic evaluation of a randomized controlled behavioral risk-reduction intervention trial. AIDS 11(3):359-367.

Brindis CD, Geierstanger SP, Wilcox N, McCarter V, Hubbard A (2005) Evaluation of a peer provider reproductive health service model for adolescents. Perspectives on Sexual & Reproductive Health 37(2):85-92.

Buka SL, Birdthistle IJ (1999) Long-term effects of a community-wide alcohol server training intervention. Journal of Studies on Alcohol 60:27-36.

Burgos M, Reininger B, Richter DL, Coker AL, AlegrÇða M, Vera M, Saunders R (2000) Correlates of sexually transmitted infections among street-based female adolescent sex workers in Puerto Rico: implications for community health. International Quarterly of Community Health Education 20(3):253-265.

Caron SL, Carter DB, Davis CM, Macklin E (1997) Evaluating the effectiveness of workshop interventions on contraceptive use among first-year college students. Journal of Psychology & Human Sexuality 9(3-4):99-120.

Chung PJ, Borneo H, Kilpatrick SD, Lopez DM, Travis R, Jr., Lui C, Khandwala S, Schuster MA (2005) Parent-adolescent communication about sex in Filipino American families: a demonstration of community-based participatory research. Ambulatory Pediatrics 5(1):50-56.

Clapp JD, Johnson M, Lange JE, Russell C, Shillington A, Voas RB (2005) Reducing DUI among US college students: results of an environmental prevention trial. Addiction 100(3):327-334.

Croom K, Lewis D, Marchell T, Lesser ML, Reyna VF, Kubicki-Bedford L, Feffer M, Staiano-Coico L (2009) Impact of an online alcohol education course on behavior and harm for incoming first-year college students: short-term evaluation of a randomized trial. Journal of American College Health 57(4):445-454.

Darbes L, Crepaz N, Lyles C, Kennedy G, Rutherford G (2008) The efficacy of behavioral interventions in reducing HIV risk behaviors and incident sexually transmitted diseases in heterosexual African Americans. AIDS 22(10):1177-1194.

Dearing B, Caston RJ, Babin J (1991) The Impact of a Hospital Based Educational Program on Adolescent Attitudes toward Drinking and Driving. Journal of Drug Education no. 4(pp. 349-359).

East P, Kiernan E, ChÇvez G (2003) An evaluation of California's Adolescent Sibling Pregnancy Prevention Program. Perspectives on Sexual & Reproductive Health 35(2):62-71.

Ehrhardt AA, Exner TM, Hoffman S, Silberman I, Yingling S, ms-Skinner J, Smart-Smith L (2002) HIV/STD risk and sexual strategies among women family planning clients in New York: Project FIO. AIDS & Behavior 6(1):1-14.

Fitter M, Urquhart R (2008) Awareness of emergency contraception: a follow-up report. Journal of Family Planning & Reproductive Health Care 34(2):111-114.

Flowers P, Hart GJ, Williamson LM, Frankis JS, Der GJ (2002) Does bar-based, peer-led sexual health promotion have a community-level effect amongst gay men in Scotland? International Journal of STD & AIDS 13(2):102-108.

Friedman AS, Terras A, Glassman K (2002) Multimodel substance use intervention program for male delinquents. Journal of Child & Adolescent Substance Abuse 11(4):43-66.

Fromme K (1994) The Alcohol Skills Training Program: A group intervention for young adult drinkers. Journal of Substance Abuse Treatment 11(2):143-154.

Godin G, Naccache H, Cote F, Leclerc R, Frechette M, Alary M (2008) Promotion of safe sex: evaluation of a community-level intervention programme in gay bars, saunas and sex shops. Health Education Research 23(2):287-298.

Gollub EL, Brown EL, Savouillan M, Waterlot J, Coruble G (2002) A community-based safer-sex intervention for women: results of a pilot study in south-eastern France. Culture, Health & Sexuality 4(1):21-42.

Hays RB, Kegeles SM, Rebchook GM (2003) The Mpowerment Project: community-building with young gay and bisexual men to prevent HIV. American Journal of Community Psychology 31(3-4):301-312.

Hingson RW, Howland J, Hingson RW, Howland J (2002) Comprehensive community interventions to promote health: implications for college-age drinking problems. Journal of Studies on Alcohol (S14):226-240.

Hupp SDA (2003) The development and validation of the Parent Instruction-Giving Game With Youngsters (PIGGY) in a head start population. Dissertation Abstracts International: Section B: The Sciences and Engineering 63(11-B).

Ichiyama MA, Fairlie AM, Wood MD, Turrisi R, Francis DP, Ray AE, Stanger LA, Ichiyama MA, Fairlie AM, Wood MD, Turrisi R, Francis DP, Ray AE, Stanger LA (2009) A randomized trial of a parent-based intervention on drinking behavior among incoming college freshmen. Journal of Studies on Alcohol & Drugs Supplement.(16):67-76.

Kahn JG, Kegeles SM, Hays R, Beltzer N (2001) Cost-effectiveness of the Mpowerment Project, a community-level intervention for young gay men. Journal of Acquired Immune Deficiency Syndromes 27(5):482-491.

Kamb ML, Fishbein M, Douglas JM, Rhodes F, Rogers J, Bolan G, Zenilman J, Hoxworth T, Malotte CK, Iatesta M, Kent C, Lentz A, Graziano S, Byers RH, Peterman TA (1998) Efficacy of risk-reduction counseling to prevent human immunodeficiency virus and sexually transmitted diseases: a randomized controlled trial. Project RESPECT Study Group. JAMA : the journal of the American Medical Association 280(13):1161-1167.

Kegeles SM, Hays RB, Coates TJ (1996) The Mpowerment Project: a community-level HIV prevention intervention for young gay men.

Kiene SM (2006) A Brief Individualized Computer-Delivered Sexual Risk Reduction Intervention Increases HIV/AIDS Preventive Behavior. Journal of Adolescent Health 39(3):404-410.

Kneidek T (1995) Project Imani: Changing the Way the World Works for People: A Guide to Family-Based Alcohol and Other Drug Education for Young Children.

Larimer ME, Cronce J (2002) Identification, prevention, and treatment: A review of individual-focused strategies to reduce problematic alcohol consumption by college students. Journal of Studies on Alcohol S14:148-163.

Lauby JL, Smith PJ, Stark M, Person B, Adams J (2000) A community-level HIV prevention intervention for inner-city women: results of the women and infants demonstration projects. American Journal of Public Health 90(2):216-223.

Leslie M (1991) An analysis of community intervention strategies designed to improve AIDS-related knowledge, attitudes and beliefs, and health practices among high-risk reproductive-age women. Dissertation Abstracts International 52:2828.

Maguin E (1994) The path to alcohol problems through conduct problems: A family-based approach to very early intervention with risk,(Boyd GMH, Jan (Ed) ed, pp Current-124.

Marion LN, Finnegan L, Campbell RT, Szalacha LA (2009) The Well Woman Program: A Community-Based Randomized Trial to Prevent Sexually Transmitted Infections in Low-Income African American Women. Research in Nursing & Health 32(3):274-285.

Marsh JC (1991) Evaluation of Hull House teen pregnancy and parenting program. Evaluation and Program Planning.14(1-2).

Maxwell AE, Bastani R, Warda U (2002) Pilot test of a single-session AIDS workshop for young Hispanic U.S. immigrants. Journal of Immigrant Health 4(2):73-79.

McCambridge J, Strang J (2004) The efficacy of single-session motivational interviewing in reducing drug consumption and perceptions of drug-related risk and harm among young people: results from a multi-site cluster randomized trial. Addiction 99(1):39-52.

McCartt AT, Hellinga LA, Wells JK, McCartt AT, Hellinga LA, Wells JK (2009) Effects of a college community campaign on drinking and driving with a strong enforcement component. Traffic Injury Prevention 10(2):141-147.

Meyer L, Job SN, Bouyer J, Bouvet E, Spira A (1991) Prevention of sexually transmitted diseases: a randomised community trial. Journal of Epidemiology and Community Health 45(2):152-158.

Nelson TF, Weitzman ER, Wechsler H (2005) The effect of a campus-community environmental alcohol prevention initiative on student drinking and driving: results from the "a matter of degree" program evaluation. Traffic Injury Prevention 6(4):323-330.

Nyamathi AM, Flaskerud J, Bennett C, Leake B, Lewis C (1994) Evaluation of two AIDS education programs for impoverished Latina women. AIDS Education & Prevention 6(4):296-310.

Opuni KA, And O (1994) The Northeast Adolescent Project: A Collaborative Effort to Address Teen-Age Pregnancy in Houston, Texas. Journal of School Health 64(5):212-214.

Peterson PL, Baer JS, Wells EA, Ginzler JA, Garrett SB (2006) Short-Term Effects of a Brief Motivational Intervention to Reduce Alcohol and Drug Risk among Homeless Adolescents. Psychology of Addictive Behaviors 20(3):254-264.

Pick De WS, Givaudan M, Givaudan S, Pick De Weiss S (1993) Planeando Tu Vida: sex and family life education: fundamentals of development, implementation, and evaluation. International Journal of Adolescent Medicine & Health 6(3-4):211-224.

Pinkerton SD, Holtgrave DR, DiFranceisco WJ, Stevenson LY, Kelly JA (1998) Cost-effectiveness of a community-level HIV risk reduction intervention. American Journal of Public Health 88(8):1239-1242.

Ploem C, Byers ES (1997) The effects of two AIDS risk-reduction interventions on heterosexual college women's AIDS-related knowledge, attitudes and condom use. Journal of Psychology & Human Sexuality 9(1):1-24.

Proude EM, D'Este C, Ward JE (2004) Randomized trial in family practice of a brief intervention to reduce S risk in young adults. risk by FPs. As primary prevention efforts for young adults remain important, randomized controlled trials of larger scope are needed. Family Practice 21(5):537-544.

Roeper PJ (2000) A long-term community-wide intervention to reduce alcohol-related traffic injuries: Salinas, California. Drugs: Education, Prevention & Policy 7(1).

Saltz RF, Welker LR, Paschall MJ, Feeney MA, Fabiano PM (2009) Evaluating a Comprehensive Campus-Community Prevention Intervention to Reduce Alcohol-Related Problems in a College Population. Journal of Studies on Alcohol and Drugs 70(S16):21-27.

Schlapman N, Cass PS (2000) Project: HIV prevention for incarcerated youth in Indiana. Journal of Community Health Nursing 17(3):151-158.

Sigelman C, Derenowski E, Woods T, Mukai T, feld-Liro C, Durazo O, Maddock A (1996) Mexican-American and Anglo-American children's responsiveness to a theory-centered AIDS education program. Child Development 67(2):253-266.

Sulak PJ, Herbelin S, Kuehl AL, Kuehl TJ (2005) Analysis of knowledge and attitudes of adult groups before and after attending an educational presentation regarding adolescent sexual activity. American Journal of Obstetrics & Gynecology 193(6):1945-1955.

Turrisi R, Jaccard J, Taki R, Dunnam H, Grimes JEMA, Turrisi Rrbe (2001) Examination of the short-term efficacy of a parent intervention to reduce college student drinking tendencies. Psychology of Addictive Behaviors 15(4).

Turrisi R, Larimer ME, Mallett K, Turrisi Rrpe (2009) A randomized clinical trial evaluating a combined alcohol intervention for high-risk college students. Journal of Studies on Alcohol and Drugs 70(4):555-567.

Vrungos SM (2003) Increasing HIV intervention effectiveness using an enhanced motivational approach: An evaluation of a multi-component motivation-skills program on HIV risk reduction behavior and condom use in heterosexual college students. Dissertation Abstracts International: Section B: The Sciences and Engineering.63(7-B).

Walls CT, Lauby J, Lavelle K, Derby T, Bond L (1998) Exposure to a community-level HIV prevention intervention: who gets the message. Journal of Community Health 23(4):281-300.

Wolitski RJ (2006) Relative efficacy of a multisession sexual risk-reduction intervention for young men released from prisons in 4 states. American Journal of Public Health 96(10):1854-1862.

Wood MD, DeJong W, Fairlie AM, Lawson D, Lavigne AM, Cohen F (2009) Common Ground: An Investigation of Environmental Management Alcohol Prevention Initiatives in a College Community. Journal of Studies on Alcohol and Drugs 70(S16):96-105.

Yonas M, Baker D, Cornwell EE, III, Chang D, Phillips J, Paradise J, Paradise M, Sutton E, Elihu A (2005) Readiness to change and the role of inpatient counseling for alcohol/substance abusing youth with major trauma. Journal of Trauma 59(2):466-470.

Ziersch A, Gaffney J, Tomlinson DR (2000) STI prevention and the male sex industry in London: evaluating a pilot peer education programme. Sexually Transmitted Infections 76(6):447-453.

Zimmerman RS, Palmgreen PM, Noar SM, Lustria ML, Lu HY, Horosewski ML (2007) Effects of a Televised Two-City Safer Sex Mass Media Campaign Targeting High-Sensation-Seeking and Impulsive-Decision-Making Young Adults. Health Education & Behavior:826.

3. Intervention(s) examined was not based in a community setting (n=53)

Allen JP, Philliber S (1991) Evaluating Why and How the Teen Outreach Program Works: Years 3-5 of the Teen Outreach National Replication (1986/87-1988/89). Association of Junior Leagues International, 660 First Avenue, New York, NY 10016-3241.

Allen JP, Philliber S, Herrling S, Kuperminc GP (1997) Preventing teen pregnancy and academic failure: experimental evaluation of a developmentally based approach.

Arnold EM, Smith TE, Harrison DF, Springer DW (2000) Adolescents' knowledge and beliefs about pregnancy: the impact of 'enabl.'. Adolescence 35(139):485-486.

Botvin G, Baker E, Dusenbury L, Tortu S, Botvin E (1990) Preventing adolescent drug abuse through a multimodal cognitive behavioural approach: results of a 3 year study. Journal of Consulting and Clinical Psychology 58:437-446.

Botvin GJ, Baker E, Dusenbury L, Botvin EM, Diaz T (1995) Long-term follow-up results of a randomized drug abuse prevention trial in a white middle-class population. JAMA : the journal of the American Medical Association 273:1106-1112.

Boulter LT (2007) The effectiveness of peer-led FAS/FAE prevention presentations in middle and high schools... Fetal alcohol syndrome... fetal alcohol effects. Journal of Alcohol & Drug Education 51(3):7-27.

Brown EJ (2002) Recruitment feasibility and HIV prevention intervention acceptability among rural North Florida blacks. Journal of Community Health Nursing 19(3):147-161.

Christopher FS, Roosa MW (1990) An evaluation of an adolescent pregnancy prevention program: Is 'Just say no' enough ? Family Relations 39:68-72.

Collins J, Robin L, Wooley S, Fenley D, Hunt P, Taylor J, Haber D, Kolbe L, Collins J, Robin L, Wooley S, Fenley D, Hunt P, Taylor J, Haber D, Kolbe L (2002) Programs-that-work: CDC's guide to effective programs that reduce health-risk behavior of youth. Journal of School Health 72(3):93-99.

Coyle K, Basen-Engquist K, Kirby D, Parcel G, Banspach S, Collins J, Baumler E, Carvajal S, Harrist R (2001) Safer choices: reducing teen pregnancy, HIV, and STDs. Public Health Reports 116 Suppl 1:82-93.

Coyle K, Kirby D, Parcel G, Basen-Engquist K, Banspach S, Rugg D, Weil M (1996) Safer choices: a multicomponent school-based HIV/STD and pregnancy prevention program for adolescents. Journal of School Health 66(3):89-95.

D'Amico EJ, Edelen MO, D'Amico EJ, Edelen MO (2007) Pilot test of Project CHOICE: a voluntary afterschool intervention for middle school youth. Psychology of Addictive Behaviors 21(4):592-598.

Danoff AL (1996) The effects of multiple preventive intervention strategies on alcohol and other drug knowledge and behavior, social competence, and self-esteem of at-risk youth. Dissertation Abstracts International: Section B: The Sciences and Engineering.58(1-B).

Dedobbeleer N, Desjardins S (2001) Outcomes of an ecological and participatory approach to prevent alcohol and other drug "abuse" among multiethnic adolescents. Substance Use & Misuse 36(13):1959-1991.

Eischens A, Komro KA, Perry CL, Bosma LM, Farbakhsh K (2004) The Association of Extracurricular Activity Participation with Substance Use Among Youth in the DARE Plus Project. American Journal of Health Education 35(2):68-75.

Eisen M, Zellman GL (1990) Evaluating the impact of a theory-based sexuality and contraceptive education program. Family Planning Perspectives 22(6):261-262.

Ellickson PL, McCaffrey DF, Ghosh-Dastidar B, Longshore DL, Ellickson PL, McCaffrey DF, Ghosh-Dastidar B, Longshore DL (2003) New inroads in preventing adolescent drug use: results from a large-scale trial of project ALERT in middle schools. American Journal of Public Health 93(11):1830-1836.

Frost JJ, Forrest JD (1995) Understanding the Impact of Effective Teenage Pregnancy Prevention Programs. Family Planning Perspectives 27(5):188-195.

Gottsegen E, Philliber WW (2001) Impact of a Sexual Responsibility Program on Young Males. Adolescence 36(143):427-433.

Guzman BL, Casad BJ, Feria A, Schlehofer-Sutton MM, Villanueva CM (2003) A community-based approach to promoting safe sex behaviour in adolescence. Journal of Community & Applied Social Psychology 13(4):269-283.

Guzman BL, Casad BJ, Schlehofer-Sutton MM, Villanueva CM, Feria A (2001) C.A.M.P.: A Community-Based Approach to Promoting Safe Sex Behavior in Adolescence.

Hahn EJ, Hall LA, Rayens MK, Myers AV, Bonnel G (2007) School- And Home-Based Drug Prevention: Environmental, Parent, and Child Risk Reduction. Drugs: Education 14(4):319-331.

Johnson CA (1990) Relative effectiveness of comprehensive community programming for drug abuse prevention with high-risk and low-risk adolescents. Journal of Consulting and Clinical Psychology 58(4):447-456.

Jones DJ (2005) A Family-Focused Randomized Controlled Trial to Prevent Adolescent Alcohol and Tobacco Use: The Moderating Roles of Positive Parenting and Adolescent Gender. Behavior Therapy 36(4):347-355.

Jorgensen SR (1991) Project Taking Charge: An Evaluation of an Adolescent Pregnancy Prevention Program. Family Relations 40(4):373-380.

Kirby D, Korpi M, Barth RP, Cagampang HH (1997) The impact of the Postponing Sexual Involvement curriculum among youths in California. Family Planning Perspectives 29(3):100-108.

Komro KA (2006) Cross-Cultural Adaptation and Evaluation of a Home-Based Program for Alcohol Use Prevention among Urban Youth: The "Slick Tracy Home Team Program." The Journal of Primary Prevention 27(2):135-154.

Komro KA, Perry CL, Murray DM, Veblen-Mortenson S, Williams CL, Anstine PS (1996) Peer-planned social activities for preventing alcohol use among young adolescents. Journal of School Health 66(9):328-334.

Komro KA, Perry CL, Veblen-Mortenson S, Farbakhsh K, Toomey TL, Stigler MH, Jones-Webb R, Kugler KC, Pasch KE, Williams CL (2008) Outcomes from a randomized controlled trial of a multi-

component alcohol use preventive intervention for urban youth: Project Northland Chicago. Addiction 103(4):606-619.

Kulis S, Marsiglia FF, Elek E, Dustman P, Wagstaff DA, Hecht ML (2005) Mexican/Mexican American adolescents and keepin' it REAL: an evidence-based substance use prevention program. Children & Schools 27(3):133-146.

Kulis S, Nieri T, Yabiku S, Stromwall L, Kulis Skae (2007) Promoting reduced and discontinued substance use among adolescent substance users: Effectiveness of a universal prevention program. Prevention Science 8(1):35-49.

MacIntosh JM (2008) Theatre-based peer education for youth: A powerful medium for HIV prevention, sexuality education and social change. Dissertation Abstracts International 68(8).

MacKillop J, Ryabchenko KA, Lisman SA, MacKillop J, Ryabchenko KA, Lisman SA (2006) Life skills training outcomes and potential mechanisms in a community implementation: a preliminary investigation. Substance Use & Misuse 41(14):1921-1935.

Magnusson J, Kendall S, Oakley L, Townsend J (2004) Promoting contraceptive services to teenagers. Community Practioner 77(10):381-384.

McBride D, Gienapp A (2000) Using randomized designs to evaluate client-centered programs to prevent adolescent pregnancy. Family Planning Perspectives 32(5):227-236.

Olsen J, Weed S (1992) Student evaluation of sex education programs advocating abstinence. Adolescence 27(106):369-370.

Perry CL, Williams CL, Komro KA, Veblen-Mortenson S, Stigler MH, Munson KA, Farbakhsh K, Jones RM, Forster JL, Perry CL, Williams CL, Komro KA, Veblen-Mortenson S, Stigler MH, Munson KA, Farbakhsh K, Jones RM, Forster JL (2002) Project Northland: long-term outcomes of community action to reduce adolescent alcohol use. Health Education Research 17(1):117-132.

Perry CL, Williams CL, Veblen-Mortenson S, Toomey TL, Komro KA, Anstine PS, McGovern PG, Finnegan JR, Forster JL, Wagenaar AC, Wolfson M (1996) Project Northland: outcomes of a communitywide alcohol use prevention program during early adolescence. American Journal of Public Health 86(7):956-966.

Richards-Colocino N, McKenzie P, Newton R (1996) Project Success: Comprehensive intervention services for middle school high-risk youth. Journal of Adolescent Research 11(1):130-163.

Roberts SW, McCowan RJ (2004) The Effectiveness of Infant Simulators. Adolescence 39(155):475-487.

Rohrbach LA, And O (1994) Parental Participation in Drug Abuse Prevention: Results from the Midwestern Prevention Project. Journal of Research on Adolescence 4(2):295-317.

Simkin L, And O (1992) Evaluation of the HIV/AIDS Education Program/Including Condom Availability, 1990-1992. OREA Report.

Slater MD, Kelly KJ, Edwards RW, Thurman PJ, Plested BA, Keefe TJ, Lawrence FR, Henry KL (2006) Combining in-school and community-based media efforts: reducing marijuana and alcohol uptake among younger adolescents. Health Education Research 21(1):157-167.

Smyer R (1991) Key Issues in Education: Drug-Free Schools. 1990-91 Program Evaluation of Federally Funded Drug-Free Schools Programs.

Spoth RL, Redmond C, Trudeau L, Shin C, Spoth RL, Redmond C, Trudeau L, Shin C (2002) Longitudinal substance initiation outcomes for a universal preventive intervention combining family and school programs. Psychology of Addictive Behaviors 16(2):129-134.

Swanson DJ, Zegers KM, Zwaska AA (2004) Implementing a Social Norms Approach to Reduce Alcohol Abuse on Campus: Lessons Learned in the Shadow of 'The World's Largest Six-Pack'. The Social Science Journal 41(4):621-635.

Tait RJ, Hulse GK, Tait RJ, Hulse GK (2003) A systematic review of the effectiveness of brief interventions with substance using adolescents by type of drug. Drug & Alcohol Review 22(3):337-346.

Tanner JF, Jr., Anne RM, Ladd SD, Tanner JFJ, nne Raymond M, Ladd SD (2009) Evaluating a community saturation model of abstinence education: an application of social marketing strategies. Health Marketing Quarterly 26(1):27-41.

Tucker JSFA (2007) The effect of the national demonstration project Healthy Respect on teenage sexual health behaviour. The European Journal of Public Health 17(1):33-41.

Williams CL (1995) A home-based prevention program for sixth-grade alcohol use: Results from project Northland. Journal of Primary Prevention 16(2):125-147.

Williams CL, Grechanaia T, Romanova O, Komro KA, Perry CL, Farbakhsh K (2001) Russian-American partners for prevention. Adaptation of a school-based parent-child programme for alcohol use prevention. European Journal of Public Health 11(3):314-321.

Williams CL, Perry CL, Farbakhsh K, Veblen-Mortenson S (1999) Project Northland: comprehensive alcohol use prevention for young adolescents, their parents, schools, peers and communities. Journal of Studies on Alcohol 13(S13):112-124.

Wood E, Shakeshaft A, Gilmour S, Sanson-Fisher R (2006) A systematic review of school-based studies involving alcohol and the community. Australian & New Zealand Journal of Public Health 30(6):541-550.

4. Intervention targeted ‘at risk’ or high risk population (n=11)

(1993) From the Centers for Disease Control and Prevention. Assessment of street outreach for HIV prevention--selected sites, 1991-1993. JAMA 270(22):2675.

Barrett KA Multiple-family intervention with adolescent substance abusers. Dissertation Abstracts International.52(2-B).

Goldberg P (1994) SPARK Peer Helper Program, 1993-94. OER Report. Office of Educational Research, New York City Board of Education, 110 Livingston Street, Room 740, Brooklyn, NY 11201.

Hanlon TE, Bateman R (2002) An early community-based intervention for the prevention of substance abuse and other delinquent behavior. Journal of Youth and Adolescence 31(6):459-471.

Harrell A, Cavanagh S, Sridharan S (1999) Evaluation of the Children at Risk Program: Results 1 Year after the End of the Program. Research in Brief. National Criminal Justice Reference Service, Box 6000, Rockville, MD 20849-6000. Tel: 800-851-3420 (Toll Free); e-mail: askncjrs@ncjrs.org. For full text: http://www.ojp.usdoj.gov/nij.

Hawke J, Jainchill N, Messina M (2005) Post-treatment outcomes among adjudicated adolescent males and females in modified therapeutic community treatment. Substance Use & Misuse 40(7):975-996.

Marvel F, Rowe CL, Colon-Perez L, DiClemente RJ, Liddle HA, Marvel F, Rowe CL, Colon-Perez L, DiClemente RJ, Liddle HA (2009) Multidimensional family therapy HIV/STD risk-reduction intervention: an integrative family-based model for drug-involved juvenile offenders. Family Process 48(1):69-84.

Oliva G, Rienks J, Udoh I, Smith CD (2005) A university and community-based organization collaboration to build capacity to develop, implement, and evaluate an innovative HIV prevention intervention for an urban African American population. AIDS Education & Prevention 17(4):300-317.

Orte C, Touza C, Ballester L, March M (2008) Children of Drug-Dependent Parents: Prevention Programme Outcomes. Educational Research 50(3):249-260.

Powers S, And O (1992) Quantitative and Qualitative Methods in the Evaluation of an Alcohol and Other Drug Abuse Prevention Program for High Risk Families with Preschool Children.

Walton FR (1991) Education versus schooling: Project LEAD: High expectation. Journal of Negro Education.60(3):441-453.

5. Intervention examined was not alcohol education and/SRE related (n=9)

Brindis, C. D., Llewelyn, L., Marie, K., Blum, M., Biggs, A. and Maternowska, C. (2003) Meeting the reproductive health care needs of adolescents: California's Family Planning Access, Care, and Treatment Program. Journal of Adolescent Health 32, 79-91.

Hanks DE, III (1996) An Implementation and Evaluation of the Curriculum, "Taking Care", Designed to Address the Needs of Young Adult and Adolescent Unwed Fathers. Dissertation Abstracts International 56(12).

Hingson R, McGovern T, Howland J, Heeren T, Winter M, Zakocs R (1996) Reducing alcohol-impaired driving in Massachusetts: the Saving Lives Program. American Journal of Public Health 86(6):791-798.

Holder HD, Saltz RF, Grube JW, Treno AJ, Reynolds RI, Voas RB, Gruenewald PJ (1997) Summing up: lessons from a comprehensive community prevention trial. Addiction 92(S2):S293-S301.

Huckle T, Greenaway S, Broughton D, Conway K, Huckle T, Greenaway S, Broughton D, Conway K (2007) The use of an evidence-based community action intervention to improve age verification practices for alcohol purchase. Substance Use & Misuse 42(12-13):1899-1914.

Klein JD (2003) Improving adolescent preventive services through state, managed care, and community patnerships. Journal of Adolescent Health 32(S6):91-97.

Merritt BL (2006) An intervention for at-risk Chicano adolescents using their dating relationships. Dissertation Abstracts International: Section B: The Sciences and Engineering.67(8-B).

Stewart TCP (2009) Evaluation of an adolescent hospital-based injury prevention program. Journal of Trauma - Injury, Infection and Critical Care 66(5):1451-1460.

Vappie-Aydin RC (2008) Reducing the rate of recidivism for first-time juvenile offenders with the Parent Monitoring Program, PMP: A family counseling intervention program. Dissertation Abstracts International 69(5):2008.

Appendix 3. Quality assessment tables

Table 10.1. Quality assessment: randomised controlled trials (individual)

Reference	Population			Method of allocation to intervention (or comparison)										Outcomes						Analyses						Summary	
	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	3.1	3.2	3.3	3.4	3.5	3.6	4.1	4.2	4.3	4.4	4.5	4.6	5.1	5.2
Bauman et al ., 2000	NR	NR	NR	+	+	NR	NR	+	+	NR	-	+	+	NR	+	-	++	NR	++	+	NR	NR	-	+	NR	-	+
Boekeloo et al., 1999	NR	NR	NR	+	++	NR	NA	+	NR	NR	++	NR	NR	+	NR	++	++	+	+	+	NR	NR	++	+	++	+	-
Danielson et al., 1990	NR	NR	NR	+	++	NR	+	+	NR	NR	NR	NR	NR	NR	NR	+	+	+	NR	NR	NR	NR	+	+	+	-	-
DiClemente et al., 2004	NR	NR	NR	++	++	+	NR	++	NR	++	++	NR	NR	++	NR	++	++	++	++	++	NR	++	++	++	++	++	-
Downs et al., 2004	NR	NR	NR	++	++	NR	NR	++	NR	NR	NR	NR	NR	++	NR	++	++	++	++	+	NR	-	+	+	+	+	-
Forehand et al., 2007	+	+	++	+	++	NR	NA	-	NR	+	++			++	++	++	++	++	++	++	++	++	+	++	-	+	+
Haggerty et al., 2007	NR	NR	NR	+	++	NR	NR	-	NR	NR	++	+	+	++	++	+	++	++	++	NR	++	NR	+	+	+	+	+
Jemmott et al., 1992	NR	NR	NR	+	+	NR	NR	+	NR	+	NR	NR	NR	++	NR	++	++	+	+	+	NR	NR	+	+	+	+	-
Jemmott et al., 1998	NR	NR	NR	++	++	NR	NR	++	NR	++	++	NR	NR	+	NR	++	++	++	++	++	++	++	++	++	++	++	-
Jemmott et al., 2005	NR	NR	+	++	++	++	+	++	NR	++	++	NR	NR	++	NR	++	++	++	++	++	NR	NR	++	++	++	++	+
Kipke et al., 1993	NR	NR	NR	+	++	NR	NR	++	NR	++	+	NR	NR	+	NR	+	+	++	-	++	NR	NR	+	+	+	+	-
Lederman et al., 2008	+	NR	+	+	-	NR	NR	NR	NR	NR	-	++	+	++	+	-	+	++	++	NR	NR	NR	-	+	-	-	+
Lederman et al., 2004	NR	NR	NR	+	+	NR	NR	+	NR	NR	NR	NR	NR	+	NR	-	+	+	+	NR	NR	NR	-	+	-	-	-
Loveland-Cherry et al., 1999	NR	NR	NR	+	-	NR	NR	NR	NR	NR	-	++	+	NR	++	+	++	++	++	NR	NR	NR	+	+	+	-	+
Miller et al., 1993	+	+	+	+	+	NR	NR	NR	NR	NR	++	-	+	++	++	+	++	++	++	NR	NR	NR	-	+	++	+	-
Morrison-Beedy et al., 2005	NR	NR	NR	+	++	NR	NR	++	NR	++	-	NR	NR	++	NR	++	++	++	+	+	NR	NR	+	+	+	+	-
O'Donnell et al., 2005	+	++	++	++	++	NA	NA	+	++	NR	++	NR	NR	++	++	++	++	++	+	++	++	++	+	+	+	+	+
Phillliber et al., 2002	NR	NR	NR	+	++	NR	NR	++	NR	++	+	NR	NR	+	NR	+	+	+	++	+	+	NR	+	+	-	+	-
Prado et al., 2007	+	++	++	++	++	NR	NA	++	NR	+	NR	NR	-	-	++	++	++	++	++	+	++	++	-	+	+	+	-

Reference	Population			Method of allocation to intervention (or comparison)										Outcomes						Analyses						Summary	
	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	3.1	3.2	3.3	3.4	3.5	3.6	4.1	4.2	4.3	4.4	4.5	4.6	5.1	5.2
Schinke et al., 2009	NR	NR	NR	+	+	NR	NR	+	NR	NR	++	NR	NR	++	NR	++	++	++	+	++	+	NR	-	++	+	+	-
Slesnick et al., 2008	++	++	++	++	++	+	NR	++	-	+	++	+	+	++	++	+	++	NR	+	++	++	NR	-	+	++	+	++
Stanton et al., 2000	NR	NR	NR	++	++	++	NR	-	NR	NR	+	-	+	++	++	+	++	+	-	++	NR	NR	+	++	++	+	+
Villarruel et al., 2006	NR	NR	NR	++	++	++	NR	++	+	++	+	NR	NR	+	+	++	++	++	++	++	++	NR	++	++	++	++	-
Winett et al., 1992	NR	NR	NR	+	++	NA	NA	+	NA	NR	-	++	NA	+	+	++	++	++	+	+	-	NR	-	+	+	-	+
Winett et al., 1993	+	NR	NR	+	++	NR	++	NR	NA	NR	++	+	+	++	-	+	++	++	-	++	NR	NR	-	+	+	+	+

Table 10.2. Quality assessment: randomised controlled trials (cluster)

Reference	Population			Method of allocation to intervention (or comparison)										Outcomes						Analyses						Summary	
	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	3.1	3.2	3.3	3.4	3.5	3.6	4.1	4.2	4.3	4.4	4.5	4.6	5.1	5.2
Anderson et al., 1999	NR	NR	NR	+	+	NR	NR	++	NR	NR	+	+	+	+	+	-	+	++	++	NR	-	-	+	+	-	-	+
Beatty et al., 2008	+	+	+	+	+	NA	NA	+	NR	NR	++	NR	NR	++	++	++	++	NR	NR	-	NA	+	+	+	++	+	+
Brody et al., 2004; 2006	+	NR	NR	+	++	NR	NR	++	NR	NR	++	NR	NR	+	NR	++	++	++	++	++	NR	NR	++	++	++	+	+
Cohen & Rice, 1995	-	NR	++	NR	+	NR	NR	+	NR	NR	NR	NR	NR	+	++	++	++	NR	++	++	NR	NR	++	++	++	-	-
Dancy et al., 2006	++	++	++	+	++	NR	NR	++	NR	+	++	NR	NR	++	++	+	+	++	-	++	NR	NR	+	+	++	+	+
Di Noia & Schinke, 2007	NR	NR	NR	+	++	NR	+	++	++	++	+	NR	NR	++	NR	+	++	++	-	++	-	NR	++	++	++	+	
DiLorio et al., 2006	+	NR	NR	+	++	NR	NR	NR	+	NR	NR	+	+	+	++	++	++	++	++	-	++	NR	-	+	++	++	+
Dilorio et al., 2007	+	+	+	+	+	NA	NA	+	NR	+	++	NR	NR	++	++	++	++	++	++	++	NR	-	+	++	+	+	+
Elder et al., 2002	NR	NR	NR	+	++	NR	+	++	++	++	-	NR	NR	+	NR	+	+	++	++	-	NR	NR	+	+	+	+	-
Johnson et al., 1996	NR	NR	NR	+	+	NR	NR	+	NR	NR	NR	NR	NR	+	NR	-	+	+	++	+	NR	NR	-	+	-	-	-
Jones et al., 2005	NR	NR	NR	+	-	NA	NA	NR	NA	NR	++	++	+	++	++	-	++	++	++	+	NR	NR	+	+	++	+	+
Schinke et al., 2004	NR	NR	NR	+	++	NR	NR	++	NR	NR	++	+	+	++	++	+	++	++	++	++	+	NR	+	++	++	+	+

Reference	Population			Method of allocation to intervention (or comparison)										Outcomes						Analyses						Summary	
	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	3.1	3.2	3.3	3.4	3.5	3.6	4.1	4.2	4.3	4.4	4.5	4.6	5.1	5.2
Schinke et al., 2005	NR	NR	NR	+	+	NR	NR	+	++	NR	++	NR	NR	NR	NR	-	+	++	-	+	NR	NR	-	+	-	-	-
Sikkema et al., 2005	NR	NR	NR	+	++	NR	NR	++	++	++	++	NR	NR	++	NR	++	++	++	+	++	NR	NR	++	++	++	+	-
Spoth et al., 1999; 2001; 2004	NR	NR	NR	+	+	+	NR	NR	NR	NR	+	+	+	+	++	+	++	++	++	++	NR	NR	+	++	++	+	+
Stanton et al., 2004	+	-	-	+	++	NR	NA	+	NR	+	++	NR	NR	++	++	++	++	++	++	++	NR	+	NR	++	++	+	++
Stanton et al., 1996	NR	NR	NR	+	++	NR	NR	++	NR	+	+	NR	NR	+	NR	+	+	++	++	+	++	NR	+	+	+	+	-
Stevens et al., 2002	NR	NR	NR	++	++	NR	NR	++	++	++	-	NR	NR	++	NR	++	++	++	++	++	NR	NR	++	++	++	+	-
Toomey et al., 1996	+	-	+	-	+	NA	NA	+	-	-	++	NR	NR	++	++	++	++	++	++	NR	NA	+	-	+	++	-	+
Wu et al., 2003	NR	NR	NR	+	++	NR	NR	++	++	NR	-	NR	NR	+	NR	++	++	++	++	++	NR	NR	+	++	+	+	-

Table 10.3. Quality assessment: other study designs

Reference	Study design	Population			Method of allocation to intervention (or comparison)										Outcomes						Analyses						Summary	
		1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	3.1	3.2	3.3	3.4	3.5	3.6	4.1	4.2	4.3	4.4	4.5	4.6	5.1	5.2
Elliott et al., 1996	NRCT	NR	NR	NR	-	+	+	+	+	+	NR	+	NR	NR	NR	NR	+	+	+	-	NR	NR	NR	-	+	-	-	-
Ferguson, 2000	NRCT	+	NR	NR	-	+	-	NR	+	-	-	+	NR	NR	+	NR	+	+	+	+	NR	-	+	-	+	-	-	-
Gustafson et al., 1998	NRCT	NR	NR	NR	-	+	-	NR	+	++	NR	+	NR	NR	+	NR	+	+	+	-	-	NR	NR	+	+	+	+	-
Koutakis et al., (2008)	NRCT	+	++	++	NR	+	NR	NR	++	++	+	++	NR	NR	NR	++	++	++	++	++	++	++	++	++	+	++	++	++
Pearlman et al., 2002	NRCT	NR	NR	NR	-	++	-	NR	++	NR	++	NR	NR	NR	+	NR	+	+	+	+	+	+	NR	-	+	-	+	-
Rew et al., 2007	NRCT	+	+	++	NR	-	NR	NR	NA	++	NR	NR	NR	NR	++	++	++	++	NR	-	++	NA	NR	+	++	++	+	+
Scheinberg et al., 1997	NRCT	NR	NR	NR	-	+	-	-	NR	NR	+	++	+	+	-	++	+	++	+	-	++	NR	-	-	+	+	-	-
St Pierre et al., 1995	NRCT	NR	NR	NR	-	+	-	NR	+	++	NR	-	NR	NR	-	NR	+	+	++	++	-	-	NR	+	+	+	-	-
Cheadle et al., 1995	CBA	+	NR	NR	-	+	-	-	+	+	NR	NA	NA	NA	NR	NR	+	+	+	NA	+	NA	NR	+	+	+	+	-
Flynn et al., 2006	CBA	NR	NR	NR	NR	++	NR	NR	++	++	+	NA	NR	NR	++	NR	+	+	++	++	NA	NA	NR	+	++	+	+	-

Reference	Study design	Population			Method of allocation to intervention (or comparison)										Outcomes						Analyses						Summary	
		1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	3.1	3.2	3.3	3.4	3.5	3.6	4.1	4.2	4.3	4.4	4.5	4.6	5.1	5.2
Gleghorn et al., 1997	CBA	++	++	++	NR	+	NR	NA	-	++	+	NA	NR	NR	-	++	++	++	NR	NR	++	NA	NR	+	++	-	-	+
Kypri et al., 2005	CBA	NR	NR	NR	-	+	-	NR	+	NR	NR	+	NR	NR	+	NR	+	+	NR	-	NR	NR	+	+	+	+	+	-
McKay et al., 2004	CBA	+	NR	NR	-	++	NR	NA	NR	NR	NR	++	+	+	NR	+	+	++	-	-	-	NR	NR	-	+	++	-	+
Postrado & Nicholson, 1992	CBA	NR	NR	NR	-	+	-	-	+	NR	NR	NR	NR	NR	+	NR	-	+	NR	-	+	NR	NR	+	+	+	-	-
Smith et al., 2000	CBA	NR	NR	NR	-	+	NR	NR	++	++	NR	NR	NR	NR	+	NR	++	++	++	+	+	NR	NR	-	+	-	-	-
Tebes et al., 2007	CBA	NR	NR	NR	NR	+	NR	NR	+	++	NR	+	NR	NR	+	NR	+	+	+	++	+	+	NR	+	+	+	+	-
Wiggins et al., 2009	CBA	NR	NR	NR	-	+	-	NR	+	NR	+	+	+	++	++	NR	++	++	+	++	+	NR	+	++	++	++	+	-
Doniger et al., 2001	CTS	NR	NR	NR	-	++	-	-	++	NA	NR	NA	NR	NR	+	NR	+	+	NA	NA	NA	NA	NA	-	+	-	-	
Sieverding et al., 2005	CTS	NR	NR	NR	-	+	NA	NA	+	++	NR	NA	NR	NR	NR	NR	+	+	NR	+	+	NA	NA	NA	+	NA	+	-
NRCT – Non-randomised controlled trial; CBA – controlled before and after study; CTS – cross-sectional time series																											

Table 10.4. Quality assessment: systematic reviews and meta-analyses

Reference(s)	Questions					Coding
	1.1	1.2	1.3	1.4	1.5	
Arnold & Rotherham-Borus (2009)	-	-	-	NR	NA	-
DiCenso et al., 2002	++	++	++	++	++	++
Foxcroft et al., 2002	++	++	++	++	NA	++
Foxcroft et al., 2003	++	++	++	+	NA	+
Franklin et al., 1997	++	++	+	++	++	++
Guyatt et al., 2000	+	++	++	-	NA	+
Pedlow & Carey, 2003	++	+	+	-	NA	+
Petrie et al., 2007	++	++	+	++	NA	++
Robin et al., 2004	+	+	+	-	NA	+

Reference(s)	Questions					Coding
	1.1	1.2	1.3	1.4	1.5	
Sales et al., 2006	++	++	++	-	NA	+
Smit et al., 2008	++	++	++	++	++	++
Underhill et al., 2007	++	++	++	++	NA	++
Underhill et al., 2008	++	++	++	++	NA	++
NA – not applicable; NR – not reported; ++ well covered; + adequately addressed; - poorly addressed						

Table 10.5. Quality assessment for published economic evaluation studies

Study identification Include author, title, reference, year of publication		**Spoth et al., 2002**
Evaluation criterion		
1.	**Was a well-defined question posed in answerable form?**	Yes
1.1	Did the study examine both costs and effects of the service(s) or programme(s)?	Yes
1.2	Did the study involve a comparison of alternatives?	Yes
1.3	Was a viewpoint for the analysis stated and was the study placed in any particular decision-making context?	Yes, societal
2.	**Was a comprehensive description of the competing alternatives given (that is, can you tell who? did what? to whom? where? and how often?)?**	Yes, both interventions were described.
2.1	Were any important alternatives omitted?	No
2.2	Was (Should) a do-nothing alternative (be) considered?	Yes, the intervention was compared to a minimal contact intervention.
3.	**Was the effectiveness of the programmes or services established?**	Yes, in a cluster RCT
3.1	Was this done through a randomised, controlled clinical trial? If so, did the trial protocol reflect what would happen in regular practice?	Yes, as above
3.2	Was effectiveness established through an overview of clinical studies?	NA
3.3	Were observational data or assumptions used to established effectiveness? If so, what are the potential biases in results?	NA

Study identification Include author, title, reference, year of publication		**Spoth et al., 2002**
4.	**Were all the important and relevant costs and consequences for each alternative identified?**	Yes
4.1	Was the range wide enough for the research question at hand?	They appeared to be.
4.2	Did it cover all relevant viewpoints? (Possible viewpoints include the community or social viewpoint, and those of patients and third-party payers.)	Again they appeared to be, the authors discussed using the human capital approach to value the societal cost of alcohol disorders.
4.3	Were capital costs, as well as operating costs, included?	Not clear.
5.	**Were costs and consequences measured accurately in appropriate physical units (for example, hours of nursing time, number of physician visits, lost work-days, gained life-years)?**	Not reported
5.1	Were any of the identified items omitted from measurement? If so, does this mean that they carried no weight in the subsequent analysis?	Not reported
5.2	Were there any special circumstances (for example, joint use of resources) that made measurement difficult? Were these circumstances handled appropriately?	Not reported
6.	**Were costs and consequences valued credibly?**	Partially
6.1	Were the sources of all values clearly identified? (Possible sources include market values, patient or client preferences and views, policy-makers' views and health professionals' judgements.)	Not reported
6.2	Were market values employed for changes involving resources gained or depleted?	Not reported
6.3	Where market values were absent (for example, volunteer labour), or did not reflect actual values (for example, clinic space donated at reduced rate), were adjustments made to approximate market values?	NA
6.4	Was the valuation of consequences appropriate for the question posed (that is, has the appropriate type or types of analysis – cost-effectiveness, cost-benefit, cost-utility – been selected)?	Yes
7.	**Were costs and consequences adjusted for differential timing?**	Yes
7.1	Were costs and consequences which occur in the future 'discounted' to their present values?	Yes, discount rate of 3% applied
7.2	Was any justification given for the discount rate used?	Yes, recommended by the Panel on Cost-effectiveness in Health and Medicine
8.	**Was an incremental analysis of costs and consequences of alternatives performed?**	No
8.1	Were the additional (incremental) costs generated by one alternative over another compared to the additional effects, benefits or utilities generated?	No
9.	**Was allowance made for uncertainty in the estimates of costs and consequences?**	Yes
9.1	If data on costs or consequences were stochastic, were appropriate statistical analyses performed?	Not reported

Study identification Include author, title, reference, year of publication		**Spoth et al., 2002**
9.2	Were study results sensitive to changes in the values (within the assumed range for sensitivity analysis, or within the confidence interval around the ratio of costs to consequences)?	Sensitivity analyses conducted on key variables, favourable still reported.
10.	**Did the presentation and discussion of study results include all issues of concern to users?**	Partially.
10.1	Were the conclusions of the analysis based on some overall index or ratio of costs to consequences (for example, cost-effectiveness ratio)? If so, was the index interpreted intelligently or in a mechanistic fashion?	No.
10.2	Were the results compared with those of others who have investigated the same question? If so, were allowances made for potential differences in study methodology?	Partially.
10.3	Did the study discuss the generalisability of the results to other settings and patient/client groups?	Partially.
10.4	Did the study allude to, or take account of, other important factors in the choice or decision under consideration (for example, distribution of costs and consequences, or relevant ethical issues)?	No.
10.5	Did the study discuss issues of implementation, such as the feasibility of adopting the 'preferred' programme given existing financial or other constraints, and whether any freed resources could be redeployed to other worthwhile programmes?	No
OVERALL ASSESSMENT OF THE STUDY		
How well was the study conducted? Code ++, + or –		+
Are the results of this study directly applicable to the patient group targeted by this guideline?		Unknown, estimates presented were conservative but are based on USA population estimates.