

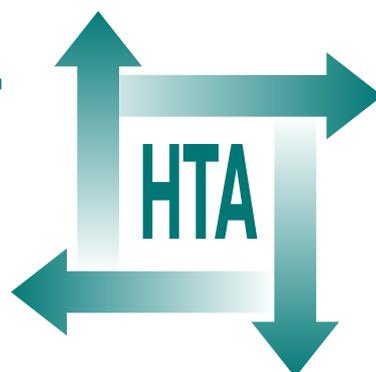
School-linked sexual health services for young people (SSHYP): a survey and systematic review concerning current models, effectiveness, cost-effectiveness and research opportunities

J Owen, C Carroll, J Cooke, E Formby,
M Hayter, J Hirst, M Lloyd Jones,
H Stapleton, M Stevenson and
A Sutton



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Abstract

School-linked sexual health services for young people (SSHYP): a survey and systematic review concerning current models, effectiveness, cost-effectiveness and research opportunities

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Background: Report based on a service-mapping study and a systematic review concerning sexual health services for young people, either based in or closely linked to schools.

Objectives: To identify current forms of school-based sexual health services (SBSHS) and school-linked sexual health services (SLSHS) in the UK, review and synthesise existing evidence from qualitative and quantitative studies concerning the effectiveness, acceptability and cost-effectiveness of these types of service and to identify potential areas for further research.

Data sources: Electronic databases were searched from 1985 onwards. For published material: the Cochrane Library (1991–), MEDLINE, PREMEDLINE (2007–), CINAHL, EMBASE, AMED, ASSIA (1987–), IBSS, ERIC, PsycINFO, Science Citation Index (SCI) and Social Sciences Citation Index. For unpublished material and grey literature: the Social Care Institute of Excellence Research Register; the National Research Register (1997–), ReFeR; Index to Theses, and HMIC.

Review methods: A service-mapping questionnaire was circulated to school nurses in all parts of the UK, and semistructured telephone interviews with service coordinators in NHS and local authority (LA) roles were conducted. An evidence synthesis was performed based on a systematic review of the quantitative evidence about service effectiveness, qualitative evidence about user and professional views and a mixed-methods synthesis. A proof-of-concept model for assessing cost-effectiveness was drawn up.

Results: Three broad types of UK sexual health service provision were identified. Firstly, SBSHS staffed by school nurses, offering 'minimal' or 'basic' levels

of service. Secondly, SBSHS and SLSHS staffed by a multiprofessional team, but not medical practitioners, offering 'basic' or 'intermediate' levels of service. Thirdly, SBSHS and SLSHS staffed by a multiprofessional team, including medical practitioners offering 'intermediate' or 'comprehensive' levels of service. The systematic review showed that SBSHS are not associated with higher rates of sexual activity among young people, nor with an earlier age of first intercourse. There was evidence to show positive effects in terms of reductions in births to teenage mothers, and in chlamydial infection rates among young men, although this evidence coming primarily from the USA. Therefore, the findings need to be tested in relation to UK-based services. Also evidence to suggest that broad-based, holistic service models, not restricted to sexual health, offer the strongest basis for protecting young people's privacy and confidentiality, countering perceived stigmatisation, offering the most comprehensive range of products and services, and maximising service uptake. Findings from the mapping study also indicate that broad-based services, which include medical practitioner input within a multiprofessional team, meet the stated preferences of staff and of young people most clearly. Partnership-based developments of this kind also conform to the broad policy principles embodied in the Every Child Matters framework in the UK and allied policy initiatives. However, neither these service models nor narrower ones have been rigorously evaluated in terms of their impact on the key outcomes of conception rates and sexually transmitted infection (STI) rates, in the UK or in other countries. Therefore, appropriate data were not found to support cost-effectiveness modelling.

Limitations: Low response rate to the questionnaire. Scotland, Wales and Northern Ireland were under-represented. Also, the distinction made in the questionnaire between 'general health' and 'sexual health' services did not prove robust.

Conclusions: There is no single, dominant service model in the UK. The systematic review demonstrated that the evidence base for these services remains limited and uneven, and draws largely on US studies. Qualitative research is needed to develop robust

process and outcome indicators for the evaluation of SLSHS/SBSHS in the UK. These indicators could then be used both in local evaluations, and in large, longitudinal studies of service effectiveness and cost-effectiveness. Future research should examine the impact of the differing types of services currently evolving in the UK, encompassing school-based and school-linked models, as well as models with and without medical practitioner involvement.



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List of abbreviations

BEM	black and ethnic minority	PID	pelvic inflammatory disease
CASH	contraception and sexual health	PSHE	personal, social, health and economic education
DfEE	Department for Education and Employment	RCT	randomised controlled trial
DfES	Department for Education and Skills	QALY	quality-adjusted life-year
GUM	genitourinary medicine	SBHC	school-based health centre
Hep B&C	hepatitis B and C	SBSHS	school-based sexual health services
HIV	human immunodeficiency virus	SEF	Sex Education Forum
HPV	human papillomavirus	SHC	school health centre
HRC	health resource centre	SLHC	school-linked health centre
IUD	intrauterine device	SLSHS	school-linked sexual health services
LA	local authority	SRE	sex and relationship education
LGBT	lesbian, gay, bisexual and transgender	SSHYP	school-linked sexual health services for young people
PCT	primary care trust	STI	sexually transmitted infection

All abbreviations that have been used in this report are listed here unless the abbreviation is well known (e.g. NHS), or it has been used only once, or it is a non-standard abbreviation used only in figures/tables/appendices, in which case the abbreviation is defined in the figure legend or in the notes at the end of the table.



Executive summary

Objectives

The aims of this study were, first, to identify current forms of school-based sexual health services (SBSHS) and school-linked sexual health services (SLSHS) in the UK; second, to review and synthesise existing evidence from qualitative and quantitative studies concerning the effectiveness, acceptability and cost-effectiveness of these types of service, and third, to identify potential areas for further research.

Methods

The study had two components. The first, the service mapping component, was based on a postal questionnaire circulated to school nurses in all parts of the UK (gaining a response rate of 14.6%), and on semistructured telephone interviews with 51 service coordinators in NHS and local authority (LA) roles. Quantitative data from the questionnaire were analysed with the use of SPSS, primarily to produce descriptive statistics relating to staffing and facilities offered. Qualitative data from questionnaire free text sections and from interviews were subject to thematic analyses. The second component was an evidence synthesis, based on a three-part systematic review: a review of quantitative evidence about service effectiveness; a review of qualitative evidence about user and professional views; and a mixed-methods synthesis. Electronic databases were searched from 1985 onwards, and all literature searches were performed in January 2008. Cost-effectiveness modelling was not carried out because insufficient data were available to support it.

Results

The findings from the mapping study and from the evidence synthesis emphasise the wide diversity in SLSHS and SBSHS for young people. UK national policy has encouraged local initiatives in service development, but there have been no templates, no consistent sources of sustainable funding and no systematic approach to evaluation. This context has

facilitated local innovation, but has also produced an uneven distribution of services and resources.

Analyses of mapping study data revealed a spectrum of five levels of service provision, ranging from 'no sexual health service', to 'minimal', 'basic', 'intermediate' and 'comprehensive'. Overall, three broad types of UK service provision were identified. First, SBSHS staffed by school nurses: these included both drop-in sessions and individual appointments, and typically offered 'minimal' or 'basic' levels of service. Second, SBSHS and SLSHS staffed by multiprofessional teams, including school nurses, youth workers and other professionals, but not medical practitioners. These could include appointments systems, drop-in sessions and outreach services; they typically offered 'basic' or 'intermediate' levels of service. Third, SBSHS and SLSHS staffed by multiprofessional teams, including medical practitioners. These too could include appointments systems, drop-in sessions outreach services, and typically offered 'intermediate' or 'comprehensive' levels of service.

Importantly, findings from the systematic review provide evidence that SLSHS and SBSHS are not associated with higher rates of sexual activity among young people, nor with an earlier age of first intercourse. There is some evidence of positive effects in terms of reductions in births to teenage mothers, and in chlamydia rates among young men. However, this evidence comes from the USA; the findings need to be tested in relation to UK-based services.

Both the mapping study and the evidence synthesis provide some converging messages about the service features that matter to young people. There is some evidence from the systematic review to suggest that broad-based, holistic service models, not restricted to sexual health, offer the strongest basis for protecting young people's privacy and confidentiality, countering perceived stigmatisation, offering the most comprehensive range of products and services, and maximising service uptake. Findings from the mapping study also indicate that broad-based services, which include medical practitioner input within a

multiprofessional team, meet the stated preferences of staff and of young people most clearly. Partnership-based developments of this kind also conform to the broad policy principles embodied in the Every Child Matters framework in the UK and allied policy initiatives. However, neither these service models nor narrower ones have been rigorously evaluated in terms of their impact on the key outcomes of conception rates and sexually transmitted infection (STI) rates, either in the UK or in other countries.

Conclusions

There is no single, dominant service model in the UK. Respondents to the mapping study expressed concern about gaps in service provision across the UK, while recognising innovative aspects too. The systematic review demonstrated that the evidence base for these services remains limited and uneven, and draws largely on US studies. There is no evidence to suggest that these services contribute to earlier or higher levels of sexual activity; there is some evidence of positive effects on teenage conceptions and (among boys) STI rates. But there is an absence of methodologically rigorous studies of impacts on STIs and on conceptions. For this reason, analyses of cost-effectiveness would require further research.

Implications and recommendations

Implications for policy and practice

Evidence from the mapping study reinforces findings from the recent Sex Education Forum (SEF) survey in England, showing that SLSHS and SBSHS are unevenly distributed, both between UK countries and regions, and within them. Developing services, for young people in rural areas and in Northern Ireland, is an important priority. More generally, it is important for commissioning bodies [primary care trusts (PCTs) and LAs] to review the provision in their areas, and to consider how to address gaps in provision.

In addition, both the mapping study and the synthesis of evidence have identified a number of criteria that young people and staff see as characterising high-quality services. This evidence suggests that the following principles should inform the development of new services, and the evaluation of established services:

- Robust procedures to safeguard confidentiality, agreed between all agencies and professions contributing to the service.
- Consultation in advance with potential user groups of young people, and engagement of young people in the design and implementation of routine monitoring and evaluation processes.
- Consultation in advance with school headteachers, governors, staff and parents' groups, to secure informed leadership and support.
- Close liaison and (where possible) joint work with teaching staff who deliver personal, social, health and economic education (PSHE).
- Design of locations and session times to protect privacy of service users.
- Establishment of a multiprofessional staff team, including both male and female members, and including school nurses, youth workers, medical practitioners and other specialist staff where appropriate (e.g. drug and alcohol workers).
- Clear incorporation of local and national child protection guidelines and requirements, along with liaison with relevant local agencies.
- Provision of comprehensive sexual health services, i.e. including relationships advice, prescriptions for oral and emergency contraception, other forms of contraception, STI screening and pregnancy testing, signposting and referrals for specialist services that are not offered on site.
- Access to continuing professional development for staff, including specialist sexual health training.
- Marketing of the service as broad based, rather than restricted to sexual health.
- A secure funding basis.

Recommendations for future research

This report has demonstrated that there are significant gaps in available research about SLSHS and SBSHS. First, there is a lack of robust research from the UK. Messages from the available US research need to be interpreted with caution; some long predate current UK policy and service developments and some are characterised by significant methodological weaknesses; there are also substantial differences in health and education systems in the two countries, as well as differing political priorities with respect to contested issues such as abortion and sex before/outside marriage. These inter-related factors are all likely to shape

young people's views, their opportunities to access specific services and their responses to those services. Second, there is a lack of robust research focused on the impact of school-linked and school-based services on the key outcomes of unintended pregnancy rates and STI rates. Third, there is a lack of research addressing the specific components of interventions that this study has shown to be important to young people themselves.

The research gaps noted here include some aspects that are amenable to investigation through experimental or quasi-experimental study designs and others that would require alternative methods. The current context in the UK, with its diversity of SBSHS and SLSHS initiatives, offers opportunities for both. In particular, there is scope to make comparisons between different forms and levels of intervention and their components, in terms of young people's responses, staff perspectives and health outcomes. The following are priority topics for future research:

- Qualitative research with young people and with staff from health, youth work and education, to develop valid and reliable process and outcome measures related to UK SBSHS and SLSHS. These should include, but not be confined to, measures of the impact of services on rates of unplanned pregnancy and STIs, and measures of service costs. In this respect, there may be opportunities to build on research already completed about health promotion in schools, following the 1999 Health Technology Assessment (HTA)-funded systematic reviews on this topic. For example, the themes of

school ethos and social and emotional well-being may be particularly relevant. The output of this research could be used both to inform the commissioning of largescale primary research, and to inform initiatives in local evaluation.

- Substantial, primary research with the scope to address specific measures developed through the above process, and to compare the distinct models identified in this report: school-based services staffed by school nurses; school-based and school-linked services staffed by multiprofessional teams without medical practitioners; and school-based and school-linked services staffed by multiprofessional teams with medical practitioners. This research should include a longitudinal element in order to examine themes such as sexual decision-making and use of contraception by young people, over a sustained period of time. It should also include an examination of interprofessional and interagency relationships and communications, for example, in terms of perspectives on confidentiality and of perceptions about sexual decision-making among young people. Lastly, it should include analyses of cost-effectiveness, drawing on evidence of service impact.
- Primary research to examine the views and experiences of particular groups of young people who have not been included explicitly in the studies discussed in this report, in relation to SBSHS and SLSHS. These include young people with disabilities, minority ethnic young people and lesbian, gay, bisexual and transgender (LGBT) young people.

Chapter I

Introduction

Background

This report is based on a service-mapping study and a systematic review concerning sexual health services for young people, either based in, or closely linked to, schools. The service-mapping study was designed to identify key features of current UK service models and their organisational contexts, in order to ensure that discussion of the review findings would have the scope to acknowledge key features of current UK practice. The systematic review is based on international searches for relevant research. In relation to both, the focus is on young people aged between 11 and 18 years of age.

In 2007, the UK government Department for Education and Skills (DfES) launched two new strategy documents entitled *Extended Schools: Improving Access to Sexual Health Advice Services*¹ and *Improving Access to Sexual Health Advice Services for Young People in Further Education Settings*.² These included clear guidance and encouragement to secondary schools and sixth form colleges to develop or expand their provision of sexual health services for young people aged 11–18, although there was no binding requirement to do so.^{1,2} The policy followed earlier guidance about sex and relationship education (SRE), which stated that it should ‘provide young people with information about different types of contraception, safe sex and how they can access local sources of further advice and treatment’ (p. 10).³ Further guidance on ensuring that services are appropriate to young people’s needs was offered by the Department of Health’s ‘You’re Welcome’ quality criteria.⁴ Since the study described in this report was commissioned, personal, social, health and economic education (PSHE), including SRE, has been made a statutory part of the curriculum within schools, with effect from 2011.⁵

The provision of sexual health services for young people and the provision of SRE are inter-related in many ways, in terms of both theoretical perspectives/debates and at the level of policy and practice. In relation to both, for example, an understanding of the ways in which young people conceptualise ‘risk’ is important, and

in many schools and sixth form colleges there is collaboration between health practitioners, youth workers and teachers in delivering both SRE sessions and sexual health services. Some of these inter-relationships are discussed in relation to aspects of the study findings. However, this report specifically addresses issues concerning sexual health services within schools or linked to schools, and it is important to distinguish these from sex education initiatives. In a recent report, the Sex Education Forum (SEF) defined ‘sexual health services’ as including ‘the provision of something tangible, if the young person needs it, for example, condoms and pregnancy testing’ (p. 10).⁶ This definition allows ‘sexual health services’ to be distinguished clearly both from health advice that is provided routinely by school nurses, youth workers and other practitioners in schools and in other settings, and from the provision of information about sex, safer sex and contraception through the delivery of SRE in schools. This report follows that definition, with its emphasis on products and/or services, in addition to advice and information. Throughout, it also distinguishes between ‘school-based’ sexual health services (SBSHS) and ‘school-linked’ sexual health services (SLSHS). The first term refers to services that are located on site, in school premises; the second refers to services that are located off site – for example, in a local youth centre – but that are connected to schools through joint funding, shared staffing arrangements or other explicit and sustained forms of collaboration. The authors acknowledge that continuing policy and practice initiatives are introducing new dimensions to sexual health services for young people, such as those associated with the National Chlamydia Screening Programme in England;⁷ this underlines the importance of paying attention to flexible, collaborative and user-centred developments (such as outreach services and access to postal screening kits).

The study described in this report was commissioned in a context in which policy concerns about sexual health among young people focused both on teenage conceptions and on trends in sexually transmitted infections (STIs). While conceptions and births to teenagers have

declined since the introduction of the current UK Teenage Pregnancy Strategy, the rate of decline still falls short of government targets.⁸ In an article published in 2001, findings from the NATSAL (National Survey of Sexual Attitudes and Lifestyles) study⁹ offered evidence on early sexual experience, with 30% of males and 26% of females reporting first heterosexual intercourse at younger than 16 years. A study published in 2003 showed that many young people accessed sexual health services after first sex, rather than beforehand,¹⁰ and that a majority had never visited a sexual health service.¹¹ Young women aged under 16 years were described by Stone and Ingham¹⁰ (in 2003) as more likely than either their male peers or older teenagers to report a lack of awareness of sexual health services. As these young women face specific risks from chlamydia,¹² this is a particular concern. A number of research studies have also suggested that youth-oriented sexual health services are preferred by many young people, in comparison with general practice or other family planning services.^{13–15} In fact, in 2003, Stone and Ingham¹⁰ noted an increasing uptake of some sexual health advice services among younger teenagers, speculating that this may reflect the expansion in youth-oriented clinics and related facilities. By 2007, French *et al.*¹⁶ found that a majority of young people in their large random sample were aware of a sexual health service they could approach; although overall use of contraceptive services by young people had not increased, there were changes in patterns of use; for example, there was an increase in use of SBSHS by young women. Other research has found that barriers faced by young people in relation to sexual health information and advice services include a lack of awareness about services, embarrassment, worries about confidentiality and difficulty of access.^{17,18} These barriers have been reported particularly in relation to general practice.^{19,20} Numerous studies have also reported the importance of listening to the views of young people during the development of strategies for sexual health services and SRE.^{15,21–23}

Research on the sexual behaviour of young people clearly recognises the complexities of the issues involved in developing appropriate services. For example, Marston and King²⁴ completed a systematic review concerning sexual behaviour among young people, based on a thematic analysis of data from qualitative studies. This emphasised the importance of a number of social factors, including, for example, the stigmatisation associated with condom use, seen by some as indicating lack of trust in a sexual partner. At the

same time, however, they noted marked overlaps between existing studies and argued that there was a need to broaden the range and scope of research concerning sexual health among young people. There have also been concerns about the available evidence in relation to sexual health interventions. For example, a methodological review by Oakley *et al.*²⁵ examining sexual health education interventions for young people found a lack of rigorous studies: only 18% of 65 outcome evaluations were judged to have met basic methodological criteria. A major recommendation emerging from this study was for the funding of a randomised controlled trial (RCT) with a follow-up of 5–10 years. Graham *et al.*¹⁷ undertook a RCT to explore a teacher-led intervention to improve teenagers' knowledge of emergency contraception; this demonstrated increased levels of knowledge but did not show an impact on sexual behaviour. Similarly, Dilorio *et al.*²⁶ demonstrated that a school educational initiative, based on social cognitive theory, improved self-esteem and self-efficacy; however, the study did not measure actual impact on behaviour.

When the current study was designed, the team was aware that the range of available studies specifically concerning sexual health services within schools, or linked to schools, was likely to be limited. There have been two previous systematic reviews in the area; however, they both predate current policy and practice initiatives in the UK by some years. Kirby *et al.*²⁷ carried out a systematic review of school-based sexual health programmes, measuring the incidence of behaviour change in connection with 23 separate school-based clinics. The results were mixed, but this review and subsequent research²⁸ do suggest that some programmes delay onset of sexual activity and reduce sexual risk-taking behaviour. The more successful school-based programmes were described as being those that concentrated upon specific, narrow goals – such as delaying intercourse or using condoms – rather than those that spent time addressing other issues such as parenting, gender roles and dating. The more effective programmes also used experiential techniques to personalise information, as well as discussing media and peer influences. Fothergill and Feijoo²⁹ conducted a systematic review of school-based sexual health clinics; having identified wide variations in the types of services offered, they emphasised the need to define a recognised best-practice approach. Finally, they identified the important role that parental support can play in developing such services – a finding shared with an earlier study by Santelli *et al.*³⁰

While this study has been in progress, the SEF in the UK has also been carrying out a mapping survey of SBSHS in England.⁶ There are some clear parallels between the SEF findings and those of this study; for example, both demonstrate that although there has been an expansion in SBSHS and SLSHS in recent years, there are wide variations in service models and in their distribution. There are also some differences between the SEF study and this one. For instance, the SEF study provided an estimate of the proportion of schools in England that already offer some form of SBSHS. This study has a broader focus in some respects, as it addresses all parts of the UK and discusses both school-based and school-linked services. However, the

mapping element of the present study was more limited than the SEF study in one respect, as it was intended to identify service models and contextual factors that could inform the systematic review, rather than measuring levels of implementation. Throughout the study period, the research team has liaised closely with the SEF in order to share interim findings and to develop complementary approaches. The team also shared the results of early literature searches with Jonathan Shepherd and colleagues in Southampton, who have been undertaking a related study about young people and sexual behaviour. Discussion in the chapters that follow has been informed by these helpful exchanges, in connection with specific themes.

Chapter 2

Overall study objectives and mapping study methods

Introduction

This chapter provides an overview of the study objectives and overall design, as well a discussion of the methods used to map current UK service models. The systematic review methods are discussed separately, in Chapter 5.

The objectives of the project were to:

1. define and describe the range of models, settings, staffing patterns, funding arrangements and (where possible) levels of take-up for SLSHS for young people in the UK
2. review and synthesise existing evidence from qualitative and quantitative studies, concerning the effectiveness, acceptability and cost-effectiveness of identified school-linked UK services
3. assess the costs and benefits of specific interventions, using an appropriate baseline model
4. identify potential areas for further research concerning SLSHS for young people in the UK.

Study design and rationale for the service mapping component

The project was commissioned by the HTA programme, as an evidence synthesis focused specifically on SLSHS and SBSHS for young people. The evidence synthesis itself is based on three distinct reviews, addressing the second of the above objectives through analyses of quantitative evidence of effectiveness, qualitative evidence about user and practitioner views, and a mixed-methods synthesis. The methods for these three reviews are presented fully in Chapter 5. The team encountered a lack of robust evidence to support the development of a baseline model and of cost-effectiveness analysis; this is discussed further in Chapter 9, which presents a proof-of-concept model, and in Chapter 10.

The mapping study was designed to address the first objective in particular, and also to contribute to the final one. The research team was aware at the outset that the study was taking place during a period of rapid policy change at national level in each country within the UK, alongside diverse local initiatives within individual schools and sixth form colleges. The mapping study was intended to create some points of reference for discussion of the review and evidence synthesis findings, in order to enable the team to formulate conclusions and recommendations attuned to the UK context. The aims were to elicit descriptions of current service models, as well as data about issues such as scope, staffing, marketing, user involvement, and any barriers or sources of support encountered. However, there was no intention to evaluate specific models, nor to assess the extent of their dissemination in different parts of the UK. These issues were beyond the scope of the mapping study.

The mapping study used two data collection methods, which are discussed, in turn, below: a questionnaire-based survey of school nurses and in-depth telephone interviews with people in service management and coordination roles. Research ethics and governance approval were obtained through the National Research Ethics Service. The design of the questionnaire and of the interview schedule was informed both by discussion with the study advisory group, and by three focus group discussions with young people who belonged to sexual health service user networks in South Yorkshire. Reflections on the main limitations of the study follow at the end of this chapter.

The school nurse survey

The rationale for a survey of school nurses was based upon the fact that this professional group is most consistently involved in the active delivery of SBSHS and SLSHS. School nurses are therefore well placed both to describe current, local services and to identify issues such as barriers or facilitators to service development. A questionnaire-based

survey was adopted as the most feasible method available for the collection of data from a large, UK-wide sample.

The questionnaire survey was planned and designed by the research team, in consultation with the Community Practitioners' and Health Visitors' Association (CPHVA) Officer for Schools and Public Health – a member of the project advisory group. The questionnaire consisted of closed questions, constructed to collect data on key elements of sexual health services in schools, including composition, funding, scope and nature of services (see Appendix 9). In addition, free text sections invited respondents to add comments about themes such as perceived gaps in services and future research priorities. Overall, 1400 questionnaires were sent by post to individuals, using the complete CPHVA school nurse database. Each questionnaire was accompanied by an introductory letter and contained a stamped-addressed envelope for reply. In total, 205 completed questionnaires were returned over a 3-month period. This is a low response rate (14.64%); however, as discussed in Chapter 3, the 205 questionnaires returned do provide coverage of all parts of the UK.

Quantitative data from the questionnaire were analysed using SPSS to produce descriptive statistics on subjects such as skill mix, services provided and funding arrangements, concerning both school-based and school-linked services. Data were also subject to correlation analysis to explore links between, for example, skill mix and nature/scope of the services provided. An analysis was also performed to explore differences between service models that were defined by respondents as either wholly focused on 'sexual health' or more broadly focused on 'general health'. Free text comments were transcribed into WORD files, under the headings of the original questions. Two team members grouped these into clusters of related topics, and the distinct topic clusters were circulated to four additional team members for further analysis. Each team member drafted a narrative summary related to their cluster of topics, which was circulated to the whole team for checking and discussion. In this way, the themes presented in Chapter 3 were defined and the findings drafted. Draft findings from the survey as a whole were presented to the project advisory group for discussion before the report chapter was written.

The telephone interviews

Telephone interviews were conducted with 51 individuals identified as having a lead role in implementing strategies in sexual health promotion and/or reduction in teenage pregnancy in all 10 English Strategic Health Authorities, and in public health/health promotion networks within the NHS in Wales, Scotland and Northern Ireland. The sample was derived from consultations with our advisory group and subsequent 'snowball' sampling from initially identified participants. Two sets of considerations underpinned the sample selection. Firstly, the team ensured that every English region and each country within the UK was represented. Secondly, the team consulted with contacts in each area in order to identify participants with a clear, current role in managing or coordinating SBSHS and/or SLSHS. This point was raised in each initial telephone call to potential participants; where this conversation revealed that this criterion was not met, alternative contacts were pursued. An introductory letter and consent form (see Appendix 10) was sent to individuals with instructions on how to contact the research team. Telephone interviews were then conducted at a convenient time for the participant and calls recorded digitally. A semistructured interview topic guide was drafted by the project team, in consultations with our advisory group. This is attached in Appendix 11. No invited participants who met the sample criteria declined to take part.

Digital interview recordings were transcribed and subject to an initial analysis that placed verbatim data extracts into a grid based on the topic guide questions. This allowed all answers to each question, from each respondent, to be examined side by side. Team members also examined the transcripts for any themes falling outside the topic guide headings, but none was found. This approach was informed by the 'framework analysis' approach.³¹ The data within each topic guide heading were then subject to further analysis, in order to identify specific subthemes. For example, 'involvement of young people' included aspects of service take-up, and also aspects of participation in decision-making. The analysis for each topic guide heading was conducted by two members of the project team who then compared their analyses and circulated a draft summary to other members of the team. A final stage involved three members of the project team reviewing the overall data analysis

and checking for consistency and for any overlaps between subthemes. As with the draft school nurse survey findings, emerging findings from the interview analysis were discussed with the project advisory group before a draft report chapter was completed.

Conclusion: study limitations

In relation to the school nurse survey, the low response rate is a clear limitation. The use of the CPHVA database was a pragmatic decision, based on expert advice; in order to facilitate responses to a long and detailed document, returns were accepted during the whole January 2008–April 2008 period. No reminders were issued; however, the team had initially anticipated issuing a reminder by e-mail, but this proved not to be feasible (the database information was not sufficiently complete).

The low response rate is mitigated to some extent by the UK-wide participation, although Scotland, Wales and Northern Ireland remain under-represented. The mapping study was conducted within a very tight time frame, and the team judged that the 205 responses received by the end of April 2008 had provided sufficient data to meet the limited aims of this phase of work. There is a further limitation of the survey: that is, the fact that respondents were asked to list the geographical area in which they worked, but not to provide a postcode or other evidence specific location. Thus, it was neither possible to eliminate possible duplication within responses, nor to quantify the number of distinct service models and initiatives. Another limitation of the questionnaire was that it did not ask what type of service local schools were linked in with, i.e. dedicated young people's services, community contraceptive services, genitourinary medicine (GUM) clinics, general practice or outreach programmes. This level of detail was felt to be beyond the scope of an already lengthy document. However, the aim of the survey

(and of the mapping study as a whole) was not to measure levels of service implementation within or across countries in the UK – which would have been beyond the scope and resources of the study – but to identify basic service configurations (and some issues related to the service context). As stated earlier, this was to ensure that discussion of the evidence synthesis findings could be informed by an understanding of current UK policy and practice.

In retrospect, the initial distinction made in the survey questionnaire between 'general health' and 'sexual health' services did not prove robust. This distinction had been based on expert advice, and, as a pilot exercise, the questionnaire was completed by the CPHVA officer who was a member of the study advisory group. This led to some minor refinements; however, a more extensive pilot process was not conducted. Findings from some aspects of the questionnaire responses (particularly the free text elements), and more strongly from the interviews, showed that the 'general health/sexual health' distinction is not always clear in practice. This point is illustrated in more detail in Chapters 3 and 4, where it is suggested that a spectrum of emphases might be a more appropriate way to view these distinctions, rather than simple alternatives. This means that although Chapter 3 presents some apparent differences between the services described by school nurses as 'general' and those described as 'sexual health', these findings might be better viewed as suggestive of a need for more in-depth exploration, rather than as robust conclusions.

In relation to the service coordinator interviews, there are also some weaknesses in the sample. While representation from England is very good and fair from Scotland and Wales, it is limited to just one respondent from Northern Ireland. In view of the differences in policy contexts between the four parts of the UK, this suggests a need for caution. However, core areas of interest (such as the impact of service design on confidentiality procedures) were common to responses from all parts of the UK.

Chapter 3

The mapping study: school nurses' perspectives

Introduction

As discussed in Chapter 2, the mapping study was intended to inform the evidence synthesis by identifying current forms of SLSHS and SBSHS in the UK. The first component of the mapping study was a survey of school nurses in the UK, by postal questionnaire. By virtue of their professional role, and their day-to-day contact with school students and health and education staff, school nurses are well-placed to describe current practice developments and some features of their organisational contexts.

First, we summarised the response rates from different parts of the UK. Following this, the findings from the quantitative analysis of survey returns were presented in relation to on-site, school-based services and then to off-site, school-linked services. In each case, the questionnaire contained distinct subsections for participants to complete, concerning services focused specifically on 'sexual health' and services described as focused on 'general health' with a sexual health component. This generated four potential permutations:

- school-based 'sexual health' service models
- school-linked 'sexual health' service models
- school-based 'general health' service models
- school-linked 'general health' service models.

These permutations had been discussed with Project Advisory Group members during the questionnaire design process, and questionnaire responses included data relating to all of them. However, for reasons that are explored further below and in Chapters 4 and 10, caution is needed in connection with the distinction between 'sexual health' and 'general health' service models. In this chapter, analyses of all aspects of the data are presented. The limitations of some of the analyses are explained in the associated commentaries and the concluding discussion.

The questionnaire also included free text sections, and the analysis of these responses follows the

presentation of the findings from quantitative analyses. The analysis is presented under headings drawn from the questionnaire sections. In line with established practice in qualitative analysis, these responses have not been quantified; however, where analysis showed that responses clearly reflected a substantial majority or a clear minority view, this distinction has been made. The concluding discussion summarises the main messages from both the quantitative and the qualitative survey data.

The response rate and the scope of the survey

There were 205 questionnaire returns (*Table 1*) from the circulation through the Community Nurses and Health Visitors' Association membership list and contacts in the School and Public Health Nurses' Association to 1400 individuals (as discussed in more detail in Chapter 2). While the response rate of 14.64% is low, the survey did obtain data from most regions in England, Wales, Scotland and Northern Ireland. A majority of respondents were from England; Scotland was substantially represented, with some gaps, notably Greater Glasgow. A small number of responses came from Wales and Northern Ireland.

Findings: service titles

Service titles were immensely varied, and very few referred directly to sexual health. Listed below are the titles mentioned for SBSHS and SLSHS; those shown in italic text were mentioned most frequently:

- Bodyzone
- *Brook Outreach*
- CASH (contraception and sexual health)
- *'The CHAT room'*
- *CHATS (Confidential Health Advice Teenage Service)*
- *CHAT (Counselling Help & Advice for Teenagers)*
- Choices

TABLE 1 Questionnaire responses by region and country

England: region	Number (n= 169)
East Midlands	11
East of England	9
London	16
North East England	16
North West England	29
South East Coast	11
South Central	8
South West	17
West Midlands	21
Yorkshire and Humber	21
Northern Ireland (NI): region	Number (n= 7)
Northern NI	3
Southern NI	3
Western NI	1
Scotland: region	Number (n= 16)
Lothian	1
Highlands	1
Borders	3
Dumfries and Galloway	2
Fife	2
Ayrshire and Arran	3
Grampian	2
Tayside	2
Wales: region	Number (n=5)
North Wales	1
Mid and West Wales	2
South East Wales	2
Eight respondents did not indicate geographical region.	

- *Clinic in a Box*
- 'c:card' scheme/outlet/condom promotion scheme
- *Drop in (including confidential 'Drop in')*
- Health 4U, Time 4U, Hear 4U
- Healthy Respect
- MADIS ('Multi Agency Drop In Service')
- School Nurse Advice Session
- TAZ (Teenage Advice Zone), TAC (Teenage Advice Clinic/Room)
- THINK clinics and 'Think Ahead' health clinics
- Tic-Tac.

Listed below are the titles mentioned for school-based and school-linked 'general health' services, showing extensive overlap with the titles of 'sexual health' services. This observation itself suggests some caution concerning the 'sexual health/general health' distinction. Again, those shown in italic text were mentioned most frequently:

- Bodyzone
- *CHAT (Confidential Health Advice for Teenagers)*
- *Clinic in a Box*
- *'Drop In' (including 'Confidential Drop In' and 'Healthy Lifestyle Drop In')*
- Health Centre
- Healthy Respect
- Healthy Young People's Clinic
- Open Door Health Session
- Pupil Health Support
- School Health Service (or clinic)
- YEAH (Youth Enquiry and Health).

Findings: the features of SBSHS models

Questionnaire sections covered the specific products and services offered, staffing resources and funding sources. These are discussed in order below.

Products and services

Table 2 overleaf presents the findings from the analysis of questionnaire data concerning the range of provision identified by survey participants in their responses to distinct questionnaire sections about 'sexual health' and 'general health' facilities. Overall, numbers are greater than the 205 questionnaire returns because many respondents described more than one service model within their local area. This point suggests a second reason for caution, in relation to the 'sexual health/general health' distinction.

Table 2 shows that, as described by school nurses, sexual health service models were viewed as providing the widest range of facilities. Apparent differences included, for example, a higher frequency of references to the provision of emergency contraception in sexual health service models than in general health models ($p = 0.47$); the same applied to oral contraception ($p = 0.48$) and to condom distribution ($p = 0.19$). However, it is notable that the percentage of general health

TABLE 2 School-based services: provision

Product or service	SBSHS models (n = 132)	School-based general health models (n = 164)
Relationship advice	121 (91.7%)	161 (98.2%)
Emergency contraception	88 (66.7%)	57 (34.8%)
Oral contraception	47 (35.9%) ^a	25 (15.2%)
Condoms	110 (83.3%)	75 (45.7%)
Other contraception	34 (25.8%)	19 (11.6%)
Pregnancy tests	108 (81.8%)	81 (49.4%)
Referral to others	110 (83.3%)	135 (82.3%)
Girl only	25 (19.1%) ^a	35 (21.3%)
Boy only	21 (16%) ^a	27 (16.5%)

a Data missing, n = 131.

models reported to offer relationship advice was slightly higher. These points are discussed further in the concluding section of this chapter.

Staffing and skill mix

Table 3 below provides a breakdown of data concerning staffing and skill mix in school-based service models. The analysis does suggest that there may be differences between sexual health and general health service models; in particular, medical practitioners were described more commonly as part of the staffing mix in sexual health models than in general health models. Sexual health models also included more examples of multidisciplinary teamwork; 'other staff' named included counsellors, drug workers and staff with training in trained gender and sexuality work, as

well as youth workers and peer educators. Overall, therefore, sexual health service models were associated with a broader skill mix than general health service models, as well as appearing to offer a wider range of expertise and services to young people. There was a notable lack of social care staff within both sexual health and general health service models.

Funding in school-based services

Table 4 provides information about the funding arrangements for school-based sexual health and general health service models. As can be seen overleaf, the majority of funding came from the NHS for both types: 70.5% of sexual health model funding and 85.4% of general health model funding. However, there was a greater degree of

TABLE 3 School-based services: staffing and skill mix

Staff	School-based sexual health models (valid %) (n = 132)	School-based general health models (valid %) (n = 164)
School nurses	120 (90.9)	161 (98.2)
Doctors	20 (15.2)	14 (8.5)
Teachers	4 (3)	4 (2.4)
Youth workers	50 (37.9)	28 (17.1)
Volunteers	4 (3)	3 (1.8)
Peer advisers	11 (8.3)	8 (4.9)
Social workers	2 (1.5)	0 (0)
Other staff ^a	54 (40.9)	19 (11.6)

a Other staff named with reference to general health service models include: Connexions advisers, contraception and sexual health (CASH) nurses, community link workers, drug workers. Other staff named with reference to sexual health service models include: Connexions advisers, drug/alcohol workers, voluntary organisation staff, community sexual health team, CASH nurses, counsellors, nursing assistants, young men's workers.

TABLE 4 School-based services: funding sources

Funding provider	Sexual health service models in schools (n= 132)	General health service models in schools (n= 164)
NHS	93 (70.5%)	140 (85.4%)
LA	7 (5.3%)	4 (2.4%)
NHS and LA	15 (11.4%)	3 (1.8%)
Other	17 (12.9%)	17 (10.4%)

joint funding from the NHS and local authorities (LA) for sexual health service models (11.4%) compared with general health service models (2.4%).

In addition to mainstream NHS and LA education funding, a very large number of 'other' sources of funding were listed by respondents, sometimes as sources of pump-priming or pilot project money used to initiate services. The following funding sources were identified for all forms of school-based services:

- formal strategic partnership funding, particularly through local Teenage Pregnancy Partnerships, but also including Children and Young People's Partnerships
- informal pooling of funds, for example from education, youth services and the school nursing budgets
- jointly agreed funding between school(s), college(s) and primary care trust(s) [PCT(s)]
- short-term Youth Action programme
- the Welsh Assembly
- voluntary organisations
- Care Trust Plus (a PCT that also has additional responsibilities for adult social care, public health and children's services).

Summary

An analysis of questionnaire responses suggests considerable diversity between forms and levels of school-based sexual health provision across the UK, in terms of the staffing mix and the services offered. Services described as 'sexual health' services appear to be more likely than 'general health' services to involve a wide range of practitioners, including medical practitioners in some locations. In turn, this broader staffing base may be associated with a wider range of facilities. However, for reasons discussed further at the end of this chapter and in Chapter 4, the distinction between 'sexual health' and 'general health'

emphases may not be a robust one. Nevertheless, the data suggest that there are different service models being implemented, which offer the potential for comparison in terms of user take-up and of impact on outcomes. This point is developed further in Chapter 10.

Findings: the features of SLSHS models

School-linked services included both primary care clinics and youth service drop-in facilities located near to schools, as well as outreach services. As defined here, these services were 'linked' through more than individual referral processes: that is, there were collaborative arrangements that included signposting to school students through posters, announcements or by other means, as well as liaison of some kind between health and education staff over planning and/or aspects of service delivery.

Products and services

Table 5 provides an overview of products and services offered in school-linked service models. Both sexual health and general health service models of 'school-linked' provision offered 'sex advice', although this was slightly more frequent in sexual health models (97%) than general health models (89.2%); the same was true of 'relationship advice' (89% vs 84.9%, in contrast with the finding concerning school-based models). However, the sexual health service models were described as providing contraception and pregnancy testing more commonly than the general health services. Other examples of sexual health models providing more sex-oriented products or services include condoms (97% vs 57%), pregnancy tests (93% vs 52.7%) and emergency contraception (61% vs 49.5%). The greatest difference was in relation to provision of oral contraceptives (73% vs 30.1%), as might be expected.

TABLE 5 School-linked services: provision

Product or service	School-linked sexual health service models (n = 100)	School-linked general health service models (n = 93)
Sex advice	97 (97%)	83 (89.2%)
Relationship advice	89 (89%)	79 (84.9%)
Emergency contraception	88 (88%)	46 (49.5%)
Oral contraception	73 (73%)	28 (30.1%)
Condoms	97 (97%)	53 (57%)
Other contraception	61 (61%)	28 (30.1%)
Pregnancy tests	93 (93%)	49 (52.7%)
Referral to others	77 (77%)	61 (65.6%)
Other contraceptive advice	28 (30.1%)	28 (30.1%)
Girl only	19 ^a (19.2%)	25 (26.9%)
Boy only	17 ^a (17.2%)	21 (22.6%)

a Missing data, n = 99.

'Other' contraceptive services included:

- contraceptive patch
- Depo-Provera (depot medroxyprogesterone acetate)
- Implanon
- intrauterine device
- Femidom.

Services described as sexual health service models were more likely to include emergency contraception ($p = 0.001$), oral contraception ($p < 0.001$), other contraception ($p < 0.001$) and pregnancy testing ($p = 0.019$). As illustrated in the next section, these services were also described as having a more extensive range of practitioners engaged in delivery.

Staffing and skill mix

School nurses were mentioned most frequently as those staffing school-linked service models: 66% with reference to sexual health service models, and 87% with reference to general health models (*Table 6*). Youth workers were the second most frequently mentioned staff group (44% and 27%, respectively). It can also be seen that school nurse involvement was more significant (as a percentage) in general service models than sexual health service models. However, this may have reflected the broader range of other staff involved in sexual health service models, particularly at the levels of youth work and medical practitioner participation.

'Other' staff mentioned as involved in school-linked sexual health service models included:

TABLE 6 School-linked services: staffing and skill mix

Staff	School-linked sexual health service models (n = 100)	School-linked general health service models (n = 95)
School nurses	66 (66%)	83 (87.4%)
Doctors	42 (42%)	13 (13.7%)
Teachers	5 (5%)	8 (8.4%)
Youth workers	44 (44%)	26 (27.4%)
Volunteers	6 (6%)	2 (2.1%)
Peer advisers	7 (7%)	9 (9.6%) ^a
Social workers	0 (0%)	2 (2.1%)
Other staff	55 (55%)	24 (25.3%)

a Missing data, n = 94.

TABLE 7 School-linked services: funding

Funding provider	SLSHS (n=96)	School-linked general health services (n=88)
NHS	73 (76%)	70 (79.5%)
LA	4 (4.2%)	3 (3.4%)
NHS and LA	3 (3.1%)	3 (3.4%)
Other	16 (16.7%)	12 (13.6%)

- Child and Adolescent Mental Health Services (CAMHS)
- psychologists
- contraception and sexual health (CASH) advisers
- sexual health nurses
- Connexions advisers.

Other staff mentioned as involved in school-linked general health service models included:

- Connexions advisers
- CASH nurses
- drug workers
- health visitors
- school counsellors
- community link workers.

As suggested above in connection with school-based services, the analyses of these aspects of the questionnaire data suggest that differences in skill mix are associated with differences in service provision.

Funding

Table 7 provides information about the funding arrangements for school-linked service models. As can be seen, the vast majority of funding came from the NHS for both types of service models (76% for sexual health and 79.5% for general health service models). The level of LA funding was lower than in school-based service models, and also more evenly matched between sexual health services (3.1%) and general health services (3.4%).

Summary

There were parallels between the analysis of questionnaire data concerning school-linked services and the findings summarised earlier about school-based services. The key points about diversity, and about the relationship between skill mix and service provision, apply to both.

Analyses of free text responses

The free text sections of the questionnaire invited respondents to comment on some practical issues (e.g. perceived gaps in local services) and some broader matters (e.g. intrinsic strengths and weaknesses of school-based and school-linked services). The main findings from an analysis of these responses are presented as follows, and under each subheading the key points are illustrated with brief verbatim extracts. One question received very divergent responses – that of inviting general comments on the nature and scope of local services. Many respondents left this blank, perhaps because they viewed it as overlapping with later questions (e.g. in relation to service gaps). The question about awareness and use of current research also elicited very few responses. Therefore, these data have been excluded here. Finally, some free text comments referred to services other than sexual health services, for example sex education. Unless the comments specifically addressed links with sexual health services as defined in Chapter 1, these responses have not been included.

The themes addressed, in order, are:

- local services: perceived gaps
- local services: planned new developments
- school-based and school-linked services: perceived strengths
- school-based and school-linked services: perceived weaknesses
- desired changes in local and/or national policy
- priorities for future research.

Local services: perceived gaps

Pressures on staffing emerged as the most common concern, with specific reference to the lack of staff with specialist sexual health training. This was followed closely by concerns about barriers to service access, both in terms of timing and location,

especially for young people living in rural areas. Comments were also received about the need to broaden the range of facilities and products available.

Statements about perceived shortages of school nurses and other appropriately trained staff were often quite detailed; they also suggested that school-linked services were vulnerable to cutbacks in some areas:

There simply are not enough school nurses to meet all the Public Health demands on our service. Our nurses are run off their feet with so much vulnerable children work that they won't be able to continue at the pace they are working at. As a consequence pupils do not receive the service they are entitled to. (0642)

Staffing difficulties were sometimes associated with organisational barriers, either within schools or within local partnerships, and faith schools were frequently mentioned as unwilling to develop sexual health services:

Services were stopped as joint funding was not agreed. Currently the school nurse has stopped delivery because 'training' and 'time' was not jointly paid and funded. (0793)

Not all schools and school nurses offer the same service, due to mainly politics both in the PCT related to commissioning and due to governors' opinions. (0092)

School nurse drop-ins only happen monthly due to staff shortages and often not in faith schools. (1030)

Examples of barriers to access, for young people, were raised frequently. Here, too, there were many practical examples from local settings, concerning both location and opening hours. These barriers were relevant both in school-based and in school-linked services:

Contraception and sexual health service at local clinic runs 9.30–12.30 one day a week, [it] is a one mile walk from local secondary school, who only have a 40 minute lunch break. (0784)

Clinics should open around 4.15 p.m. 6.30 p.m. start difficult for teenagers. (0381)

Due to lack of school nurses I have to offer drop-ins on inappropriate days e.g. Thursday – not good for emergency contraception after weekend sex. (0598)

Facilities adapted and shared so not ideal. We need a purpose-built room which will allow a pleasant environment in which we can offer a professional service. (0382)

Respondents from all areas of the UK except London identified provision for young people in rural areas as problematic:

Access to GUM clinic very difficult – several bus changes needed. These pupils living in rural areas have no access to advice/support after school. (0415)

Rural area problematic due to children bussed into school and bussed home. Providing an after school service difficult, does not reach whole school population. (0251)

There is NO family planning service accessible to adolescents (except GP) for 20 miles. There is NO provision of sexual health information for adolescents in school – the curriculum is open to the individual interpretation of each school and is very poorly covered. (0854)

Some respondents wished to see gaps in provision addressed through wider use of outreach services:

Although we run three youth clinics, there are areas that are not covered... Would love to see a bus that travels round these areas and gives same service as youth clinics. (0521)

Local services: planned new developments

The majority of planned new developments centred on expanding existing, established services to other schools in the area. The 'Clinic in a Box'

scheme was mentioned most frequently. Plans for future expansion were not confined to on-site provision but included a variety of potential venues such as pupil referral units, sixth form colleges, a sexual health clinic in a town centre (near to a secondary school), the youth offending service and youth centres:

It is envisaged that 'clinic in a box' will be operational in all high schools in the near future. (0179)

To expand the extended open-door service across all schools to include chlamydia screening, condom distribution and pregnancy testing. (1303)

We will be offering 'clinic in a box' to the youth offending service and another youth centre. (0501)

Elsewhere, school nurses reported trying to gain agreement to enhance existing services through the addition of particular interventions. Frequently mentioned examples included the distribution of condoms, pregnancy testing, chlamydia screening and emergency contraception:

Awaiting confirmation from school governors to distribute condoms, emergency contraception to undertake pregnancy tests. (1012)

While there were many references to hopes and plans for future developments, many of these were expressed in aspirational terms, rather than being described as formally approved. For many, lack of funding was identified as a key obstacle to progressing with implementation, and indeed, one school nurse had left her post for these reasons:

No progress on issue for past 4 years – have left my job as feel banging my head against brick wall! (0227)

School-based and school-linked services: perceived strengths

The most frequently cited strengths of school-linked and school-based services concerned their potential to facilitate take-up among young people by providing easy access, confidentiality and a safe environment with trusted staff. Opportunities to

make links with SRE and with other local health services were also identified as important.

Easy access was a point noted in relation to school-based facilities in particular. However, a further consideration was the ability to tailor services and follow-up processes to local needs:

Accessible, confidential, able to follow up young people easily, not putting themselves at risk – we had a young girl with STI symptoms who travelled to GUM clinic on the bus (with a friend) during the school day – parents unaware. 15 mile round trip, then needed to repeat the process for treatment for gonorrhoea the following week. (0784)

Based on premises, easy access, easier follow up, more pupils access and are aware of service. (0595)

Can tackle local issues and follow up individual young people. (0381)

Participants also highlighted staffing continuity, approachability and skills in identifying and working with vulnerable young people:

School nurses are able to provide a safe environment where students can discuss sensitive issues. (1078)

If young people know there will be a recognisable person on their first visit it helps reduce the fear. (0548)

A robust approach to protecting confidentiality was seen as crucial; this was seen by some as a reason why some young people might prefer school-based or school-linked services to GP surgeries:

They don't like to go to their GP as somebody might see them and tell their parents. (0242)

However, protecting confidentiality within school environments is a complex issue, and this is discussed further both in relation to perceived weaknesses of services, and in Chapter 4. A final 'strength' referred to by some respondents was the scope to develop interprofessional cooperation, specifically via joint work with SRE staff:

One strength is that the school nurse... also runs drop-ins. [And] ... also contributes to sexual health education within [the] classroom, to help connect what is taught in [the] classroom to linking with service provision. (0709)

School-based and school-linked services: perceived weaknesses

Many of the examples given in response to perceived weaknesses concerned resources, access and equity issues, professional attitudes and aspects of service implementation and management; i.e. they were locally specific, rather than being intrinsic features of school-based or school-linked services. However, one of the issues raised that could be seen as an intrinsic weakness concerned the lack of provision during school holidays. A second intrinsic limitation was related to the needs of children and young people who are not at school either regularly or at all:

Does not embrace hard to reach young people, those educated otherwise, young offenders, travellers, etc. (0362)

Another general issue raised by many respondents was the variable pattern of service availability, created partly by the relative autonomy of schools:

Need consent of governors. Some schools may be more accepting than others. This may mean inequitable service. (0112)

Not all schools allow contraceptive services or even listening service. School can dictate what can and cannot be done. (0964)

Secondly, while the potential to offer a confidential setting was mentioned as a 'strength', there were also concerns that both policy differences and physical locations could undermine this:

Interference by teachers whilst pupils are waiting, moving them on, objecting to noise and noting who is there (confidentiality). (0140)

In a small school, anonymity is a problem, therefore, best to have general drop-in so people don't know it is a sexual health issue being dealt with. (0607)

Differences in confidentiality policies between health and school professionals. (1012)

Tensions between different professions were sometimes a larger concern, over and above agreements about confidentiality:

Some teachers view teenagers as children and worry about the reputation of the school. This can prevent access to services and support. (0399)

School nurses have set up three health drop-ins in secondary schools but none are particularly successful as the schools fail to promote them in the way agreed at multiagency meetings ... [One] Head Teacher has banned pupils coming into school at break time so the children could not access the room. ... A great deal of negotiation has taken place with the schools and the pupils completed questionnaires on what they want. If there is no one person to drive it inside the school then pupils cannot access in accordance to their needs. (0462)

Respondents in most areas mentioned examples of hostile or ambivalent reactions to proposed services, from parents, staff and governors, and some wrote at length on this issue. The reluctance of faith-based schools to provide sexual health services was also highlighted:

Local opposition – threats to school, threats to staff. (1038)

Cultural/faith issues hinder development of all schools opting into school-based sexual health services. (0115)

At the same time, there was recognition of a need to address the perspectives of teachers, governors and parents:

For schools to fully support and promote a service there also needs to be some sense of ownership/benefit for the school. (0772)

A very small number of respondents expressed a concern that school-linked facilities may create dependency, and undermine young people's abilities to take up mainstream NHS services. A

tiny minority also expressed concerns that sexual health services might promote or encourage sexual activity. A different tiny minority was concerned about media depictions of the service as doing this:

The media saying we are promoting/
encouraging sex. (1012)

Desired changes in local or national policy

Responses to this issue tended to focus on specific types of service expansion or improvements rather than on desired changes to *policy* per se. A majority of participants wanted an increase in the scope and availability of school-based services, with school nurses taking on expanded roles:

It would be helpful if school nurses could issue emergency contraception, do pregnancy testing and screen for chlamydia. (0285)

Respondents in every country and region wanted improvements in PSHE/SRE, and most expressed the view that it should be compulsory (the survey predated the policy review that took place in 2008, and the proposed move in this direction). Many respondents also wished the government to tackle inequities in provision by requiring schools to adopt a minimum level of provision:

Policy should strongly advise all school heads/governors to allow a full sexual health service to be available inclusive of condoms, emergency contraception (EC) pregnancy tests, chlamydia screening and testing. (0405)

Many participants expressed concerns about funding levels and sustainability:

The service is reliant on short term funding ... There is a sexual health strategy but everyone is paying lip service to it. (0709)

Not to fund us for nearly 6 years then drop us whilst still expecting us to do the job with fresh air! (0102)

Many also criticised the emphasis of current policy and suggested a need to emulate the successful strategies used by other nation states. Some did

not challenge overall policy direction, but simply wanted clearer guidance:

More emphasis on relationships and less on the mechanics of sex. (0558)

More emphasis on positive aspects of sexual health rather than trying to meet targets. More FP [family planning] nurses, school nurses. Increased profile for sexual health. (0936)

More clarification on provision of emergency contraception and condoms under age 13. Grey area between age 12–13 in current policy. (0598)

There were specific policy and legal concerns in relation to Northern Ireland:

Reduce legal age in NI from 17 years to 16 years in keeping with rest of UK. Ensure all schools commit to adequate sexual health lessons. Law in NI needs to change to offer legal abortion where required. (1038)

Finally, a small minority wanted a general shift in emphasis in policy direction, such as stressing abstinence and/or reducing the perceived acceptance of sexual activity early in adolescence:

A drive for later onset of sexual intercourse. Reducing acceptance of early sex by publishing how many 18 year olds have not had sex. Talking to boys to discourage kudos of many partners – teaching parents to teach relationships, etc. Present policy has not worked. (0381)

A considerable number of respondents answered 'no' to this question about desired policy changes; a smaller number answered in the affirmative but without elaborating further. A wide range of materials were cited including the DfES Extended Schools guidance, Teenage Pregnancy Guidance documents, SEF publications, and local reports or evaluations. Liaison with local teenage pregnancy coordinators was widely reported in relation to accessing guidance and information. Some respondents cited the *National Service Framework for Children, Young People and Maternity Services* but they did not provide details about any specific element of this framework. With the exception of

'The Social Exclusion Report' and the 'Teenage Pregnancy Strategy', however, precise titles and/or publication details were rarely offered for any of the documents cited.

Priorities for future research

This question elicited many specific topics. These can be grouped into the thematic areas outlined below, and are summarised here as a representation of school nurses' perspectives on potential areas of interest. In terms of assessing how far these areas have already been the subject of published research, some topics go beyond the scope of this report (e.g. some of the broader aspects of young people's views about sexuality and some very specific points about child protection procedures). Most, however, are related to the assessment of available research evidence concerning the impact of SBSHS and SLSHS, and this will follow in Chapters 6–8. In Chapter 11, priorities for future research are proposed, and under-researched topic areas from the list below are included.

The evaluation of service delivery and organisation, including the following aspects

- The role of school nurses within school-linked and school-based services.
- Understanding variations between schools and barriers to the introduction of sexual health services.
- Investigating inequalities in the distribution of services across the UK.
- Assessing the ways in which service providers engage young people in accessing services.

The evaluation of the impact of services and of specific service components

- The impact of issuing emergency contraception to girls who have been educated in its use, in terms of patterns of use and of risk-taking behaviours.
- The evaluation of different types of school-based and school-linked interventions in relation to health outcomes.
- The effect of 'just say no' programmes, including the role of religion.
- The impact of targeting young men in service delivery.
- The impact of school-based/school-linked services on the age at which young people start to engage with sex.
- The impact of school-based/school-linked services on risk-taking behaviour among young people.

Understanding young people's views and experiences in relation to sex, sexual health and relationships

- What messages do children receive about sexual behaviour, at differing ages, from advertising and other media?
- Perceptions about oral sex, risks and self-esteem among young women.
- Perceptions about relationships, sex and self-esteem among young men and young women.
- The effect of peer pressure on decision-making and first experience of sexual intercourse.
- The effect of alcohol on first experience of sexual intercourse.
- What do young people want from school-linked/school-based services?

Parents' views

- Parental views about providing and accessing school-based/school-linked services.

Legal issues, including child protection

- Understanding patterns of under age sexual activity.
- Differences in agencies' and professionals' procedures in relation to child protection.

Summary

To summarise, the level of detail in which this section of the questionnaire was completed suggests a high level of interest in potential future research among school nurses.

Conclusions

This chapter has presented the key findings from an analysis of school nurses' questionnaire returns. While the response rate was low, the returns included representation from all parts of the UK. The findings illustrate substantial variations in service patterns. There is a clear distinction between 'school-based' and 'school-linked' service models, although many findings applied to both (e.g. in terms of perceived gaps, strengths and weaknesses). The issue of confidentiality emerged as particularly important: school-linked and school-based services were described as able to offer higher levels of privacy and confidentiality to young people in comparison with primary care services. However, confidentiality could not always be guaranteed, as health and education procedures are sometimes in tension with each other around this issue.

The distinction the team had initially anticipated between a 'general health' emphasis and a 'sexual health' emphasis raises more complex issues. In their survey responses, school nurses provided data in connection with both. Some aspects of the results suggest that school-based and school-linked services that were described as 'sexual health' services were more likely to include a broad range of staff, including medical practitioners. This

enabled school nurses to deliver a wider range of options, particularly those requiring the ability to prescribe. However, it may be better to view the 'general health/sexual health' descriptions in terms of a spectrum on which particular examples can be placed, rather than as two alternative categories. This question is discussed in more depth in the context of service coordinator interview findings, in Chapter 4.

Chapter 4

The mapping study: perspectives from service coordinators

Introduction

As discussed in Chapter 2, the mapping study was designed to include complementary perspectives: those of school nurses engaged in service delivery, presented in Chapter 3, and those of individuals with roles in planning, coordinating or commissioning services. These are referred to under the general heading of 'service coordinators' here, and this chapter presents the findings from in-depth interviews with them. Some elements of the findings cover the same themes as those covered in the school nurse survey, such as staffing patterns and the range of advice and services offered, but add further detail and refinement. However, the interviews also had the scope to explore some additional themes, such as the ways in which services were 'branded' and marketed among young people, and some aspects of perceived take-up and participation among young people.

The chapter therefore has a slightly different sequence from the one in Chapter 3. After summarising brief points concerning study participants and service titles, the chapter covers the following themes:

- service models and levels of service provision
- service delivery – locations and opening hours; staffing resources
- organisational contexts – rationales, funding sources and marketing or 'branding' of services
- relationships between services and young people – factors affecting take-up and levels of participation
- relationships between services and schools – support and opposition
- research and development – monitoring and evaluation, planned future developments.

Where particular points are illustrated with an interview extract then interviewee roles and locations have not been given; as some were very locally specific, this could make some individuals identifiable. Instead, participant numbers are given. Interview extracts have been selected

both to represent consistent messages from the analysis (except where a minority viewpoint is described explicitly), and to represent perspectives from across the UK. Terms such as 'most' or 'the majority' are only used where analysis showed this to be appropriate.

Study participants

In total, 51 individuals in service coordination or management roles took part: 43 in England, four in Wales, three in Scotland and one in Northern Ireland. *Table 8* lists their roles.

Most interviewees combined strategic and operational elements in their work, in relation to the development of school-linked or school-based services. Teenage pregnancy coordinators commonly described their role as emphasising a strategic focus, often to facilitate the development of relevant services; their day-to-day contact with service delivery was usually limited. In contrast, interviewees with a management or coordination role within specific services tended to describe a more operational emphasis, for example in terms of supporting and managing school-based or school-linked staff.

Service models and levels of service provision

Reinforcing the messages from the school nurse survey findings, interviewees described wide variations in service titles and in actual service provision, both within, and between geographical areas. Neither the scope nor the physical location of particular services could be assessed simply from the titles.

Service titles

Interviewees indicated that providers sometimes opted for generic titles that made no direct reference to sexual health provision. Others used

TABLE 8 Interviewees' roles

Interviewee role	Number
Teenage pregnancy coordinator (with commissioning role)	13
Clinical staff with service management roles (including doctors and nurses), without commissioning role	12
Managers in LA services for children and young people, with planning and/or commissioning roles in relation to health (e.g. health improvement manager)	10
Coordinator of sexual health service or project (without commissioning role)	8
External consultant (no commissioning role)	2
Public health or health promotion specialists (not specific to sexual health, and without commissioning role)	2
SRE specialist (without commissioning role)	2
Non-clinical management support role in services for children and young people	2
Total	51

more descriptive terminology, sometimes based on consultation with, or contributions from, young people; some of these indicated a sexual health focus indirectly. The 35 distinct titles identified (some of which were duplicated) are listed below.

- Bob's Bungalow
- Bodyzone
- C2U
- Choices
- Drop box
- Feeling fruity
- Get it On
- Health clinics
- Health drop in
- Health for you
- Health place
- Health zone
- Healthy young people's clinic
- Hear for U
- Helping hands
- High Pod
- Info Shop
- Info Zone
- Just for You
- Low Down
- Nurse Drop In
- Options
- School nurse drop-in clinic

- SHAG
- Sorted
- Speak easy
- Strictly Confidential
- Sure Steps
- The Place at...
- Think in a Box
- Tic Tac service
- Time for you
- You matter
- Young & Responsible
- Youth Advisory Clinic.

There is some overlap with the titles listed in Chapter 2, as well as a number of additional examples. Interestingly, although some titles (e.g. Feeling Fruity, Get It On, SHAG) alluded to sexual activity, none made direct reference to sexual health provision. On the contrary, the majority suggested a more generic orientation to service provision (e.g. Health Place, Health Drop-in, Info Zone). A smaller number clearly emphasised the role of the health professional (e.g. School Nurse Drop-in Clinic). A few titles suggested an explicit focus on young people as service users (e.g. Choices, Just for You, Time for You). Some interviewees stated that the choice of title was underpinned by concerns about confidentiality and hence ambiguity could be an advantage in naming a service. A number of interviewees also reiterated the function of a title in demonstrating acceptability within the school context:

They're pitched as a health drop-in because that's what schools were comfortable with.

(Participant 2)

A small number of interviewees stressed the importance of young people's contributions in naming the service and designing the environment in which it would be delivered:

Young people were consulted about the building of 'Info Zone' – they gave it this name. It was purpose built because the young people decided on the services that they wanted in there and also the atmosphere and the design of the rooms ... It's not like going into a normal school environment. They've got leather sofas in there, they've got a nice, bright deep red wall and nice pictures up. They've got a plasma TV in there. So it's more like walking into the youth club, which is pretty up-market, you know, and they designed what it should look like. So at lunch time there's music on in

the background. You know, they've created a place and it's also right in the heart of the most deprived area in [this town].

(Participant 44)

The acceptance of a service title devised by young people could reflect recognition of their enthusiasm for the initiative and their willingness to participate in decision-making processes. It could also reflect knowledge about local cultural norms among staff as well as students. Some of the titles proposed by young people included: Just For You; Young and Responsible; Strictly Confidential. However, service titles chosen by service users were not always favourably regarded by service providers:

The other thing we've got now – which young people were involved with – is we've got some information cards and they've called them, unfortunately, SHAG Cards, that is Sexual Health Advice and Guidance. You know, we asked them to name them and design them, you know, and that's what they've given us so that's what we've gone with.

(Participant 30)

We discuss the ways in which services were 'branded' and marketed further below; these processes were described as 'sensitive' by many interviewees. In the following section, we identify the distinct modes and levels of service provision described by interviewees.

Service models

A minority of services were described as having been established for 8–10 years; the majority had been established in the last 5 years, with a few services established in the last 2 years. Interview findings did not show a relationship between the length of time a service had been established and its scope. Indeed some of the new services were the most extensive. Analysis of interview accounts identified five distinct levels of service provision, ranging from no distinct sexual health provision to comprehensive services. This spectrum mirrors the findings from the SEF survey in England, which was mentioned in Chapter 1, and which described the same basic range in slightly different terms. The five levels of service identified from service coordinator interview data are outlined as follows; these draw directly on the interview data and therefore differ slightly from those outlined in the

current UK government's *Sexual Health and HIV Strategy*.

Level 1: school-based general health provision but no distinct sexual health service

Almost all interviewees stated that some schools in their local areas had no sexual health service at all, beyond SRE teaching within the curriculum, and possibly access to a school nurse for general health advice. Two reasons were offered for the lack of services: religious ethos and the influence of governing bodies:

Some schools have refused to have any clinics – mainly faith schools.

(Participant 9)

In almost every region and country within the UK, interviewees described having prioritised the development of school-linked services in areas seen as having high teenage pregnancy rates. Most saw themselves as aspiring to extend services to other schools as and when resources permitted. Nevertheless, there was clearly enormous variation in the pace of development.

Level 2: school-based minimal sexual health service, offering advice and signposting only

Some schools were described as having an on-site service limited to the provision of sexual health advice, leaflets and signposting to other services outside the school. For some, this included a condom card scheme, but not actual condom distribution. School policies and opposition or ambivalence from governing bodies were cited as the key obstacles which restricted, or indeed prohibited, the availability of products or treatments:

It has to be information, advice and guidance without actually being provided with condoms or pregnancy tests.

(Participant 37)

However, in other examples, a lack of staff with appropriate training was the limiting factor:

What they can offer is very much dependent on how qualified the nurse is to deliver a particular service.

(Participant 36)

Level 3: school-based or school-linked basic service, offering advice, information and some products and/or services

Services in this category included the provision of advice, information about other services (referral pathways) and access to some products and services. This could include some but not all of the following: condoms, emergency contraception, pregnancy testing and/or chlamydia screening. The actual range of provision available, however, was often dependent upon skill mix and staffing levels:

Although it's presented as a tailored service delivery, in effect, it very much depends on the particular skills of individual practitioners servicing the clinic on any particular day.
(Participant 35)

Headteachers' views and/or the views of governing bodies also proved very important. Even where service provision was generally accepted and relatively extensive in remit, condom distribution was commonly portrayed as problematic:

It's the condom bit that they're more worried about. It's bizarre. They'll let you do emergency contraception actually in the school ... because there's no packets of condoms involved in it. You know, what they're worried about is kids then playing with the condoms and parents seeing it and things like that.
(Participant 7)

Level 4: school-based or school-linked intermediate service, offering information, advice and a wide range of products and/or services

This group of services offered information, advice and range of services that was not comprehensive, but was substantially greater than Level 3. This included most but not all of the following: condoms, emergency contraception, pregnancy testing, STI screening and referral to termination services.

Level 5: school-based or school-linked comprehensive service, offering information, advice and a full range of products and services specific to sexual health needs

These services offered everything provided by Level 4 services but also offered STI screening

and treatment and other forms of contraception in addition to emergency contraception. Some of these services were also linked to GUM services for STI treatment and to family planning services for additional forms of contraception such as intrauterine devices (IUDs) and implants. A few also offered human immunodeficiency virus (HIV)/hepatitis B and C (Hep B&C) screening. However, this level of 'holistic' provision was described by only a minority of respondents:

We thought we needed to do holistic drop-ins but have a nurse there who was specially trained and offer the full range of contraception services, but for the young people, they can be coming for anything. So there's a school health advisor ... a specialist nurse in contraception and sexual health ... so those services in the school provide condoms, emergency contraception, advice, general contraception, hormonal contraception.
(Participant 24)

Service delivery: locations, opening hours and staffing resources

Many of the service delivery issues illustrated by interviewees in the quotations below were common to all services spanning Levels 2–5. There were specific concerns about accessibility and confidentiality, in relation to location and to opening hours.

In terms of physical locations and facilities for school-based services, many interviewees stated that they lacked access to a permanent, purpose-built venue. Even when consultation rooms were available, staff did not necessarily consider them appropriate for the delivery of clinical services. For some, the location of services differed from day to day, depending on room availability. This could cause problems:

One of them is some rooms that are used by speech therapy and a classroom that's no longer used that the school health advisor's been given to use ... they're not ideal.
(Participant 24)

There's a whole variety of rooms ... lots of different venues.
(Participant 3)

A different, and atypical approach was the use of specific buildings which were located on the school

site but which were separate from the main school buildings. Sometimes this was described as a youth service or health facility:

Some of that (service provision) is by Youth Service that are on site in a separate building ... One of our schools does have an on-site clinic, which is a contraception clinic run by Health.

(Participant 31)

Sometimes the choice of location reflected a way of managing ambivalence from school management about a sexual health service:

It used to be the caretaker's bungalow and it's been turned into a sort of advice and drop-in type of thing. The school look at that as being out of school even though it's on site. Yeah, because when the chlamydia coordinator went to do some sort of talks around chlamydia and some screening, they [school management] wouldn't let them use the toilets in the school. They had to go to the bungalow to use the toilet!

(Participant 29)

The agreement we had with the governors was that we wouldn't do it [operate a drop-in service] during school hours in the school building, but they were happy that it happened, you know, within campus after school.

(Participant 37)

Interviewees suggested that recently built schools were more likely than older schools to provide dedicated premises, although some reported that the same specification that emphasised spatial arrangements, designed to prevent bullying, conflicted with the requirements for a confidential sexual health facility:

One of the issues has been with a lot of the new-builds – they're designed so that there's no confidential space really. I think it's a sort of anti-bullying kind of design and so it's quite hard sometimes to find confidential spaces.

(Participant 18)

Nevertheless, a few interviewees did identify early opportunities for collaboration with school redevelopment programmes, and were able to influence planning decisions in order to facilitate sexual health service provision:

The school's due to be replaced by an Academy next year ... it's at the planning stage at the moment ... We're going to make contact fairly soon to make sure that when the Academy opens, the clinic will open at the same time. So we'll be able to get in there.

(Participant 28)

Locations for school-linked services included LAs and health premises such as youth service facilities and health clinics. Staff involved in delivering sexual health services would then make the necessary arrangements to meet young people at an agreed venue:

Some of the schools have said that they don't want [sexual health provision] happening actually in the school premises, so what the school nurses do is they arrange then to meet the young people in the local health centre.

(Participant 7)

Interviewees reported that off-site premises offered some advantages, for example in relation to confidentiality. This was particularly the case when sexual health services were developed and delivered in conjunction with other services for young people:

A lot of young people felt if they went to these 'Health For You' sessions that they would be identified by their peers as going for sexual health reasons ... a lot of the young people were saying that they wouldn't feel as comfortable accessing sort of sexual health services within school and also sort of designated sexual health clinics, but that they would feel more comfortable accessing them in more sort of mainstream services.

(Participant 16)

Youth workers and youth clubs received particularly positive comments for their focus on, and involvement with, young men:

We find as well that young men prefer to access the youth service contacts.

(Participant 6)

This point is discussed further in relation to take-up among young people.

Opening hours

In terms of opening hours, lunchtime sessions were the most commonly described pattern for

school-based services. Interviewees reported that lunchtime opening was advantageous because young people did not have to leave lessons nor 'hang around' after school finished for the day. Services accessible during lunchtime were particularly important for students living in rural areas, who were reliant on public transport:

You can run some of them [services] after school, but it doesn't really work in rural areas where kids are dependent on buses.

(Participant 2)

Although many school-linked services offered dedicated after-school clinics, these were described as being less frequent than on-site lunchtime services. The majority of services offered at least one weekly lunchtime drop-in session, sometimes with an additional after-school session. A smaller number offered multiple drop-in sessions throughout the school week. The frequency of sessions was often dependent on the availability of the school nurse and/or of other appropriately trained staff. This could mean substantial intervals in the week during which no service was available:

There's a clinic here on a Wednesday afternoon and a Friday morning, so basically if you ring up on a Friday afternoon there's no way you're going to get seen.

(Participant 40)

Staff working in school-based facilities often signposted students to school-linked services, where they might access services or advice beyond that available from the on-site location:

Some of that's after school; some of that is by Youth Service [staff] that are on site in a separate building ... One of our schools does have an on-site clinic, so they would offer consultation and then signpost them.

(Participant 31)

Mobile clinics were sometimes used to provide school-linked services, thereby optimising very limited resources:

It's a Landrover and a trailer basically and we run like a little clinic out of the trailer and park it in the vicinity of the school.

(Participant 28)

One disadvantage associated with this type of school-linked service provision, especially if availability was restricted to school hours, was that

students needed permission to leave the school premises. To a lesser degree, school-based services operating outside lunchtime breaks suffered from the same constraint, as students still needed formal exemption from lessons to attend. In both cases, confidentiality could be compromised:

It's open access all day [but students need] to get permission and have a slip from teacher to go.

(Participant 44)

To summarise, interviewees described a range of pragmatic arrangements, both for school-based and school-linked facilities. Purpose-built or tailor made facilities were rare. At the same time, it was clear that the design and location of facilities was an important influence in either promoting or undermining confidentiality. In terms of opening hours, a mix of lunchtime, during school and after-school examples was described. A common concern was that these were not frequent enough to meet the needs of young people fully.

Organisational contexts: rationales and funding sources for services, marketing and 'branding'

In some areas services had been initiated in response to explicit strategy developments, whereas elsewhere networking and sharing of ideas between agencies and practitioners had prompted development. Overall, 22 interviewees mentioned that provision in their areas had been informed by the sexual health strategy in their locality; five indicated that they accessed no formal local strategy, and the remaining 24 made no specific comment about the presence or absence of a local strategy.

Most interviewees, however, reported that local service provision had been influenced by national strategies or policies, including the National Sexual Health Strategy, Teenage Pregnancy Strategy, and/or Chlamydia Screening Strategy. Not surprisingly, policy documents and guidelines directly related to sexual health were the most frequently mentioned by participants, with the DfES's *Extended Schools: Improving Access to Sexual Health Advice Services* (2007) being the most frequently cited single document:

The extended schools guidance is quite useful as well – and the one that came out on sexual health in further education – for targeting

the sixth forms and, you know, we can link it back to government guidance. The teenage pregnancy documents, I've taken to them [schools], 'Accelerating the strategy' and 'Next Steps'.

(Participant 28)

A small number of interviewees described locally specific strategies, for instance 'Healthy Respect', a programme that promotes general health and well-being in schools, and also includes information about specific sexual health issues for young people. Targets – both national and local – were widely regarded as prompting new initiatives, and shaping service provision; these were almost always related to the Teenage Pregnancy Strategy. For example, the first services in an area were often located in teenage pregnancy 'hot spot' neighbourhoods:

The area where the college is based, it's on the outskirts of quite a large council estate and we had really, really high numbers of teenage pregnancy and there was a lot of money put into the local area to try and bring those teenage conception rates down.

(Participant 17)

Within that [Teenage Pregnancy] strategy there's key actions and performance actions around the delivery of on-site sexual health services for schools and PHSE and SRE delivery targets within the strategy, and we have a lead person responsible for delivering on that, which is from our school improvement service.

(Participant 33)

Among interviewees who cited factors other than national or local strategies, three reported that on-site services were introduced in direct response to students' requests.

Student surveys [revealed] that they actually wanted their own sexual health service on site.

(Participant 48)

Others reported being influenced by examples from other colleagues working in sexual health. Networking was widely regarded as an important activity, and the SEF was a key organisation in this respect:

The Sex Ed Forum stuff is brilliant ... That's been really, really good to see that actually

you're not alone and loads of people have been doing this for years, you know. So that's great.

(Participant 7)

Partnership arrangements with colleagues working in LA settings and/or the voluntary sector were also cited as a positive contribution to service development at local level. Some examples were given of local guidelines or strategy documents that had provided an impetus to disseminate research messages and to prompt new initiatives:

We work very closely in partnership with the Local Authority and voluntary sector.

(Participant 15)

There was, a few years ago, a paper that I think came out of the North West about setting up school based services. We used that when we first started talking to schools about services. And I think just rather than what was already happening in schools, it was more research that was saying that access to contraception is the most important fact in reducing teenage conception.

(Participant 38)

To summarise, guidance and funding sources linked to the Teenage Pregnancy Strategy were described as prominent in underpinning local initiatives to establish or extend school-based and school-linked services. In many instances local networking and sharing of experiences had complemented these services.

Funding resources: patterns and concerns

Respondents identified numerous funding streams, with many variations across the sample in terms of their origins and duration. Overall, 35 respondents described local funding patterns in specific terms, and there were six distinct permutations in their responses:

1. Full PCT mainstream funding ($n = 14$). Funding was provided via the school nursing budget, contributing both to staffing and (where relevant) to the provision and maintenance of premises.
2. Combined funding from PCT and LA budgets ($n = 4$). Funding came from both organisations at levels set locally. Budgets were sometimes, but not always, managed through a strategic agreement between the PCT and LA; in the absence of formal agreement

resource allocation was considered to be more vulnerable to reduction or removal.

3. Combined funding from PCT, sexual health services and Teenage Pregnancy Strategy budgets ($n = 6$). Where the initiation and maintenance of services required multiple sources of funding, interviewees often reported concerns about sustainability; this was particularly relevant to Teenage Pregnancy Strategy funding.
4. Combined funding from LA sexual health services and Teenage Pregnancy Strategy budgets ($n = 6$). Here, the LA funding element could be provided by one or more of the following: Youth Service, Education Service, Connexions and Neighbourhood Renewal Initiatives.
5. Full funding from NHS Acute Hospital Trust budget ($n = 2$). Occasionally, interviewees reported that the school nursing budget was held by an Acute Hospital Trust rather than a PCT. In such cases, GUM services (as part of an Acute Hospital Trust) were also involved in budgeting decisions.
6. Full funding from Government Health Departments ($n = 2$). This was the pattern in Scotland and Wales.

Access to funding sources and uncertainty over the longevity of funding was a major issue for many interviewees. Well-established, successful services were not immune to these difficulties:

Even the PCT acknowledges that it is very worthwhile and they will give, you know, vocal support to it. Unfortunately, they won't give us any financial support. They did give us some money for two months to try and pay some health professionals, but that stopped. I mean they admit that it's a brilliant service, but unfortunately they won't or can't financially support us. The college is a very forward-thinking college [and] we are so well supported by all of the senior management because they see it as a vital part of the students' welfare.

(Participant 35)

Well, my post was 2 years and they've just got funding for another 3 years. It's like 2 years in April when it runs out and then after that, you know, you don't know what's going to happen.

(Participant 10)

Where funding was obtained from a number of different providers, this could create additional complications and uncertainties:

The main bit is funded by the PCT, but we're still trying to get money for the youth work element from the Local Authority, but I mean basically it's [fully funded].

(Participant 38)

Reliance upon multiple funding sources could also create problems in developing a coherent strategy for SBSHS. Teenage pregnancy coordinators expressed particular concerns that their 'pump-priming' funds might be used as substitutes for longer-term, mainstream funding from the NHS or local authorities:

It needs to be PCT mainstream budget that funds the school nurse, that funds any sort of contraception supplied and things like that. What we would probably just fund is sort of the development of promotional materials and things like that as a one-off with the expectation that they pick it up because teenage pregnancy money is not always going to be around and we don't want people relying on it.

(Participant 7)

Service 'branding' and marketing

As indicated above, the range of service titles sometimes reflected provider caution about making sexual health services visible within school contexts, and advertising or marketing them to young people. At the same time, interviewees also described the ways in which government targets and policies exerted pressure to increase service take-up, particularly via the Teenage Pregnancy Strategy. There could thus be a degree of tension between the need to promote services and the need to address sensitivities within schools and to avoid the risk of hostile media coverage. There were diverse approaches to managing this tension, some of which acknowledged the stigma that might be associated with attending a sexual health service, reinforcing once again the importance of confidentiality:

Yeah, I think it is recognised as a sexual health service. When we're putting some of that information into schools we don't make the sexual health element of it as explicit. So we've got different levels of marketing, but young people themselves recognise it as a sexual health service.

(Participant 27)

They did get a bit of press and the schools got a little bit of a hounding, so our schools asked us if for the pilot we could, you know, keep it fairly ... not secret, but discreet ... and to date it's been fairly honoured.

(Participant 12)

We don't want it to be biased around contraception and sexual health because of the stigma, so it's about branding that will encompass all health issues for young people really.

(Participant 7)

These concerns sometimes resulted in service providers camouflaging or repackaging sensitive materials in a more acceptable form, for example by emphasising the relationship advice aspect of a service:

[The service was sold as] sexual health but because of the implications with sex and education, what we've done is we've put the emphasis very much on the relationships.

(Participant 48)

Selling it as a holistic health provision and not just about condoms ... that you're not encouraging sex and actually what you are encouraging is responsibility. They [services] all have the same branding and leaflets and information racks and banners and we hope that it's easier to make links into these services for young people.

(Participant 25)

We weren't allowed to say that emergency contraception was available, and pregnancy testing.

(Participant 45)

In Chapter 2, questions were raised about whether the distinction between general health provision and sexual health provision, in school-based and school-linked services, was a robust one. The examples above underline the importance of this point: the ways in which services were presented and publicised to schools and to young people reflected a wide range of influences and concerns. The sexual health emphasis in a particular service might be made very explicit, or might instead be subsumed within broader messages about health provision. In some instances, the impetus to do this came from schools' preferences or ambivalence; in others, interviewees described it as a means to protect privacy and confidentiality for service users.

For these reasons, basing descriptions on location, staffing and products/services provided is likely to be more reliable than categorising facilities with reference to a sexual health emphasis or general health emphasis. This point is followed up in Chapters 9 and 10.

Relationships between services and young people: factors affecting take-up and levels of participation among young people

Some service coordinators described the take-up of sexual health services as reflecting the phases of the school year, including assessment and curriculum pressures, as well as specific SRE or PSE requirements:

[Service take-up] does vary ... It goes much quieter come, say, June and July because [of] exams and they leave the college and also June and July they have a lot of extra things to take them out of the college. They have curriculum enrichment weeks etc. so, you know, certain times of the year we know we will probably be quieter than others.

(Participant 35)

You get a lot of the curious and sexually inquisitive youngsters come across when we've done their [PSHE] sessions in school but I would say our regular users who are coming in for their condoms are predominantly Year 10 and Year 11.

(Participant 12)

Many interviewees were of the opinion that providing quick and easy access for young people was more important than registering a large volume of service users:

... it's not vast numbers, but you do get young people coming to you who think they're pregnant. I mean it's one of those things that normally they've waited for ages, but they want an answer that minute.

(Participant 40)

Interviewees also described differences between neighbourhoods, and between girls and boys, in relation to patterns of service take-up:

... we've got a clinic in [x neighbourhood] which is quite a middle-class area, so predominantly what we get there is girls will come in and, you know, the issues they talk

about will be completely different to the girls in another area. So they come in and they come in to see the nurse and to get the pill or something like that. So we don't get a lot of boys coming to that one, whereas our other one, situated in [y neighbourhood] we see a lot of boys and the boys'll come in for condoms. So, you know, you'll see a difference.

(Participant 30)

Where we're distributing condoms, it's boys. Where we're doing more around emotional health, girls.

(Participant 33)

Slightly more boys use the library service but more girls go for advice drop-ins at the school itself. This is likely to be because girls often need LT [long term] contraception and are referred elsewhere but the boys wanting condoms can do so from the library.

(Participant 37)

Many emphasised the importance of both school-based and school-linked services in attracting boys and young men. One Youth Service location and/or staffing input was understood to positively facilitate access for this group:

Interestingly, young men don't access us in school, but they do come to the drop-in clinic [Youth Service] and it's been quite a success because other male services that we've offered have never had the numbers of attendance that we have with this one.

(Participant 37)

When young men come in for condoms they come in large numbers and in some services it's overwhelmingly ... young men that come for condoms in big groups, but usually that drops off and then you get more young women coming in for contraception and pregnancy testing.

(Participant 43)

What is interesting is that regularly we see 50% to 55% young men accessing the service and that's basically because we go to where they are and we offer the service to them so they don't have to come and look for us. So we see a lot of young men under these circumstances.

(Participant 45)

Young people who returned to access sexual health services were regarded as evidence of successful

provision; repeated use was also seen as proof of effective marketing.

About 30% of the young people we see in the course of a year will be return users to the service.

(Participant 45)

Ethnicity was rarely mentioned, possibly because monitoring relies on self-disclosure. Nevertheless, some minority ethnic groups were identified as having particular access needs:

The main ethnic group who attend are settled gypsy travellers who quite often don't state that that's their ethnic group.

(Participant 37)

There were some criticisms in the evaluation in terms of how accessible we are for, say, young Somali women. So, you know, there will be groups of young people who it's not particularly accessible for I think.

(Participant 38)

To summarise, most respondents described school-based and school-linked facilities as being well attended by young people. Findings also suggest that the involvement of youth workers may play a part in encouraging boys and young men to access services.

Young people's influence in shaping services

Although levels and forms of participation varied considerably, most interviewees reported that young people were involved – at least to some degree – in consultation, planning, service delivery and/or feedback processes. A small number reported that local young people were routinely and fully involved in all aspects of service provision, including evaluation.

Guidance on setting up sexual health services was widely available from Teenage Pregnancy Coordinators, the SEF and other sources, which stressed the importance of involving young people throughout planning processes. The DfES (2007) guidance on Extended Schools, mentioned earlier, added impetus to consultation initiatives:

We're doing it under the umbrella of Extended Schools, really, and we then need to consult with local young people.

(Participant 7)

Interviewees generally recognised the importance of establishing some degree of user-consultation or involvement. At the same time, there was a sense that the actual degree of inclusion was variable and that systems for incorporating young people's contributions in a consistent and coherent manner were still evolving. For many, the principle of user involvement was embedded in routine feedback processes rather than discrete planning or decision-making initiatives:

[it's] more a kind of on-going dialogue with them rather than a, 'Let's ask them before we put it somewhere' and then, you know, that's where we put it. It's more feedback on an on-going kind of basis.

(Participant 38)

The reason we're changing the supplier of contraception is because the young people have asked us to, because they said the ones we've got are rubbish. So we've changed.

(Participant 30)

Interviewees volunteered that young people in their localities were often involved in discrete aspects of service provision including choosing a title and/or designing a logo. However, it was much less common for young people to be involved in significant decision-making processes over a longer period. Young people's involvement in planning discussions was thus sometimes regarded as tokenistic or ad hoc:

They've done the initial 'Do you want this service? What's the best day of the week?' and that's been it.

(Participant 4)

We've had them involved with when we've done the advertisements and things. We've like kind of done some asking them what they think about it ... I think we've always asked what the kids thought ... you know, how do they rate it, which do they like best, the logo and things like that.

(Participant 10)

Consultation processes often included young people as one of a number of interested parties:

... consultation with all of those, you know, with the governors, the parents, the students and the teaching staff is crucial in making that model work.

(Participant 36)

Some interviewees described how consultation exercises were occasionally employed for tactical purposes, for example when the outcome was already known, when there was no real scope for choice, or when young people's views were important in overcoming opposition:

Now the young people's clinics originally were set up following consultation with young people because that is, well ... I say that's what they said they wanted. I think it was a little bit ... I think it was decided this is what was going to happen.

(Participant 40)

But, you know, asking them ... you have to be realistic because sometimes there are no options about where the clinic is based.

(Participant 36)

We've done an awful lot of consultation with young people. Just in the process of another raft of consultation with young people in the school to see, you know, what it is that they want and we're going to use that to support us when we access the governors to say, 'This is what the young people are saying they would like.'

(Participant 37)

Less frequently, young people were invited to join steering groups and staff recruitment panels. Their presence was seen to inform the content and direction of services and the setting and implementation of service standards, including assessment procedures:

Obviously young people are involved in interviewing for staff posts and also they were involved when we consulted about the name. So yeah, it's quite sort of on-going really.

(Participant 41)

We have what we call the ... reference group ... a sample of students from our biggest eight or ten high schools and they meet together once a term to look at sort of the sexual relationship education they're being offered, but also sort of wider issues. So I think that group's been used as a form of, you know, listening to the views of young people about what they want in schools and I think that's probably informed the overall direction.

(Participant 21)

We have seven standards for our drop-ins. Based on what young people told us they wanted from services ... is a report called 'All I Want'. We took what young people said and turned it into an operating manual called 'All I Want, [Life] Standards' and the first one of those is consult with young people about where it is, what opening times, what services are produced and maintaining feedback ... we have an assessment workbook that we go through to make sure they're [staff in drop-ins] applying the standards.

(Participant 25)

Interviewees identified a number of specific barriers to involving young people in shaping service provision, for example, excessive staff workloads:

At the moment I'm working 25 hours a week and overseeing 500 staff in 88 sites which is a nightmare, so we're recruiting a project support worker in April or May and one of his or her responsibilities is going to be literally to focus on young people's involvement.

(Participant 6)

Funding cycles and deadlines were also a factor:

Young people to begin with, I must admit, they weren't involved with it and the scheme just appeared without consultation, but it's the way that funding works. The funding was there, 'Let's do this ...'

(Participant 39)

Finally, respondents in rural areas reported that many young people experienced considerable difficulty in accessing services and this complicated attempts by service providers to involve them in consultation processes.

To summarise, involvement among young people ranged from brief, superficial forms of consultation to sustained participation in processes such as the design of facilities and the recruitment of staff. Most interviewees described examples of the more superficial types of involvement. Nevertheless, findings included some very positive examples of more extensive partnership work with young people, which have the potential for wider dissemination.

Responses from schools and parents: support and opposition

Overall, eight interviewees talked entirely in terms of schools being supportive throughout all aspects of service development and provision. Most described themselves as having played a major role in winning over both schools and parents after careful, and often protracted, negotiations. In general, interviewees focused much more on difficulties, and how to approach them, than on positive accounts of supportive responses:

We always have to go through the governors ... it's awful, and we've had some really difficult meetings. What they do is they bring the parents in ... it's been really tough ... I mean, some of them are not as bad as others ... some of the teachers as well, they'll say 'Could you put those condoms in a bag please? We don't want you walking round school with them'.

(Participant 10)

However, the abiding picture was that obstacles could be overcome, usually through personal contact, persistence, negotiation and undertaking in-depth consultations in advance, particularly with school heads and governors. While a minority of interviewees expressed frustration with this process, most simply talked in terms of dealing with it. Resistance from headteachers and governing bodies, and from faith schools, together with the prospect of media exposure, were seen as the most prominent barriers to local service development. Importantly, however, not all interviewees reported problems:

Funnily enough, it was staff within the school that challenged that [emergency contraception provision], not necessarily the governors.

(Participant 12)

Overall it's been really supported by governors and headteachers.

(Participant 20)

In one locality, a Teenage Pregnancy Coordinator reported using '*strong-arm tactics*' to negotiate with local headteachers, with positive results:

We went and visited the Heads of the five schools [with above average conception rates] and they said, 'Oh marvellous, what are you going to do about my teenage pregnancy

rates?’ and I said, ‘No, what are you going to do?’ So we shifted it quite clearly ... One Head said to me, ‘I can tell you at Year 7 who’s going to be pregnant [in] Year 11’ and I said, ‘Well what are you doing about it?’ So we said ‘Either you sign up to our strategy which we’re paying for or you go in and write your own school strategy and you pay for it. Your choice, but it has to be evidenced-based, young people led ...’, which was slightly a strong arm tactic but, you know, it was becoming quite stark that the schools not engaging were the schools with high [conception] rates. And most Heads took it quite positive.

(Participant 47)

Interviewees reported wide variations in their day-to-day interactions with teachers, particularly in connection with SRE. Mutually supportive arrangements prevailed in some areas, while school nurses and teenage pregnancy coordinators in other areas were unable to access the support they needed:

We were finding that teachers weren’t necessarily confident to be able to deliver the SRE work, and so by having this external [sexual health] team who delivered the work, it was actually achieving quite a lot of knowledge ... awareness raising, but also attitude change.

(Participant 11)

We’re going to meet with all the PSHE leads and hopefully come up with a coordinated curriculum of some sorts so that obviously we can go in and deliver this package and that they can share best practice, and then hoping that we can expand PSHE out into the community.

(Participant 30)

The PSHE coordinator gives out what’s supposedly positive messages, but she’s actually quite blocking in a way. Communications are very poor within the school.

(Participant 28)

Where collaboration was difficult, this was sometimes related to larger organisational problems within the school, including staff attitudes and communication processes:

We can’t ignore ... what young people are saying really... Except schools, which never listen to young people, obviously.

(Participant 29)

The relative autonomy schools enjoyed occasionally included ‘gate-keeping’ practices; this was particularly noted with respect to faith schools:

I think the problem is that each school is virtually independent now, aren’t they, so they can make a decision whether they have a particular service or input.

(Participant 16)

I know that the [SN] finds it difficult to sort of cover a lot of basic stuff within some of the faith schools and we’ve had so many other things to deal with that we’ve never gone down that road.

(Participant 45)

There were examples of progress being made, however:

It’s mainly the Catholic schools that don’t provide all [advice/services]. It’s been identified there’s a need as well – the SRE team have started to work in one Catholic school.

(Participant 16)

Most interviewees described a context in which school nurses were employed through the local PCT. However, the small number of schools that employed their own nurses sometimes imposed restrictions on their roles, especially with respect to the provision of sexual health services:

Here the schools actually employ their nurses direct and they’re not provided by the NHS – I think we’re a bit of an anomaly in that – and the school nurse they employed was very keen to expand her remit around sexual health, but she was sort of slapped down and basically her role was to stick plasters on and look after the headaches, and she got very frustrated and in the end she left.

(Participant 50)

The girls’ school [in our area] went and employed their own school nurse, not through Health ... So she was bound by the school’s confidentiality [approach]. It didn’t work. She left 3 months later ... They were also the school who wanted to know who’d been to see her, and what about.

(Participant 47)

As is evident from the quotation above, confidentiality was widely reported as both a problematic and complex issue. Staff employed

through the NHS could see that teachers felt a specific responsibility towards their students, and towards parents, which was sometimes in tension with NHS norms about patient confidentiality:

The [teachers] feel that – this is what some of them have said – they feel that they’ve got a responsibility for those young people within their school setting, and it’s almost as though they’re deceiving the parent, you know, and they’ve got to share that information. Well, we [NHS staff] don’t share that kind of information. It must be confidential.

(Participant 15)

Legal requirements regarding the welfare and rights of minors were also in tension with needs for confidentiality with respect to this group:

I suppose another thing which does restrict is our child protection guidelines, which we’ve had a bit of a problem with recently in that under 14, they’re supposed to be reported to Social Services, and that can be a barrier as well, because sometimes you’ll find that the young people, you know, won’t disclose these things to you that they may be concerned about.

(Participant 19)

Cultural barriers (not specifically defined) were mentioned very occasionally as problematic, mainly in relation to ethnic identity. One interviewee suggested that black and ethnic minority (BEM) students’ needs and preferences could be overlooked in contexts where all, or most staff were white. Another referred to the difficulties staff encountered when dealing with students who had undergone female genital mutilation whilst problems associated with language and communication, where students and staff did not share a common language, were also reported.

Lastly, processes associated with restructuring and reorganisation could also create barriers to service provision:

I worked really closely with the Drugs Action Team. It was fantastic because it was a joint initiative and we trained the students really well. So of course I wanted to roll that out this year and I can’t because the Drugs Action Team structure has changed ... so we’ve lost that. We’ve lost that initial intervention which is where I see it working.

(Participant 48)

To summarise, service coordinators described responses from school headteachers, staff and governors as being relatively complex. While there were examples of unqualified support and in-depth collaboration, there were also examples of tension with respect to confidentiality procedures, and to some extent with respect to wider values and principles underpinning work with young people. This suggests that prevailing ethos and leadership within schools are crucial factors to consider, both in terms of establishing services and of evaluating their effectiveness.

Research and development: monitoring and evaluation

Levels of monitoring and evaluation were very variable across services and localities. In total, 18 respondents were either unsure of local evaluation resources, or clearly stated that no form of monitoring or evaluation was in place. A further 18 described routine monitoring of attendances at school-based and school-linked services. Eight described conducting periodic user surveys, in addition to routine monitoring, and three reported that an independent, external evaluation had taken place in their area.

Although respondents generally recognised the need for regular monitoring and thorough service evaluations, a lack of resources often hampered efforts to engage in this work:

One of my frustrations is that we’ve got a really good model here, and I would like to see it replicated in other areas, but you know, actually not having the time or the energy to really concretely measure the impact ... we’ve had a huge reduction in our teenage pregnancy rates – you know, one of the highest in the country – and I do think it has really been the impact of the work we do in schools.

(Participant 11)

I know we should write it all up, but we haven’t had time. We’ve just got on with it, really.

(Participant 24)

Nevertheless, as indicated above, the majority of interviewees reported that systems had been established for monitoring service use and some form of internal evaluation:

As part of the evaluation obviously we’ve asked young people who use the clinic about their experience and, you know, whether any

improvements [and] we've asked people who don't use the clinic to find out why. We've asked the staff as to, you know, whether they knew about the clinic when the students asked them and whether they were able to give the advice and whether it impacts upon the student teaching ... you know, if they're missing anything there and whether it's having an impact on that and what they felt about it.

(Participant 15)

Independent evaluations were highly regarded, particularly for their ability to produce evidence which could be acted on promptly by service providers and perhaps also reinforce the case for funding:

Part of the evaluation that's just been done by the University of the West of England, they had focus groups with young people to talk about what they thought of the services, which will lead to some changes.

(Participant 38)

Recently we've presented kind of a short report to the Teenage Pregnancy Board as well, trying to actually now get extra funding, or for them to commission us, so that we can actually expand.

(Participant 49)

At the same time, considerable variations were reported with respect to the ways in which different agencies collected and analysed routine data, and established systems were sometimes adversely affected by organisational change:

The Youth Service and the PCT both collect data. In the past, the PCT would collect what year the young people were in, date of birth, what they've come for ... We keep that, but the Youth Service also obviously have to track it through, maybe how many have come in to browse, what sort of advice you give. We collate that at every drop-in.

(Participant 30)

We had some good systems in place – well, I did – and then when the projects got mainstreamed by the PCT and the Local Authority, they went elsewhere and data collection has not been fabulous.

(Participant 47)

Some interviewees reflected on the limitations of evaluations:

A group of girls came in after they completed the survey and laughed and giggled between themselves and said 'I just put this down' and 'I just put that down'. So it's kind of, you wonder how accurate the statistics will be at the end of it ... Data collection does worry me because a lot depends on that, you know, and resources can change as a result and actually the resources could be maybe better spent elsewhere.

(Participant 26)

To summarise, there was a general recognition of the importance of monitoring and evaluation, and a desire to examine the effectiveness of particular service models. However, staff time and resources to engage in evaluation were very limited, and only a small minority of the services described had benefited from an external evaluation.

Planned future developments

Overall, most respondents expressed a wish to both consolidate and expand local service provision. However, many also reported difficulties in accessing secure, sustainable levels of funding which meant that expanding (or indeed maintaining) current levels of provision could not be guaranteed:

What are we doing about sustainable funding? ... that's the next step ... it is very unsustainable at the moment.

(Participant 39)

At the moment we can't think kind of too far ahead because without more funding there's no chance anyway.

(Participant 50)

Organisations with well-established links to with PCTs, and with other local agencies engaged in delivering sexual health services for young people, articulated the most positive responses:

[We're] fortunate that the PCT has just bid successfully for a lot of money for sexual health development.

(Participant 37)

Where sexual health services were not prioritised, short-term goals and constant compromise appeared to be regular features of local provision:

To be honest, the C card scheme would never have got off the ground if the [NHS] Trust

had had to pay. Unfortunately, no-one ever looks at sort of like, 'Well, if we pay out 9p for a condom we might prevent a pregnancy'. As long as they're looking at a yearly budget, they're not looking ahead, are they?

(Participant 40)

it to run during the holidays as well, which is great. So obviously that's the kind of thing that we're looking at with the business plan to get commissioned because to take these services forward we're going to need resources.

(Participant 24)

Many respondents articulated intentions to continue to explore funding opportunities to secure existing initiatives, at least in the medium term. However, interconnected issues such as staffing resources and interagency collaboration were also raised, arguing that the barrier to service development

[It] isn't always about money but that's about school nurses working with youth workers and Connexions and anybody else to do a proper service that is not just a bit of an add-on about contraception, that, you know, will provide a range of different, holistic health support services.

(Participant 7)

Overall, respondents described a range of future improvements that they wanted to see, both in service delivery processes and in the scope of provision. At the 'process' level, effective networking and collaboration were prioritised, particularly in relation to links between health professionals and youth workers:

... [more] school nurses working with youth workers and Connexions.

(Participant 7)

Linking better to Connexions – more young people said they would feel more comfortable accessing services here as less exposed.

(Participant 16)

In this context, the decision in 2008 to introduce human papillomavirus (HPV) screening was offered as a rationale for one service not planning any further developments. Maintaining the quality of current service provision was viewed as equally important as further expansion. Early service initiatives were sometimes reported to have failed to take account of the range and complexity of issues affecting the lives of service users. For some, future plans included trying to address these issues, while also responding to demands for increased provision:

The majority of young people that attend for sexual health issues, but there are young people also that attend where the sexual health issues often bring up other issues ... if they're taking sexual health risks they're often drinking alcohol, there's often smoking issues, there's sometimes self-esteem issues ... they often run together and obviously some young people come about completely different issues to do with puberty or anxieties about eating or family health or family issues ... Both the schools [in this town] would like more. In fact the second school that we've gone into there's been a huge demand and that is an area probably with the highest teenage pregnancy rates and the young people have come for a lot of sexual health advice ... they would actually like a second day and they would like

Work more closely with the Youth Service because I know there are certain youth clubs that aren't distributing [programme materials] at the moment.

(Participant 39)

Training more staff in sexual health work was also a clear priority, both to enable school nurses to offer long-acting reversible contraception options and to enable a broader range of staff to specialise in working with young people:

The next stage is to encourage them to do the young people-friendly training so that they're actually trained as staff and they know all the issues about sexual health because a lot of them, even though they do health themselves, are out of touch with the sexual health stuff.

(Participant 49)

Rolling out (or handing over) a successful programme often required existing staff to identify additional training needs and to deliver programmes appropriately so that

... health advisors are competent and ready to deliver even without us [because] often it's only when they come to actually have a go at practising it they realise they've got quite a lot to learn.

(Participant 24)

In terms of the actual scope of provision, many respondents described gaps that they wanted to see addressed. The most prominent examples were the following:

- Expansions in the advice available from trained staff, for example to cover domestic violence, emotional well-being, child abuse, bullying, substance misuse, health promotion.
- Expansion in services, to offer STI screening, pregnancy testing, and a full range of emergency and routine contraceptive options on a consistent basis, particularly in areas where high teenage pregnancy rates or other factors indicate high levels of need.
- Improvements in facilities, to include appropriate, confidential rooms for on-site services, and more mobile outreach services (particularly in rural areas, and to reach vulnerable young people not in mainstream school – for example, looked-after young people and those in pupil referral units).
- Expansion of services to include some holiday and weekend provision.

Conclusions

The findings presented in this chapter confirm a number of the findings from the school nurse survey. In particular, service coordinators' accounts confirmed that there is no single, dominant model of school-based or school-linked sexual health service in the UK at present. Instead, local agencies have negotiated agreements, both within funding constraints and within the constraints of local attitudes and perceptions. That said, the targets, coordinator roles and funding streams offered by the Teenage Pregnancy Strategy have provided an impetus for local provision and the 2007 Extended Schools guidance has provided a facilitating framework.

Five distinct levels of service provision have been outlined, based on the interview data: no distinct sexual health service; minimal, school-based service; basic school-based or school-linked service; intermediate school-based or school-linked service; and comprehensive school-based or school-linked service. The mapping study did not have the scope to examine the geographical distribution or the extent implementation of these different services.

However, interview findings do reinforce a number of points from the school nurse survey, about the features that are seen as characterising high-quality services. These include:

- A robust approach to protecting confidentiality, reflected in physical facilities as well as in staff attitudes and procedures. This should include interprofessional and interagency dialogue and agreement.
- The involvement of a multiprofessional group of male and female staff, ideally including clinical staff with the ability to prescribe as well as youth service staff.
- The involvement of young people, ideally from initial consultation processes through to decision-making about the design and staffing of services, as well as the design and implementation of regular evaluations.
- Access for staff to continuing professional development, particularly including training in sexual health work with young people.
- An intermediate or comprehensive range of services and products.

Lastly, the interview findings also reinforce the points made in Chapter 3 about difficulties in defining services as either 'general health' or 'sexual health'. The concerns and the examples described regarding the need for sensitive marketing of services suggest a preference in many locations for a 'general health' emphasis in publicity and branding. Thus the ways in which services are described and promoted publicly do not necessarily provide a good guide to their overall scope. Interview accounts illustrated the ways in which sexual health services for young people can be associated with ambivalence and sometimes stigma within the public domain; this was described as a factor in young people's perceptions, as well as in those of school headteachers and governors. High levels of media interest in school-based or school-linked services were seen as contributing to levels of anxiety, particularly among school headteachers and governors. In terms of mapping and defining service types, therefore, the five service levels outlined above offer a more reliable guide than the general health/sexual health distinction.

The following chapters present the findings of the evidence synthesis.

Chapter 5

The systematic review

Aims and objectives

A systematic search was performed to identify relevant studies for the following reviews:

1. Review of evidence relating to the effectiveness of SBSHS or SLSHS.
2. Review of people's views about SBSHS or SLSHS.
3. Review of quantitative and qualitative evidence regarding barriers and facilitators to the use of SBSHS or SLSHS.

The aim of the review of quantitative data (Review 1) was to evaluate the effectiveness of SBSHS or SLSHS in reducing the incidence of conceptions and STIs, and increasing contraceptive use, among young people aged 11–18 years.

The aim of the review of qualitative data (Review 2) was to synthesise and describe people's views about, and experiences of, SBSHS or SLSHS.

Finally, the aim of the synthesis of both quantitative data and qualitative data (Review 3) was to inform the development of a school-based or school-linked intervention, based firmly on the barriers and facilitators to the use of sexual health services identified in the qualitative data and addressed by evaluated interventions from the quantitative data.

Inclusion criteria

The inclusion criteria for the reviews were as follows.

Population/setting

- Children and young people of school age (11–18 years).

Interventions

- SBSHS or SLSHS. For the purposes of this review, these are defined as: services or clinics provided in schools; services located near schools that conduct outreach work within those schools; or services located near schools which liaise formally with those schools. The interventions of interest are those delivered to individuals who attend the services on a

voluntary basis, and do not include either classroom or other interventions delivered to whole classes or other groups, or programmes such as abstinence programmes.

Comparisons

- Any.

Outcomes

- Rates of sexually transmitted disease/infection and conception/pregnancy.
- Rates of sexual activity, regretted sexual activity and use of contraception.
- Stakeholders' views of SLSHS (i.e. young people, staff, parents, school governors, funding agencies, etc.).

Other criteria

- No language restrictions were applied.
- The literature was searched from 1985 onwards, the date of the so-called 'Fraser guidelines', which ruled that people who are under 16 are competent to consent to medical treatment, regardless of age, if they are fully able to understand what is proposed, and its implications. This date, which is specifically relevant to the UK, was originally adopted because it was anticipated that a substantial volume of the evidence would originate from the UK. Although this was, in fact, not the case, the date was retained as it was felt that evidence predating 1985, whatever its country of origin, would be potentially less relevant than evidence postdating 1985 because of intervening social changes, including the spread of HIV.

Exclusion criteria

Studies were excluded if:

- They did not fulfil the above criteria.
- The sexual health services were not school-based or school-linked, and were provided for the general population.

Searches were performed in January 2008 by an information specialist (AS) after the development of a search strategy based on a number of test searches. The resulting search strategy employed

a combination of the following terms, full and truncated versions of free text words and, where available, database keywords: school *or* school-based clinic *or* SBHC (school-based health centre); *and* clinic *or* outreach *or* service; *and* sexual *or* STI *or* STD *or* pregnancy *or* conception. The following databases were searched for published material: the Cochrane Library (1991–), MEDLINE, PREMEDLINE (2007–), CINAHL, EMBASE, AMED, ASSIA (1987–), IBSS, ERIC, PsycINFO, Science Citation Index (SCI) and Social Science Citation Index. The following databases were searched for unpublished material and grey literature: the Social Care Institute of Excellence Research Register; the National Research Register (1997–), REFER; Index to Theses, and HMIC. The focus on UK research databases in the search for unpublished and grey literature was consistent with the study objective of maximising the relevance of the review to the UK setting; however, some relevant grey literature from the USA, but not the UK, was identified through ERIC and reference tracking. The date limits of all of searches were from 1985 onwards, unless the inherent date limitations of the databases dictated otherwise (date limits are given for relevant databases above). Citations were downloaded into a REFERENCE MANAGER database and duplicates were removed.

Two reviewers (CC, MLJ) screened the citations for relevance (based on the inclusion criteria) after a satisfactory inter-rater reliability score (0.9) had been achieved and recorded on a test sample of 100 titles and abstracts. In cases where one reviewer could not make a decision about inclusion based on title and abstract, citations were checked by a second reviewer. Disagreements were either resolved by discussion or the full paper was retrieved in order to make a definitive judgement. Full papers of all relevant and potentially relevant citations were then screened using the same process. Data were extracted from included papers using a form developed specifically for this review, and piloted on a sample of two papers. Data extraction and quality assessment of each paper was performed for each review by a single reviewer, and thoroughly checked by a second reviewer. Disagreements were resolved by discussion and reference to the original paper. Reviewers were not blinded to author, institution or journal, as this has previously been shown to be unnecessary.^{32,33}

For the review of effectiveness studies (Review 1), data consisted principally of descriptive statistics and, in some cases, comparative statistics, such as odds ratios and related *p*-values. Because of missing

data, it was not possible to calculate comparative statistics for many of the studies that did not report them, and therefore such statistics as are included in this report only when they were calculated and reported by the original investigators. Because of the heterogeneity of the complex interventions evaluated, and the diversity of populations (in terms of location, ethnicity and sexual activity) and outcomes being measured, this review took the form of a narrative synthesis of the available evidence. Data extraction was performed by both reviewers (MLJ, CC), and analysis was performed by a single reviewer (MLJ), and checked thoroughly by a second reviewer (CC).

Because of the range of study designs used by the research studies included in Review 1, a specific critical appraisal checklist was not used. Instead, a hierarchy of study designs was drawn up for use in this particular context, and the particular characteristics of each individual study were appraised within this hierarchy (for details, see Chapter 6).

For the review of qualitative data of people's views concerning SBSHS or SLSHS (Review 2), data extracted for analysis consisted of either verbatim quotations from study participants or findings reported by authors that were clearly supported by study data. Thematic analysis was used.³¹ This method produces a synthesis grounded in the data. The aim was to identify and classify into themes the reasons behind students' use or non-use of SBSHS or SLSHS. This involved the reviewer familiarising themselves with the data and then identifying themes that reflected or captured these data; a thematic framework was then developed by considering how the themes identified related to one another. A framework thus emerged from the analysis that aimed to explain all the data in a new way, consisting of broad overarching themes and more detailed subthemes. One reviewer (CC) carried out the primary analysis of the data. Two other reviewers (MLJ and JC) validated the analysis by examining whether the lead reviewer's interpretations of the data were plausible and by offering competing interpretations where appropriate. A refined and mutually agreed framework was then drawn-up. The aim was to generate a new thematic framework to describe and explain people's experiences of, and views concerning, SBSHS or SLSHS.

The quality of the included research studies in Review 2 was assessed using appropriate critical appraisal checklists, most frequently for case

studies or surveys,^{34,35} to afford a basic idea of the quality of individual studies, while appreciating that it may not always be appropriate to exclude qualitative research studies simply on the basis of quality assessment of study design.³⁶

For the review integrating quantitative and qualitative data (Review 3), the results of these analyses were synthesised by two reviewers (CC, MLJ) using a method developed by Oliver *et al.*³⁷⁻³⁹ A matrix was laid out with the barriers to, and facilitators of, service use identified by the review of qualitative data, clustered under themes identified by this review, alongside descriptions of evaluated interventions from the review of effectiveness studies. The reviewer then assessed whether or not the intervention had addressed the barriers or included the facilitators described by young people, parents, or clinic staff. If an evaluated intervention did so then this was stated and it was recorded whether or not the intervention was effective (see *Table 13*). In an effort to enhance the robustness and reliability of the synthesis, only the most 'sound' data from the quantitative and qualitative reviews were included. Consequently, only intervention studies that used a control group were included. In the hierarchy of study designs,⁴⁰ these types of study are more able to demonstrate impact or effect than uncontrolled studies. From the review of qualitative data, triangulation was

used to identify themes, and their inherent barriers and facilitators, for inclusion: if a theme and its barriers and facilitators had been identified by more than one study using different data collection methods then that theme was included, by virtue of the validation offered by triangulation of the evidence.⁴¹ The aim was to produce a synthesis that could be used to inform the development of an intervention based firmly on the best available quantitative and qualitative evidence. The resulting synthesis was then reviewed by a third reviewer (JC), with the aim of challenging or validating its findings. A final, agreed synthesis was produced.

Results

The initial search of electronic databases retrieved 4778 citations. 4753 citations did not satisfy the inclusion criteria for either review and so were excluded. Thirty papers (relating to 26 projects) from all literature searching methods and sources satisfied the inclusion criteria for the review of effectiveness evidence, and 25 for the review of qualitative evidence: five of these studies contained both quantitative and qualitative evidence, and therefore contributed to both reviews. A QUOROM flowchart outlining the results of the searching and screening process is presented in *Figure 1*.

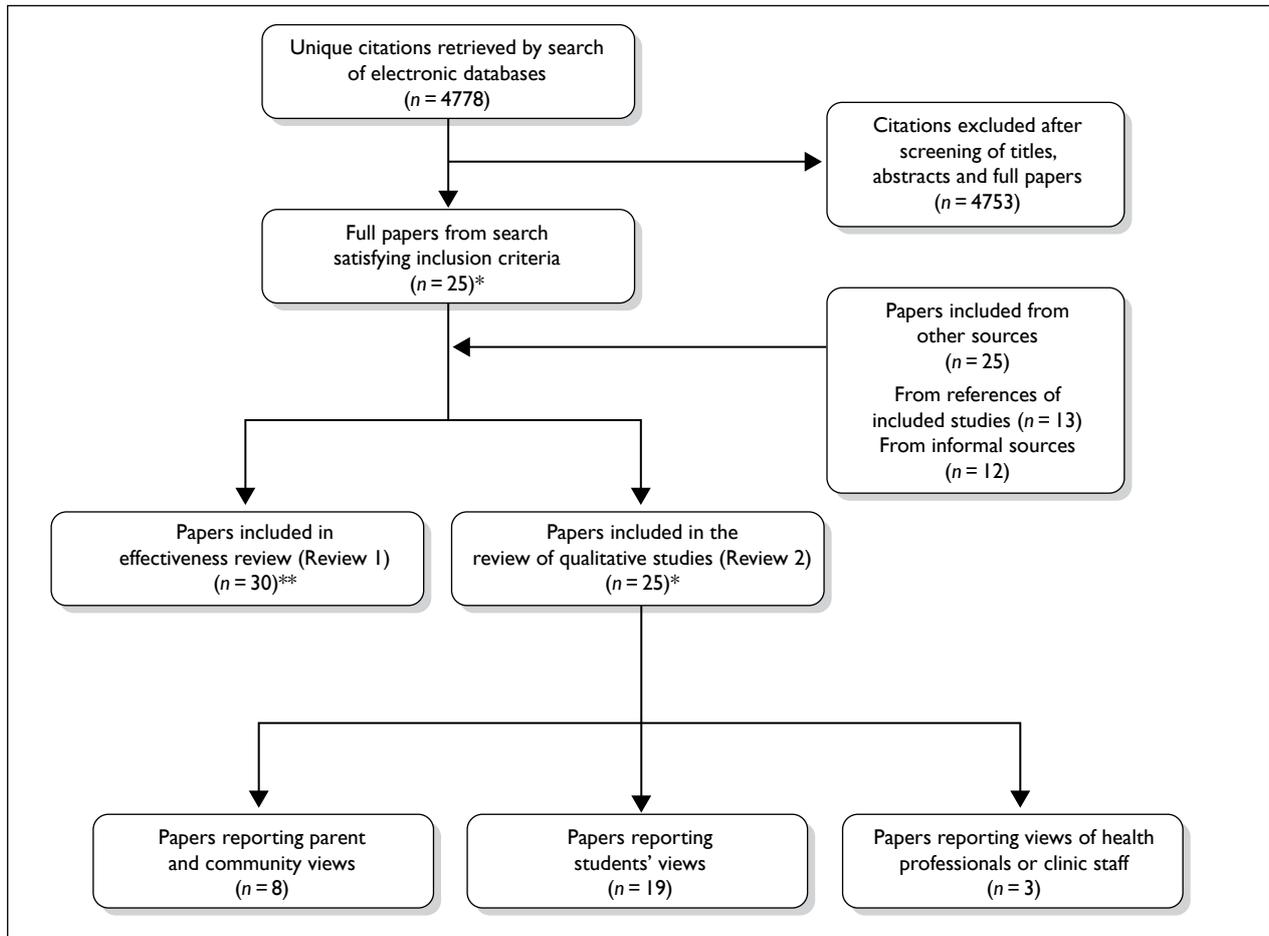


FIGURE 1 QUOROM flow diagram. *This number is smaller than the combined numbers in the boxes below because five studies reported both effectiveness and qualitative evidence, and five studies reported the views of more than one group. **Number of papers = 30; number of studies = 26.

Chapter 6

Review 1: Effectiveness

Quantity and quality of research available

Number and type of studies included

In this review of data relating to the effectiveness of school-based and SLSHS, there is a discrepancy between the number of projects which have been included and the number of publications which relate to them. Because many research studies are reported in multiple publications, it is not unusual for a systematic review to include more publications than individual studies, and many of the projects included in this review are indeed represented by several publications. Some of the included publications evaluate one single-centre project. Others present aggregated data from a number of sites, either located in a relatively small geographical area (e.g. the schools participating in the Seattle Condom Availability Program⁴²) or very widely spread (the SBHCs throughout the USA sponsored by the Robert Wood Johnson Foundation and evaluated by Kisker *et al.*^{43,44}). Unusually, however, this review also includes two studies which essentially take the form of a number of separate case studies of individual projects: they compare outcome data from the individual projects, but generally do not aggregate those data. These studies are Kirby *et al.*'s evaluation of six individual SBHCs in different parts of the USA,⁴⁵ and Stout *et al.*'s⁴⁶ evaluation of a number of SBHCs in Oregon. Kirby *et al.* present no aggregated data, and although Stout *et al.* present some aggregated data from five schools with, and four without, SBHCs, the data most relevant to this review (relating to the three schools whose SBHCs had been open for at least five school months at the time of the baseline survey and their paired controls) are presented only in unaggregated form. For the purposes of this review, therefore, each SBHC included in these two studies has been treated as an individual project reported in an individual case study. (For details of the included projects and the publications which relate to them, see Appendix 1.)

On this basis, 26 projects met the review inclusion criteria. These were:

- Thirteen individual comprehensive SBHCs, or groups of SBHCs, in the USA [in Dallas,⁴⁵ Denver,⁴⁷ Gary,⁴⁵ Jackson,⁴⁵ Kansas City,⁴⁸ Muskegon,⁴⁵ Oregon (Schools A, B and C evaluated by Stout *et al.*,⁴⁶ and 15 SBHCs evaluated by Zimmer-Gembeck and Riddell⁴⁹), Quincy,⁴⁵ San Francisco⁴⁵ and USA-wide⁴³].
- A school-linked sexual health service in Brazil, which paired schools with reproductive health clinics located no further than 5 kilometres away.⁵⁰
- A school-based drop-in clinic in Oxfordshire (the Bodyzone Project).⁵¹
- A programme specifically designed to reduce the rate of repeat pregnancies in parenting adolescents in St Paul, Minnesota.⁵²
- A pregnancy prevention programme targeted at junior high school students perceived to be at particular risk of unintended pregnancy (the New York City 'In Your Face' programme⁵³).
- Two studies of the specific effect of introducing on-site dispensing of hormonal contraception in SBHCs in the USA (in Minneapolis⁵⁴) and an urban area of the north-western USA (probably Oregon).⁵⁵
- An intensive contraceptive continuation programme introduced into existing SBHCs in Baltimore.⁵⁶
- Five condom availability schemes (in Los Angeles County,⁵⁷ Massachusetts,⁵⁸ New York City,⁵⁹ Philadelphia⁶⁰ and Seattle⁴²).
- A school-based programme of screening and treatment for chlamydia and gonorrhoea in New Orleans.⁶¹

Five projects were not identified by the electronic searches: the Massachusetts,⁵⁸ New York City,⁵⁹ and Philadelphia⁶⁰ condom availability schemes, the St Paul Pregnancy-Free Club⁵² and the Bodyzone Project.⁵¹ At least one publication relating to each of the remaining 21 projects was identified by the electronic searches.

Some studies did not clearly identify the individual participating schools, and consequently some schools may be included under more than one project. Thus, it seems likely that some of the SBHCs included in Kisker's USA-wide study⁴³ were

also included in other evaluations. The specific schools involved in this evaluation were not named, but it was stated that most of the students who took part lived in the West (in Los Angeles, San Jose and Denver), with approximately one-fifth in the Midwest (in Detroit, Minneapolis, and St Paul), and an eighth in the South (in Birmingham, East Baton Rouge and Memphis) and the north-east (in New York City and Jersey City);⁴⁴ a number of these locations also feature in other studies. It is also possible that the 15 SBHCs in Oregon schools, which were evaluated by Zimmer-Gembeck and Riddell,⁴⁹ may include some or all of those evaluated by Stout *et al.*⁴⁶

Number and type of studies excluded, with reasons

As may be seen (see Chapter 5, Results), a very substantial number of the citations identified by the electronic searches were excluded as part of the sifting process because they did not meet the review inclusion criteria. Details are therefore given only of those citations with an abstract which were included at the abstract stage but were either excluded after a full reading or could not be obtained within the study timescale. These citations are listed in Appendix 4, together with the reasons for their exclusion.

Relevance to current UK service provision

A few of the projects included in the effectiveness review appear to fall into the first broad type of service provision identified by the mapping study, namely services staffed by school nurses. These were the St Paul Pregnancy-Free Club, staffed by public health nurses,⁵² the New Orleans chlamydia and gonorrhoea screening programme, run by school nurses,⁶¹ and perhaps also the Baltimore contraceptive continuation pilot, run by nurse practitioners and physician assistants, but located within SBHCs whose staffing was not specified.⁵⁶ The Oxfordshire Bodyzone Project,⁵¹ the SBHCs in Oregon Schools A and B,⁴⁶ and the Philadelphia condom availability scheme⁶⁰ fall into the second category of services provided by a multiprofessional team with no medical input. It is possible that some of the SBHCs in Oregon evaluated by Zimmer-Gembeck and Riddell⁴⁹ and Zimmer-Gembeck *et al.*,⁵⁵ whose staffing arrangements were not described in detail, may also fall into this category, as may the school-based clinics in Minneapolis that took part in a project evaluated by Sidebottom *et al.*⁵⁴ however, it is also possible

that, like the majority of included projects, they may fall into the third category of services staffed by a multiprofessional team that included medical practitioners.

Four of the five condom availability projects did not fit comfortably into any of the three categories identified by the mapping study: these were the New York City programme staffed by volunteer teachers,⁵⁹ the unstaffed schemes in Los Angeles County⁶² and Seattle,⁴² and the Massachusetts programme in which, although most schools distributed condoms through school nurses, a large proportion used other personnel, generally members of the teaching staff.⁵⁸

For details of the individual projects, see Appendix 2, Table 26. More general information on the nature of the services represented by the projects is included in Appendix 3.

Quality of research available

The quality of the identified research was generally not good. None of the identified projects was evaluated using a well-designed RCT, widely recognised to be the gold standard design for answering questions relating to the effectiveness of an intervention. A controlled before/after design is the next most appropriate study design for this purpose: if the intervention and control sites are well matched, it is possible to distinguish between changes which can be attributed to the intervention and those due to other factors in a way which is not possible in an uncontrolled before/after study. Controlled case studies or cross-sectional surveys present data from only a single point in time and therefore admit the possibility that differences in outcome between the intervention and control groups may be due not to the intervention but to unreported differences in the study populations. However, case studies can add a wealth of contextual information, which may suggest why some interventions may be more successful than others (for further discussion of study designs see Appendix 5).

Some of the included studies used designs that were suited to their purposes, whereas others used less suitable designs. Because some studies did not state what methodology was used, and others used different terms to describe what were essentially the same designs, for the purposes of this review studies have, where necessary, been recategorised according to the classification of study designs set out in Appendix 5. For the purposes of the

effectiveness review, controlled before/after studies have been considered to be higher-quality studies, and all other study designs have been classed as lower-quality studies.

The broader categories of study design included a number of different approaches, as follows:

1. Controlled before/after studies, including:
 - i. Case studies (Stout *et al.*'s⁴⁶ evaluation of three SBHCs in Oregon).
 - ii. Repeated cross-sectional surveys (the evaluations of the Philadelphia⁶⁰ and Seattle⁴² condom availability schemes).
 - iii. A quasi-cohort study (Magnani *et al.*'s evaluation of the Brazilian SLSHS, originally planned as a true cohort study, and subsequently modified because of high attrition rates⁵⁰).
2. A quasi-controlled before/after study (Cohen *et al.*'s evaluation of the New Orleans chlamydia screening programme⁶¹ – for details, see Sexually transmitted infections).
3. Controlled quasi-before/after studies:
 - i. Ricketts and Guernsey's retrospective review of routinely collected data in which the 'baseline' data postdated the introduction of SBHCs in Denver.⁴⁷
 - ii. Kisker and Brown's USA-wide evaluation in which students completed the 'baseline' survey towards the end of their first year in high school, and the follow-up survey during the spring of their expected graduation year; the investigators assumed that the SBHCs would have had little or no effect on student outcomes during the student's first year.⁴³ The choice of controls in this study is also potentially problematic: they were drawn from cities that did not have SBHCs sponsored by the Robert Wood Johnson Foundation, and it is not clear either how similar the control cities were to those where the intervention SBHCs were located, or whether the control cities contained schools with SBHCs sponsored by other organisations. A stronger design, using control students attending schools similar to those with SBHCs and located in the same geographical areas, was rejected for fear of reigniting controversy over the establishment of SBHCs.⁴⁴
4. Uncontrolled before/after studies, including:
 - i. A repeated prospective cross-sectional study (the evaluation of the Los Angeles County condom availability scheme⁵⁷).
 - ii. A retrospective review of routinely collected data (the evaluation of the introduction of onsite dispensing of hormonal contraception in Minneapolis⁵⁴).
 - iii. A review of routinely collected data, probably conducted retrospectively (the evaluation of the introduction of onsite dispensing of hormonal contraception in north-western USA⁵⁵).
 - iv. A study linking repeated cross-sectional surveys with routinely collected data (the evaluation of the New York 'In Your Face' pregnancy prevention programme⁵³). Because of the difficulty of identifying comparable schools to act as controls, this evaluation was designed as an uncontrolled before/after study, although the authors claimed that withdrawal of programme funding from one school in the final year of the evaluation effectively created a crossover control site.
 - v. Three case studies (the evaluations of comprehensive SBHCs in Quincy and San Francisco⁴⁵ and of the St Paul repeat pregnancy reduction programme⁵²).
 - vi. An uncontrolled cohort study (the evaluation of the intensive contraceptive continuation programme in Baltimore⁵⁶).
5. Controlled case studies [the evaluations of four SBHCs in the USA (in Dallas, Gary, Jackson and Muskegon⁴⁵), and the UK Bodyzone Project⁵¹].
6. Controlled cross-sectional studies (the evaluations of SBHCs in Kansas City⁴⁸ and Oregon,⁴⁹ and condom availability schemes in Massachusetts⁵⁸ and New York City⁵⁹). The Kansas City study was actually undertaken as a controlled before/after study, but is categorised here as a controlled cross-sectional study because its baseline data predate 1985 and therefore do not meet this review's inclusion criteria.

When assessing the effectiveness of sexual health services for young people, the primary outcomes of interest are rates of unintended conceptions and STIs. Although a number of the studies included in this review reported pregnancy or birth rates, none specifically identified unintended conceptions, and none provided data relating to terminations of pregnancy, while few reported STI rates (*Table 9*). However, in the context of STI prevention, researchers at the American Centers for Disease Control and Prevention have emphasised the importance of sexual activity and condom (non-) use as surrogate outcome measures.⁶⁹ Such data

have therefore been included in this review as secondary outcomes, as have data relating to the uptake of hormonal contraception, which can be highly effective in preventing unintended conceptions. Finally, in reviewing any health-care intervention, it is important to assess the extent to which that intervention is used by, and acceptable to, the target population. Data relating to the use of SBSHS or SLSHS by sexually active students are therefore also summarised in this chapter.

A brief tabulation of projects with summary information on the intervention, study design, and reported outcomes is included in *Table 9*. For further details of study design and reporting quality, see Appendix 2, *Table 27*.

The aforementioned outcomes will be discussed in the following order:

1. rates of sexual activity
2. use of SBSHS or SLSHS by sexually active students
3. contraceptive use
4. pregnancy rates
5. rates of STIs.

Rates of sexual activity

In the context of this review, data relating to rates of sexual activity are important for several reasons:

- A proportion of sexual acts are likely to be unprotected against pregnancy, STIs, or both, and therefore reported rates of sexual activity act as a surrogate outcome in relation to both conceptions and STIs.
- Rates of sexual activity provide a context for understanding the nature of the services which have been provided and evaluated in different areas, and the comparability of study findings in relation to rates of both conceptions and STIs.
- Reported rates of sexual activity form a direct measure of the impact of SBSHS or SLSHS on levels of sexual activity amongst students.

Twenty projects provided information relating to levels of sexual activity or sexual intercourse in the intervention and control groups (see Appendix 2, *Table 28*). Unfortunately, only three provided a definition of sexual activity:

- The New York City Schools Condom Availability Program specifically referred to vaginal, anal or oral sex.⁵⁹

- The Seattle Condom Availability Program referred to vaginal or anal intercourse.⁴²
- The Los Angeles Condom Availability Scheme collected separate data on heterosexual vaginal intercourse, anal intercourse, oral intercourse, and mutual masturbation; and homosexual anal intercourse, oral intercourse and mutual masturbation.⁵⁷

The lack of clarity in the remaining studies regarding what should be termed sexual activity may affect the comparability of their findings with both the above three studies and each other (i.e. interstudy comparability). However, the comparability of data relating to the intervention and control arms in each individual study (i.e. intrastudy comparability) should not be affected.

Overall rates of sexual activity

The rates of lifetime sexual activity reported by students who had not been exposed to the study intervention (i.e. data from control groups, or baseline data from before/after studies) are important in providing a context within which to consider outcomes such as rates of contraceptive use, pregnancy, and STIs. These rates varied widely. The lowest rates were reported in the evaluation of the UK Bodyzone Project, where only 15% of male students and 13% of female students in the control school reported ever having had sexual intercourse.⁵¹ At the other end of the spectrum, around 93% of males in the control group in Jackson, Mississippi, and 82% of females in the control group in Quincy, Florida, reported ever having had sex.⁴⁵ However, the students who completed the Bodyzone survey were only in years eight and ten (i.e. aged approximately 13 and 15 respectively), whereas most US studies were carried out in senior high schools whose students ranged in age from approximately 14–18 and over (for details of UK and US grades, see Appendix 6). Stout *et al.*⁴⁶ reported average rates of reported sexual activity by grade in nine schools in Oregon, five of which had SBHCs: unsurprisingly, these rates rose steadily by grade (*Table 10*). The one US study that was limited to junior high schools (whose students' ages normally range from 11 to 14) – the New York City 'In Your Face' pregnancy prevention programme – reported a baseline level of lifetime sexual activity of 20%,⁵³ a rate more comparable with the Bodyzone findings (for details, see Appendix 2, *Table 28*).

Interestingly, the rates of lifetime sexual activity reported in the evaluations of the New York City⁵⁹

TABLE 9 Summary of project characteristics

Project	First author and year of publication	Setting	Intervention	Reviewer's categorisation of study design	Reported outcomes
Baltimore contraceptive continuation pilot project	Bearss 1995 ⁵⁶	USA	School-based contraceptive dispensing with intensive monthly follow-up	Uncontrolled before/after cohort study	Contraceptive use, pregnancy rates, STI rates
Bodyzone	Peckham 2003, ⁵¹ Carlson 2004 ⁶³	UK	School-based drop-in clinic	Controlled case study	Rates of sexual activity, contraceptive use
Dallas, Texas	Kirby 1989, ⁶⁴ 1991 ^{45,111}	USA	Comprehensive SBHC	Controlled case study	Rates of sexual activity, use of sexual health services, contraceptive use, pregnancy rates
Denver, Colorado	Ricketts 2006 ⁴⁷	USA	Comprehensive SBHCs	Controlled quasi-before/after study	Pregnancy rates
Gary, Indiana	Kirby 1989, ⁶⁴ 1991 ^{45,111}	USA	Comprehensive SBHC	Controlled case study	Rates of sexual activity, contraceptive use, pregnancy rates
Integrated ARH project	Magnani 2001 ⁵⁰	Brazil	School-linked sexual health service	Controlled before/after quasi-cohort study	Rates of sexual activity, contraceptive use
Jackson, Mississippi	Kirby 1989, ⁶⁴ 1991 ^{45,111}	USA	Comprehensive SBHC	Controlled case study	Rates of sexual activity, use of sexual health services, contraceptive use, pregnancy rates
Kansas City, Missouri	Seybert 1988 ⁴⁸	USA	Comprehensive SBHC	Controlled cross-sectional study	Rates of sexual activity, contraceptive use, pregnancy rates
Los Angeles County	Schuster 1997, ⁶² 1998 ⁵⁷	USA	School-based condom availability scheme	Uncontrolled before/after study	Rates of sexual activity, use of sexual health services, contraceptive use
Massachusetts	Blake 2003 ⁵⁸	USA	School-based condom availability scheme	Controlled cross-sectional study	Rates of sexual activity, contraceptive use, pregnancy rates
Minneapolis	Sidebottom 2003 ⁵⁴	USA	Comprehensive SBHCs	Uncontrolled before/after study	Contraceptive use
Muskegon, Michigan	Kirby 1989, ⁶⁴ 1991 ^{45,111}	USA	Comprehensive SBHC	Controlled case study	Rates of sexual activity, use of sexual health services, contraceptive use, pregnancy rates
New Orleans	Cohen 1998, ⁶⁵ 1999, ⁶¹ Nsuumi 2000 ⁶⁶	USA	School-based chlamydia and gonorrhoea screening	Quasi-controlled before/after study	STI rates
New York City Schools Condom Availability Program	Guttmacher 1997 ⁵⁹	USA	School-based condom availability scheme	Controlled cross-sectional study	Rates of sexual activity, use of sexual health services, contraceptive use
New York City 'In Your Face' pregnancy prevention programme	Tiezzi 1997 ⁵³	USA	School-based pregnancy prevention programme	Uncontrolled before/after study	Rates of sexual activity, use of sexual health services, pregnancy rates

continued

TABLE 9 Summary of project characteristics

Project	First author and year of publication	Setting	Intervention	Reviewer's categorisation of study design	Reported outcomes
Oregon, School A	Stout 1996 ⁴⁶	USA	Comprehensive SBHC	Controlled before/after case study	Rates of sexual activity, contraceptive use, pregnancy rates, STI rates
Oregon, School B	Stout 1996 ⁴⁶	USA	Comprehensive SBHC	Controlled before/after case study	Rates of sexual activity, contraceptive use, pregnancy rates, STI rates
Oregon, School C	Stout 1996 ⁴⁶	USA	Comprehensive SBHC	Controlled before/after case study	Rates of sexual activity, contraceptive use, pregnancy rates, STI rates
Oregon	Zimmer-Gembeck 1996 ⁴⁹	USA	Comprehensive SBHCs	Controlled cross-sectional study	Rates of sexual activity, contraceptive use, pregnancy rates
Urban area in north-west USA (apparently Oregon)	Zimmer-Gembeck 1996 ⁴⁹	USA	School-based dispensing of hormonal contraceptives in SBHCs	Uncontrolled before/after study	Contraceptive use
Philadelphia, USA	Furstenberg 1997 ⁶⁰	USA	School-based condom availability scheme	Controlled before/after study	Rates of sexual activity, use of sexual health services, contraceptive use
Quincy, Florida	Kirby 1989, ⁶⁴ 1991 ^{45, 111}	USA	Comprehensive SBHC	Uncontrolled before/after case study	Rates of sexual activity, use of sexual health services, contraceptive use, pregnancy rates
San Francisco	Kirby 1989, ⁶⁴ 1991 ^{45, 111}	USA	Comprehensive SBHC	Uncontrolled before/after case study	Rates of sexual activity, contraceptive use, pregnancy rates
St. Paul Pregnancy-Free Club, St Paul, Minnesota	Schaffer 2008 ⁵²	USA	School-based programme for parenting adolescents	Uncontrolled before/after study	Pregnancy rates
Seattle Condom Availability Program, Seattle, Washington	Kirby 1999, ⁴² Brown 1997, ⁶⁷ Hillard 1996 ⁶⁸	USA	School-based condom availability scheme	Controlled before/after study	Rates of sexual activity, use of sexual health services, contraceptive use
US school-based adolescent health-care programme	Kisker 1994 ⁴⁴	USA	Comprehensive SBHCs	Controlled quasi before/after study	Rates of sexual activity, contraceptive use, pregnancy rates
ARIH, adolescent reproductive health.					

TABLE 10 Percentage of students in nine Oregon schools reporting sexual activity, 1992⁴⁶

Grade	Ever had sex		Had sex in last 4 weeks	
	Male (%)	Female (%)	Male (%)	Female (%)
9	40.8	30.9	17.4	15.3
10	43.9	38.6	22.1	19.4
11	54.5	53.7	27.9	29
12	65.6	61	36.8	38.2
All	50.7	45.8	25.8	25.2

and Seattle⁴² Condom Availability Schemes are lower than those reported from a number of US schools with SBHCs, in particular those evaluated by Kirby *et al.*⁴⁵ It is impossible to determine whether this is due to a genuine difference in rates (perhaps reflecting the location of the SBHCs in areas of particularly high need), or is an artefact reflecting the use of a more specific definition of sexual activity in the New York City and Seattle evaluations. Data from the evaluation of the Los Angeles County Condom Availability Scheme⁵⁷ are not comparable because students were asked separately about different sexual activities; because any one student may have engaged in more than one activity, an aggregated rate for all sexual activity cannot be calculated without access to the primary data.

Impact of service provision on rates of sexual activity

Recent sexual activity is a more sensitive indicator of the impact of introducing a new service than lifetime sexual activity. However, only nine projects reported the former (*Table 11* – for full details, see Appendix 2, *Table 28*).

Only one of the higher-quality studies, the evaluation of the Seattle Condom Availability Program, reported a statistically significant difference between the intervention and control groups in terms of recent sexual activity; the intervention was associated with a decrease in such activity. One of the remaining higher-quality studies, the evaluation of the Philadelphia Condom Availability Scheme, noted a trend for recent sexual activity to decrease in participating schools at the same time as it increased in the control schools, but this trend was modest, and the investigators noted that the study was underpowered to achieve statistical significance for small or even moderate effects.⁶⁰ In Oregon, the proportions of students reporting recent sexual activity fell in intervention schools A and C, while lesser reductions were

reported in control School A, and increases in control school C. However, the proportions of students in intervention School B reporting recent sexual activity increased at the same time as slight reductions were reported in control School B.⁴⁶ None of these results was said to be statistically significant. Kisker and Brown found that, in schools with SBHCs, the increase over time in the proportion of students who reported sexual intercourse in the previous month did not differ significantly from that seen in controls, although the increase over time in the proportion who had ever had sexual intercourse was lower in the SBHC schools than in controls. They claimed that, after adjusting for national trends, the latter difference was statistically significant ($p = 0.05$).⁴³ Only one of the lower-quality studies, the evaluation of the Massachusetts Condom Availability Program, reported a statistically significant result in relation to recent sexual activity, which was lower in the intervention group than the control group.⁵⁸

Of the studies which only reported lifetime, not recent, sexual activity, the higher-quality Brazilian evaluation reported slightly higher increases over time in the intervention group than in the control group in the proportion of both male and female students who had ever had sexual intercourse, but these differences were not said to be statistically significant⁵⁰ (for details, see Appendix 2, *Table 28*). Only two of the lower-quality studies reported results that they identified as statistically significant. In San Francisco, following the introduction of an SBHC at a senior high school, there was a significant increase in the proportion of female students who reported having had sexual intercourse (46% vs 37%; $p < 0.05$), but no corresponding increase among male students.⁴⁵ However, in the absence of a control group, it is impossible to determine to what extent this result should be attributed to the intervention. In Oregon, Zimmer-Gembeck *et al.*⁴⁹ reported that students in 15 high schools with SBHCs were

TABLE 11 Impact of service provision on rates of recent sexual activity, by study design

Project	Intervention	Percentage sexually active	
		Control group	Intervention group
Controlled before/after studies			
Oregon, School A ⁴⁶	SBHC	In last 4 weeks: 1990, 22.4%; 1992, 21.2%	In last 4 weeks: 1990, 28.1%; 1992, 21.6%
Oregon, School B ⁴⁶	SBHC	In last 4 weeks: 1990: 22.0%; 1992: 21.1%	In last 4 weeks: 1990, 25.9%; 1992, 29.8%
Oregon, School C ⁴⁶	SBHC	In last 4 weeks: 1990, 28.4%; 1992, 34.6%	In last 4 weeks: 1990, 32.8%; 1992, 26.7%
Philadelphia, USA ⁶⁰	Condom scheme	In last 4 weeks: 1991, 24.0%; 1993, 25.6%	In last 4 weeks: 1991, 32.0%; 1993, 28.6%
Seattle Condom Availability Program ^{42,68}	Condom scheme	In last 3 months (vaginal or anal intercourse only): 1993, 35%; 1995, 36%	In last 3 months (vaginal or anal intercourse only): 1993, 32%; 1995, 28%; <i>p</i> -value vs controls 0.024
Controlled quasi-before/after study			
US school-based adolescent health-care program ⁴³	SBHCs	In last month: baseline, 23%; follow-up: 47%	In last month: baseline, 18%; follow-up: 44%
Uncontrolled before/after studies			
Los Angeles County, USA ⁵⁷	Condom scheme	In previous year (heterosexual vaginal intercourse only): males, 50.6%; females, 42.0%	In previous year (heterosexual vaginal intercourse only): males, 51.8%; females: 44.0%
Controlled cross-sectional studies			
Kansas City ⁴⁸	SBHC	In previous 30 days: 48.7%	In previous 30 days: 47.2%
Massachusetts, USA ⁵⁸	Condom scheme	In previous 3 months: 35%	In previous 3 months: 30%; <i>p</i> -value vs control 0.0252

significantly more likely than students in 35 high schools without SBHCs to have ever had sexual intercourse (41% vs 38%, $p < 0.05$) (see Appendix 2, Table 28). However, as this study only recorded data at a single point in time, it is entirely possible that any differences in sexual activity between the intervention and control schools were due to underlying differences in the study populations rather than to the intervention, because SBHCs were frequently introduced in areas of deprivation and high need, where rates of sexual activity were likely to have been above average.

None of the studies collected data relating to levels of regretted sexual activity. However, two studies reported data relating to numbers of sexual partners. In Seattle, the proportion of students reporting having had four or more sexual partners over their lifetime decreased slightly in intervention schools following the introduction of a condom availability programme, while it remained unchanged in control schools.

Although this difference was not statistically significant ($p = 0.219$), a more sensitive indicator, the proportion of students reporting four or more partners in the previous 3 months, fell significantly in the intervention schools, while rising in the control schools ($p = 0.015$) (for details, see Appendix 2, Table 28).⁴² In Massachusetts, a methodologically weaker study found that the mean number of lifetime sexual partners was the same (at 2.8) in students at senior high schools with and without condom availability schemes.⁵⁸

Seven studies provided information relating to age at first intercourse. Only two lower-quality studies reported statistically significant results, in both cases suggesting that the presence of an SBHC was associated with a delay in first intercourse: male students in the intervention school in Dallas, and female students in the intervention school in Jackson, were significantly older at first intercourse than their opposite numbers in the control schools (see Appendix 2, Table 29).

Summary

The best available evidence suggests that the provision of SBSHS or SLSHS is not associated with an increase in rates of sexual activity, and may indeed be associated with a reduction in the proportion of students reporting recent sexual activity, and in the proportion reporting high numbers of sexual partners. There is no evidence to suggest that the provision of school-based or school-linked services is associated with a lowering of the age of first intercourse, and indeed evidence from lower-quality studies suggest that the reverse may be true.

Use of SBSHS or SLSHS by sexually active students

The value of SBSHS or SLSHS depends largely on the extent to which they are used by sexually active students. This is vividly illustrated by the finding that in schools with SBHCs in Gary, Jackson, Muskegon and San Francisco, between 64% and 90% of female students who became pregnant, and 62–81% of male students who reported that they had ‘gotten a girl pregnant’, did so before they used the SBHC for any reason, and 65–89% and 74–84%, respectively, did so before they discussed birth control in the SBHC. These figures were noticeably lower in Dallas, where the SBHC had a policy of giving routine examinations to all new students⁴⁵ (Table 12).

Only nine studies provided information on the use of SBSHS by sexually active students, and only five reported the proportion of sexually active students using such a programme for sexual health services (Table 13); all of these studies were located in the USA (for details, see Appendix 2, Table 30).

As may be seen, the use of the condom availability schemes varied widely, from 71% of sexually active students in a Los Angeles County school where condoms were available from baskets in some classrooms and outside the nurse’s office,⁶² presumably throughout the school day, to fewer than 20% of sexually active students in 12 schools in New York City where condoms had to be obtained from trained volunteers during limited hours.⁵⁹ However, aggregated figures from schools participating in the same scheme may conceal considerable variations between individual schools. So, in Philadelphia, 39% of sexually active students in participating schools used the condom availability scheme, but the figure in individual schools ranged from 13% to 80%.⁶⁰ The investigators offered no explanation for this massive variation other than to note that condom distribution was less successful in the two schools where it was based in a comprehensive clinic than in those where it operated through non-clinic-based health resource centres (HRCs). In Seattle, uptake was influenced by the manner in which condoms were made available. In the 1994–5 school year, schools in which condoms were only available through vending machines issued a mean of 0.5 condoms per sexually experienced student, and such students were substantially less likely to have obtained and used a condom from school than students from schools with health centres that participated in the programme (18% vs 42%). However, schools that made condoms available from baskets recorded substantial between-school variations in the mean number of condoms obtained (range 16.1–23.4 condoms/sexually experienced student); the two schools which issued the highest mean numbers of condoms per student

TABLE 12 Percentages of students at schools with SBHCs who were ever pregnant (or ever caused a pregnancy), by timing of clinic use⁴⁵

	Numbers	Pregnancy before using SBHC for any reason (%)	Pregnancy before discussing birth control in SBHC (%)
Dallas	Female (n = 48)	44	62
	Male (n = 21)	52	67
Gary	Female (n = 53)	77	89
	Male (n = 32)	81	84
Jackson	Female (n = 39)	64	77
	Male (n = 19)	68	74
Muskegon	Female (n = 40)	70	65
	Male (n = 21)	62	81
San Francisco	Female (n = 20)	90	80
	Male (n = 10)	80	80

TABLE 13 Proportion of sexually active students using programme for sexual health services

Project	Details of contraceptive provision	Service use for sexual health services (sexually active students only)
Pregnancy prevention programme		
New York City 'In Your Face' pregnancy prevention programme ⁵³	Referral for contraceptives to two hospital clinics staffed by the same health-care workers as the school-based clinics	Female students who had had sex in last 3 months enrolled in programme: 1992–3, 50%; 1994–5, 74%
Condom availability schemes		
–	Condoms available from baskets in four classrooms and outside nurse's office	71% of students who had had vaginal or anal intercourse in the previous year ⁶²
New York City Schools Condom Availability Program ⁵⁹	Condoms available from trained volunteers in resource rooms	Used in previous 6 months: Autumn 1993: male students 31%; female students 18% ⁷⁰ Early autumn 1994: <20% overall ⁵⁹
Philadelphia, USA ⁶⁰	Condoms available from school-based drop-in HRCs staffed by professionals from nearby health facilities	39% (school range 13–80%)
Seattle Condom Availability Program ^{42,68}	Condoms available from baskets in teen health centres or vending machines in public locations within the schools	48%
HRC, health resource centre.		

were those with the largest number of baskets of condoms, and were also the only schools that made condoms available in the clinic bathrooms.⁴²

Four comprehensive SBHCs did not report the proportion of sexually active students who used those SBHCs for general sexual health services but provided data from clinic records specifically on the proportions of sexually active male students who received, or were referred for, condoms, and sexually active female students who received, or were referred for, oral contraception from the SBHC⁶⁴ (Table 14). These figures were lowest in Muskegon, where the SBHC did not dispense contraceptives. Moreover, the proportion of Muskegon students who actually received the contraceptives for which they were given vouchers was even lower: SBHC and clinic records showed that about one-quarter of females who were given vouchers for pills, and one-third of males given vouchers for condoms, never actually used those vouchers to collect supplies.⁶⁴

Because few studies stated whether parental consent was required for service use, it is difficult to judge the impact of such a requirement on the proportion of sexually active students who used SBSHS or SLSHS. However, in Seattle and Los Angeles County, where parental consent was not required, use of condom availability schemes by

sexually active students was higher than in New York City and Philadelphia, where such consent was required, even though in the latter only passive consent was required, and in New York City fewer than 2% of parents were said to have opted out of the scheme (for details, see Appendix 2, Table 30).

Summary

The use of school-based condom availability schemes varied widely. Uptake appeared to be higher when condoms were available without face-to-face contact; it may also have been substantially influenced by the hours during which the service was available. Unsurprisingly, when condoms were available free of charge, from baskets, more were taken than when they had to be bought from vending machines; although there is no evidence that the proportion of students accessing condoms was also higher when condoms were available from baskets, the difference between the numbers of condoms distributed by the two methods is so great as to make this appear probable.

There is no evidence for the overall use of SBHCs by students who were, or intended to become, sexually active to obtain a full range of sexual health services. Instead, the evidence is limited to the use of SBHCs by male students to obtain condoms and by female students to obtain oral contraceptives. Perhaps unsurprisingly, the use of

TABLE 14 Sexually active students receiving, or referred for contraception from SBHCs⁶⁴

SBHC	Details of contraceptive service provision	Percentage of sexually active students who received or were referred for:	
		Condoms from the clinic (male)	Oral contraceptives from the clinic (female)
Dallas, Texas	An 'appropriate method' provided to female students wanting contraception	17	40
Jackson, Mississippi	Pill and condoms dispensed	15	39
Muskegon, Michigan	Vouchers issued to enable students to obtain the pill and condoms from the Planned Parenthood clinic about 1 mile away ⁶⁴	12	23
Quincy, Florida	Contraceptives dispensed	18	32

SBHCs by sexually active students specifically to obtain contraceptives appeared to be higher where those contraceptives were provided on site than where vouchers were provided to be redeemed elsewhere.

Contraceptive use School-based or school-linked clinics or health centres

Data relating to recent contraceptive use were available for 15 projects involving school-based or school-linked clinics or health centres (*Table 15* – for details, see Appendix 2, *Table 31*).

Only one of the higher-quality studies reported a statistically significant result. Kisker's quasi-before/after study of 19 comprehensive SBHCs in large US cities⁴³ found that the proportion of sexually active students who used an effective contraceptive method at last intercourse was lower in students at schools with SBHCs than in control subjects (see *Table 15*). However, because baseline data were not available for this particular comparison, the result has no more validity than if it came from a controlled cross-sectional study.

Three of the lower-quality studies reported that SBHCs were associated with a statistically significant increase in contraceptive use and/or condom use:

- In San Francisco, after the introduction of a comprehensive SBHC, students at a senior high school were significantly more likely than before to have used the condom or pill at last intercourse,⁶⁴ and both male and female students were significantly more likely to have reported condom use at last intercourse,

even though the SBHC did not dispense or prescribe contraceptives. Both these results remained significant ($p < 0.01$ and $p < 0.01$, respectively) after multiple regression analysis. There was also a non-significant increase in the use of the contraceptive pill.⁴⁵ However, these increases in contraceptive use may simply reflect wider behavioural changes: during the study period, condom use by adolescents across the USA increased substantially. In addition, in response to growing awareness of the threat posed by HIV, various local community health promotion initiatives in this period promoted condom use, and the school also gave considerable emphasis to reducing the transmission of HIV and other STIs.⁴⁵ Because of the lack of contemporary controls, it is impossible to determine which of these components was most influential in increasing student contraceptive use.

- In Muskegon, students at a school with a comprehensive SBHC with links to a nearby Planned Parenthood clinic were significantly more likely than controls to have used the condom or pill at last intercourse;⁶⁴ male students at that school were also significantly more likely than controls to have used a condom at last intercourse (*Table 15*). Although it initially appeared that female students at the intervention school were not significantly more likely than controls to have used a condom at last intercourse, the difference became significant ($p < 0.05$) once multiple regression was used to control for recorded differences in background characteristics.⁴⁵ However, these findings are weakened by the fact that, although the control school was similar to the intervention school in social and demographic

TABLE 15 Contraceptive use: school-based or school-linked clinics or health centres

Project	Intervention	Contraceptive use (sexually active students only)	Condom use (sexually active students only)			
Controlled before/after studies						
Integrated ARH project, Brazil ⁵⁰	School-linked sexual health clinics	Used contraceptive at last sex (%):		Used condom at last sex (%):		
		Males 1997	Intervention 74.1 Control 70.9	Males 1997	Intervention 62.6 Control 58.3	
		Males 1999	Intervention 83.9 Control 80.9	Males 1999	Intervention 73.7 Control 70.6	
		Females 1997	Intervention 81.0 Control 71.4	Females 1997	Intervention 42.2 Control 40.8	
		Females 1999	Intervention 89.4 Control 82.1	Females 1999	Intervention 51.7 Control 50.6	
		Oregon, School A ⁴⁶	SBHC	Used valid birth control at last sex (%):	Not reported	
				Intervention	1990: 68.2 1992: 62.4	
				Control	1990: 62.2 1992: 68.5	
Oregon, School B ⁴⁶	SBHC	Used valid birth control at last sex (%):	Not reported			
		Intervention	1990: 63.8 1992: 71.0			
		Control	1990: 73.4 1992: 69.2			
Oregon, School C ⁴⁶	SBHC	Used valid birth control at last sex (%):	Not reported			
		Intervention	1990: 65.8 1992: 63.3			
		Control	1990: 59.7 1992: 60.5			
Controlled quasi-before/after study						
US school-based adolescent health-care programme (19 schools in large US cities) ⁴³	SBHCs	Used contraception consistently in previous month (%):		Not reported		
		1988	Intervention 43 Control 47			
		1992	Intervention 60 Control 55			
		Used effective contraceptive method at last intercourse (%):				
		1988 – no data				
		1992	Intervention 75 Control 80; $p=0.05$			

TABLE 15 Contraceptive use: school-based or school-linked clinics or health centres (continued)

Project	Intervention	Contraceptive use (sexually active students only)	Condom use (sexually active students only)
Uncontrolled before/after study			
Baltimore contraceptive continuation pilot project ⁵¹	Monthly reproductive health assessment and counselling offered to female students enrolled in SBHCs and requesting contraceptive services	Pill use/woman month (with or without condom): Pre-programme: 15/139 (11%), Over programme period: 579/943 (61%)	Condom use/woman month (with or without pill): Pre-programme: 44/139 (31%) Over programme period: 275/943 (29%) Pill + condom use/woman month: Pre-programme: 10/139 (7%) Over programme period: 208/943 (22%)
Quincy, Florida ⁴⁵	SBHC	Used condom or pill at last intercourse (%): Baseline 66, follow-up 67	Used condom at last intercourse (%): Male: Baseline 57, follow-up 53 Female: Baseline 46, follow-up 48
San Francisco ⁴⁵	SBHC	Used condom or pill at last intercourse (%): Baseline 39, follow-up 62; $p < 0.001$	Used condom at last intercourse (%): Male: Baseline 29, follow-up 56; $p < 0.001$ Female: Baseline 22, follow-up 38; $p < 0.001$
Controlled case studies			
Bodyzone, Oxfordshire, UK ^{51,63}	Drop-in clinic	Proportion of female students reporting not using contraceptives at first sex and most recent sex said to be much higher in control school than in intervention school	No data
Dallas, Texas ⁴⁵	SBHC	Used condom or pill at last intercourse (%): Intervention 47, control 49	Used condom at last intercourse (%): Male: Intervention 36, control 33 Female: Intervention 16, control 18
Gary, Indiana ⁴⁵	SBHC	Used condom or pill at last intercourse (%): Intervention 61, control 58	Used condom at last intercourse (%): Male: Intervention 48, control 52 Female: Intervention 31, control 27
Jackson, Mississippi ⁴⁵	SBHC	Used condom or pill at last intercourse (%): Intervention 62, control 55	Used condom at last intercourse (%): Male: Intervention 48, control 39 Female: Intervention 20, control 25
Muskegon, Michigan ⁴⁵	SBHC	Used condom or pill at last intercourse (%): Intervention 67, control 51; $p < 0.001$	Used condom at last intercourse (%): Male: Intervention 61, control 41; $p < 0.001$ Female: Intervention 29, control 22
<i>continued</i>			

TABLE 15 Contraceptive use: school-based or school-linked clinics or health centres (continued)

Project	Intervention	Contraceptive use (sexually active students only)	Condom use (sexually active students only)
Controlled cross-sectional studies			
Kansas City ⁴⁸	SBHC	Used (unspecified) birth control all the time (%): Intervention 33.0, control 35.2 Method of birth control = pill (%): Intervention 31.4, control 28.3	Method of birth control = condom (%): Intervention 43.8, control 45.5
Oregon ⁴⁹	SBHCs	Used method of birth control other than withdrawal at last sex (%): Intervention 76, control 74; $p < 0.05$	Used condom at last intercourse (%): Intervention 58, control 58
ARH, adolescent reproductive health.			

characteristics, it was 90 miles away, and therefore may have differed from it in relation to other, unrecorded, factors. Moreover, the survey was administered at different times of year in the two schools, and this too may have affected the findings.⁴⁵

- In Oregon, Zimmer-Gembeck⁴⁹ found that, although the proportion of students who used a condom at last intercourse was the same high schools with and without SBHCs, the proportion who used no contraceptive method (considering withdrawal not to be a method) was significantly lower in the schools with SBHCs.

In addition, the introduction into existing SBHCs in Baltimore of an intensive contraceptive continuation programme targeting sexually active female students was associated with a substantial rise in the use by such students of the pill, either alone or with condoms, but the statistical significance of this result was not reported, and attrition rates were so high that baseline and follow-up data were not comparable⁵¹ (see Table 15 – for further details, see Appendix 2, Table 31).

In Jackson, although there was no significant difference between the intervention and control schools in the proportion of students using the pill or condom at last intercourse, or in those specifically using the condom, the proportion of female students using the pill was significantly higher in the intervention school (46% vs 30%; $p < 0.01$); this difference remained significant ($p < 0.05$) after multiple regression analysis, and appears to be related to the SBHC's proactive prescribing and monitoring policy. However, not all SBHCs encouraged pill use at the expense

of condom use. In Muskegon, although female students in the intervention school were more likely than those in the control school to have used the pill at last intercourse (36% vs 27%; $p < 0.05$), this result became non-significant following regression analysis, while after regression analysis both male and female students were significantly more likely than controls to have used a condom at last intercourse ($p < 0.001$ and $p < 0.05$ respectively)⁴⁵ (see Appendix 2, Table 31).

Although the SBHC in Quincy seems to have had little impact on contraceptive use, this may reflect the fact that, before the SBHC opened, students already had good access to family planning services at a nearby health clinic which they could visit within school hours. The SBHC was opened to substitute for this clinic when it moved away, and the evaluation therefore essentially assesses the difference between a school-based and a school-linked clinic rather than between an SBHC and no SBHC. Kirby *et al.*⁴⁵ also note that, during the evaluation period, the Quincy SBHC was understaffed and had considerable staff turnover, factors which are likely to have reduced its effectiveness.

It is not clear to what extent the UK Bodyzone Project was associated with increased contraceptive use. Although the proportion of female students reporting not using contraceptives either at first sex or at most recent sex was said to be much lower in the intervention school (which had had a Bodyzone clinic for about 3 years) than in the control school (where the Bodyzone clinic opened in the school year during which the evaluation took place), the statistical significance of this result was not reported. Moreover, the investigators felt that

they could not confidently attribute the result to the presence of the clinic as, in the intervention school, there was no significant difference in contraceptive use between sexually active students who attended the clinic and those who had never attended it.⁵¹ In contrast, Kirby *et al.*⁴⁵ found that, in Dallas, Jackson and Quincy, where data were collected relating to SBHC users and non-users, sexually active students who used the SBHC for contraceptives were significantly more likely to have used the condom or pill at last intercourse than sexually active students who did not use the SBHC for contraceptives. They noted that although that finding was likely to reflect the differences in motivation between students who did and did not use the SBHC, at each site a substantial proportion of sexually active students who had not used the SBHC for contraceptives nonetheless used the condom or pill at last intercourse.

The general evaluations of school-based or school-linked health centres (SLHCs) did not suggest a consistent relationship between on-site contraceptive provision and increased contraceptive use. However, two uncontrolled before/after studies specifically evaluated the effect on contraceptive choice and SBHC use of introducing a policy of on-site contraceptive dispensing. Zimmer-Gembeck *et al.*⁵⁵ analysed routinely collected data from six SBHCs in north-western USA before and after the introduction of on-site dispensing of contraceptive foam and oral, injected and implanted hormonal contraceptives;

these SBHCs had originally issued prescriptions to be filled elsewhere. On-site dispensing was found to be associated with a statistically significant decrease in the proportion of sexually active female students who selected no contraceptive method (hormonal or other) at one or more visit to the SBHC for contraception (*Table 16*). Moreover, students who chose to use hormonal contraception did so more quickly than before [after a mean of 40 vs 57 days ($p < 0.001$) and 2.2 vs 2.5 clinic visits ($p < 0.001$)], and were more consistent in selecting such contraceptives. However, because of the study design, it is not possible to be confident that these changes were due to the change in dispensing policy rather than to other, secular, factors. In addition, the data only relate to the choice of contraceptive method, not to its use. In Minneapolis, Sidebottom *et al.*⁵⁴ conducted a retrospective review of routinely collected data to evaluate the introduction of a policy of on-site distribution of contraceptives in SBHCs that had previously only distributed vouchers to be redeemed free of charge at community clinics. Although the proportion of students who requested contraceptives remained unchanged (which the investigators felt might have been due to a failure to publicise the change in delivery system more widely), the direct distribution system was highly effective in increasing the receipt of contraceptives by students who requested them (see *Table 16*). Again, however, data are not available relating to contraceptive use as opposed to selection.

TABLE 16 Impact on contraceptive choice and SBHC use of on-site contraceptive dispensing

Project	Intervention	Contraceptive use (sexually active students only)
Uncontrolled before/after studies		
Urban area in north-west USA (apparently Oregon) ⁵⁵	On-site dispensing of hormonal contraceptives in SBHCs	Did not select a contraceptive method: 1994: 41.4% 1996: 29.4%; $p < 0.001$
Minneapolis ⁵⁴	On-site dispensing of contraceptives in SBHCs	Not reported Requested contraceptive (%): Voucher 11 Direct distribution 11 Actually received all contraceptives requested (%): Voucher 61/149 (40.9%) Direct distribution (152/153) (99.3%) Received all condoms requested (%): Voucher 25 Direct distribution 100 Received all oral contraceptives requested (%): Voucher 50 Direct distribution 100

TABLE 17 Impact of school-based condom availability schemes on contraceptive use

Project	Contraceptive use (sexually active students only)	Condom use (sexually active students only)
Controlled before/after studies		
Philadelphia, USA ⁶⁰	Not reported	Used condom at last intercourse (%): Intervention 1991: 52.2 1993: 58.0 Controls 1992: 61.9 1993: 64.6 Had sex without condom in last 4 weeks (%): Intervention 1991: 7.5 1993: 5.6 Controls 1991: 4.8 1993: 5.4
Seattle Condom Availability Program, Seattle, Washington ^{42,68}	Used condom or pill during most recent sex (%): Seattle 1993: 62 1995: 60 National survey 1993: 64 1995: 62%; $p = 0.805$	Had sex in last 3 months: used condom at last intercourse (%): Seattle 1993: 57 1995: 51 National survey 1993: 53 1995: 56%; $p = 0.042$
Uncontrolled before/after study		
Los Angeles County, USA ⁵⁷	Not reported	Always used condom in previous year for vaginal intercourse (%): Males 1992: 37 1993: 50; $p = 0.005$ Females 1992: 27 1993: 32
Controlled cross-sectional studies		
Massachusetts, USA ⁵⁸	Used any contraceptive during most recent sex: Intervention: 85% Control: 76%; $p = 0.0058$	Used condom, with or without other contraceptive, during most recent sex (%): Intervention: 72 Control: 56; $p = 0.0001$ Used condom for pregnancy prevention during most recent sex (%): Intervention: 66 Control: 49; $p = 0.0001$
New York City Schools Condom Availability Program ⁵⁹	Not reported	Used condom at last vaginal, anal or oral intercourse (%): <i>New students</i> New York City: 57.7 Chicago: 59.5 <i>Continuing students</i> New York City: 60.8 Chicago: 55.5; $p < 0.01$

Condom availability programmes

All five condom availability programmes reported data relating to contraceptive use (*Table 17* – more comprehensive details are available in Appendix 2, *Table 31*).

Of the two higher-quality studies, the Seattle evaluation reported a statistically significant result that did not favour the intervention. The introduction of the condom availability scheme was followed by a reduction in the percentage of sexually active students who reported using a condom during most recent sex; this was statistically significant when compared with the national increase over the same period (for details, see *Table 17*). The decrease was greater in the five Seattle schools which had teen health centres than in the five schools that did not, even though the schools with teen health centres made condoms available, free of charge, from baskets, and distributed many more condoms than did schools without such health centres. However, in schools with teen health centres, the decrease in condom use was offset by an increase in pill use, and, consequently, the decrease in the use of either pill or condom was small, and in line with national trends (*Table 18*). The apparent reason why condom use did not increase in Seattle schools with teen health centres, even though many condoms were distributed, was that students simply changed their source of supply to the school; in particular, they were significantly less likely to obtain condoms from either a store or a friend or relative.⁴² By contrast, in Philadelphia, condom use at last intercourse increased between 1991 and 1993; this increase was greater in teenagers living in the catchment areas of schools participating in the school-based condom availability scheme than in those living in the catchment areas of schools without such schemes,⁶⁰ but the difference was not said to be statistically significant (for details, see *Table 17*).

All three lower-quality studies reported a statistically significant increase in condom use that was associated with condom availability schemes. In Los Angeles County, the introduction of a condom availability scheme in a senior high school was followed by a statistically significant increase in the proportion of male students who always used a condom for vaginal intercourse⁵⁷ (see *Table 17*). However, because of the study design, it is impossible to exclude the possibility that this change may be due to factors other than the introduction of the condom availability scheme. In Massachusetts, students in senior high schools with condom availability schemes were significantly more likely than those in schools without such schemes to have used a condom at last sex.⁵⁸ However, students in schools with condom availability schemes also received a greater range of instruction relating to HIV and to condom use than did students in schools without condom availability schemes, and the evaluation measures this whole package rather than just the provision of condoms. More seriously, in this study the absence of baseline data means that it is not possible to determine whether differences in condom use in the intervention and control groups were due to the presence of the condom availability scheme (together with additional instruction) or to other, unmeasured, differences between the two populations.

In New York City, students who had spent a year or more in public high schools with condom availability schemes ('continuing students') were significantly more likely to have used a condom at last intercourse than continuing students in similar public high schools in Chicago which did not have a condom availability scheme, whereas, there was no significant difference between New York City and Chicago in students who had been in the schools for less than a year ('new students')⁵⁹ (for details, see *Table 17*). Strictly speaking, the

TABLE 18 Seattle Condom Availability Program: students who had had sex in previous 3 months: contraceptive use during last sex⁴²

	National sample		All Seattle schools		Seattle schools with health centres		Seattle schools without health centres	
	1993	1995	1993	1995	1993	1995	1993	1995
Pill (%)	16	13	16	16	14	18	17	14
Condom (%)	53	56	57	51	57	47	56	55
Pill or condom (%)	64	62	62	60	61	58	62	63

design of this study is such that it is not possible to determine whether the differences in condom use between continuing students in the intervention and control groups may be attributed to the condom availability scheme, but the data relating to the new students suggest that this is likely.

Summary

There is no good-quality evidence that the availability of sexual health services in school-based or school-linked clinics or health centres is consistently associated with an increase in contraceptive use.

There is no good-quality evidence that condom availability schemes are associated with a statistically significant increase in condom use. Indeed, the introduction of a condom availability scheme in Seattle was associated with a statistically significant fall in condom use, but this result was complicated by an increase in contraceptive pill use by students in participating schools that had teen health centres, such that the overall reduction in pill or condom use was small, and in line with national trends.

Pregnancy

Seventeen projects reported data relating to either pregnancy or live births; all were from the USA

(Table 19). Recent pregnancy rates form a more sensitive indicator of the impact of introducing a new service than lifetime pregnancy rates, and therefore, where available, the former are reported in Table 19. Full details are available in Appendix 2, Table 32.

The only true controlled before/after studies – Stout *et al.*'s controlled case studies of three SBHCs in Oregon⁴⁶ – used self-reported pregnancy data.⁴⁶ None of the changes in pregnancy rates reported in these studies was said to be statistically significant (see Table 19). One of the two controlled quasi-before/after studies, Ricketts and Guernsey's⁴⁷ analysis of birth certificate and school enrolment data in Denver, reported a statistically significant result: in 1991, the rate of live births to black females aged 15–17 was substantially higher in the attendance areas of three schools with SBHCs that referred students to nearby health centres for contraceptive services than in the attendance areas of four schools without SBHCs (160/1000 vs 96/1000), whereas in 1997 it was the same, at 38/1000, in both groups. Although the SBHCs opened in 1989, 'baseline' data related to 1991, and the investigators related their analysis primarily to data from 1992, when the live birth rate in the attendance areas of the intervention schools peaked, at 165/1000. Between 1992 and

TABLE 19 Impact of services on pregnancy rates

Project	Intervention	Pregnancy rates	
Controlled before/after studies			
Oregon, School A ⁴⁶	SBHC	Sexually active female students only – pregnant in last 12 months (%):	
		SBHC	1990: 2.3 1992: 2.7
		No SBHC	1990: 3.2 1992: 3.0
Oregon, School B ⁴⁶	SBHC	Sexually active female students only – pregnant in last 12 months (%):	
		SBHC	1990: 3.0 1992: 2.1
		No SBHC	1990: 2.2 1992: 3.1
Oregon, School C ⁴⁶	SBHC	Sexually active female students only – pregnant in last 12 months (%):	
		SBHC	1990: 3.7 1992: 5.1
		No SBHC	1990: 4.3 1992: 4.9

TABLE 19 Impact of services on pregnancy rates (continued)

Project	Intervention	Pregnancy rates
Controlled quasi-before/after studies		
Denver, Colorado ⁴⁷	SBHCs	<p>Rates of live births to all black females aged 15–17 resident in the attendance areas of the intervention and control schools:</p> <p>1991 Intervention: 160/1000 (actual numbers not given) Control: 96/1000 (actual numbers not given)</p> <p>1992 Intervention: 165/1000 (actual numbers 56/340) Control: 86/1000 (actual numbers 44/514)</p> <p>1997 Intervention: 38/1000 (actual numbers 19/504) Control: 38/1000 (actual numbers 21/552)</p>
US school-based adolescent health-care programme (19 schools in large US cities) ⁴³	SBHCs	<p>All female students – ever been pregnant (%):</p> <p>1988 Intervention: 5 Control: 3</p> <p>1992 Intervention: 25 Control: 25</p>
Uncontrolled before/after studies		
Baltimore contraceptive continuation pilot project ⁵⁶	Monthly reproductive health assessment and counselling offered to female students requesting contraceptive services	13 students known to have become pregnant while enrolled on programme (rate 1.4%/month); pregnancy status of students who graduated, transferred or withdrew from school not known
New York City 'In Your Face' pregnancy prevention programme ⁵³	Pregnancy prevention programme operating through comprehensive SBHCs in junior high schools	<p>Pregnancy rates per 1000 female students (all students):</p> <p>1992–3: 8.8 1993–4: 5.3 1994–5: 6.8 1995–6: Schools continuing with programme: 5.8 Schools abandoning programme: 16.5</p>
Quincy, Florida ⁴⁵	SBHC	<p>Sexually active female students only – pregnant in last 12 months (%):</p> <p>Baseline: 10 Follow-up: 8</p>
San Francisco ⁴⁵	SBHC	<p>Sexually active female students only – pregnant in last 12 months (%):</p> <p>Baseline: 16 Follow-up: 16</p>
St Paul Pregnancy-Free Club, St Paul, Minnesota ⁵²	School-based programme for parenting adolescents	<p>Repeat pregnancy rates:</p> <p>1997–8 (pre-programme): all school: 10/40 (25%) 1998–9–2006–7: programme participants only: 20/276 (7.2%)</p>
Controlled case studies		
Dallas, Texas ⁴⁵	SBHC	<p>Sexually active female students only – pregnant in last 12 months (%):</p> <p>Intervention: 14 Control: 10</p>

continued

TABLE 19 Impact of services on pregnancy rates (continued)

Project	Intervention	Pregnancy rates
Gary, Indiana ⁴⁵	SBHC	Sexually active female students only – pregnant in last 12 months (%): Intervention: 11 Control: 20
Jackson, Mississippi ⁴⁵	SBHC	Sexually active female students only – pregnant in last 12 months (%): Intervention: 14 Control: 12
Muskegon, Michigan ⁴⁵	SBHC	Sexually active female students only – pregnant in last 12 months (%): Intervention: 15 Control: 14
Controlled cross-sectional study		
Kansas City ⁴⁸	SBHCs	All female students: had ever been pregnant (%): Intervention: 9.3 Control: 11.0 All female students: had ever had a baby (%): Intervention: 4.9 Control: 4.8
Massachusetts, USA ⁵⁸	Condom availability scheme	Said to be no difference between students in intervention and control schools in the proportion of students reporting pregnancy/having got someone pregnant; actual data not presented
Oregon ⁴⁹	SBHCs	Sexually active students only – had ever been pregnant/got someone pregnant (%): SBHC: 13 No SBHC: 10; $p < 0.05$

1997, the rate fell by 56% in the attendance areas of the control schools and by 77% in the attendance areas of the intervention schools. When regression lines were fitted to the birth rates for the two areas, the investigators found the two slopes to be significantly different, suggesting that the SBHCs were effective in reducing live births to black teenage mothers. Unfortunately, the study design was such that the impact of the SBHCs on pregnancy rates, rather than live birth rates, could not be assessed, as data on miscarriages and terminations of pregnancy were not available.

Kisker's controlled quasi-before/after study⁴³ of SBHCs in large US cities, which used self-reported pregnancy data, did not have a statistically significant result but, as the 'baseline' data did not predate the students' exposure to the SBHCs, its findings do not necessarily demonstrate that SBHCs had no effect on teenage pregnancy rates. However, as the authors note, it seems unlikely that any significant effect would have been missed

as a result of the study design because any effect which preceded the collection of the 'baseline' data might be expected to continue thereafter, leading to a divergence between the outcomes in the intervention and control groups.

As noted earlier, Tiezzi *et al.*⁵³ claimed that their uncontrolled evaluation of the New York City 'In Your Face' pregnancy prevention programme effectively contained a crossover control site. The investigators found a substantial difference in pregnancy rates between the three schools which continued with the fourth year of the 'In Your Face' pregnancy prevention programme and a fourth school in which the programme was discontinued after 3 years (see Table 19). The significance of this finding is not clear because, for each of the first 3 years, the authors presented an average pregnancy rate for all four schools, which may mask substantial differences between the school from which funding was withdrawn and the other three schools. However, although true contemporary

control data were not available, the authors claimed it was unlikely that pregnancy rates in the project schools began to decline spontaneously at the time when the programme was introduced, because other statistics showed an increase in adolescent pregnancy rates in New York State and City for the 4 years prior to programme inception (1990–3).

Only one of the remaining lower-quality studies reported a statistically significant result. The controlled cross-sectional survey of 15 SBHCs in Oregon⁴⁹ found that the proportion of sexually active students who said that they had ever been pregnant, or had ever caused a pregnancy, was higher in high schools with SBHCs than in those without SBHCs. However, in the absence of baseline data, this finding may simply reflect the location of SBHCs in schools whose students were at greatest risk of pregnancy. Thus, in Dallas, a significant difference between the intervention and control school in the proportion of sexually active female students who had ever been pregnant (27% vs 18%; $p = 0.05$) disappeared after controlling for background variables.⁴⁵ In Jackson, although pregnancy rates appeared to be higher in the intervention school than in the control school, the difference was not said to be statistically significant. Kirby *et al.*⁴⁵ noted that, in the intervention school, the presence of a day-care programme may have increased the number of teenage mothers who remained in school. However, this would not have affected the number of male students who said they had ever caused a pregnancy, which was also higher in the intervention school than in the control school.

The majority of studies evaluated services intended for all students. One study evaluated a programme designed specifically to reduce repeat pregnancy rates in teenage mothers: Schaffer *et al.*⁵² found that, averaged over 9 years, the repeat pregnancy rate among participants in the Pregnancy-Free Club, an intervention in an alternative high school, apparently in St Paul, Minnesota, was substantially lower than that reported for all teenage mothers in the school prior to the introduction of the programme (for details, see *Table 19*). However, this study was methodologically flawed, and its results are therefore not meaningful: students were invited to participate in the programme, and the investigators did not report either participation rates or school-wide repeat pregnancy rates over the study period. Consequently, it is possible that the number of repeat pregnancies in non-participants may have been such that the overall school repeat pregnancy rate remained unchanged.

Summary

There is no evidence relating to the impact of SBSHS or SLSHS on the number of unwanted conceptions.

The impact of such services on the total number of conceptions is generally measured by self-reported pregnancy data which are likely to underestimate teenage pregnancy rates by excluding girls who left school as a result of becoming pregnant before the survey date. It seems likely that this factor will affect intervention and control groups equally, although it may lead to an underestimation of the efficacy of the intervention in schools where the presence of SBSHS or SLSHS is linked with a commitment to encourage parenting teens to remain in education. The only higher-quality study which reported a statistically significant result analysed routinely collected data. This suggested that the presence of SBHCs might be associated with a reduction in live births to teenage mothers. It was not clear whether this was due to a reduction in conceptions, an increase in terminations of pregnancy, or a combination of the two. There is no high-quality evidence to suggest that any of the interventions reduced pregnancy rates, as opposed to live birth rates.

STIs

Five studies were identified, which reported data relating to the incidence or prevalence of STIs. All were from the USA. All five studies had methodological problems. Stout *et al.*⁴⁶ measured self-reported STIs in students in schools with and without SBHCs at two points in time: before, or within 5 months of SBHC opening, and approximately 2 years later. This approach is likely to underestimate disease prevalence because STIs are frequently asymptomatic, and students may therefore be unaware that they are infected. However, SBHCs may appear to be associated with higher disease prevalence if they raise student awareness of STIs and increase the uptake of testing relative to schools without SBHCs. Despite this possibility, Stout *et al.* found that the proportion of students reporting ever having had an STI fell between baseline and follow-up in all three schools with an SBHC. However, it also fell in two of the three control schools, although it rose in the third, and none of these results was said to be statistically significant (for details see *Table 20*; further details are available in Appendix 2, *Table 33*).

It would be impossible to use a true controlled before/after design to evaluate a programme

of school-based STI screening and treatment: baseline data could only be collected from the control group using the screening component of the intervention, and it would then be unethical to withhold the treatment component from any identified cases. Cohen *et al.*⁶¹ therefore had to use a quasi-controlled design to evaluate a school-based screening programme in New Orleans: five schools that entered the programme only in its third year were used as controls, and the effect of repeated screening and treatment on school-wide disease prevalence was assessed by comparing data from these schools with contemporary data from the three schools that had been in the programme throughout. This study found that, at follow-up, the prevalence of chlamydia in male students was significantly lower in the intervention schools than both the baseline ($p < 0.03$) and the control schools ($p < 0.005$), although no statistically significant effect was seen in female students. However, the inevitable lack of baseline data from the control schools makes it impossible to determine whether any differences in disease prevalence between the intervention and control schools should be attributed to the screening and treatment programme or to underlying differences in the school populations, and whether differences between baseline and follow-up in the intervention schools might be due to secular factors affecting disease prevalence rather than to the intervention itself. The authors also noted that, because of relatively low participation rates (52–65%), they could not exclude the possibility of participation bias, if students who participated in the earlier screening rounds were at higher risk than those who participated later.⁶¹ The fact that the intervention appeared to be effective in male, but not female, students may reflect the fact that in the US, females on average have male partners several years older than themselves,⁷¹ and therefore the female students may have been reinfected by partners who were not included in the school-based screening and treatment programme.

Finally, Bearss *et al.*⁵⁶ evaluated a pilot reproductive health project for female students: services included screening for STIs at baseline, at 6 months, and also when the students reported either symptoms or a change of partner. The number of students with STIs appeared to be lower at follow-up than at baseline, but in this study, in addition to the inherent weakness of the uncontrolled design, attrition rates were so high (with only 40% of students completing the programme) that the baseline and follow-up data were not comparable.

Summary

It is particularly difficult to evaluate the impact of SBSHS or SLSHS on STI rates. However, the available evidence suggests that the introduction of a programme of school-based screening and treatment for chlamydia and gonorrhoea may be associated with a reduction in chlamydia prevalence, at least in male students. As noted above, the apparent ineffectiveness of the programme in female students may be because they often have older partners who are no longer in school and are thus not reached by a school-based screening programme.

Discussion

There are several problems inherent in this review of the evidence for the effectiveness of school-based and SLSHS. These relate to:

- the generalisability of the evidence
- the primary outcome measures
- the secondary outcome measures.

These will be discussed in turn below.

Generalisability of the evidence

The major issue relating to the generalisability of the evidence is that the overwhelming majority of the data derive from a health-care system that is very different from that currently operating in the UK. Of the 26 projects included in the review, 24 were located in the USA, one in Brazil, and only one in the UK. The nature of the US health-care system influenced the development, in the USA, of SBHCs designed to provide free primary health care and preventative services to students in deprived areas, many of whom lacked health insurance and thus had limited access to other sources of health care. By contrast, in the UK, in the absence of comparable barriers to general health care, most UK school-based health initiatives have focused on specific areas such as substance misuse, sexual health and mental health, rather than on the provision of general health care.⁶³

Perhaps surprisingly, the most important factor affecting the generalisability of the US data to the UK may not be the pressure to use SBHCs exerted on US students by the US insurance-based health-care system. In 1995, a survey of students attending three US schools with SBHCs found

TABLE 20 Impact of school-based services on rates of STIs

Project	Intervention	STIs (all students)	
Controlled before/after studies			
Oregon, School A ⁴⁶	SBHC	Ever had an STI (%):	
		SBHC	Baseline: 5.3 Follow-up: 4.3
		No SBHC	Baseline: 2.3 Follow-up: 2.1
Oregon, School B ⁴⁶	SBHC	Ever had an STI (%):	
		SBHC	Baseline: 4.4 Follow-up: 4.0
		No SBHC	Baseline: 2.7 Follow-up: 1.4
Oregon, School C ⁴⁶	SBHC	Ever had an STI (%):	
		SBHC:	Baseline: 2.7 Follow-up: 2.5
		No SBHC:	Baseline: 2.9 Follow-up: 5.0
Quasi-controlled before/after study			
New Orleans ⁶¹	School-based screening and treatment for chlamydia and gonorrhoea	Chlamydia	Gonorrhoea
		<i>Intervention schools (%)</i>	<i>Intervention schools (%)</i>
		Winter 1996:	Autumn 1996:
		Overall: 8.8	Overall: 2.2
		Males: 5.9	Males: 1.3
		Females: 12.1	Females: 3.1
		Autumn 1997:	Autumn 1997:
		Overall: 6.7	Overall: 1.4
		Males: 3.2	Males: 1.0
		Females: 10.3	Females: 1.8
		<i>Control schools:</i>	<i>Control schools:</i>
		Autumn 1997:	Autumn 1997:
		Overall: 9.3	Overall: 1.7
		Males: 6.4	Males: 1.1
		Females: 11.9	Females: 2.3
Uncontrolled before/after study			
Baltimore contraceptive continuation pilot project ⁵⁶	Intensive contraception continuation programme offered to female students enrolled in SBHCs and requesting contraceptive services	Sexually active students only:	
		At study entry: 47 separate STIs in 38/139 students (27%) After enrolment in the programme: 23 separate STIs in 18 students (denominator not clear)	

that utilisation rates were highest in students with private health insurance or Health Maintenance Organisation (HMO) coverage and not, as might have been expected, in those with Medicaid or with no health insurance. In this survey, the reasons most frequently given for using SBHCs related to trust, convenience or quality of services; only 9% of students were motivated by cost, and 7% because they had no alternative source of health care.⁷² Rather, the key factor appears to be the provision by US SBHCs of a comprehensive range of health services. This affects the generalisability of the data in two ways. Firstly, because most student visits to US SBHCs are for reasons unrelated to sexual health,⁴⁵ attendance at a comprehensive SBHC is likely to be associated with less stigma than attendance at a UK school-based clinic offering a more limited range of services. This relative anonymity and lack of stigma may encourage attendance by students requiring sexual health services. Edwards *et al.*⁷³ noted that, in the USA, when a pioneer school-based clinic, which initially provided only reproductive health care, began to offer other services in addition, this provided some anonymity for the sexually active student. Secondly, students who attend US SBHCs for reasons unrelated to sexual health may then be encouraged to use the sexual health services when they would not otherwise have done so. Unfortunately, there are insufficient UK data to be able to assess whether the proportion of sexually active students who use UK SBSHS or SLSHS is lower than the proportion of sexually active students who use the sexual health services provided by comprehensive SBHCs in the US.

In addition, the evidence is almost wholly limited to SBSHS. Only one evaluation of a school-linked service was identified, that by Magnani *et al.*⁵⁰ in Brazil, and this may be of limited relevance to the UK for a number of reasons, not least that the clinics generally failed to adopt 'youth-friendly' features, such as a special patient flow or special entrance for adolescents; only one of the six clinics had a receptionist who had been specially trained to deal with adolescent clients.

Finally, it should be noted that the data presented in the included studies are largely restricted to heterosexual sexual activity. There are several reasons for this. One is that a major goal of many US interventions was to maximise attendance at, and graduation from, high schools in deprived areas; pregnancy prevention was therefore particularly important as a means of increasing attendance and graduation among female students.

Another probable reason, although one which is seldom explicitly mentioned, is the unacceptability of homosexuality to a substantial proportion of the US population, and the consequent wish to avoid drawing attention to homosexual activity for fear of provoking opposition to SBSHS. Last, but not least, is a pragmatic reason. As has been seen, relatively few of the studies included in this review reported statistically significant results. In purely practical terms, it would be even more difficult to design a study large enough to achieve statistical significance specifically in relation to students engaging in homosexual activity because such students form a relatively small proportion of the school population. For this reason, in their evaluation of the Los Angeles County Condom Availability Scheme, Schuster *et al.*⁵⁷ did not analyse the data they collected relating to condom use among males reporting same-sex fellatio or anal sex, stating that the reported prevalence was too low to yield meaningful results. As a result, there are no data regarding the uptake of SBSHS or SLSHS specifically by students engaging in homosexual activities, and very limited data on the use of services by students in relation to heterosexual activities other than vaginal intercourse. In Los Angeles County, Schuster *et al.*⁶² noted that, at follow-up, 55% of students who had had heterosexual vaginal intercourse during the previous year had used condoms obtained from the school condom availability programme, but the comparable figures for heterosexual fellatio with ejaculation and heterosexual anal intercourse were only 5% and 25%, respectively. These data suggest that services may fail to meet the needs of students who do not engage in heterosexual vaginal intercourse, but the reasons for this are not clear. Schuster *et al.* attributed the very low use of school condoms for fellatio to the fact that they were lubricated; they did not explore the reason for the low use of school condoms for anal intercourse. However, it is possible that, in both cases, low uptake may relate to a failure on the part of some students to understand the need for condom use other than for pregnancy prevention.

Issues related to the primary outcome measures

One problem inherent in this review is the tension between its two primary outcome measures: pregnancy rates and rates of STIs. Initiatives that seek to maximise pregnancy prevention generally promote hormonal methods of contraception, as they are more reliable than barrier methods. However, as hormonal methods alone do not offer

protection against STIs, such initiatives may have a negative impact on STI prevention. Garside *et al.*⁷⁴ have noted that teenagers who replace condoms with hormonal methods for pregnancy prevention rarely continue to use condoms for STI prevention. Thus, they may substantially reduce their risk of pregnancy at the same time as they increase their risk of contracting an STI. Conversely, Blake *et al.*⁵⁸ have expressed concern that condom availability schemes promote condoms at the expense of more effective contraceptive methods and thus, while offering increased protection against HIV and other STIs, may increase the risk of unwanted pregnancy.

Another problem relating to the primary outcome measures is the difficulty of evaluating the impact of interventions intended to reduce pregnancy and STI rates in teenagers. The difficulties inherent in designing evaluations that have STIs as their outcome measures have been discussed above. There are also inherent problems in the use of pregnancy as an outcome measure. Even in high-risk groups, teenage pregnancy is a relatively rare event, and, as such, is susceptible to random variation. So, Kirby *et al.*⁷⁵ noted that, between 1971–2 and 1986–7, the birth rates in five individual schools in St Paul, Minnesota, fluctuated dramatically from year to year: in any given year, they might rise in some schools, while falling in others. To avoid giving too much weight to year-to-year fluctuations, especially in individual schools, Kirby *et al.*⁷⁵ recommended comparing the mean birth rate for several years before the introduction of a service with that for several years after its introduction. They also recommended aggregating data across a group of schools in which the same service was introduced. In the projects included in this review, the pregnancy data are susceptible to random variation because of the small numbers involved, but, unfortunately, because the published data almost invariably take the form of percentages or rates, we have been unable to aggregate them in either of the ways recommended by Kirby *et al.*⁷⁵

It may also take some time for services to have a noticeable impact on pregnancy outcomes. So, Ricketts and Guernsey⁴⁷ noted that no decline in births to 15- to 17-year-old black females who were resident in the attendance areas of schools with SBHCs was seen until about 4 years after those SBHCs opened. Some of the projects included in this review were evaluated within a year or two of opening, probably too soon to allow them to demonstrate any effect on pregnancy outcomes. Kirby *et al.*⁴⁵ also note that self-reported

pregnancy data may be unreliable: specifically, they may underestimate actual pregnancy rates because students who become pregnant are more likely to drop out of school, and therefore will not be represented in the survey; those who do not drop out may either not wish to report a previous pregnancy (especially one which ended in abortion), despite promises of confidentiality, or may only recognise a pregnancy as such if it ended in a live birth. In most cases, factors relating to the accuracy of self-reported data are likely to affect the intervention and control schools equally. However, this may not be true of pregnancy data: schools with SBHCs may differ from those without SBHCs in terms of the extent to which they encourage and enable pregnant and parenting students to remain in school, and this will then affect the pregnancy rates among their students.

Issues related to the secondary outcome measures

In the context of the current review, sexual activity and contraceptive use are secondary outcome measures acting as surrogates for pregnancy and STIs because the latter, primary, outcomes are rarer and more difficult to measure. Both the USA and the UK have seen opposition to the provision of SBSHS or SLSHS on the grounds that they will promote teenage sexual activity, which some view as undesirable in itself, and undermine parental authority.^{76,77} Because of this political pressure, the impact of services on rates of sexual activity has often been regarded as an outcome measure in its own right. However, contraceptive use is of interest only as a surrogate for pregnancy and, in the case of condoms, STIs.

Contraceptive use is a potentially problematic outcome measure for several reasons. The first of these is that, like sexual activity, it is a self-reported outcome which is not readily susceptible to external validation. So, although some studies included in this review provide information about the quantities of contraceptives dispensed, or the numbers of students to whom they were dispensed, this cannot prove either that those contraceptives were actually used by the students to whom they were issued, or that their issue resulted in an increase in either the proportion of sexually active students who used them or the proportion of occasions on which they were used. Moreover, a study that compared daily activity diaries completed by 37 sexually active, non-monogamous, heterosexual college students with their recall 6–12 months later found that, at the later date, they

over-reported the number of occasions on which they used condoms.⁷⁸ In the context of the current review, it is not clear whether this would affect the intervention and control groups equally, or whether students in schools with sexual health services might be more likely to over-report contraceptive use.

Although it seems intuitively likely that the provision of SBSHS would increase contraceptive use, this may not be so. Brown *et al.*⁶⁷ suggested that school condom availability programmes reduce potential barriers to obtaining condoms by:

- reducing embarrassment (if condoms are made available privately)
- eliminating or reducing the cost of condom use

- increasing the physical accessibility of condoms for young people who may not have a car or may have difficulty going to a store or family planning clinic alone.

However, Kirby *et al.*⁴² found that when condoms were made available in Seattle schools the proportion of sexually active students who used condoms did not increase, although students who already used condoms switched to obtaining them from the school rather than from another source. Thus, although the Seattle Condom Availability Scheme distributed many condoms, it did not increase overall condom use. This phenomenon of provider substitution was also identified, in relation to general contraceptive use, in Dallas, Jackson, Muskegon and Quincy.⁴⁵

TABLE 21 Relationship between reported contraceptive use and reported pregnancy rates (projects reporting statistically significant differences in contraceptive use in the intervention and control groups only)

Project	Intervention	Contraceptive use at last intercourse (sexually active students only)	Pregnancy rates (sexually active female students only, unless otherwise stated)
Controlled quasi-before/after study			
US school-based adolescent health-care programme (19 schools in large US cities) ⁴³	SBHCs	'Effective contraceptive method' (%) : Intervention 75 Control 80; $p=0.05$	Pregnant in last 12 months (all female students) (%) : Intervention 25 Control 25
Uncontrolled before/after study			
San Francisco ⁴⁵	SBHC	Condom or pill (%) : Baseline 39 Follow-up 62; $p<0.001$	Pregnant in last 12 months (%) : Baseline 16 Follow-up 16
Controlled case studies			
Jackson, Mississippi ⁴⁵	SBHC	Pill (%) : Intervention 46 Control 30; $p<0.01$	Pregnant in last 12 months (%) : Intervention 14 Control 12
Muskegon, Michigan ⁴⁵	SBHC	Condom or pill (%) : Intervention 67 Control 51; $p<0.001$	Pregnant in last 12 months (%) : Intervention 15 Control 14
Controlled cross-sectional study			
Massachusetts, USA ⁵⁸	Condom availability scheme	Any form of contraception (%) : Intervention 85 Control 76; $p=0.0058$	Said to be no difference between intervention and control schools
Oregon ⁴⁹	SBHCs	Contraceptive method other than withdrawal (%) : Intervention 76 Control 74; $p<0.05$	Ever been pregnant/ got someone pregnant : Intervention 13% Control 10; $p<0.05$

The second issue is that the relevance of contraceptive use as a surrogate for pregnancy, although intuitive, has not been demonstrated by this review, as included projects that reported statistically significant differences in contraceptive use between the intervention and control groups did not report corresponding statistically significant differences in pregnancy rates (*Table 21*).

Conclusions

There is evidence from higher-quality US studies that SBSHS or SLSHS:

- are not associated with statistically significant increases in rates of sexual activity (evidence drawn from six controlled before/after studies, and one controlled quasi-before/after study) or a statistically significant lowering of the age of first intercourse (evidence drawn from one controlled before/after study)
- may be associated with a reduction in the proportion of students reporting recent sexual activity (evidence drawn from four controlled before/after studies)

- may be associated with a reduction in the proportion of students reporting high numbers of sexual partners (evidence drawn from one controlled before/after study)
- may perhaps be associated with a reduction in live births to teenage mothers (evidence drawn from one controlled quasi-before/after study).

However, there is no good-quality evidence that SBSHS or SLSHS are associated with an increase in contraceptive use.

There is evidence from the USA that a programme of school-based screening and treatment for chlamydia and gonorrhoea may be associated with a reduction in chlamydia prevalence in male students (evidence drawn from one quasi-controlled before/after study).

Because of the dearth of good-quality evidence, together with the substantial differences between the UK and US health-care systems, further research is required to determine whether, in the UK, the provision of SBSHS or SLSHS affects pregnancy rates and STI rates.

Chapter 7

Review 2: Qualitative studies about user, community and practitioner views

Eleven relevant studies were identified by the search of electronic databases;^{30,42,46,49,50,79–84} five studies were found by reference tracking of these included studies and studies included in the effectiveness review;^{57,68,70,85,86} and nine studies, eight of which were conducted in the UK, came from informal sources, such as grey literature known to members of the project team and other, unstructured searching.^{52,66,87–93} Sixteen studies were conducted in the US; eight in the UK, and one study was from Brazil. Nineteen studies reported survey, focus group or interview data on the views of school-aged young people about school-based or school-linked health and sexual health services;^{42,46,49,50,52,57,63,68,70,79–81,85,87–90,92,93} seven reported the views of parents, teachers or members of the community;^{30,63,80,82,83,91,93} and three reported the views of health professionals or clinic staff.^{80,84,87} Some studies reported the views of people from more than one group (e.g. Emihovich and Herrington,⁸⁰ Kay *et al.*,⁸⁷ Guttmacher *et al.*,⁷⁰ Street and Whatling,⁹¹ and Carlson and Peckham⁶³). The majority of studies examined school-based services rather than school-linked services (i.e. services that were close to the school but not on the school grounds).^{50,81,89–93} The school-based services were either sexual health only, such as condom availability schemes,^{42,52,57,70,83,84,86,88,90} or comprehensive health services with various limits to the amount of sexual health services provided.^{30,46,49,63,68,79,80,82,85,87}

The majority of studies used structured surveys or questionnaires to elicit people's views about these services, but a large minority of studies did employ interviews, focus groups or surveys with open-ended questions,^{42,52,63,70,82,83,86,88,89,93} the most appropriate study design for gauging people's attitudes and views about a service or experience.⁹⁴ Some studies were of relatively good reported quality, with clear and appropriate recruitment and sampling methods, and clear and valid methods of data collection and analysis.^{30,63,84,86,88} Others were comparatively less robust, with some apparent limitations, but still with strengths.^{50,68,82,83,85,87,89} Finally, some studies had a greater number of methodological limitations, principally

surrounding the absence of reporting of clear and explicit forms of sampling, data collection and analysis. However, these studies also usually had some good qualities, such as using relevant qualitative methods, for example, interviews and focus groups,^{42,52,70,93} and offered useful data. Their exclusion therefore could not be justified.^{36,95} For full details of the studies included, see Appendix 7; a basic summary of study characteristics is provided in *Table 22*.

The thematic frameworks that emerged from the data reported by young people are presented in *Figures 2* and *3*, and the data that gave rise to the themes identified are described under the headings listed as follows. Some data are provided with each theme to illustrate and substantiate the analysis. Data about the views of parents and the community, and health professionals, are reported separately here because they provide perspectives, which are quite distinct, both from young people and from one another. The number of studies reporting the views of either group is also relatively small compared with the number of studies reporting the views and experiences of young people, and also lack the depth of the reported viewpoints of young people (data from parents and other adults more often formed a component of a broader study examining the views of many people, principally young people, rather than being the focus of the study itself).^{63,70,80,82,87,91} Only four studies focused specifically on the views of parents,^{30,83,86} or health professionals.⁸⁴ Framework analysis was performed on these data, as on the data reported by young people, but, given the small number of studies, and the relative narrowness of the data presented, a framework equivalent to that developed from the data about young people's views was not produced. Instead, a textual synthesis only was performed, although some themes did emerge from these data.

Results

Figures 2 and *3* describe two thematic frameworks reflecting the two dominant constructs that emerged from the analysis: personal and service

TABLE 22 Brief summary of characteristics of included studies

Study	Country	Setting	Intervention	Sample (age)	Data collection
Zimmer-Gembeck et al. 1996 ⁴⁹	USA	SL	Comprehensive health services, but limited sexual health services	14–18 years (n = 4591)	Survey
Bar-Cohen et al. 1990 ⁷⁹	USA	SB	Comprehensive health services	14–17 years (n = 144)	Survey
Santelli et al. 1996 ⁸⁵	USA	SB	Comprehensive health services	14 years (mean) (n = 3496)	Survey
Emihovich and Herrington 1997 ⁸⁰	USA	SB	Comprehensive health services, but limited sexual health services	Unclear	Unclear
Kay et al. 2006 ⁸⁷	UK	SB	Comprehensive health services	11–17 years (n = 590)	Survey
Salmon and Ingram ⁸⁸	UK	SB	Comprehensive health services	11–16 years (n = 222); (n = 44)	Survey; interviews
Magnani et al. 2001 ⁵⁰	Brazil	SL	Sexual health services	17 years (mean)	Survey
Zabin et al. 1991 ⁸¹	USA	SL	Sexual health services	< 18 years (n = 422), female only	Survey
Barna et al. 2002 ⁸⁹	UK	SL	Sexual health services	9–16 years (n = 16)	Interviews
Schuster et al. 1997 ⁶²	USA	SB	Condom availability services	Unclear (n = 1112)	Survey
Guttmacher et al. 1995 ⁷⁰	USA	SB	Condom availability services	14–18 years (n = unclear)	Survey
Kirby et al. 1999 ⁹²	USA	SB	Condom availability services	Unclear	Interviews
Washkansky 2008 ³⁰	UK	SB, SL	Sexual health services	Unclear	Unclear
Hillard et al. 1996 ⁶⁸	USA	SB	Comprehensive health services	Unclear	Survey
Stout et al. 1996 ⁴⁶	USA	SB	Comprehensive health services, but limited sexual health services	14–18 years (n = 3667)	Survey
Schaffer 2008 ⁵²	USA	SB	Sexual health service	Unclear (n = 9), female only	Focus group
Nelson and Quinney 1997 ⁹²	UK	SL	Sexual health services	11–17 years (n = 593)	Survey
Tanner et al. 2003 ⁹³	UK	SL	Sexual health services	Unclear (n = 979); 15–16 years (n = 11)	Survey; interviews
Carlson and Peckham 2004 ⁶³	UK	SB	Comprehensive health services	13–15 years (n = 496); unclear (n = 7), female only	Survey; focus group
Zeanah et al. 1996 ⁸²	USA	SB	Comprehensive health services, but limited sexual health services	Parents, clinic staff, young people (n = unclear)	Focus groups
Street and Whatling 2004 ⁹¹	UK	SL	Sexual health services	Parents and young people (n = unclear)	Survey; interviews
Rafferty and Radosh 1997 ⁸³	USA	SB	Sexual health services	Parents	Interviews
Santelli et al. 1992 ³⁰	USA	SB	Comprehensive health services	Parents (n = 716 and 81)	Survey; focus groups
Guttmacher et al. 1995 ⁸⁶	USA	SB	Condom availability services	Parents	Survey
Ryan et al. 1993 ⁸⁴	USA	SB	Condom availability services	Family physicians (n = 1678)	Survey

SB, school-based; SL, school-linked.

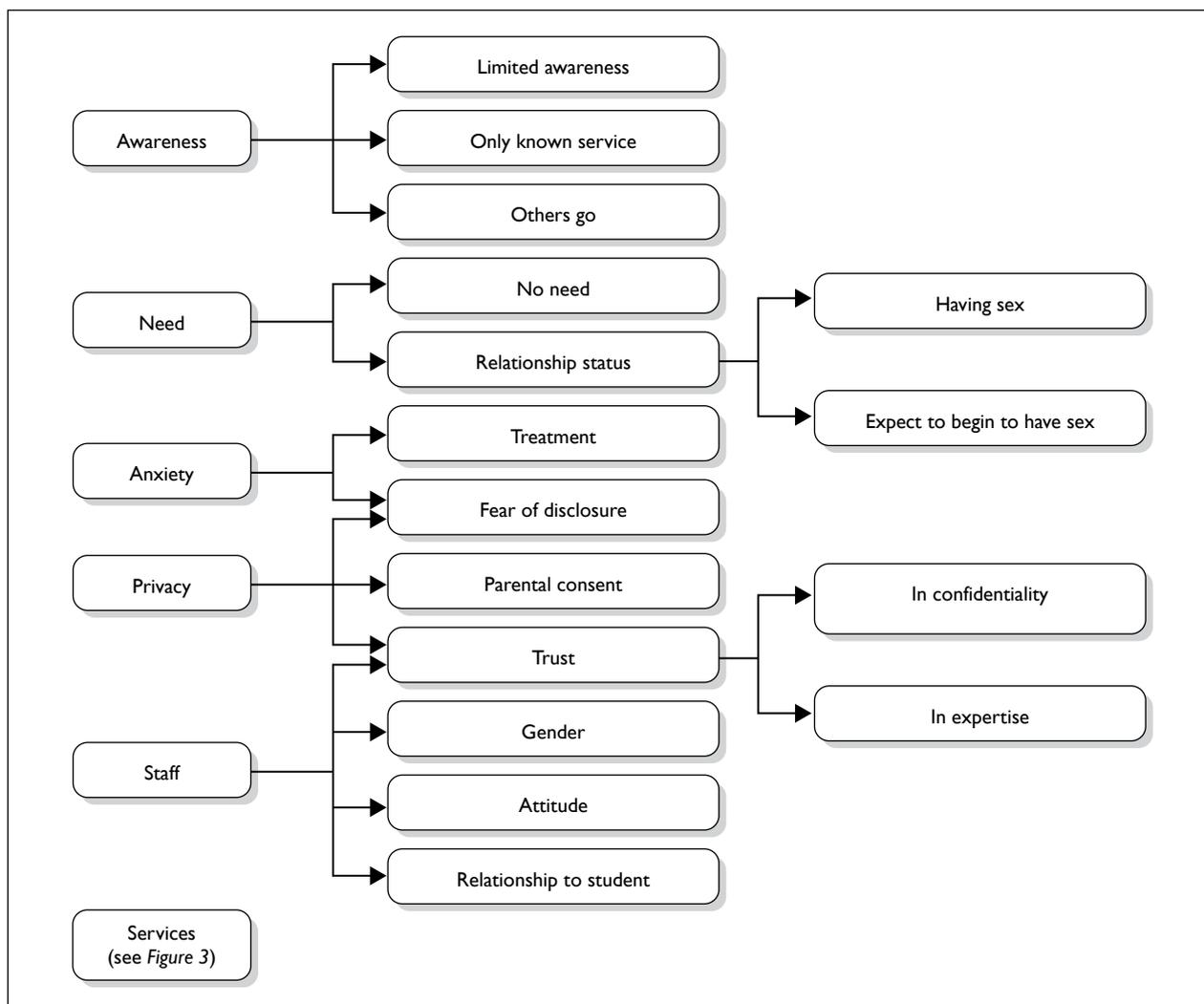


FIGURE 2 Reasons why students do and do not use services. Note: references in bold denote studies of relatively better reported quality.

delivery factors affecting young people's decisions to use or not to use SLSHS. The personal factors included awareness and need among young people; young people's anxieties about such services; and young people's opinions on confidentiality and relationships with staff (see *Figure 2*). Service delivery factors related to staff attitudes, and the location, flexibility, costs, variety, and physical environment of services, and the options provided by alternatives. These are now discussed in more depth.

Personal factors

Awareness and need

Young people's use or non-use of a school-linked service was in part determined both by their awareness of it and their need for it. The former

emerged as a theme in seven studies. Participants in six studies mentioned that they knew about the school-linked services either because their friends went,^{68,79,89} because they knew other people who used the service,^{50,57} or because it was the only service about which they knew.⁷⁹ On the other hand, small numbers of students in four studies mentioned that they were unaware that the service existed, or knew that it existed but did not know when or where the service was available.^{68,85,87,93} Two of the principal determining factors for sexual health service use were based on need: some did not use the service simply because they had no need to do so⁴⁹ but, for others, their relationship status was a major determinant of their need to use the available services: if they were either having sex⁷⁹ or they expected to begin having sex soon^{79,81} then their need for the service was increased.

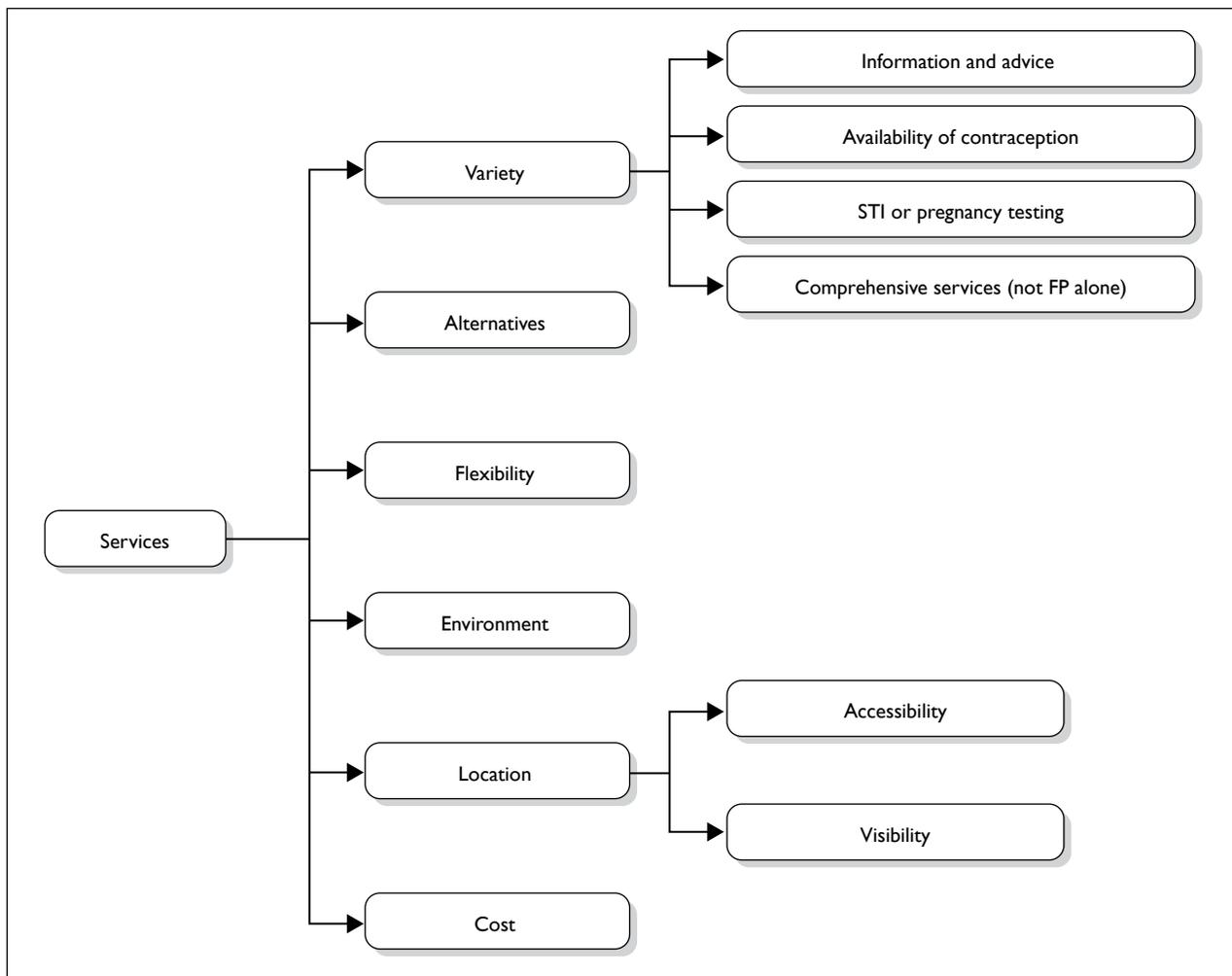


FIGURE 3 Reasons why students do and do not use services.

Anxiety

Anxiety about the service was a major determinant of young people's use or non-use of a school-linked service.^{44,47,57,62,68,75,79,81,87,88} In particular, there was anxiety concerning confidentiality: young people feared disclosure of their visit, and the reason for their visit, to parents, teachers, their community or peers. Concern about confidentiality regarding parents was the principal concern of young people in a number of studies.^{57,68,79,81,87,88} This theme of personal anxiety concerning privacy emerged in seven studies from both the UK^{63,87,88} and the US,^{49,52,80,81} regardless of study quality or the service being provided (i.e. both specific sexual health services^{52,63,81,88} and comprehensive health services).^{49,80,87} In one US study of school-based comprehensive health services, it was the third most common reason for non-use,⁴⁹ while more than one-third of respondents in a UK study reported that this worry prevented them from using a school-based comprehensive health

service.⁸⁷ In another UK study, however, young people expressed concern that even visiting a family GP presented this problem.⁸⁸ In one study from the US, young people's concerns about the risks surrounding contraception appear to have affected their use of the service.⁸¹ However, no other study reported this finding, and this fear was, partially, successfully addressed by the educational component of the programme.⁸¹

Privacy

Anxiety about privacy was a major theme to emerge from across studies, but many studies also reported that young people's trust in the confidentiality of the service was an important reason for them using it. These findings emerged from 12 studies across all locations and all service types.^{46,49,50,52,63,68,79,87-90,93} Five satisfaction survey studies found that between 70% and more than 90% of service users felt that the service was confidential, and staff could be trusted regarding privacy.^{46,50,87,88,93} In two further

surveys, young people reported that they used the service because they felt their privacy was protected.^{49,79} These findings were echoed by five studies employing interviews or focus groups: young people used services because they trusted that their visit would be confidential.^{63,68,88–90}

A second element of privacy concerned the issue of parental consent to use available services. This theme was derived only from USA-based studies, where parental consent was sometimes required for young people to access services. However, such consent was not always required. In three studies, young people reported that their reason for using the service was that they could do so without their parents' knowledge. This was especially the case for condom availability schemes,⁵⁷ but also for comprehensive SBSCs.^{68,79} A fourth study, however, reported that the majority of young people sampled (85%) used the service with parental approval.⁴⁶

Staff

Confidence that staff would maintain client confidentiality was therefore a major theme to emerge across studies, but young people's trust of staff also encompassed confidence in their ability to offer expert, medical advice. In one US study, young people were happy with the level of medical advice given,⁸² but in a UK study they expressed concerns about this, believing that attending general practice was more 'appropriate' as they had access there to 'real doctors'.⁹²

Two other principal themes to emerge from the data regarding staff in SLSHS and SBSHS concerned their attitudes to young people as service users, and their familiarity with students. In 11 studies the attitude adopted by staff was viewed as crucial by young people in determining whether or not they felt happy using a service.^{50,52,63,70,79,82,87–90,93} Surveys evaluating why young people used both school-linked and school-based services reported that they did so because they felt relaxed and comfortable with staff:⁸² staff were friendly,^{87,88,90} supportive, helpful,⁹⁰ welcoming,⁹⁰ good listeners who paid attention to them,^{50,87} non-judgemental^{52,88} and cared about teenagers.^{79,90} These findings were also echoed by studies using interviews or focus groups,^{88,89,93} and were largely consistent, regardless of location or study quality. However, not all reported attitudes were considered good. In one UK study a participant reported 'When you go to talk to someone it's like they're interested in something else'.⁶³ A US study also found that young women

were reluctant to use a sexual health service because 'of the perceived judgement of the staff who made the condoms available and of male students'.⁷⁰ It was not simply staff attitudes that young people felt could determine their level of comfort: in one study young people also reported wanting choice in terms of male or female clinic staff.⁸⁷

Finally, young people's happiness to access services could also be determined by their familiarity with clinic staff in both positive and adverse ways. Some users felt that their relationship with clinic staff, usually established over time, could act as an encouragement to use the service.^{52,87,89} However, for others, the fact that some staff members held other positions within the school, or may know their parents, acted as barrier to service use: they were embarrassed to approach them on sexual health matters when they might also encounter them in another capacity within the school.^{63,92}

Services

The following subthemes all fall under the heading of services as they relate specifically to aspects surrounding the delivery of SLSHS or SBSHS.

Location

The location of the service emerged as a theme in 15 studies. This theme encompassed two subthemes: accessibility and visibility. Participants in nine studies mentioned the convenience and accessibility offered by the location of the service as a reason for using it.^{46,49,50,68,79,82,88,89,93} This was not restricted to a single type of location, however, but rather applied both to school-based services^{46,49,68,79,88,82} and school-linked services,^{50,89,93} the latter were viewed positively if they were close to home or school^{50,93} or were made available in places where young people spent time outside school.⁸⁹

The visibility of service users, as a result of the location of the service, was another issue that emerged. In one study, young men liked to be seen to be using the service, as they considered that it endowed them with a certain status,⁸⁸ but a frequently recurring theme across a large number of studies was that young people were anxious about being seen using the service.^{42,63,68,70,80,87–89,92,93} Certain services were considered to be too visible or open, and young people were embarrassed to be seen using them or were fearful that witnesses would disclose to parents, other adults or peers that they were using the service. This was especially the case for young women,^{63,70,88,92} and if the service

was sexual health only, such as condom machines.⁷⁰ Some young people therefore felt uncomfortable and embarrassed about using a service that was so obviously for sexual health, or in very public locations, especially within school, such as near the staff room.^{87,88,92}

Flexibility

Three aspects regarding the flexibility of services emerged from the data. Participants in six studies raised the issue of a clinic's opening times or the frequency of sessions.^{52,63,68,87,89,93} The majority of respondents in two UK studies of both school-based and school-linked drop-in clinics favoured, or were happy with, lunchtime access,^{87,90} but there was also support for after school access.^{87,90} Both studies also reported participants' request for more frequent, regular sessions, as did a study of a school-linked drop-in service.⁹³ A focus group study from the USA found that young people wanted a nurse to be available on a daily basis.⁵² Frequency and flexibility of service were therefore seen as important. Some young people also clearly felt that available appointment times were insufficient, and suggested the provision of longer or more frequent sessions.^{63,90} Some admitted they may not have had the confidence to attend a clinic by themselves, and so had liked the fact that a UK school-based, sexual health service allowed them to come along with friends to support them.^{88,89}

Environment

The environment in which services were delivered also emerged as a relevant theme affecting young people's views of school-based and school-linked services. Participants in six studies reported that the room had to be private, 'comfortable', inviting and relaxed if people were to attend.^{63,68,87-89,93} If the physical environment was too drab, uninviting or open, and people could see who was there or hear what was being said by someone consulting clinic staff, then this acted as a barrier to service use.^{63,87,93}

Alternatives

Six studies reported young people's comments about school-based or school-linked services in relation to alternatives.^{42,79,85,87,89,92} Some young people reported that they did not use school-linked services either because they were happy with their current provider,⁸⁵ or because they felt that attending primary care was more appropriate.⁹² By contrast, others used the service because it was the only one they were aware of.⁷⁹ In many studies, however, young people reported that in the absence of the school-linked service they would

simply access relevant services elsewhere.^{42,88} In one case, participants expressed concerns about using alternative, community, family planning services, particularly with regard to their comparative visibility and confidentiality: some young people felt more exposed when attending a general, community sexual health service.⁸⁹

Cost

The provision of free services was a relatively common theme as a facilitator of service use across both UK^{88,90} and USA^{42,49,68,79} studies: young people seemed more inclined to use a service if it was free. In the UK studies, the availability of free condoms was either the principal reason why young people attended the clinic,⁸⁸ or was cited as one of the best things about the clinic.⁹⁰ In the US studies, the cost of alternative services or sources of contraception was seen as a barrier to using non-school-linked services; the school-linked services, in contrast, were free.^{42,49,68,79}

Service variety

The variety of services offered by school-linked health services was a major theme that emerged from the research. Two types of service in particular were frequently mentioned by young people, across very many studies, regardless of background, study quality or data collection method: making contraception available and the provision of information and advice. In 12 studies, young people mentioned the availability of contraception as a desired service.^{42,50,57,68,70,79,85,87-90,92} One of the principal reasons, if not the pre-eminent reason, young people reported why they accessed school-linked services was to acquire contraception either directly^{50,68,79,85,87-90,92} or to get prescriptions, referrals or vouchers to access contraception elsewhere.⁸⁵ Young people also commented that they felt contraception should be provided by school-linked services^{85,90} and should be made available at more locations.⁵⁷ In four studies, young people also explicitly cited other sexual health services, such as pregnancy testing or STI testing, as a reason for their use of the service, or as a positive aspect of the service.^{50,52,79,88} In a US study of a comprehensive SBHC, offering sexual health services, the principal reason given by study participants for their visit at the time of the survey was pregnancy testing.⁷⁹ Pregnancy tests and STI/swab tests were also among the principal reasons for clinic attendance in non-US studies.^{50,88}

The provision of information or advice also appeared to be a much sought-after service by young people, as reflected in data from

eight studies.^{50,52,63,68,88–90,93} In two studies, after contraceptive availability, information and advice, or to talk about problems, were the second and third most frequent reasons why young people accessed the sexual health service in two UK studies.^{88,90} These findings were echoed in other studies from the UK,^{89,92,93} the USA^{52,68} and Brazil.⁵⁰ Finally, some young people in two studies reported that they would prefer the provision of comprehensive health services rather than sexual health services alone. In a UK study this concern was raised by non-white British young women because they felt it was obvious why someone was attending the service if it was sexual health alone⁸⁸ and, in the case of a US study, because the sample wanted broader health care.⁹¹

Parents and community

Six studies reported data on parents' and community members' views of SLSHS.^{30,80,82,83,86,91} Five of these studies were from the USA, and one was from the UK.⁹¹ A number of themes that emerged from the data generated by parents' views overlapped with those of young people. These principally concerned the services offered by school-linked sexual health clinics. Unlike young people, parents and community members reported mixed views on making available contraception, and the giving of information and advice, and negative views on the provision of services, such as pregnancy and STI testing. In both US- and UK-based studies, the majority of parents supported the provision of contraception,^{30,83,86,91} especially if parental consent was provided^{30,86} or young people were already sexually active.³⁰ For example, in two US studies, between 63% and 69% felt that condoms or other contraception should be made available in schools.^{30,86} In another study, only a 'vocal minority' opposed making condoms available.⁸³ In terms of information and advice, one US study found that parents had positive views about the provision of counselling for young people, as it was something they felt unable to provide themselves, but some were opposed to the provision of any sexual health services.⁸² This was echoed in a UK study.⁹¹ Finally, one US study reported parents' views on the provision of pregnancy or STI testing to young people through comprehensive SBHCs and found that a large majority were in favour.³⁰

In terms of parents' views about the provision of sexual health services generally, many were either supportive or ambivalent about services.^{30,78,86,91} Levels of support were determined in part, for some parents and community members in USA-based studies, by personal beliefs, principally

religious beliefs. In three studies, parents reported that this factor shaped their views on the provision of sexual health services, specifically their opposition to such services.^{78,83,86} For example, in one study, parents who described themselves as 'religious' or 'very religious' were significantly more likely than others to feel that condoms should not be made available in schools.⁸⁶ Finally, views about SLSHS generally do not appear to have been determined by race, gender or age of parents.^{30,82,91} One US study specifically controlled for these variables and found no difference between groups,³⁰ although a second study found that inner-city parents to be supportive of services, whereas those from rural locations were more ambivalent.⁸²

Clinic staff and other health professionals

Only three studies reported the views of this group.^{80,84,87} One study specifically focused on the views of health professionals: this study surveyed the views of a representative sample of USA-based family physicians (general practitioners) regarding school-based availability of condoms as part of an HIV-prevention programme in schools: a large majority of the physicians sampled were in favour of this service, especially female physicians.⁸⁴ In the remaining two studies, the views of school nurses and other school-linked sexual health clinic staff were reported.^{80,87} The principal theme that emerged from these data surrounded anxieties regarding the type of services they were providing, and to whom. Some nurses felt that young men could be difficult to encourage to use the service, or felt constrained by the limits of the service they provided, for example not being able to give out contraception.⁸⁰ Context was a major issue. In one US study, clinic staff reported feeling more freedom in the clinic than the classroom to discuss or advise on birth control to young women,⁸⁰ but in a UK study one nurse said '... giving a 14-year-old emergency contraception in school, in school uniform, feels different from giving it to them at the family planning clinic. It feels a different responsibility ... In school, parents expect them to be in school receiving an education, but they're in here accessing sexual health advice. I have no problem with the fact I can do that, under medical confidentiality, but am more aware of them as a very young person'.⁸⁷

In the same study, some nurses felt that comprehensive health services should be provided, so that they were not just sexual health, which they felt might act as a barrier to some potential users.⁸⁷ This theme emerged from young people's views of services also (see above).

Chapter 8

Review 3: Mixed-methods synthesis

The list of barriers and facilitators were derived from themes identified by more than one of the better-quality studies in the review of qualitative data (Chapter 7), or where both positive and negative aspects of a theme were identified. These concepts emerged from 20 out of the 24 studies included in that review,^{42,46,49,50,52,57,63,68,70,79–82,85,87–92} only one of which provided data on a single barrier or facilitator⁹¹ (see Appendix 8, *Table 36* for the full list of barriers and facilitators). The quantitative data were provided by the methodologically most robust studies identified for the review of effectiveness of school-based or school-linked sexual health interventions (i.e. controlled studies). Five studies satisfied these criteria: three trials with a control group and with data from both before and after the intervention,^{37,41,55} and two cross-sectional trials with a control group.^{40,46} One study was excluded because the description of the intervention was insufficiently detailed to enable

synthesis.⁴¹ Descriptions of the intervention and controls in each study are provided in Appendix 8, *Table 44*.

Following the examples published by Thomas³³ and Harden,³⁴ the synthesis involved, firstly, the listing of barriers to, and facilitators of, service use in a matrix, and then the assessment of whether the interventions in the included quantitative studies addressed these barriers or facilitators for service use. If an intervention contained a relevant component, this was recorded and, if such a component existed, it was assessed whether an evaluation had been made of the impact of the specific component on study outcomes (*Table 23*). If none of the intervention studies included from the effectiveness review addressed any of the barriers or facilitators then this was recorded also (*Table 24*). (For the full results of the synthesis, see Appendix 8, *Table 45* onwards.)

TABLE 23 Theme: service cost

Barriers	Facilitators	Intervention	Evaluation
Cost of contraception and other services ^{37,44,58}	Provision of free contraception ^{37,44,58,74,83,85}	One service (baskets and free machines) addressed this barrier by making contraception available for free ⁵⁵	One study evaluated the impact of cost on the accessing of contraception: ⁵⁵ students accessed condoms 50+ times more frequently from baskets for free than from vending machines; schools only with vending machines had much smaller mean numbers of condoms per student, and the likelihood of students acquiring condoms was three times lower in schools with vending machines requiring payment

TABLE 24 Theme: service environment

Barriers	Facilitators	Intervention	Evaluation
Physical environment and atmosphere is drab and uninviting ⁸²	Room or clinic has to be 'comfortable', inviting and relaxed ^{58,62,82–84}	No intervention focused on addressing this issue	Not applicable
Room is 'open' and not private, people can hear what is being said ^{62,82}	Room is completely private ^{62,82}	No intervention focused on addressing this issue	Not applicable

Results

The barrier of limited awareness was addressed by two studies, but its impact on sexual behaviour and sexual health outcomes was not evaluated. None of the interventions in the studies included, appears to have made a special effort to address concerns regarding confidentiality or to promote the service as confidential, despite these issues being frequently cited as barriers to, and facilitators of, service use. The requirement for parental consent was identified as a barrier to service use, and, in two studies, condoms were made available specifically without parental consent.^{37,55} None evaluated the impact of this approach on sexual health outcomes; however, one did report that the vast majority of eligible young people were aware that the service was available without parental consent.

In terms of location, the availability of school-linked services appears to facilitate service use, but the relative benefits of school-linked as opposed to school-based services were not evaluated by any of the included studies. One study that compared the perceived convenience of school- and community-based sexual health services found no difference between the two types in terms of contraceptive use by young people.⁴⁰ However, two studies aimed to facilitate access to condoms by making some available from sites within the school that were deemed to be more 'private',^{37,55} and both studies reported greater take-up of condoms from services that made condoms available from such less visible or public sources.^{37,55} Access to condoms was therefore improved when the barrier of visibility was addressed.

As with confidentiality, none of the interventions in the included studies appears to have made an effort to address concerns about staff attitudes or young people's perception of the approachability, trustworthiness or helpfulness of staff, despite these issues being frequently-cited barriers to, and facilitators of, service use. Nor did any of the evaluated interventions aim to provide staff of both genders or evaluate whether staffing services with doctors, rather than allied health professionals or youth workers alone (or people otherwise unknown to students), had any impact on service use or sexual health outcomes.

In the same way, none of the interventions in the included studies addressed barriers to service use that were identified from the qualitative data, such as limited opening times, short sessions or the

option of attending with friends. In fact, in two studies, access to services was limited to one lunch hour, once per week and, in terms of contraceptive use, there was no statistically significant difference between those schools offering this limited service and control schools without any service at all.^{46,55} An appropriate, welcoming and private physical environment was also identified as a facilitator of service use, but none of the interventions included described specifically creating such an environment or evaluating its impact on service use or sexual health outcomes. In fact, in one study, the service was located in available 'classroom or office space',⁵⁵ but the impact of this location was not evaluated.

If payment was required to access services or contraception, then this was seen as a barrier to service use. One of the included interventions addressed this barrier by making condoms available for free or for a voluntary charge, and also evaluated the impact of this approach on take-up of this form of contraception.³⁷ The result was that the take-up of condoms was substantially higher among young people who could access them without charge from school-based services, than among those accessing them from vending machines within the same location.

Only one study compared the efficacy of accessing condoms through two different types of service (specific sexual health clinics or clinics contained within comprehensive health centres). The take-up of condoms was apparently more successful via clinics contained within comprehensive health centres.⁵⁵ The ability to access contraceptives directly from school-based services was perceived as a facilitator to contraceptive use among young people, and one study found that young women accessed a service that provided contraception on-site more frequently than if the service provided vouchers to access contraception elsewhere.⁴⁰ However, three studies comparing on-site provision with controls offering no such access, found no actual statistically significant differences in reported contraceptive use between young people accessing contraception from these two different sources.^{37,46,55} This indicates that young people may choose to access contraception from this source if it is provided, but this may not affect actual use.

The availability of condoms from multiple locations produced similar findings. Two interventions made condoms widely available,^{37,55} but only one study evaluated the impact of this approach on contraceptive take-up, finding that the more

locations from which to access condoms, the greater the take-up.³⁷ Only three of the included effectiveness studies offered services (information and counselling) other than contraceptive provision,^{40,46,55} and only one study evaluated whether the provision of this service had more or less impact on sexual health outcomes than the provision of contraception alone.⁴⁰ This study found that young people accessed services offering contraception alone more frequently than services offering just counselling and advice, and that young people reported greater use of contraception if they used the former, but there was no difference between the two services in terms of outcomes, such as pregnancy or birth rates.

Discussion

The internal validity of a review is determined by the quality of the included studies and the reliability of their findings. The current review included only papers that satisfied strict inclusion criteria, principally relating to study quality and the reliability of the results, in an effort to enhance its internal validity. Consequently, only studies that used the most robust available study designs for generating valid and reliable quantitative data (i.e. controlled and/or longitudinal studies, and only studies that produced qualitative data validated by the findings of one or more other studies) were included. In this way, the most reliable and valid available evidence was generated for this synthesis of quantitative and qualitative data. The internal validity of a review may also be compromised by poor execution of the methods used, or the use of inappropriate methods. In this review, the identification of themes and the extraction of the full details of the evaluated interventions were both performed by one reviewer (CC), but were double-checked by a second reviewer (MLJ). The primary synthesis was also performed by one reviewer (CC), but was checked and critically examined by two other reviewers (MLJ, JC), and a revised version was produced.

The external validity of the review is determined by the relevance of the findings to the intended population, in this case, young people likely to access SBSHS or SLSHS in the UK. All of the included studies are relevant in terms of the age and gender of their participants, and the services being evaluated. However, only school-based services were evaluated, and only one of the evaluation studies was conducted in the UK.⁴⁶ Also, all three US-based evaluation studies were

performed more than 10 years ago.^{37,40,55} These factors therefore potentially limit the applicability of the results to the intended population.

The majority of barriers to, and facilitators of, the use of SBSHS or SLSHS identified by young people had not been addressed in the methodologically more robust evaluations of the effectiveness of such services identified for this review. For example, confidentiality, the attitudes and gender of staff, the access limitations posed by short or limited opening times, the physical environment of the service, the provision of pregnancy and STI testing, and the provision of school-linked rather than school-based services. This has implications for the design of future school-based or school-linked interventions, which should seek to address these issues and then evaluate their impact on outcomes of interest to this service and population.

A number of barriers and facilitators identified by the review of qualitative data were addressed by some of the included intervention studies, but their impact on outcomes was not evaluated. These related to the publicising of services to increase awareness, the explicit absence of any requirement for parental consent to access certain types of contraception; the staffing of services with medical professionals; and the provision of information and advice. In the absence of any evaluation of these components, interventions should be designed that seek to address these barriers to, and facilitators of, service use, and an evaluation of their impact should be made.

In terms of relevant sexual health and behavioural outcomes, only the take-up of contraception and contraceptive use were actually evaluated by any of the included intervention studies in relation to barriers to, and facilitators of, service use. A number of studies did evaluate the impact of enabling young people to access services without being seen to be doing so, for example by making condoms available from many different sources, and making sure some were private,^{37,55} or by distributing them from a comprehensive health-care service rather than a sexual health service.⁵⁵ These studies found that this did improve the take-up of contraception among young people. The provision of free contraception, especially condoms, was also found to be effective in facilitating the take-up of contraception among young people.³⁷ This suggests that if school-based or school-linked sexual health interventions are to improve the take-up of contraception among young people, they should provide free services

and should include elements to address the issue of visibility when accessing services. It also suggests that more research is needed to evaluate the impact of such elements of intervention design on outcomes such as STI and pregnancy rates, which are currently absent from the research.

The findings relating to contraceptive use were less positive. Comparisons of school-based and community services, including the provision of contraceptives on-site in school, found that young people's self-reported contraceptive use was not significantly affected by services being located in schools, or by contraception being made directly available in schools rather than in the community.^{37,40,46,55} Therefore, although these particular services addressed the facilitators of convenient service location, and the direct on-site provision of contraception, they do not appear to have had much effect on the outcome of contraceptive use. However, this does not mean that future interventions or services need not take into account barriers or facilitators relating to location and contraceptive availability. Firstly, not all relevant outcomes were evaluated: future research into interventions that address such issues needs to explore their effect on outcomes such as STI and pregnancy rates. Secondly, the apparent failure of these elements to have an impact on self-reported contraceptive use among young people may be because, as the qualitative data suggest, school-based services may be perceived to be more

visible than other services, despite being potentially more convenient to access. Young people are therefore likely to have more concerns about accessing a school-based than a school-linked, community-based service. The qualitative data also highlight the importance of such alternative, non-school-based services for young people when accessing sexual health care.^{42,79,85,88,89,92} Young people appear to have higher rates of self-reported contraceptive use only when they can access school-based services offering contraception alone compared with school-based services offering counselling and advice alone.⁴⁰

This synthesis is therefore not able to offer a definitive or theoretical framework for the development of service models because so few of the barriers to, and facilitators of, service use have been evaluated by good-quality study designs, and their impact on contraceptive take-up and contraceptive use only has been assessed. Other relevant outcomes have not been explored. Consequently, this review offers clear direction for future research in terms of the development of school-based and school-linked sexual health service interventions, which need to address the barriers to, and facilitators of service use identified in these reviews. The impact on the outcomes of sexual behaviour, and pregnancy and STI rates, of both individual components and the intervention as a whole, then needs to be evaluated using appropriate study designs.

Chapter 9

The development of a proof-of-concept model to evaluate the effects of school-based and school-linked sexual health interventions

To aid understanding of the key variables that are likely to influence the cost-effectiveness of school-linked sexual health clinics, a proof-of-concept model has been constructed. The model has large limitations but has been constructed with the aim of understanding the likely data required to evaluate interventions aimed at reducing the consequences of sexual activity and providing guidance regarding the methodology recommended for future modelling work. The model was constructed in SIMUL8 PROFESSIONAL (©Simul8 Corporation). The proof-of-concept model can be downloaded from www.shef.ac.uk/scharr/sections/heds/staff/stevenson_m.html. It is stressed that the proof-of-concept model has been developed only to show that constructing a model is possible if data become available, and is not intended to provide answers that are in any way meaningful.

The model focuses only on two sexually-transmitted diseases, neither of which is assumed to be fatal, which have been denoted disease A and disease B. Three age bands are assumed for each sex, within which each individual is assumed homogeneous. Heterosexual contacts only are modelled, and pregnancy has been excluded; these limitations, together with other issues that are deemed important, such as spontaneous curing of diseases, can be introduced once the data become available to construct a robust model.

At initiation, the prevalence of each age and sex band that are carrying disease A and disease B need to be assumed. The number of people with each disease can be estimated from multiplying the assumed number of patients in each age and sex band by the assumed prevalence in that band.

The likely numbers of sexual encounter between each of the nine possible combinations of the three age bands for young men and three age bands for young women per night are assumed. For each encounter it is simulated whether either

the male or female has either disease A or disease B. If either partner has a disease that the other does not, then there is a possibility that the uninfected partner becomes infected. If the partner becomes infected, then the prevalence of the relevant disease in the relevant age and sex band is incremented. By using such a methodology the possible spread of an epidemic can be simulated.

The methodology for simulating whether an individual has a disease requires assumptions to be made. In addition to the underlying prevalence of a disease, the possibility that a patient with the disease may have relatively more encounters than those without the disease must also be recognised. This is achieved within the model by using a variable that artificially increases the prevalence of each disease solely for the perspective of simulating if a partner has a disease. The model constructed is simplistic in that no correlation has been assumed between the diseases, which thus ignores the possibility that a person with disease A may be more likely to have disease B than a person without disease A.

The model assumes that every 4 weeks a proportion of patients with either disease will visit a health practitioner and will be 'cured'. This will allow the prevalence of the disease to be partially checked.

The proof-of-concept model simulates the spread of infection for a time horizon of 52 weeks. The model would initially be run to establish the current practice (and, calibrated against real world data, should these exist). The effects of introducing a school-based or school-linked sexual health clinic could then be simulated by rerunning the model whilst changing a number of relevant parameters, such as the frequency of sexual encounters, the probability that such contacts would result in disease contraction and the probability that people visit a health practitioner to be 'cured'.

TABLE 25 The parameters used within the proof-of-concept model

Variable	Comment
Cost per infection (separately for each disease)	Can be expressed either as per week, or per infection
Disutility per infection (separately for each disease)	Can be expressed either as per week, or per infection
Cure rate (per age and sex band)	Assumed equal for all diseases in the proof-of-concept model
Sexual encounter rate (all heterosexual combinations of age and sex bands)	Expressed in terms of encounters per night (and assumed to be represented by an exponential distribution)
Starting prevalence for each age and sex band and disease combination	
Assumed number of people in each age and sex band	
Probability of contraction of disease (all heterosexual combinations of age and sex bands)	Assumed equal for all diseases in the proof-of-concept model
Relative risk of entering sexual encounter if diseased (separately for each age and sex band)	Assumed equal for all diseases in the proof-of-concept model

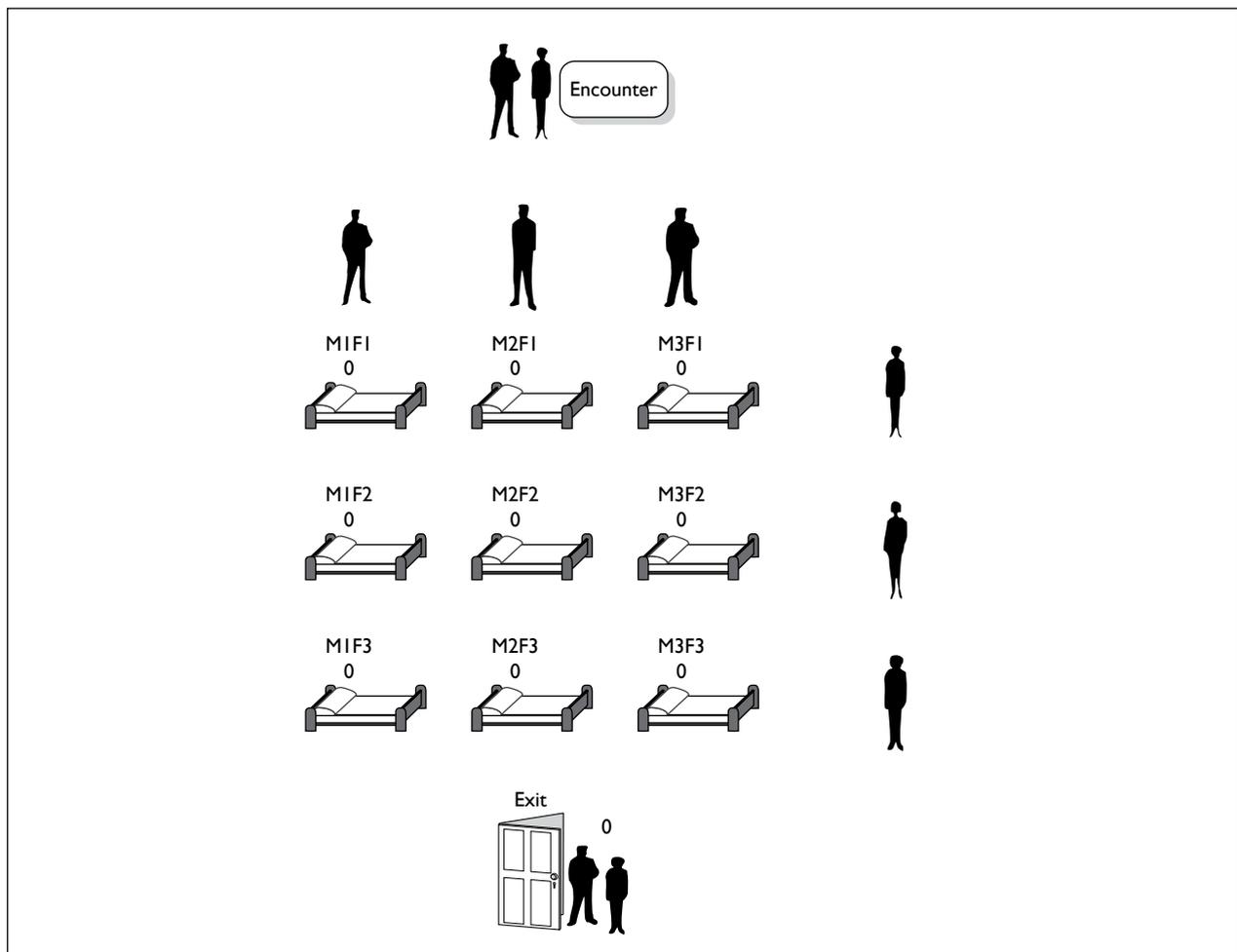


FIGURE 4 The screenshot of the proof-of-concept model.

The cost-effectiveness of a clinic would be estimated by assigning costs and disutility to each disease. The proof of concept model allows costs and disutility to be assigned either once per infection, or on a 'per-week-infected' basis. The expectation is that a sexual health clinic would be associated with less disease, and thus fewer disease-related costs and utility. These would be combined with the costs of maintaining the clinic to estimate a cost-effectiveness ratio. Data on the prevalence

levels of each disease per week are also provided as a model output.

The parameters used within the proof of concept model are summarised in *Table 25*. The values for each variable can be altered within the model.

A screenshot of the proof of concept model is provided in *Figure 4*.

Chapter 10

Discussion and conclusions

Introduction

The aims of this study were to identify current forms of school-based and SLSHS in the UK; to review and synthesise existing evidence from qualitative and quantitative studies, concerning the effectiveness, acceptability and cost-effectiveness of these types of service; and to identify potential areas for further research. This chapter discusses the key findings of the study in relation to each of these aims. The first three sections of the chapter discuss findings from the mapping study, concerning the definition of services, the barriers and facilitating factors identified in relation to their development and the wide variations found in local provision. Following this, the findings of the three reviews are discussed, then the absence of an appropriate basis for cost-effectiveness analyses is noted. The final section of the chapter draws out a number of overarching themes from the study as a whole. Implications for UK policy and practice, and priorities for future research, are presented in Chapter 11.

SBSHS and SLSHS in the UK: can clear service models be defined?

The point of departure for this study included a distinction between 'school-based' (on-site) and 'school-linked' (off-site) sexual health services (SBSHS and SLSHS). Following the definition adopted by the SEF, the team also defined 'sexual health services' as including tangible aspects such as emergency contraception, free condoms, STI screening or referrals to other services; this differentiates such services both from SRE within the school curriculum, and from the provision of general health advice and information by a school nurse or other practitioner. The mapping study, the findings of which are described in Chapters 3 and 4, was designed to move beyond these basic distinctions, and to enable the team to identify the features of current UK services in more detail.

Participants in the school nurse survey and the service coordinator interviews were invited to describe their local services and some features

of the local context. The questionnaire included separate subsections for responses to closed questions about 'generic health' provision and about dedicated 'sexual health' provision (see Appendix 9); in a more open-ended way, interview participants were also invited to describe the ways in which their local services were categorised (e.g. in publicity material). The team initially anticipated that the distinction between generic health and sexual health emphases might form part of an eventual set of definitions.

One important finding from the analysis of the questionnaire and interview data is that this 'general health/sexual health' distinction is problematic in some respects. It is not meaningful: survey respondents completed the different subsections as requested, the terms 'general' or 'generic services' and 'sexual health services' were used extensively in interviews and respondents gave examples of both emphases in local provision. Later in this chapter, the distinction is considered again in connection with service scope and accessibility, both in relation to the mapping study findings and to the review findings. But the analysis of both the survey free text responses and the interview data demonstrated that the distinction could be ambiguous in practice. For example, as illustrated in Chapter 4, a school-based service might be recognised by its users as focused on sexual health, but marketed as being about health in general, in order to minimise the possibility of stigmatisation for users, or of opposition from parents or school governors. These concerns were also identified in some of the studies included in the second review (see Chapter 7 and further discussion below). This indicates that descriptions of sexual health services for young people form part of wider discourses, characterised by diverse and context-related moral and political associations, and they need to be understood in that light.

Some caution is needed, therefore, in categorising services as 'generic' or 'dedicated to sexual health'. Similarly, service titles are not a reliable guide: as illustrated in Chapters 3 and 4, titles such as 'The Drop-In' or 'Teenage Advice Zone' could apply to any service configuration. Study findings

suggest that, in contrast, an examination of staffing patterns (skill mix) and service level (range of products and services available) provides a more robust basis for describing distinct service models. On the basis of interview findings, in Chapter 4 service levels were described as ranging from ‘no service’ to ‘minimal’, ‘basic’, ‘intermediate’ or ‘comprehensive’. Using these definitions, three broad types of UK service provision can be described as follows:

- *SBSHS staffed by school nurses.* These included both timetabled drop-in sessions and an appointments system and typically offered ‘minimal’ or ‘basic’ levels of service.
- *School-based and SLSHS staffed by a multiprofessional team, including school nurses, youth workers and other professionals, but not medical practitioners.* These included drop-in sessions, individual appointments and outreach work (e.g. to youth centres or pupil referral units). These typically offered ‘basic’ or ‘intermediate’ levels of service.
- *School-based and SLSHS staffed by a multiprofessional team, including medical practitioners.* These too included drop-in sessions, appointments and outreach facilities, and typically offered ‘intermediate’ or ‘comprehensive’ levels of service.

School-linked sexual health services could be connected with schools through various arrangements. As a minimum, these included clear signposting and referral processes from a school nurse. However, some linked services included facilities and sessions jointly organised by school-based staff (typically the school nurse, but sometimes also PSHE teachers) and staff from the NHS, local authorities and specialist organisations such as Brook. The largest proportion of funding for each type of service was from the NHS, often through a combination of PCT and Teenage Pregnancy Strategy funding. However, local authorities were also significant contributors, both through direct funding and through the allocation of staff time (e.g. from youth workers).

The important point in the findings about service models is that, as would be expected, services delivered by a multiprofessional team offered a wider range of options to their users than those delivered by school nurses alone. More specifically, the survey findings discussed in Chapter 3 also suggest that the presence of medical practitioners was associated with broader provision: partly because medical practitioners can (for instance)

prescribe oral contraception and other products, but also because school nurses in these settings are more likely to have had specialist sexual health training and to have developed enhanced roles. These findings are necessarily tentative, because of the study limitations acknowledged in Chapter 2. The aim of the mapping study was to identify service types and contexts; in contrast with the SEF report,⁶ it did not provide an assessment of how many schools were hosting or collaborating with services. Nevertheless, the findings suggest some priorities for service development and for future research priorities, and these are outlined in Chapter 11.

Service development: facilitating factors and barriers

As illustrated in Chapters 3 and 4, many participants in the mapping study described the ways in which they had engaged in careful processes of negotiation in order to identify resources, resolve problems and gain agreement for school-linked and SBSHS. Most regarded this as part of their role, in terms of advocating for better services for young people; this was reflected both in free text comments in the school nurse survey and in service coordinators’ interview accounts. Nevertheless, the workload involved was described as significant, particularly in a context of tightly limited and sometimes insecure staffing resources. The specific facilitators and barriers described by respondents can be grouped into factors internal to schools and factors external to schools.

The most prominent internal school factor mentioned by respondents was the barrier of ambivalence or opposition from school governors and/or headteachers and (less commonly) from parents. A minority of respondents described a context of unambiguous local support for school-based or school-linked services, embodied in secure collaborations between schools, parents and local NHS services. However, most had felt the need to engage in consultations, and in careful marketing of a new service, in order to pre-empt or overcome opposition. Finally, difficulties in accessing appropriate locations – particularly for school-based services – and secure, long-term funding were also mentioned as barriers by many respondents. Funding pressures were also linked with difficulties in recruiting staff with specialist sexual health training, or training those already in post.

Factors external to schools included the facilitating effect of national policies, particularly the Teenage Pregnancy Strategy and the Extended Schools guidance (2007). Funding to initiate new services was often accessed via the local Teenage Pregnancy Coordinator, and the Extended Schools guidance provided concrete advice and a legitimating framework. Barriers external to schools included hostile or sensationalist media interest; here, the exposure experienced by a small number of schools appeared to have created anxiety among many more, thus reinforcing some of the internal opposition mentioned above. The emphasis on target-setting in current policy processes was also seen by some as problematic. While the pressure to meet targets in reducing teenage pregnancies was used successfully by some local service coordinators to engage schools in collaboration, some staff were concerned that new rounds of target-setting, e.g. to deliver HPV vaccinations might take staff away from fragile new services.

Two further barriers were related to organisational relationships both within and beyond individual schools. First, tensions regarding confidentiality were raised by many respondents. These included different expectations at a formal level (e.g. that individual students would have to get written permission from a teacher if leaving class to attend a sexual health consultation) and difficulties at an informal level (e.g. that school-based facilities would allow students attending a drop-in session to be visible to their peers and/or school staff). These issues are relevant to all students, but concern was particularly acute in relation to those aged 11–13, where child protection concerns and procedures could be relevant in some instances. The broader theme here is one of interprofessional and interagency collaboration: as evidenced in the Laming Report⁹⁶ as well as in a wide range of academic studies, differences in training, procedures and underlying values can lead to conflict, misunderstanding and failures in communication.⁹⁷ A second organisational barrier could arise from processes of restructuring and reorganisation, within or external to the school/college setting. A number of respondents illustrated the ways in which these could undermine established partnerships, remove essential funding sources or disrupt staffing resources. This finding, too, concurs with those of the SEF survey.⁶

Summary: mixed messages?

The analyses of survey and interview data in Chapters 3 and 4 showed that examples of the three broad service types described above could be found in most parts of the UK, but that sexual health services were not universally available to school students, either on site or off site. Rural areas were consistently mentioned as lacking sufficient services; the specific needs of minority ethnic young people and of lesbian, gay, bisexual and transgender young people were also mentioned by some as needing further acknowledgement. The findings did not indicate the emergence of a dominant service model; rather, local initiatives had been developed through patterns of negotiation and networking, usually prioritising schools in neighbourhoods with relatively high levels of deprivation, and seen as having high teenage pregnancy rates.

The findings also included many examples of innovative services, which were described as attracting high levels of take-up from young people. Many respondents reported the view that school-linked and school-based services were more successful in reaching boys and young men than other sexual health services; in a small number of cases, this was supported with reference to evaluation findings [the recent study by Salmon *et al.* at the University of the West of England (UWE)⁸⁸ also supports this view]. Overall, respondents saw school-based and school-linked services as having particular strengths in terms of flexible access for young people, providing that issues of confidentiality, location, resources and staff training were addressed. However, they also recognised limitations, such as lack of provision during school holidays, short session times and lack of access for young people not in school. These limitations meant that school-based and school-linked services were usually seen as complementing other primary care and GUM provision, and not replacing it. A further limitation is the uneven presence of systems and resources to support rigorous local evaluation. For some respondents, this overall picture suggested major concerns about a lack of equity in sexual health services for young people, arising from an overall shortage of resources. For others, the flexibility to devise services in consultation with local agencies (and sometimes, young people) was viewed very positively.

In certain respects, the picture of local negotiation and experimentation can be seen as delivering some of the sexual health initiatives recommended in the review of health-promoting schools published in 1999.⁹⁸ However, the mapping study findings suggest a degree of fragility for these services. This is partly because resources are limited, but it is also because the study findings illustrate the mixed messages being conveyed to young people. In some settings, school-based and school-linked services were founded on extensive consultations, included participation from young people, were integrated with PSHE provision and were delivered in dedicated, high-quality facilities. These examples offer a very positive health promotion message to young people, as well as potentially valuable models for future planning and evaluation. In other settings, services operated from marginal and sometimes inappropriate locations, on a basis of uneasy compromise. The mapping study provided evidence of ambivalence about displaying publicity posters or making particular services visible in some locations, with particular reference to condom distribution; in these contexts, the messages to young people could be seen as inconsistent, at best. This suggests that there is still a range of obstacles to address, through policy and practice and in research, in order to make accessible, non-stigmatised and user-friendly sexual health services widely available for young people.

The evidence synthesis: three reviews

Systematic searches were performed to identify relevant studies for three reviews:

- a review of the effectiveness of SBSHS or SLSHS
- a review of people's views about SBSHS or SLSHS
- a review of quantitative and qualitative evidence regarding barriers and facilitators to the use of SBSHS or SLSHS.

The reviewers located 30 papers (relating to 26 projects) that satisfied the inclusion criteria for the review of effectiveness evidence, and 25 papers that satisfied the inclusion criteria for the review of qualitative evidence. Below, each review is discussed in turn.

The first review: what is the evidence about service effectiveness?

As explained in Chapters 5 and 6, almost all of the studies identified for this review came from the USA. The methodological quality was very uneven. No RCTs of school-linked or school-based sexual health interventions were located. There were controlled before/after studies, including case-studies, cross-sectional surveys and one quasi-cohort study. There were also uncontrolled before/after studies. Very few studies addressed the primary outcomes of interest to this review, i.e. unintended conceptions and STI rates. Some relevant secondary outcomes were addressed, however, specifically patterns of sexual activity and condom use/non-use.

Analyses of the US studies produce a number of positive findings. First, in connection with sexual activity, there is no evidence that school-based and SLSHS are associated with any increase in rates of sexual activity among young people, or with a lowering of the age of first intercourse. Indeed, there is some evidence that these services may be associated with a reduction in the proportion of students reporting recent sexual activity, and with a reduction in the proportion of students reporting high numbers of sexual partners. Second, in connection with teenage pregnancy, there is some evidence that the services may be associated with a reduction in live births to teenage mothers (however, the limitations of available studies make it impossible to determine whether this is due to increased termination rates or to decreased conception rates, or to a combination of both). Third, with respect to STIs, there is evidence from the US that a programme of school-based screening and treatment for chlamydia and gonorrhoea may be associated with a reduction in chlamydia prevalence in male students. However, there is no good-quality evidence that SBSHS or SLSHS are associated with an increase in contraceptive use.

Overall, the findings from the effectiveness review underline the point that further research is needed, in order to examine whether the types of service identified in the mapping review, in the UK, affect pregnancy rates and STI rates.

The second review: views from service users, staff, parents and community members

This review was based on an analysis of 25 qualitative studies, of which eight focused on UK services. Most focused on school-based rather than school-linked services, and most reflected the views of young people; a smaller number addressed the views of staff, parents and other community members. The methods used included focus groups, interviews and surveys; as with the studies located for the effectiveness review, their quality was variable.

Through thematic analysis, the team identified two sets of factors as influencing young people's decisions about whether or not to access school-based and school-linked services: personal factors and service delivery factors.

The factors identified in relation to both school-based and school-linked services converged closely with many of those identified during the mapping study. For example, in terms of personal factors, it was clear that young people were concerned about confidentiality principles and procedures, and apprehensive about being judged or stereotyped by staff. Other important personal factors concerned levels of awareness and perceived need among young people. Here, it is important to acknowledge the enormous diversity in socioeconomic circumstances, sexual orientations and relationship status in the age range under consideration in this study, as it spans the transition from childhood to adulthood.

This point underlines the importance of flexibility in service provision and service emphasis, perhaps reinforcing the positive aspects of the tailoring of local provision to specific contexts that was mentioned above, in relation to the mapping study. In terms of service delivery factors, there was evidence that young people valued the flexible access offered by school-linked and school-based services, and found school-based and school-linked locations convenient; however, the quality and appropriateness of physical settings was important, as was the availability of specific products and/or services. There was some evidence for a preference among young people for services that presented themselves as broadly based, rather than focused particularly on sexual health. However, there were indications that both gender differences and ethnic identification may play a part in young people's preferences in this respect, and this needs further investigation.

The third review: barriers and facilitators

This review was based on a mixed-methods approach, in order to provide a synthesis of findings from the most robust available quantitative and qualitative studies. The studies selected were all relevant in terms of participants' age and gender; limitations also apply, however, as the evaluation studies included only focused on school-based services, the three based in the USA date back over 10 years and only one was conducted in the UK. However, the specific barriers and facilitators identified were very similar to those found in the mapping study, which does encourage confidence in the findings.

The barriers and facilitators identified by young people were confidentiality concerns; access limitations; staffing (gender mix, attitudes); the physical environment and location; the inclusion of pregnancy testing and STI screening. Most of these features had not been addressed in the most robust evaluations of service effectiveness. These are, therefore, potential priorities for investigation in future research.

Some barriers and facilitators identified by the review of qualitative data were addressed by specific intervention studies, but their impact on pregnancy rates and/or STI rates was not evaluated. Initiatives to increase awareness of services, the absence of any requirement for parental consent to access certain types of contraception, the inclusion of medical professionals in staff teams and the provision of information and advice were all in this category. As above, these remain priorities for future investigation in relation to pregnancy rates and STI rates.

The review does provide evidence that the take-up of contraception by young people can be increased both by addressing their concerns about privacy and visibility, and by providing free contraception. Findings from some studies suggest that young people feel less anxiety and embarrassment when attending broad-based services than when attending dedicated sexual health services, in a school context. The implications of this finding for policy and practice are discussed in the next chapter. The current diversity in service models within the UK suggests that there is some scope to investigate the effectiveness of different service models in depth, as well as to evaluate their impact on STI and pregnancy rates. The findings of this review relating to contraceptive use were less positive. Access to services generally, rather

than access to school-based services in particular, appears to improve self-reported contraceptive use.

The main findings of this synthesis, therefore, are to highlight a number of priority areas for future investigation. There is a need to research the impact of different service models on sexual behaviour, and on conception and STI rates, in relation both to individual service components and to each intervention as a whole.

Cost-effectiveness: the gaps in the evidence base

Appraisals of interventions typically incorporate the following steps: the construction of a mathematical model that simulates disease progression; the evaluation in terms of costs and quality-adjusted life-years (QALYs) of current treatment and prospective alternative interventions using individual estimates of efficacy and costs associated with each option; and interpreting these results to form incremental cost per QALY gained ratios for those interventions that are not dominated or extendedly dominated. For further information refer to the NICE Methods Guide (www.nice.org.uk/media/B52/A7/TAMethodsGuideUpdatedJune2008.pdf). Thus, a key parameter is the effectiveness of the intervention, ideally informed by RCTs. This allows the formation of a cost-effectiveness ratio, often in terms of cost per QALY gained, to allow the intervention to be placed within the context of other interventions competing for the limited NHS budget. This could also be expressed in other units, such as cost per unintended pregnancy avoided.

In the process of identifying, selecting and reviewing relevant studies, the team found a dearth of robust studies concerning the effectiveness of school-linked and SBSHS. The limited evidence available is characterised by a combination of the following factors:

- An absence of controlled experimental studies.
- An absence of studies addressing the key outcomes of pregnancy rates and/or STI rates, in relation to the interventions described.
- Outcome measures that have small quantities and are thus prone to random noise.
- Confounding due to underlying social trends, such as behavioural change following the rise in HIV infection rates or intense marketing/

advertising initiatives, meaning there is potential to misinterpret findings.

- Small sample sizes, resulting in wide confidence intervals where these are provided.
- A lack of transparency in the account of study design and methods.

The lack of efficacy data associated with school-linked and SBSHS, combined with the uncertainty and similar lack of data regarding the natural history model, result in a situation where modelling would not provide informative results. Modelling could be performed with assumptions and wide confidence intervals around all parameters. However, this would be likely to result in answers that ranged from the services dominating the current system (providing more health at a cost saving) to the current system dominating the school-linked services, and with no confidence in any mean value produced.

It was decided that cost-effectiveness ratios would not be presented in order to minimise the risk that tentative conclusions, accompanied by strong caveats, could be misinterpreted and given a misleading sense of legitimacy. Given current evidence, it is plausible that the introduction of school-based and SLSHS could be dominating (both lower costs and higher overall health) or dominated (both higher costs and lower overall health). The omission of a single midpoint cost effectiveness ratio allows the readers to acknowledge that the cost effectiveness of school-based and SLSHS cannot be established reliably on the basis of the limited research evidence currently available.

It is concluded that further research is needed before any robust decisions can be made about the cost effectiveness of school linked sexual health services. The cost effectiveness of collecting such data can in normal circumstances be quantified using expected value of sample information techniques.⁹⁹ The authors fully support this methodology and have published manuscripts using this technique within the disease area of osteoporosis.^{100,101} However, the authors do not believe that this approach is appropriate in this context. The reason for this decision is that an adoption decision would need to be stated (either that the intervention is cost-effective or not), and prior distributions would need to be formed to characterise the uncertainty in parameters where there are no data.

Conclusions

The findings from the mapping study and from the evidence synthesis emphasise the wide diversity in SLSHS and SBSHS for young people. In the UK context, there is no single dominant model. While national policy has encouraged local initiatives in service development, there have been no single template, no consistent sources of sustainable funding and no systematic approach to evaluation. While this context has facilitated local innovation in some respects, it has also produced an uneven distribution of services and resources.

Importantly, findings from the systematic review provide evidence that school-linked and SBSHS are not associated with higher rates of sexual activity among young people, nor with an earlier age of first intercourse. There is some tentative evidence of positive effects in terms of births to teenage mothers, and of a reduction in chlamydia rates among young men. However, this evidence comes from the USA; the findings need to be tested in relation to UK-based services.

Both the mapping study and the evidence synthesis provide some converging messages about the

features that characterise high-quality, school-based SLSHS. There is some evidence from the systematic review to suggest that broad-based, holistic service models, not restricted to sexual health, offer the strongest basis for protecting young people's privacy and confidentiality, countering perceived stigmatisation, offering the most comprehensive range of products and services and maximising service uptake. Findings from the mapping study also indicate that broad-based services, which include medical practitioner input within a multiprofessional team, are seen by staff as meeting the needs of young people most clearly. Partnership-based developments of this kind also conform to the broad policy principles embodied in the Every Child Matters framework and allied UK policy initiatives. However, neither these service models nor narrower ones have been rigorously evaluated in terms of their impact on the key outcomes of conception rates and STI rates, either in the UK or in other countries. An analysis of cost-effectiveness would require new research of this kind to be carried out.

The following chapter identifies the implications of these findings for policy and practice, and for future research priorities.

Chapter 11

The future: policy, practice and research

Implications for policy and practice

Is there evidence to support the development of school-linked and SBSHS?

Yes. This study does provide some evidence to support the continued use and further development of school-linked and SBSHS. First, the objection has been raised in some quarters that these facilities contribute to young people starting sexual activity earlier and increasing their sexual activity overall; this view is not supported by available research. In fact, there are indications that some services may be associated with small delays and reductions in teenage sexual activity. Second, there is some evidence from the USA of associations between school-based services and reductions in teenage births and in chlamydial infection rates (among young men). Third, studies from both the USA and the UK report positive responses from young people about the accessibility and user-oriented nature of many school-based and school-linked services. This last point may be particularly relevant in terms of improving the uptake of sexual health services among boys and young men. However, it is important to remember that almost all of this evidence is based on a small number of US studies, and that most had significant methodological weaknesses. There are also substantial gaps in the available research, and these are discussed further below.

Is there evidence to show which types of service work best?

No. The absence of controlled, experimental studies means that there is no clear evidence about the advantages and disadvantages of different forms of school-based and SLSHS in terms of their impact on outcomes such as pregnancy and STI rates. However, there is some evidence about the preferences of young people and of staff involved in service delivery. Both the mapping study and the systematic review indicate that service models that situate sexual health advice within a broad range of health provision are preferred by many

young people and by practitioners, because they minimise stigma and maximise service access. In addition, both the mapping study and the synthesis of evidence have identified a number of criteria that young people and staff see as characterising high-quality services. This evidence suggests that the following principles should inform the development of new services, and the evaluation of established services:

- robust procedures to safeguard confidentiality, agreed between all agencies and professions contributing to the service
- consultation in advance with potential user groups of young people and engagement of young people in the design and implementation of routine monitoring and evaluation processes
- consultation in advance with school headteachers, governors, staff and parents' groups, to secure informed leadership and support
- close liaison and (where possible) joint work with teaching staff who deliver PSHE
- design of locations and session times to protect privacy of service users
- establishment of a multiprofessional staff team, including both male and female members, and including school nurses, youth workers, medical practitioners and other specialist staff where appropriate (e.g. drug and alcohol workers)
- clear incorporation of local and national child protection guidelines and requirements, along with liaison with relevant local agencies
- provision of comprehensive sexual health services (i.e., including relationships advice, prescriptions for oral and emergency contraception, other forms of contraception, STI screening and pregnancy testing, signposting and referrals for specialist services not offered on site)
- access to continuing professional development for staff, including specialist sexual health training
- marketing of the service as broad-based, rather than restricted to sexual health
- a secure funding basis.

Are there particular priorities for service development?

Evidence from the mapping study – and from the recent SEF survey – shows that school-linked and SBSHS are unevenly distributed, both between UK countries and regions, and within them. Developing services for young people in rural areas, and in Northern Ireland was described as an important priority in qualitative findings from the mapping study. More generally, it is important for commissioning bodies (PCTs and local authorities) to review the provision in their areas, and to consider how to address gaps in provision.

Future research priorities

This report has demonstrated that there are significant gaps in available research about school-linked and SBSHS. First, there is a lack of robust research from the UK. Messages from the available US research need to be interpreted with caution. Some long predate current UK policy and service developments; some are characterised by significant methodological weaknesses; there are also substantial differences in health and education systems in the two countries, as well as differing political priorities with respect to contested issues such as abortion and sex before/outside marriage. These inter-related factors are all likely to shape young people's views, their opportunities to access specific services, and their responses to those services. Second, there is a lack of robust research focused on the impact of school-linked and school-based services on the key outcomes of unintended pregnancy rates and STI rates. Third, there is a lack of research addressing the specific components of interventions: these include possible effect modifiers, such as whether or not nurses within the services are able to prescribe, as well as the components that this study has shown to be important to young people themselves.

The research gaps noted here include some aspects that are amenable to investigation through experimental or quasi-experimental study designs and others that would require alternative methods. The current context in the UK, with its diversity of SBSHS and SLSHS initiatives, offers considerable opportunities for both. The findings from the mapping study suggest that it would be difficult to locate and compare school settings with sexual health interventions with controls where there are no interventions. Confounding factors are also likely to be present; for example, faith schools have been slower to consider providing sexual

health services than other schools. In addition, the authors are aware of continuing growth in areas such as internet-based sexual health advice and postal screening services; the uptake and impact of these need to be addressed in any future research on school-linked and school-based services.

However, there is scope to make comparisons between different forms and levels of intervention and their components, in terms of young people's responses, staff perspectives and health outcomes. Research of this kind could include RCTs, in order to examine the impact of particular service components (e.g. the presence of medical practitioners) or service configurations (e.g. school-based and school-linked models). Further research could also build on the 'realist evaluation' approach to theorising the relationship of context, process and outcome, which has underpinned a number of substantial studies of complex interventions in community contexts.^{102,103} Overall, the following are priority topics for future research:

- Qualitative research with young people and with staff from health, youth work and education, to develop valid and reliable process and outcome measures related to UK SBSHS and SLSHS. These should include, but not be confined to measures of the impact of services on rates of unplanned pregnancy and STIs and to measures of service costs. In this respect, there may be opportunities to build on research already completed about health promotion in schools, following the 1999 HTA-funded systematic reviews on this topic. For example, the themes of school ethos and social and emotional well-being may be particularly relevant. There are also opportunities to build directly on the analyses presented in this report, for example by devising indicators related to the service components which have been shown to be valued by young people. The importance of consultation with young people is a major part of the rationale for proposing this form of qualitative work. Apart from this, there is also a need to pilot and test a framework of indicators. The output of this research could be used both to inform the commissioning of largescale primary research, and to inform initiatives in local evaluation.
- Substantial, primary research with the scope to address specific measures developed through the above process, and to compare the distinct models identified in this report: school-based services staffed by school nurses; school-based and school-linked services staffed

by multiprofessional teams without medical practitioners; and school-based and school-linked services staffed by multiprofessional teams with medical practitioners. This research should include a longitudinal element in order to examine themes such as sexual decision-making and use of contraception by young people, over a sustained period of time. It should also include an examination of interprofessional and interagency relationships and communications, for example in terms of perspectives on confidentiality and of

perceptions about sexual decision-making among young people. Lastly, it should include analyses of cost-effectiveness, drawing on evidence of service impact.

- Primary research to examine the views and experiences of particular groups of young people who have not been included explicitly in the studies discussed in this report, in relation to SBSHS and SLSHS. These include young people with disabilities, minority ethnic young people and LGBT young people.



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Contribution of authors

All team members played a full part in regular project meetings, agreeing detailed plans and sharing draft analyses.

Dr Jenny Owen (Senior Lecturer in Social Science and Health, ScHARR, University of Sheffield) provided overall coordination of the project and edited the final report draft; contributed to the analysis of qualitative data for the mapping study; and wrote the first drafts of Chapters 1, 2, 10 and 11. Ms Anthea Sutton (Information Specialist, ScHARR, University of Sheffield) undertook the literature searches. Dr Myfanwy

Lloyd-Jones (Senior Research Fellow, ScHARR, University of Sheffield) and Dr Chris Carroll (Research Fellow, University of Sheffield) sifted search results, completed the data extraction and systematic review and wrote Chapters 5–8; they also contributed amendments to Chapters 10 and 11. Dr Jo Cooke (Public Health Section, ScHARR, University of Sheffield) advised on questionnaire design, analysed the survey questionnaire (quantitative analyses), drafted relevant sections of Chapter 3, and contributed amendments to Chapters 10 and 11. She also contributed to the screening of studies for the systematic review. Dr Julia Hirst (Principal Lecturer, Sheffield Hallam University) coordinated the telephone interview aspect of the mapping study, oversaw and contributed to the analysis of qualitative data within this, and drafted relevant sections of Chapters 3 and 4. She also provided amendments to Chapters 1, 2, 10 and 11. Ms Eleanor Formby (Senior Research Fellow, Centre for Education and Inclusion Research, Sheffield Hallam University) carried out telephone interviews, structured and collated the initial analyses, and drafted sections of Chapters 3 and 4. She also provided comments and amendments to Chapters 1, 2, 10 and 11. Dr Mark Hayter (Reader, School of Nursing and Midwifery, University of Sheffield) and Dr Helen Stapleton (Lecturer, School of Nursing and Midwifery, University of Sheffield) contributed to the analysis of qualitative data within the mapping study, drafted sections of Chapters 3 and 4, and contributed comments and amendments to Chapters 10 and 11. Dr Hayter also oversaw the electronic submission of the first draft report. Dr Matt Stevenson (Senior Operational Research Analyst, ScHARR, University of Sheffield) assessed the feasibility of cost-effectiveness modelling within the study, devised the proof-of-concept model and wrote Chapter 9.



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Appendix I

Projects meeting the inclusion criteria for the reviews of effectiveness and acceptability

Baltimore SBHCs

1. Santelli J, Alexander M, Farmer M, Papa P, Johnson T, Rosenthal B, *et al.* Bringing parents into school clinics: parent attitudes toward school clinics and contraception. *J Adolesc Health* 1992;**13**(4):269–74.
2. Santelli J, Kouzis A, Newcomer S. Student attitudes toward school-based health centers. *J Adolesc Health* 1996;**18**(5):349–56.

Baltimore Comprehensive School Health Services Program: contraceptive continuation pilot project

1. Bearss N, Santelli JS, Papa P. A pilot program of contraceptive continuation in six school-based clinics. *J Adolesc Health* 1995;**17**(3):178–83.

Baltimore Pregnancy Prevention Program

1. Zabin LS, Stark HA, Emerson MR. Reasons for delay in contraceptive clinic utilization. Adolescent clinic and nonclinic populations compared. *J Adolesc Health* 1991;**12**(3):225–32.

Bodyzone, Oxfordshire, UK

1. Anonymous Case study, 2004. URL: www.doh.gov.uk/Children/Nsfcasestudies.nsf/35ccb39eb7b47ce880256f5b004de49c/6d5519fb495b0c4a80256ff6a003f23f1?OpenDocument
2. Carlson C, Peckham S. Bringing health care to schools: first phase evaluation of the Bodyzone Project. *Health Educ* 2004;**104**(4):241–53.
3. Peckham S, Carlson C. Bringing health care to schools. *Nurs Stand* 2003;**17**(20):33–8.

Brook Sexual Health Outreach in Schools Service, Bristol, UK

1. Salmon D, Ingram J. *An evaluation of Brook sexual health outreach in schools*. Bristol: Centre for Public Health Research, University of the West of England; 2008.

Clinic in a Box, North Staffordshire, UK

1. Barna D, McKeown C, Woodhead P. Get real: providing dedicated sexual health services for young people. London: Save the Children; 2002.

Croydon school-based drop-in clinics

1. Allen B. Drop-in clinics in secondary schools: the perception and experiences of school nurses. *Educ Health* 2004;**22**(3):39–43.
2. Allen B. Lunchtime drop-in clinics accessible in schools. *Br J School Nurs* 2007;**2**(5):205–11.
3. Allen B, Davies C, Kay C, Morgan D, Sykes S, Tripp J. *The experiences of school drop-in services by pupils and school nurses in Croydon*. Croydon: Croydon NHS Primary Care Trust; 2003.
4. Kay CM, Morgan DL, Tripp JH, Davies C, Sykes S. To what extent are school drop-in clinics meeting pupils' self-identified health concerns? *Health Educ J* 2006;**65**(3):236–51.

Dallas, Texas (comprehensive SBHC in Pinkston High School)

1. Kirby D, Waszak C. School-based clinics. In Miller BC, Card JJ, Paikoff RL, Peterson JL, editors. *Preventing adolescent pregnancy. Model programs and evaluations*. Newbury Park, CA: Sage Publications; 1992. pp. 185–219.
2. Kirby D, Waszak CS, Ziegler J. *An assessment of six school-based clinics: services, impact and potential*. Washington DC: Center for Population Options; 1989.
3. Kirby D, Waszak C, Ziegler J. Six school-based clinics: their reproductive health services and impact on sexual behavior. *Fam Plan Perspect* 1991;**23**(1):6–16.

Denver, Colorado (comprehensive SBHC)

1. Ricketts SA, Guernsey BP. School-based health centers and the decline in black teen fertility during

the 1990s in Denver, Colorado. *Am J Publ Health* 2006;**96**(9):1588–92.

Florida Supplemental School Health Programme

1. Emihovich C, Herrington CD. Sex, Kids, and Politics. Health Services in Schools. New York, NY: Teachers College Press; 1997.

Gary, Indiana (comprehensive SBHC in Roosevelt High School)

1. Kirby D, Waszak C. School-based clinics. In Miller BC, Card JJ, Paikoff RL, Peterson JL, editors. *Preventing adolescent pregnancy. Model programs and evaluations*. Newbury Park, CA: Sage Publications; 1992. pp. 185–219.
2. Kirby D, Waszak CS, Ziegler J. *An assessment of six school-based clinics: services, impact and potential*. Washington DC: Center for Population Options; 1989.
3. Kirby D, Waszak C, Ziegler J. Six school-based clinics: their reproductive health services and impact on sexual behavior. *Fam Plan Perspect* 1991;**23**(1):6–16.

Healthy Respect, Lothian, Scotland

1. Street J, Whatling E. Access all areas. Linking education and health services for young people. Healthy Respect; 2004.

Integrated ARH project, Brazil

1. Magnani RJ, Gaffikin L, de Aquino EM, Seiber EE, Almeida MC, Lipovsek V. Impact of an integrated adolescent reproductive health program in Brazil. *Studies in Family Planning* 2001; **32**(3):230–243.

Jackson, Mississippi (comprehensive SBHC in Lanier High School)

1. Kirby D, Waszak C. School-based clinics. In Miller BC, Card JJ, Paikoff RL, Peterson JL, editors. *Preventing adolescent pregnancy. Model programs and evaluations*. Newbury Park, CA: Sage Publications; 1992. pp. 185–219.
2. Kirby D, Waszak CS, Ziegler J. *An assessment of six school-based clinics: services, impact and potential*. Washington DC: Center for Population Options; 1989.
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Kansas City, Missouri (comprehensive SBHCs)

1. Seybert JA, Doucette DS, Welch QB, Kitz G, Hill-Young J. Health habits of urban high school students: evaluation of school-based clinics. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA, 5–9 April 1988.

London sexual health drop-in service

1. Washkansky G. Sexual health drop in service. 2008.

Los Angeles County Condom Availability Scheme

1. Schuster MA, Bell RM, Berry SH, Kanouse DE. Students' acquisition and use of school condoms in a high school condom availability program. *Pediatrics* 1997;**104**(689):694.
2. Schuster MA, Bell RM, Berry SH, Kanouse DE. Impact of a high school condom availability program on sexual attitudes and behaviors. *Fam Plan Perspect* 1998;**30**(2):67–72, 88.

Louisiana SBHCs

1. Zeanah PD, Morse EV, Simon PM, Stock M, Pratt JL, Sterne S, *et al*. Community reactions to reproductive health care at three school-based clinics in Louisiana. *J School Health* 1996;**66**(7):237–41.

Massachusetts Condom Availability Programs

1. Blake SM, Ledsy R, Goodenow C, Sawyer R, Lohrmann D, Windsor R. Condom availability programs in Massachusetts high schools: relationships with condom use and sexual behaviour. *Am J Publ Health* 2003;**93**(6):955–62.

Minneapolis (on-site contraceptive distribution in comprehensive SBHCs)

1. Sidebottom A, Birnbaum AS, Nafstad SS. Decreasing barriers for teens: Evaluation of a new teenage pregnancy prevention strategy in school-based clinics. *Am J Publ Health* 2003;**93**(11):1890–2.

Minnesota SBHCs

1. Bar-Cohen A, Lia-Hoagberg B, Edwards L. First family planning visit in school-based clinics. *J School Health* 1990;**60**(8):418–22.

Muskegon, Michigan (comprehensive SBHC in Muskegon Heights High School)

1. Kirby D, Waszak C. School-based clinics. In Miller BC, Card JJ, Paikoff RL, Peterson JL, editors. *Preventing adolescent pregnancy. Model programs and evaluations*. Newbury Park, CA: Sage Publications; 1992. pp. 185–219.
2. Kirby D, Waszak CS, Ziegler J. *An assessment of six school-based clinics: services, impact and potential*. Washington DC: Center for Population Options; 1989.
3. Kirby D, Waszak C, Ziegler J. Six school-based clinics: their reproductive health services and impact on sexual behavior. *Fam Plan Perspect* 1991;**23**(1):6–16.

New Orleans STI screening and treatment programme

1. Cohen DA, Nsuami M, Etame RB, Tropez-Sims S, Abdalian S, Farley TA, *et al*. A school-based Chlamydia control program using DNA amplification technology. *Pediatrics* 1998;**101**(1):E1.
2. Cohen DA, Nsuami M, Martin DH, Farley TA. Repeated school-based screening for sexually transmitted diseases: A feasible strategy for reaching adolescents. *Pediatrics* 1999;**104**(6):1281–5.
3. Nsuami M, Cohen DA. Participation in a school-based sexually transmitted disease screening program. *Sex Trans Dis* 2000;**27**(8):473–9.

New York City Schools Condom Availability Program

1. Guttmacher S, Lieberman L, Hoi-Chang W, Ward D, Radosh A, Rafferty Y, *et al*. Gender differences in attitudes and use of condom availability programs among sexually active students in New York City public high schools. *JAMWA* 1995;**50**(3/4):99–102.
2. Guttmacher S, Lieberman L, Ward D, Radosh A, Rafferty Y, Freudenberg N. Parents' attitudes and beliefs about HIV/AIDS prevention with condom availability in New York City public high schools. *J School Health* 1995;**65**(3):101–6.
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Appendix 2

Effectiveness of SBSHS and SLSHS: tabulated data

TABLE 26 Summary of project characteristics: general information

Project	Intervention (typical staffing)	Sexual health services offered on site	Nature of contraceptive provision	Parental consent required?	Number of schools with programme in study	Date service opened: opening hours	Date data collected
Baltimore Comprehensive School Health Services Program: contraceptive continuation pilot project ⁵⁶	Programme involving on-site dispensing of contraceptives plus intensive monthly follow-up through 7 SBHCs that already provided primary care, including sexual health services (NPs or physician assistants based in the SBHCs)	Monthly reproductive health assessments and counselling Pregnancy testing STI diagnosis and treatment Contraceptive consultations and provision Other reproductive health care	Oral contraceptives dispensed; condoms strongly promoted and distributed	No	7 middle and high schools	Not reported Opening hours not reported	1990–2
Bodyzone, Oxfordshire, UK ⁵¹	Confidential drop-in clinic operating from secondary school premises during school hours, addressing young people's physical, emotional, mental and sexual health needs (school nurse, youth worker, family planning nurse ⁶³)	Contraceptive consultations	Condoms and emergency contraception distributed; repeat supplies of the pill or injections dispensed to protocols from the family planning service (students must be seen by a doctor elsewhere for a first prescription of the pill or injection, and for any complications) ⁶⁴	Not stated	2 secondary schools	1997 [the programme opened in the second (control) school in the same school year as the evaluation took place] One lunch hour per week (Monday) ⁶⁵	2000
Dallas, Texas ⁴⁵	Comprehensive SBHC with emphasis on primary health care, also serving all local 12- to 18-year-olds whether or not they attended that school (clinic director, 1 full-time and 1 part-time physician, 2 full-time NPs, 1 full-time and 1 part-time social worker, a screening nurse, 2 clerks, and a full-time dentist)	Pregnancy testing/counselling Contraceptive counselling Contraceptive prescribing and dispensing	Unspecified contraceptives prescribed and dispensed to females who wanted a contraceptive	Not stated	1 high school	1970 Opening hours not reported	Not wholly clear: probably 1987

Project	Intervention (typical staffing)	Sexual health services offered on site	Nature of contraceptive provision	Parental consent required?	Number of schools with programme in study	Date service opened: opening hours	Date data collected
Denver, Colorado ⁴⁷	Comprehensive SBHC (staff not specified)	Pregnancy testing Abstinence and birth control counselling Gynaecological exams Diagnosis and treatment of STIs Referral to neighbourhood health centres for contraceptive supplies	Referral for contraceptive supplies without further examinations to confidential service at neighbourhood health centres which charged contraceptive services by ability to pay, based on student's income	Not stated	3 senior high schools	1989 Opening hours not reported	1991–7
Gary, Indiana ⁴⁵	Comprehensive SBHC (pregnancy prevention not major goal) (full-time NP, nutritionist, social worker, and secretary/receptionist; part-time family practice physician, OG physician) ^{45,64,105}	Pregnancy testing/ counselling Contraceptive counselling	Referral to unspecified family planning providers	Not stated	1 senior high school	1981 Open daily during school hours	Not wholly clear: probably 1987
Integrated ARH project, Brazil ⁵⁰	School-linked sexual health service (partner reproductive health clinic located within 5 kilometres of each school; teachers could refer to the partner clinic any student in need of sexual or reproductive health services; other liaison between schools and clinics)	Comprehensive sexual and reproductive health education	Students in need of sexual and reproductive health services (i.e. any student who was: already sexually active; interested in becoming sexually active; suspected that s/he had an STI; or suspected she was pregnant) referred to school's partner clinic	Not stated	6 state secondary schools	1997 Opening hours not specified	May 1997, November 1999
Jackson, Mississippi ⁴⁵	Comprehensive SBHC, proactive in identifying and counselling sexually active students (part-time NP, licensed practical nurse, physician, 2 nurse assistants, and educator/counsellor) ^{45,64,105}	Pregnancy testing/ counselling Contraceptive counselling Contraceptive prescribing and dispensing	Pill and condoms prescribed and dispensed; effective tickler system to remind female students using the pill to pick up repeat supplies	Not stated	1 senior high school	1979 Open every school day, but with different staff each day, therefore, appointments necessary to see a particular member of staff	Not wholly clear: probably 1987

continued

TABLE 26 Summary of project characteristics: general information (continued)

Project	Intervention (typical staffing)	Sexual health services offered on site	Nature of contraceptive provision	Parental consent required?	Number of schools with programme in study	Date service opened: opening hours	Date data collected
Kansas City, Missouri ⁴⁸	Comprehensive SBHCs [full-time NP and medical assistant, part-time social worker, paediatric physician(s), and OG physician(s)]	Contraceptive counselling	Contraceptives apparently dispensed	Yes, annual signed consent form	3 senior high schools	1983 Implicitly available within school hours, as some staff members are full-time	1987
Los Angeles County ⁵⁷	Condom availability scheme (none)	Condom availability	Pack containing 2 condoms and instructions available from baskets in 4 classrooms and outside nurse's office for 25 cents (honesty box)	No	1 senior high school (approximately 2500 students)	April 1992 Available within school hours	April 1992, Spring 1993
Massachusetts ⁵⁸	Condom availability scheme (variable from school to school)	Condom availability	Means of accessing condoms not specified; in Massachusetts as a whole, 62% of districts with school condom availability programmes distributed condoms through school nurses, 48% through other personnel (often PE teachers and assistant principals), 38% through SBHCs, and only 10% through barrier-free methods (e.g. vending machines)	Not required in most districts	9 senior high schools	Not clear for individual study schools. The state apparently adopted a policy of encouraging condom availability programmes in 1991 Opening hours not reported	1995
Minneapolis ⁵⁴	On-site distribution of contraceptives in comprehensive SBHCs (not specified)	Contraceptive provision	Condoms, oral contraception, depot medroxyprogesterone acetate	Yes	5 high schools	Not clear: On-site distribution of contraceptives began in May 1998 Opening hours not reported Appointments needed to request contraceptives	1998, 2000

Project	Intervention (typical staffing)	Sexual health services offered on site	Nature of contraceptive provision	Parental consent required?	Number of schools with programme in study	Date service opened: opening hours	Date data collected
Muskegon, Michigan ⁴⁵	Comprehensive SBHC with emphasis on pregnancy prevention (part-time NP, health educator, receptionist, OG NP, and physician) ^{45,64,105}	Pregnancy testing/counselling Contraceptive counselling Contraceptive prescribing	Vouchers issued which could be used to obtain the pill or condoms free of charge at a Planned Parenthood clinic about 1 mile from the school	Not stated	1 senior high school	1981 Open daily during school hours	Not wholly clear: probably 1987
New Orleans ⁶¹	Urine screening for chlamydia and gonorrhoea in high schools with and without SBHCs (not specified)	STI testing and treatment	Not applicable	Yes (opting in)	3 urban high schools, plus 5 additional high schools in the third year of the programme	Not clear. Screening offered 1995–8 Screening undertaken in school hours	1995/6–7
New York City Schools Condom Availability Program ⁵⁹	Condom availability scheme (trained volunteer members of teaching staff)	Condoms	Condoms available from trained volunteers in resource rooms	Yes (passive consent)	12 senior high schools	Condom scheme began in 1991 No less than 10 periods a week	1994
New York City 'In Your Face' pregnancy prevention programme ⁵³	Pregnancy prevention programme targeted at students identified as sexually experienced or having characteristics correlated with sexual activity (team with input from social workers, medical providers and psychiatrists)	Group education, special events, and, for those continuing sexual activity, individual education, counselling, support and referral for reproductive health care	Referral for contraceptives to 2 hospital clinics staffed by the same health-care workers as the school-based clinics	Not clear	4 junior high schools	First SBHC opened in 1986. Pilot pregnancy prevention programme introduced in 1992 Opening hours not reported	1992–6
Oregon, School A ⁴⁶	SBHC (NP, clinic coordinator; health assistant, part-time mental health counsellor and office assistant)	Reproductive counselling Contraceptive prescribing Pregnancy testing	Referral to clinics where appointments difficult to get without a long wait	Not clear	1 high school	Probably 1989 40 hours per week	1990, 1992
Oregon, School B ⁴⁶	SBHC (part-time NP, nurse, human services assistant, child and family therapist)	Reproductive counselling	Referral	Not clear	1 high school	Not clear 32 hours per week in 1990, 16 in 1992	1990, 1992

continued

TABLE 26 Summary of project characteristics: general information (continued)

Project	Intervention (typical staffing)	Sexual health services offered on site	Nature of contraceptive provision	Parental consent required?	Number of schools with programme in study	Date service opened: opening hours	Date data collected
Oregon, School C ⁴⁶	SBHC (department assistant, part-time mental health specialist, paediatrician; community health nurse originally full-time, later part-time)	Reproductive counselling	Referral to health department within walking distance	Not clear	1 high school	1989 Apparently 40 hours per week	1990, 1992
Oregon ⁴⁹	SBHCs (not specified)	2 sites said not to provide the full range of reproductive services (examinations for STIs, examinations for reproductive services, and prescriptions for contraception), implying that the other 13 sites provided these services	Not totally clear: Seems probable that contraceptives were prescribed at 13 SBHCs	Yes	15 high schools	Not reported. 1 SBHC said to be open for only 24 hours per week, implying that the remainder were open longer hours	1995
'An urban area of the north-western United States' – apparently Oregon ⁵⁵	On-site dispensing of hormonal contraceptives in SBHCs (not specified)	Family planning care	Hormonal contraception: oral, injected (Depo-Provera), implanted (Norplant) Contraceptive foam	Not clear	6 high schools	Not clear: On-site distribution of contraceptives began in February 1996 Not reported. Appointments needed to request contraceptives	1994, 1996
Philadelphia, USA ⁶⁰	Condom availability from school-based drop-in HRCs staffed by health professionals (including health educators, nurses, psychologists, and graduate interns). 2 HRCs were housed in comprehensive clinics; the rest used available classroom or office space	Reproductive health information Condoms Counselling and referral services on sexuality issues including abstinence, HIV and STI prevention ¹⁰⁶	Condoms	Passive consent required for condoms, but not for counselling or referral	9 senior high schools	First full year of programme operation 1992–3 ¹⁰⁶ Some open only during lunch periods on certain days of the week, others for specific hours throughout the school day	1991, 1993

Project	Intervention (typical staffing)	Sexual health services offered on site	Nature of contraceptive provision	Parental consent required?	Number of schools with programme in study	Date service opened: opening hours	Date data collected
Quincy, Florida ⁴⁵	Comprehensive SBHC with considerable emphasis on family planning (NP, plus local doctors on rotational basis for 2–3 hours per week ⁶⁴)	Contraceptive counselling Contraceptive prescribing and dispensing Pregnancy testing/ counselling	Unspecified contraceptives dispensed	Not stated	1 high school	1986 Daily during school hours	Not wholly clear: probably 1987
San Francisco ⁴⁵	Comprehensive SBHC with considerable emphasis on prevention of STIs and unintended pregnancies (full-time receptionist, part-time NP/coordinator, part-time physicians, case management supervisor; full- and part-time case manager; a health educator ⁶⁴)	Contraceptive counselling Pregnancy testing/ counselling	Referral to other sources, including nearby community health clinic where condoms readily available (free of charge ⁶⁴)	Not stated	1 high school	1985 Daily during school hours	Not wholly clear: probably 1987
St Paul Pregnancy-Free Club, St Paul, Minnesota ⁵²	School-based programme for parenting adolescents (public health nurses)	Monthly pregnancy tests Counselling and interventions to help pregnant and parenting adolescents obtain birth control	Students apparently referred to city health department for contraceptive consultations/dispensing	Not stated	1 alternative high school	Pregnancy-Free Club began 1998–9 Daily during school hours	1997/8–2006/7
Seattle Condom Availability Program, Seattle, Washington ⁴²	Condom availability scheme (unstaffed but supported by classroom instruction and a peer HIV education programme)	Condoms	Condoms available from baskets in teen health centres or from vending machines in public locations within the schools	No	10 senior high schools, 5 with, and 5 without, teen health centres	Scheme began in schools with teen health centres in 1993 Daily during school hours	1993, 1995
US school-based adolescent health care program ⁴³	Comprehensive SBHCs (medical assistant/receptionist, NP or physician assistant, part-time physician or family practitioner)	Treatment and referral for pregnancy and STIs Contraceptive consultations HIV testing (some sites only)	10 SBHCs prescribed or dispensed contraceptives, 9 referred to other health-care providers ⁴⁴	Yes	19 high schools	1987 At least 7 hours per day, 5 days per week	1989–92

ARH, adolescent reproductive health; NP, nurse practitioner; OG, obstetrics and gynaecology.

TABLE 27 Summary of study characteristics: key aspects of methodological quality

Project	Publications	Investigators' categorisation of study design	Reviewers' categorisation of study design	Study participants: intervention site	Comparability of contemporary controls (if appropriate)	Response/attrition rates	Other comments
Baltimore Comprehensive School Health Services Program: contraceptive continuation pilot project	Bearss <i>et al.</i> 1995 ⁵⁶	None given	Uncontrolled before/after cohort study (routinely collected clinic data)	139 female students requesting contraception and agreeing to participate in the programme	Not applicable	Withdrawal over 12 month period 83/139 (60%); reasons for withdrawal divided approximately equally between school-related factors (mostly withdrawal from school) and programme-related factors (mostly non-compliance)	The authors recognise that the study findings over-represent students who remained in the programme, who were likely to be more motivated to avoid pregnancy than students who withdrew either from the programme or from school. They could not follow up participants who left school or dropped out of the programme
Bodyzone, Oxfordshire, UK	Peckham and Carlson 2003, ⁵¹ Peckham 2004, ⁶³ Anon. 2004 ¹⁰⁴	Cross-sectional study	Controlled case study (questionnaire survey, participatory group assessment, individual interviews)	Questionnaire: all available students in years 8 and 10 (i.e. aged approximately 13 and 15) (N=189) Group assessments: 42 volunteers	Comparable for questionnaire (all eligible students in years 8 and 10; N=307) and staff interviews; group assessments not held in control school	Overall questionnaire response rates: 88% of eligible students (separate figures not presented for the intervention and control groups)	The service started in 1997, but the evaluation was not instigated until 2000. It was therefore impossible to collect baseline data from the intervention school. The power of the study was limited by the exclusion of older students from the first phase of the evaluation. The second phase remains unpublished
Dallas, Texas	Kirby <i>et al.</i> 1991, ⁴⁵ Kirby <i>et al.</i> 1989, ⁶⁴ Kirby and Waszak 1992 ¹⁰⁵	Evaluation	Controlled case study (student survey, clinic records, staff interviews)	Entire student population. However, only black students (76% of school population) included in analyses	Good in that control = nearby school with similar social and demographic characteristics. However, only black students (97% of school population) included in analyses	Not clear. Usable responses obtained from 46% of total enrolment in intervention school, but 62% in control school. ⁶⁴ This discrepancy may be due to the different proportions of black students in the two schools	Because of the significant difference in racial composition between the intervention and control schools, to eliminate any possible interaction effects between race and outcome variables the authors excluded all non-black students from the analyses. Any remaining differences suggested that students in the control school were slightly more advantaged than those in the clinic school

Project	Publications	Investigators' categorisation of study design	Reviewers' categorisation of study design	Study participants: intervention site	Comparability of contemporary controls (if appropriate)	Response/attrition rates	Other comments
Denver, Colorado	Ricketts and Guernsey 2006 ⁴⁷	None given	Controlled quasi-before/after study (retrospective review of routinely collected birth certificate and school enrolment data)	All births between 1991 and 1997 to black females aged 15–17 resident in the attendance areas of 3 high schools with SBHCs	Fair: All births between 1991 and 1997 to black females aged 15–17 resident in the attendance areas of 4 local high schools without SBHCs. However, the schools with SBHCs were generally held to have the highest enrolment of 'at-risk' adolescents	Not applicable	Defined as a quasi-before/after study because baseline data postdated the introduction of SBHCs. Estimated fertility rates probably exceed actual fertility rates because the denominators underestimate the number of black female adolescents (by excluding those in private high schools or not in school), whereas the numerators include all births to all black adolescents. During the study period, the dropout rate in black female students rose in SBHC schools, but fell in non-SBHC schools: therefore, relative to 1992, the fertility rates calculated for 1997 may be overestimates in school areas with, and underestimates in school areas without SBHCs
Gary, Indiana	Kirby et al. 1991, ⁴⁵ Kirby et al. 1989, ⁶⁴ Kirby and Waszak 1992 ¹⁰⁵	Evaluation	Controlled case study (student survey, clinic records, staff interviews)	Representative sample of classes. However, only black students (98% of school population) included in analyses	Good: Control = representative sample of classes in nearby school with similar social and demographic characteristics. Only black students (96% of school population) included in analyses	Not clear: Usable responses obtained from 41% of total enrolment in intervention school, and 35% in control school ⁶⁴	The low response rates were due in part to intentional sampling of students. Although all non-black students were excluded from the analyses to eliminate any possible interaction effects between race and outcome variables, they were relatively few in number. Any remaining differences in baseline characteristics suggested that students in the control school were slightly more advantaged than those in the clinic school

continued

TABLE 27 Summary of study characteristics: key aspects of methodological quality (continued)

Project	Publications	Investigators' categorisation of study design	Reviewers' categorisation of study design	Study participants: intervention site	Comparability of contemporary controls (if appropriate)	Response/attrition rates	Other comments
Integrated ARH project, Brazil	Magnani <i>et al.</i> 2001 ⁵⁰	Impact evaluation	Controlled before/after quasi-cohort study	Representative sample of students in eighth and tenth grades (all students present in the selected classes on the day of the initial survey who agreed to fill out a questionnaire)	Good: Controls = matched schools in the same geographic areas without links to sexual health clinics	Not reported. Only 26% of students in project schools and 30% in control schools who completed the baseline also completed the final questionnaire	Because of high attrition rates, the study design was modified from the planned cohort design (following the same students over the 30-month period) to a quasi-cohort design [tracking students who had completed the baseline survey so that they could complete the follow-up survey (along with all students in their class, if they were still attending the same school, or, if they had moved to other schools, all classes in schools in which 50 or more such students were enrolled), and analysing the data as if they had been obtained from independent sample]
Jackson, Mississippi	Kirby <i>et al.</i> 1991, ⁴⁵ Kirby <i>et al.</i> 1989, ⁶⁴ Kirby and Waszak 1992 ¹⁰⁵	Evaluation	Controlled case study (student survey, clinic records, staff interviews)	All students except those without active parental consent to participate. However, only black students (99% of school population) included in analyses	Good: Control = nearby school with similar social and demographic characteristics. However, only black students (93% of school population) included in analyses	Not clear. Usable responses obtained from 45% of total enrolment in intervention school, and 50% in control school. ⁶⁴ This discrepancy may be due to the different proportions of black students in the two schools	The low response rates in both schools were due in part to the need for parental consent to participate. Results may therefore not be representative, but any participation bias would have affected the intervention and the control school equally
Kansas City	Seybert <i>et al.</i> 1988 ⁶⁸	Surveys with informal comparison groups	Controlled cross-sectional study (self-completed questionnaire)	All students taking social studies classes (i.e. 90–98% of all students); 3 schools were surveyed in different years (A 1982, 1985; B 1983, 1987; C 1986)	Poor: Control = all students taking social studies in a senior high school without an SBHC; but data only collected on one of the 5 study years (1987)	Response rates ranged from approximately 50–82% in the different schools at different dates. The low response rates from some schools are not explained	The study design is unsatisfactory because data were collected from different schools in different years. This review therefore only utilises data from 1987, the only year in which data were collected from both a school with a SBHC (School B) and the control school

Project	Publications	Investigators' categorisation of study design	Reviewers' categorisation of study design	Study participants: intervention site	Comparability of contemporary controls (if appropriate)	Response/attrition rates	Other comments
Los Angeles County, USA	Schuster <i>et al.</i> 1997, ⁶² 1998 ⁵⁷	Pre-test/post-test evaluation	Uncontrolled before/after study (self-completed questionnaire)	All students except those in English-as-a-second language classes (~16% of school population) or intensive special education classes	Not applicable	Usable surveys completed by 98% (1945/1985) of eligible students present at baseline but only 59% (1112/1878) of those present at follow-up, largely because passive parental consent was required for the baseline survey, but active consent for the follow-up survey	The very different response rates at baseline and follow-up suggest the potential for substantial participation bias. The investigators therefore used weighted analyses in case the samples differed in terms of characteristics potentially related to outcomes of interest, but this reduces confidence in the results
Massachusetts, USA	Blake <i>et al.</i> 2003 ⁵⁶	None given	Controlled cross-sectional study (self-completed questionnaire)	Randomly selected classes in 9 randomly selected schools with condom availability schemes and 100 or more students in grades 9–12. Passive parental consent required for participation	Controls = 50 randomly selected schools without condom availability schemes	59/63 selected schools agreed to participate (94% response rate). 4166/5370 students (78%) present in the selected classrooms completed the survey. Separate response rates for schools with and without condom availability programmes not reported	Students in intervention schools received a greater range of HIV instruction (a mean of 2.2 vs 1.8 topics covered; $p \leq 0.0001$). They were more likely to have received instruction regarding preventing HIV infection; heard a presentation from a person with HIV/AIDS; and been taught in school how to use a condom
Minneapolis	Sidebottom <i>et al.</i> 2003 ⁵⁴	Retrospective chart review	Uncontrolled before/after study (retrospective review of routinely collected data)	Junior and senior year students in 5 high schools with SBHCs	Not applicable	Not applicable	

continued

TABLE 27 Summary of study characteristics: key aspects of methodological quality (continued)

Project	Publications	Investigators' categorisation of study design	Reviewers' categorisation of study design	Study participants: intervention site	Comparability of contemporaries controls (if appropriate)	Response/attrition rates	Other comments
Muskegon, Michigan	Kirby <i>et al.</i> 1991, ⁴⁵ 1989, ⁶⁴ Kirby and Waszak 1992 ¹⁰⁵	Evaluation	Controlled case study (student survey, clinic records, staff interviews)	Entire student population. However, only black students (83% of school population) included in analyses	Poor: Control school had similar social and demographic characteristics but was 90 miles away. Only black students (94% of school population) included in analyses	Not clear: Usable responses obtained from 60% of total enrolment in intervention school, and 70% in control school. ⁶⁴ This discrepancy may be due to the different proportions of black students in the two schools	The control school had a strong sex education programme that may have affected contraceptive use. The student survey was administered in the control school about 6 months later than in the intervention school; it is not clear what effect, if any, this might have had
New Orleans	Cohen <i>et al.</i> 1998, ⁶⁵ 1999, ⁶¹ Nsuami <i>et al.</i> 2000 ⁶⁶	None given	Quasi-controlled before/after study (screening test)	9th–12th grade students in 3 urban public high schools	Fair: Controls = 9th–12th grade students in 5 comparable urban high schools in which screening was not introduced until year 3, but baseline data inevitably not available for this group	At follow-up, 52.4% of enrolled students in each school were tested (intervention schools 1150/2193; control schools 3228/5063)	A true controlled before/after design would not have been possible without using the intervention in the control group. However, as a result, it is impossible to attribute to the intervention any differences between either baseline and follow-up in the intervention group, or the intervention and control group
New York City Schools Condom Availability Program	Guttmacher <i>et al.</i> 1997 ⁵⁹	Cross-sectional survey	Controlled cross-sectional study (self-completed questionnaire)	Students in randomly selected classes in 12 randomly selected New York public high schools	Fair: Students in randomly selected classes in 10 Chicago public high schools without condom availability schemes chosen to match the NYC sample on relevant demographic characteristics	Not reported	Geographically distant controls had to be used because the condom availability programme was system-wide in New York, but as a result differences in condom use may be due to unexplained differences between NYC and Chicago rather than to the intervention. Because condom use was not measured in NYC prior to implementation of the condom availability programme, students who had been in an NYC or Chicago public high school for less than 1 year ('new students') formed a proxy baseline measure, as it was felt they were unlikely to have been exposed to their school's HIV/AIDS prevention strategies prior to survey participation

Project	Publications	Investigators' categorisation of study design	Reviewers' categorisation of study design	Study participants: intervention site	Comparability of contemporary controls (if appropriate)	Response/attrition rates	Other comments
New York City 'In Your Face' pregnancy prevention programme	Tiezzi <i>et al.</i> 1997 ⁵³	One group pre- and post-test design	Uncontrolled before/after study. Withdrawal of programme funding from one school in 1995–6 effectively created a crossover control site for that year only	4 junior high schools with SBHCs	Not applicable	Not reported	A very poorly reported study of a complex intervention involving group education and classroom interventions in addition to clinic services (one-to-one education, counselling, and referral for contraceptives), making it impossible to isolate the impact of the latter
Oregon: Schools A, B and C	Stout <i>et al.</i> 1996 ⁴⁶	Prospective observational study with cross-sectional sampling	3 controlled before/after case studies (self-completed student questionnaire, structured telephone interviews with service providers)	Students in 5 schools with SBHCs	Good: Controls = students in 4 schools chosen for geographical proximity and demographic comparability to SBHC schools	Mean of 83% for all 9 schools (apparently at follow-up, although this is not very clear); separate data not provided for each school	Effectiveness data were only published for the 3 SBHCs which had been open for at least 5 months at the time of the baseline survey, and their paired control schools. This study has therefore been treated as 3 separate controlled case studies

continued

TABLE 27 Summary of study characteristics: key aspects of methodological quality (continued)

Project	Publications	Investigators' categorisation of study design	Reviewers' categorisation of study design	Study participants: intervention site	Comparability of contemporary controls (if appropriate)	Response/attrition rates	Other comments
Oregon	Zimmer-Gembeck and Riddell 1996 ⁴⁹	Survey	Controlled cross-sectional study (self-completed questionnaire)	Grade 9–12 students in 15 high schools with SBHCs	Not clear. Controls = grade 9–12 students in 35 high schools without SBHCs which volunteered to participate. As a group, intervention and control schools were similar in size and socioeconomic level to the entire Oregon public school population, and surveyed students were very similar to the statewide public school enrolment in gender, grade and race, but this composite data may mask differences between intervention and control schools	After adjusting for absences and non-participation (the nature of the latter being unclear), overall 80% of students completed the survey; 94% of completed surveys (13,992/14,891) were considered sufficiently accurate to use (566 were excluded because of 10+ inconsistencies in related questions, etc., and 140 because the student's gender and/or grade level was not stated)	Planned stratified random sampling of schools failed because only 17/40 (43%) randomly sampled schools chose to participate. They were therefore considered to be volunteers, and included in the study with 33 other schools which volunteered to participate, forming a non-random sample of 50 schools. The schools then chose whether the whole school or only a sample of classes would participate; not all chose a representative sample
'An urban area of the north-western United States' – apparently Oregon	Zimmer-Gembeck et al. 2001 ⁵⁵	Not clear	Uncontrolled before/after study (routinely collected clinic data)	Sexually active female students receiving contraceptive care in 6 high school SBHCs	Not applicable	Not applicable	The study only measures sexually active female students' selection of oral, injected or implanted hormonal contraception – not their actual use of that contraception. Data relate only to those students who were likely new users of hormonal contraception and who made at least 2 family planning visits during the relevant school year

Project	Publications	Investigators' categorisation of study design	Reviewers' categorisation of study design	Study participants: intervention site	Comparability of contemporary controls (if appropriate)	Response/attrition rates	Other comments
Philadelphia, USA	Furstenberg <i>et al.</i> 1997, ⁶⁰ McGrory <i>et al.</i> 1994, ¹⁰⁶	Surveys: time-series data	Controlled before/after study (telephone interviews)	Randomly selected teenagers living in the catchment areas of 9 public high schools with condom availability schemes, plus a random sample from the entire city	Good: Controls were randomly selected teenagers living in the catchment areas of public high schools without condom availability schemes, plus a random sample from the entire city	1991: 77% 1993: 75% Fewer than 5% of teenagers who were contacted refused to participate. The relatively low participation rates therefore seem due primarily to difficulty in locating some households	1181 youths were interviewed in 1991, and 2080 in 1993, but the analyses were limited to students who attended public schools (490 and 945, respectively). 407 respondents were interviewed in both 1991 and 1993 but, to avoid double-counting, were included in only the published analyses for 1991
Quincy, Florida	Kirby <i>et al.</i> 1989, ⁶⁴ 1991, ⁴⁵ Kirby and Waszak 1992, ¹⁰⁵	Evaluation	Uncontrolled before/after case study (student survey, clinic records, staff interviews)	All grade 10–12 students. However, only black students (89% of school population at baseline and 92% at follow-up) included in analyses	Not applicable	Not clear: Usable responses were obtained from 79% of total enrolment at baseline, and 90% at follow-up	Before the SBHC opened, students received passes from school to attend a public health clinic about 1 mile away for reproductive care. The SBHC opened when that clinic moved further away, so that students could no longer attend it. The study therefore essentially measures the difference between providing services in a school-linked and a school-based clinic, but this comparison is muddled because, after 18 months, for political reasons, the clinic had to be relocated about 100 yards off campus, and students again required passes to attend during the school day

continued

TABLE 27 Summary of study characteristics: key aspects of methodological quality (continued)

Project	Publications	Investigators' categorisation of study design	Reviewers' categorisation of study design	Study participants: intervention site	Comparability of contemporary controls (if appropriate)	Response/attrition rates	Other comments
San Francisco	Kirby et al. 1989, ⁶⁴ 1991, ⁴⁵ Kirby and Waszak 1992 ¹⁰⁵	Evaluation	Uncontrolled before/after case study (student survey, clinic records, staff interviews)	Representative sample of the student population	Not applicable	Not clear. Usable responses were obtained from 44% of total enrolment at baseline, and 24% at follow-up	Response rates were low in part because of intentional sampling of students, and in part because of the need for parental consent to participate. They were lower at follow-up, when active parental consent was required, than at baseline, when only passive consent was required, and this may affect the comparability of the two samples. In addition, the authors recognise that the results may be confounded by national and, in particular, local responses to the impact of HIV/AIDS
St Paul Pregnancy-Free Club, St Paul, Minnesota	Schaffer et al. 2008 ⁵²	Evaluation of programme effectiveness	Uncontrolled before/after study (focus groups, routinely collected data)	Teenage mothers attending an alternative high school	Not applicable	Not reported	The absence of data on either participation rates or school-wide pregnancy rates makes it impossible to judge the effectiveness of this pregnancy prevention programme
Seattle Condom Availability Program, Seattle, Washington	Kirby et al. 1999, ⁴² Hillard et al. 1996, ⁶⁶ Brown et al. 1997 ⁶⁷	Quasi-experimental study	Controlled before/after study (self-completed questionnaire, condom counts, student focus groups, staff interviews)	10 schools with condom availability schemes (5 had SBHCs throughout, 2 opened them part way through the evaluation)	Not wholly comparable: controls were a nationally representative sample of students in grades 9–12	Survey completion rate: 1993: 79% (of 7179) 1995: 87% (of 7893) Primary reason for non-completion was absence from school on the day of survey administration. Very few students were excluded because parents refused consent for participation	Control group data were standardised to match the ethnic distribution of the intervention group

Project	Publications	Investigators' categorisation of study design	Reviewers' categorisation of study design	Study participants: intervention site	Comparability of contemporary controls (if appropriate)	Response/attrition rates	Other comments
US school-based adolescent health-care programme (19 schools in large US cities) ⁴³	Kisker and Brown 1996, ⁴³ Kisker et al. 1994 ⁴⁴	Cohort study with unmatched concurrent controls	Controlled quasi before/after study (baseline questionnaire self-completed, follow-up self-completed by students still in school, but administered by researcher face-to-face or by telephone to those who had left)	All students enrolled in the entry-level grade (9th or 10th) of 19 schools with SBHCs in fall 1988 who attended class at least 20% of the time	Poor: Randomly selected nationally representative sample of 9th and 10th grade students from 18 randomly selected cities with populations $\geq 10,000$, which did not have SBHCs sponsored by the Robert Wood Johnson Foundation. The intervention schools were located in areas with substantial unmet health-care needs, but it is not clear that all the controls attended schools in similar neighbourhoods, nor is it clear that the attendance qualification applied to the control group	Completed initial survey: Intervention: 57% Control: 75% Completed both initial and follow-up surveys: Intervention: 45% Control: 66%	All students needed written parental consent to participate. Follow-up interviews took place in the spring of the year in which the student would have graduated had s/he progressed through high school at the expected pace (i.e. 12th grade, age 17/18). The choice of controls was determined by the Robert Wood Johnson Foundation's objection to the use of students from nearby schools. In addition to using dissimilar groups, the investigators used different methods to collect data from each group: telephone interviews for controls, but self-completed questionnaires for students in the intervention group, except those who had moved or left school by follow-up, who were interviewed by telephone or in person. Not a true before/after study: 'baseline' data were collected towards the end of the students' first year in high school, on the assumption that SBHCs would have had little or no effect on student outcomes during that first year. The investigators recognised that this assumption could mask important programme effects if, without the intervention, the SBHC schools would have had poorer outcomes than the control schools

TABLE 28 Proportion of students who are sexually active

Project	Intervention	Study design	Details of contraceptive provision	Service free of charge?	Date data collected	Mean age	Percentage sexually active	
							Control group	Intervention group
Bodyzone, Oxfordshire, UK ^{51,63}	Drop-in clinics in secondary schools intended to address students' physical, emotional, mental and sexual health needs	Controlled case study (control = school where clinic established in same school year as evaluation took place)	Unspecified contraceptives distributed	Yes	2000	Not reported. Students were in years 8 and 10, i.e. aged approximately 13 and 15	Ever had sexual intercourse: Male: 15% Female: 13%	Ever had sexual intercourse: Male: 11% Female: 12%
Dallas, Texas ⁴⁵	Comprehensive SBHC also serving local 12- to 18-year-olds who did not attend that school	Controlled case study (control = nearby school with similar social and demographic characteristics)	An 'appropriate method' was provided to females wanting a contraceptive	Not stated	Not wholly clear: probably 1987	Control 16.1 Intervention 16.4 $p < 0.01$	Ever had sex: Male: 92% Female: 76%	Ever had sex: Male: 87% Female: 80%
Gary, Indiana ⁴⁵	Comprehensive SBHC in 1 senior high school	Controlled case study (control = nearby school with similar social and demographic characteristics)	Contraceptives not prescribed or dispensed; staff provided information and counselling, and referred to other family planning providers, only if the student raised the subject	Not stated	Not wholly clear: probably 1987	Control 16.2 Intervention 16.2	Ever had sex: Male: 87% Female: 60%	Ever had sex: Male: 82% Female: 63%
Integrated ARH project, Brazil ⁶⁰	School-linked sexual health clinics (6/10 school-clinic pairs evaluated)	Controlled before/after quasi-cohort study (controls = matched schools without links to sexual health clinics)	Presumably a full range	Not clear	1997, 1999	Not stated. Range 11-19 at baseline	Ever had sexual intercourse: Male: 1997, 67.4%; 1999, 76.1% Female: 1997, 14.6%; 1999, 27.3%	Ever had sexual intercourse: Male: 1997, 66.6%; 1999, 76.3% Female: 1997, 15.6%; 1999, 31.2%
Jackson, Mississippi ⁴⁵	Comprehensive SBHC in 1 senior high school	Controlled case study (control = nearby school with similar social and demographic characteristics)	Pill and condoms dispensed	Not stated	Not wholly clear: probably 1987	Control 16.5 Intervention 16.8 $p < 0.001$	Ever had sex: Male: 93% Female: 75%	Ever had sex: Male: 96% Female: 82%

Project	Intervention	Study design	Details of contraceptive provision	Service free of charge?	Date data collected	Mean age	Percentage sexually active	
							Control group	Intervention group
Kansas City ⁴⁸	Comprehensive SBHCs in 3 senior high schools; data presented only for the 1 SBHC where data were collected in the same year as in the control school	Controlled survey (control = high school without SBHC)	Unspecified family planning services provided	Not stated	1987	Not reported. Majority (75%) aged 15	Ever had sexual intercourse: 71.1% Had sexual intercourse in previous 30 days: 48.7%	Ever had sexual intercourse: 71.4% Had sexual intercourse in previous 30 days: 47.2%
Los Angeles County, USA ⁵⁷	Condom availability scheme in 1 senior high school	Uncontrolled before/after study (self-completed questionnaire)	Condoms available from baskets in 4 classrooms and outside nurse's office	No: 25 cents per pack (honesty box)	April 1992 (control) and Spring 1993 (intervention)	Not reported. Grades 9–12	Heterosexual vaginal intercourse: Ever: males 55.8%, females 45.4% In previous year: males 50.6%, females 42.0%	Heterosexual vaginal intercourse: Ever: males 55.0%, females 46.1% In previous year: males 51.8%, females 44.0%
Massachusetts, USA ⁵⁸	Condom availability scheme located in 9 senior high schools	Controlled cross-sectional survey (implicitly self-administered) (controls = 50 schools without condom availability schemes)	Condoms (no further details available specifically for the study schools; in most condom availability schemes in Massachusetts, school nursing or teaching staff distributed condoms; only 10% used barrier-free methods, e.g. vending machines)	Not stated	1995	Control 16.1 Intervention 16.0	Heterosexual anal intercourse in previous year: males 18.0%, females 5.5% Homosexual anal intercourse in previous year: males 1.4%, females NA Ever had sexual intercourse: 49% Had sexual intercourse in last 3 months: 35%	Homosexual anal intercourse in previous year: males 20.5%, females 8.8% Homosexual anal intercourse in previous year: males 2.9%, females NA Ever had sexual intercourse: 42% (p vs control = 0.0037) Had sexual intercourse in last 3 months: 30% (p vs control = 0.0252)

continued

TABLE 28 Proportion of students who are sexually active (continued)

Project	Intervention	Study design	Details of contraceptive provision	Service free of charge?	Date data collected	Mean age	Percentage sexually active	
							Control group	Intervention group
Muskegon, Michigan ⁴⁵	Comprehensive SBHC in 1 senior high school	Controlled case study (control = school 90 miles away with similar social and demographic characteristics)	Vouchers issued to obtain the pill and condoms from Planned Parenthood clinic about 1 mile away ⁶⁴	Yes if students referred by SBHC; otherwise, have to pay	Not wholly clear: probably 1987	Control 15.7 Intervention 15.9 $p < 0.01$	Ever had sex: Male: 93% Female: 72%	Ever had sex: Male: 91% Female: 69%
New York City 'In Your Face' pregnancy prevention programme ⁵³	Pregnancy prevention programme operating through comprehensive SBHCs in 4 junior high schools	Uncontrolled before/after study. Withdrawal of programme funding from one school in 1995-6 effectively created a crossover control site for that year only	Referral for contraceptives from 2 hospital clinics staffed by the same health-care workers as the school-based clinics	Yes	1992-6	Not reported. Grades 6-8	Ever had sex: 1992-3: 20%	Ever had sex: 1993-4: 16% 1994-5: 18%
New York City Schools Condom Availability Program ⁵⁹	Condom availability scheme in 12 senior high schools	Controlled cross-sectional survey (controls = similar schools in Chicago without condom availability schemes)	Condoms available from trained volunteers in resource rooms	Not stated	1994	Not reported. Majority (> 80%) ≥ 15	Ever had vaginal, anal or oral sex: New students: Overall: 46.9%; male 57.1%; female 37.6% Continuing students: Overall: 60.1%; male 66.9%; female 54.3%	Ever had vaginal, anal or oral sex: New students: Overall 47.2%; male 57.2%; female 39.6 Continuing students: Overall 59.7%; male 64.4%; female 55.3%
Oregon, School A ⁴⁶	Comprehensive SBHC in 1 senior high school	Controlled before/after case study (controls = students in school chosen for regional proximity and demographic comparability)	Contraceptives prescribed but not dispensed; long wait for appointments at referral clinics	Not stated	1990, 1992	Not reported Grades 9-12	Ever had sex: 1990: 43.7% 1992: 42.5% Had sex in last 4 weeks: 1990: 28.4% 1992: 21.2%	Ever had sex: 1990: 44.2% 1992: 41.2% Had sex in last 4 weeks: 1990: 28.1% 1992: 21.6%

Project	Intervention	Study design	Details of contraceptive provision	Service free of charge?	Date data collected	Mean age	Percentage sexually active	
							Control group	Intervention group
Oregon, School B ⁴⁶	Comprehensive SBHC in 1 senior high school	Controlled before/after case study (controls = students in school chosen for regional proximity and demographic comparability)	Contraceptives not prescribed or dispensed; referral for contraception not mentioned	Not stated	1990, 1992	Not reported Grades 9–12	Ever had sex: 1990: 42.9% 1992: 41.7% Had sex in last 4 weeks: 1990: 22.0% 1992: 21.1%	Ever had sex: 1990: 46.2% 1992: 56.3% Had sex in last 4 weeks: 1990: 25.9% 1992: 29.8%
Oregon, School C ⁴⁶	Comprehensive SBHC in 1 senior high school	Controlled before/after case study (controls = students in school chosen for regional proximity and demographic comparability)	Contraceptives not prescribed or dispensed; students easily referred to health department near school which had no restrictions on reproductive health services	Not stated	1990, 1992	Not reported Grades 9–12	Ever had sex: 1990: 53.3% 1992: 59.2% Had sex in last 4 weeks: 1990: 28.4% 1992: 34.6%	Ever had sex: 1990: 54.3% 1992: 49.9% Had sex in last 4 weeks: 1990: 32.8% 1992: 26.7%
Oregon ⁴⁹	Comprehensive SBHCs in 15 high schools	Controlled cross-sectional survey (self-administered questionnaires) (controls = grade 9–12 students in 35 high schools without SBHCs)	Not totally clear. Seems probable that 13/15 SBHCs could prescribe contraceptives	Yes	1995	Not reported Grades 9–12	Ever had sexual intercourse: 38%	Ever had sexual intercourse: 41% (p vs control <0.05)
Philadelphia, USA ⁶⁰	Condom availability scheme located in 9 senior high schools	Controlled before/after study (survey administered using telephone interviews) (controls = teenagers living in catchment areas of high schools without condom availability schemes)	Condoms available from school-based drop-in HRCs staffed by health professionals from nearby health facilities	Not stated	1991, 1993	1991: Control 16.0 Intervention 16.1 1993: Control 16.0 Intervention 15.9	Ever had sex: 1991: 55.7% 1993: 58.8% Had sex in last 4 weeks: 1991: 24.0% 1993: 25.6%	Ever had sex: 1991: 64.0% 1993: 57.6% Had sex in last 4 weeks: 1991: 32.0% 1993: 28.6%

continued

TABLE 28 Proportion of students who are sexually active (continued)

Project	Intervention	Study design	Details of contraceptive provision	Service free of charge?	Date data collected	Mean age	Percentage sexually active	
							Control group	Intervention group
Quincy, Florida ⁴⁵	Comprehensive SBHC in 1 senior high school	Uncontrolled before/after case study	Contraceptives dispensed	Not stated	Not wholly clear: probably 1985 (control) and 1987 (intervention)	Control 16.3 Intervention 16.5; $p < 0.01$	Ever had sex: Male: 92% Female: 82%	Ever had sex: Male: 91% Female: 82%
San Francisco ⁴⁵	Comprehensive SBHC in 1 senior high school	Uncontrolled before/after case study	Contraceptives not prescribed or dispensed. Condoms readily available at community health clinic < 2 miles from the school. Not clear whether this was also where students were referred for other contraceptive services	Yes: the community health clinic provided condoms free of charge to anyone	Not wholly clear: probably 1985 (control) and 1987 (intervention)	Control 16.3 Intervention 16.3	Ever had sex: Male: 63% Female: 37%	Ever had sex: Male: 58% Female: 46% (p vs baseline < 0.05)

Project	Intervention	Study design	Details of contraceptive provision	Service free of charge?	Date data collected	Mean age	Percentage sexually active	
							Control group	Intervention group
Seattle Condom Availability Program, Seattle, Washington ^{42,68}	Condom availability scheme (supported by classroom instruction and a peer HIV education programme) in 5 senior high schools with, and 5 without, teen health centres	Controlled before/after study (self-completed questionnaire, condom counts, student focus groups, staff interviews) (controls = nationally representative sample of students in grades 9–12)	Condoms available from baskets in teen health centres or from vending machines in public locations within the schools	Free from baskets; 25 cents each from vending machines	1993, 1995	Not reported. Majority (> 90%) ≥ 15	Ever had vaginal or anal intercourse: ⁶⁸ 1993: 49% 1995: 50% Had sex in last 3 months: 1993: 35% 1995: 36% 4+ sexual partners (lifetime): 1993: 18% 1995: 18% 4+ sexual partners (last 3 months): 1993: 3% 1995: 4%	Ever had vaginal or anal intercourse: ⁶⁸ 1993: 46% 1995: 42%; p vs controls = 0.126 Had sex in last 3 months: 1993: 32% 1995: 28%; p vs controls = 0.024 4+ sexual partners (lifetime): 1993: 15% 1995: 13%; p vs controls = 0.219 4+ sexual partners (last 3 months): 1993: 3% 1995: 2%; p vs controls = 0.015
US school-based adolescent health-care programme (19 schools in large US cities) ⁴³	Comprehensive SBHCs	Controlled quasi-before/after study (survey – see Table 2) (controls = randomly selected nationally representative sample of 9th and 10th grade students from 18 randomly selected cities with populations ≥ 10,000 and without SBHCs sponsored by the Robert Wood Johnson Foundation)	10 SBHCs prescribed or dispensed, 9 referred to other health-care providers ⁴⁴	Implicitly, yes	1989–2	Not reported. Baseline 9th or 10th grade (mainly 14 or 15)	Ever had sexual intercourse: Baseline: 36% Follow-up: 70% Had sexual intercourse in past month: Baseline: 23% Follow-up: 47%	Ever had sexual intercourse: Baseline: 39% Follow-up: 67% Had sexual intercourse in past month: Baseline: 18% Follow-up: 44%

TABLE 29 Mean age at first intercourse in sexually active students

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge	Date data collected	Mean age at first intercourse (years)	
						Control group	Intervention group
Dallas, Texas ⁴⁵	Comprehensive SBHC also serving local 12- to 18-year-olds who did not attend that school	Controlled case study (control group = nearby school with similar social and demographic characteristics)	An 'appropriate method' was provided to females wanting a contraceptive	Not stated	Not wholly clear: probably 1987	Male: 11.4 Female: 14.4	Male: 12.4; <i>p</i> vs control < 0.05 Female: 14.4
Gary, Indiana ⁴⁵	Comprehensive SBHC in 1 senior high school	Controlled case study (control = nearby school with similar social and demographic characteristics)	Contraceptives not prescribed or dispensed; staff provided information and counselling, and referred to other family planning providers, only if the student raised the subject	Not stated	Not wholly clear: probably 1987	Male: 12.7 Female: 14.8	Male: 12.5 Female: 14.4
Jackson, Mississippi ⁴⁵	Comprehensive SBHC in 1 senior high school	Controlled case study (control = nearby school with similar social and demographic characteristics)	Pill and condoms dispensed	Not stated	Not wholly clear: probably 1987	Male: 11.5 Female: 14.3	Male: 12.0 Female: 14.8; <i>p</i> vs control < 0.01
Massachusetts, USA ⁵⁸	Condom availability scheme located in 9 senior high schools	Controlled cross-sectional survey (implicitly self-administered) (controls = 50 schools without condom availability schemes)	Condoms (no further details available specifically for the study schools; in most condom availability schemes in Massachusetts, school nursing or teaching staff distributed condoms; only 10% used barrier-free methods, e.g. vending machines)	Not stated	1995	All students: 14.3	All students: 14.4

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge	Date data collected	Mean age at first intercourse (years)	
						Control group	Intervention group
Quincy Florida ⁴⁵	Comprehensive SBHC in 1 senior high school	Uncontrolled before/after case study	Contraceptives dispensed	Not stated	Not wholly clear: probably 1985 (control) and 1987 (intervention)	Male: 11.7 Female: 14.3	Male: 11.9 Female: 14.3
San Francisco ⁴⁵	Comprehensive SBHC in 1 senior high school	Uncontrolled before/after case study	Contraceptives not prescribed or dispensed. Condoms readily available at a community health clinic < 2 miles from the school. Not clear whether this was also where students were referred for other contraceptive services	Yes: the community health clinic provided condoms free of charge to anyone	Not wholly clear: probably 1985 (control) and 1987 (intervention)	Male: 13.3 Female: 15.0	Male: 13.3 Female: 14.8
Seattle Condom Availability Program, Seattle, Washington ^{42,68}	Condom availability scheme supported by classroom instruction and a peer HIV education programme in 10 senior high schools (5 with, and 5 without, teen health centres)	Controlled before/after study (self-completed questionnaire, condom counts, student focus groups, staff interviews) (controls = nationally representative sample of students in grades 9–12)	Condoms available from baskets in teen health centres or from vending machines in public locations within the schools	Free from baskets; 25 cents each from vending machines	1993, 1995	All students: 1993: 14.3 1995: 14.2	All students: 1993: 14.2 1995: 14.2

TABLE 30 Proportion of sexually active students using programme for sexual health services

Project	Intervention	Study design	Details of contraceptive provision	Availability of service	Service provided free of charge	Parental consent required	Service use for sexual health services (sexually active students only)
Dallas, Texas ⁴⁵	Comprehensive SBHC also serving local 12- to 18-year-olds who did not attend that school	Controlled case study (control = nearby school with similar social and demographic characteristics)	An 'appropriate method' was provided to females wanting a contraceptive	Daily during school hours ⁶⁴	Not stated	Not stated	Not reported 17% of all sexually active male students received, or were referred for, condoms from the clinic 40% of all sexually active female students received, or were referred for, birth control pills from the clinic
Jackson, Mississippi ⁴⁵	Comprehensive SBHC in 1 senior high school	Controlled case study (control = nearby school with similar social and demographic characteristics)	Pill and condoms dispensed	Daily during school hours ⁶⁴	Not stated	Not stated	Not reported 15% of all sexually active male students received, or were referred for, condoms from the clinic 39% of all sexually active female students received, or were referred for, birth control pills from the clinic
Los Angeles County, USA ⁵⁷	Condom availability scheme in 1 senior high school	Uncontrolled before/after study (self-completed questionnaire)	Condoms available from baskets in 4 classrooms and outside nurse's office	Presumably daily during school hours	No: 25 cents per pack (honesty box)	No	71% of students who had had vaginal or anal intercourse in the previous year ⁶²
Muskegon, Michigan ⁴⁵	Comprehensive SBHC in 1 senior high school	Controlled case study (control = school 90 miles away with similar social and demographic characteristics)	Vouchers issued to obtain the pill and condoms from a Planned Parenthood clinic about 1 mile away ⁶⁴	Daily during school hours ⁶⁴	Yes for students referred by the SBHC; those going direct to the clinic had to pay	Not stated	Not reported 12% of all sexually active male students received, or were referred for, condoms from the clinic 23% of all sexually active female students received, or were referred for, birth control pills from the clinic
New York City Schools Condom Availability Program ⁵⁹	Condom availability scheme in 12 senior high schools	Controlled cross-sectional survey (controls = similar schools in Chicago without condom availability schemes)	Condoms available from trained volunteers in resource rooms	At least 10 periods per week	Not stated	Yes (passive consent)	Autumn 1993: usage by sexually active students in previous 6 months – male students: 31%, female students: 18% ⁶⁵ Early autumn 1994: <20% overall ⁵⁹

Project	Intervention	Study design	Details of contraceptive provision	Availability of service	Service provided free of charge	Parental consent required	Service use for sexual health services (sexually active students only)
New York City 'In Your Face' pregnancy prevention programme ⁵³	Pregnancy prevention programme operating through comprehensive SBHCs in 4 junior high schools	Uncontrolled before/after study. Withdrawal of programme funding from one school in 1995–6 effectively created a crossover control site for that year only	Referral for contraceptives to 2 hospital clinics staffed by the same health-care workers as the school-based clinics	Not clear	Yes	Not clear	Students classified as 'currently sexually active' (defined as having had sex in last 3 months) enrolled in programme: 1992–3: 50% 1994–5: 74%
Philadelphia, USA ⁶⁰	Condom availability scheme located in 9 senior high schools	Controlled before/after study (survey administered to teenagers living in the catchment areas of the intervention schools using telephone interviews) (controls = teenagers living in the catchment areas of public high schools without condom availability schemes)	Condoms available from school-based drop-in HRCs staffed by health professionals from nearby health facilities	Variable from school to school	Not stated	Passive consent required for condoms, but not for counselling or referral	39% (school range 13–80%)
Quincy, Florida ⁴⁵	Comprehensive SBHC in 1 senior high school	Uncontrolled before/after case study	Contraceptives dispensed	Daily during school hours ⁶⁴	Not stated	Not stated	Not reported 18% of all sexually active male students received, or were referred for, condoms from the clinic 32% of all sexually active female students received, or were referred for, birth control pills from the clinic
Seattle Condom Availability Program, Seattle, Washington ^{42,68}	Condom availability scheme supported by classroom instruction and a peer HIV education programme in 5 senior high schools with, and 5 without, teen health centres	Controlled before/after study (self-completed questionnaire, condom counts, student focus groups, staff interviews) (controls = nationally representative sample of students in grades 9–12)	Condoms available from baskets in teen health centres or from vending machines in public locations within the schools	School opening hours	Free from baskets; 25 cents each from vending machines	No	48%

TABLE 31 Contraceptive use

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge?	Date data collected	Contraceptive use (sexually active students only)	Condom use (sexually active students only)
Baltimore Comprehensive School Health Services Program: contraceptive continuation pilot project ⁵⁶	Monthly reproductive health assessment and counselling offered to female students enrolled in SBHCs in 7 middle or high schools and requesting contraceptive services	Uncontrolled before/after cohort study	Contraceptives including the pill and condoms distributed. Use of condoms with other contraception for STI prevention strongly promoted	Yes	1990-2	Pill use/woman month (with or without condom): Prior to programme: 15/139 (11%) Over programme period: 579/943 (61%)	Condom use/woman month (with or without pill): Prior to programme: 44/139 (31%) Over programme period: 275/943 (29%) Pill + condoms/woman month: Prior to programme: 10/139 (7%) Over programme period: 208/943 (22%)
Bodyzone, Oxfordshire, UK ^{51,63}	Drop-in clinic established in a secondary school in 1997, intended to address students' physical, emotional, mental and sexual health needs	Controlled case study (controls = school in which Bodyzone clinic established in school year in which evaluation took place)	Unspecified contraceptives distributed	Yes	2000	Proportion of female students reporting not using contraceptives at first sex and most recent higher in the control school than in the intervention school	No data
Dallas, Texas ⁴⁵	Comprehensive SBHC also serving local 12- to 18-year-olds who did not attend that school	Controlled case study (control group = nearby school with similar social and demographic characteristics)	An appropriate method was provided to females wanting a contraceptive	Not stated	Not wholly clear: probably 1987	Used condom or pill at last intercourse: Intervention: 47% Control: 49%, NS	Used condom at last intercourse: Male: Intervention 36% Control: 33%, NS Female: Intervention 16% Control: 18%, NS

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge?	Date data collected	Contraceptive use (sexually active students only)	Condom use (sexually active students only)
Gary, Indiana ⁴⁵	Comprehensive SBHC in 1 senior high school	Controlled case study (control = nearby school with similar social and demographic characteristics)	Contraceptives not prescribed or dispensed; staff provided information and counselling, and referred to other family planning providers, but only if the student raised the subject	Not stated	Not wholly clear: probably 1987	Used condom or pill at last intercourse: Male: Intervention: 61% Control: 58%, NS	Used condom at last intercourse: Male: Intervention 48% Control: 52%, NS Female: Intervention 31% Control 27%, NS
Integrated ARH project, Brazil ⁵⁰	School-linked sexual health clinics (6/10 school-clinic pairs evaluated)	Controlled before/after quasi-cohort study (controls = matched schools without links to sexual health clinics)	Presumably a full range	Not clear	May 1997–November 1999	Used contraceptive method at last sex: Males 1997: Intervention 74.1% Control 70.9% Males 1999: Intervention 83.9% Control 80.9% Females 1997: Intervention 81.0% Control 71.4% Females 1999: Intervention 89.4% Control 82.1% No results statistically significant	Used condom at last intercourse: Males 1997: Intervention 62.6% Control 58.3% Males 1999: Intervention: 73.7% Control 70.6% Females 1997: Intervention 42.2% Control 40.8% Females 1999: Intervention: 51.7% Control 50.6% No results statistically significant
Jackson, Mississippi ⁴⁵	Comprehensive SBHC in 1 senior high school	Controlled case study (control = nearby school with similar social and demographic characteristics)	Pill and condoms dispensed	Not stated	Not wholly clear: probably 1987	Used condom or pill at last intercourse: Intervention: 62% Control: 55%, NS	Used condom at last intercourse: Male: intervention 48%, control 39%, NS Female: intervention 20%, control 25%, NS

continued

TABLE 31 Contraceptive use (continued)

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge?	Date data collected	Contraceptive use (sexually active students only)	Condom use (sexually active students only)
Kansas City ⁴⁸	Comprehensive SBHCs in 3 senior high schools; data presented only for the 1 SBHC where data were collected in the same year as in the control school	Controlled survey (control = high school without SBHC)	Unspecified family planning services provided	Not stated	1987	Used (unspecified) birth control all the time: Intervention: 33.0% Control: 35.2% Method of birth control = pill: Intervention: 31.4% Control: 28.3%	Method of birth control = condom: Intervention: 43.8% Control: 45.5%
Los Angeles County, USA ⁵⁷	Condom availability scheme in 1 senior high school	Uncontrolled before/after study (self-completed questionnaire)	Condoms available from baskets in 4 classrooms and outside nurse's office	No; 25 cents per pack (honesty box)	April 1992 and Spring 1993	Not reported	Always used condom in previous year for vaginal intercourse: Males: 1992 37%; 1993 50%, $p = 0.005$ Females: 1992 27%; 1993 32%, NS Always used condom in previous year for heterosexual anal intercourse: Males: 1992: 28% 1993 42%, NS Females: 1992: 12% 1993: 6%, NS No significant change in proportion of students always using condom for heterosexual fellatio; condom use among males reporting engaging in same-sex fellatio or anal sex not analysed because of small sample sizes

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge?	Date data collected	Contraceptive use (sexually active students only)	Condom use (sexually active students only)
Massachusetts, USA ³⁸	Condom availability scheme located in 9 senior high schools	Controlled cross-sectional survey (implicitly self-administered) (controls = 50 schools without condom availability schemes)	Condoms (no further details available specifically for the study schools; in most condom availability schemes in Massachusetts, school nursing or teaching staff distributed condoms; only 10% used barrier-free methods, e.g. vending machines)	Not stated	1995	Used any contraceptive during most recent sex: Intervention 85% Control 76%; $p=0.0058$	Used condom, with or without other contraceptive, during most recent sex: Intervention 72% Control 56%; $p=0.0001$ Used condom for pregnancy prevention during most recent sex: Intervention 66% Control 49%; $p=0.0001$
Minneapolis ⁵⁴	On-site distribution of contraceptives in SBHCs in 5 high schools	Uncontrolled before/after study using routinely collected data	Condoms, oral contraception, depot medroxyprogesterone acetate	Yes, both before and after introduction of on-site distribution	1998, 2000	Not reported Actually received all contraceptives requested: Voucher 61/149 (40.9%) Direct distribution 152/153 (99.3%)	No data
Muskegon, Michigan ⁴⁵	Comprehensive SBHC in 1 senior high school	Controlled case study (control = school 90 miles away with similar social and demographic characteristics)	Vouchers issued to obtain the pill and condoms from a Planned Parenthood clinic about 1 mile away ⁶⁴	Yes for students referred by the SBHC; those going direct to the clinic had to pay	Not wholly clear: probably 1987	Used condom or pill at last intercourse: Intervention 67% Control 51%; $p<0.001$	Used condom at last intercourse: Male: Intervention 61% Control 41%; $p<0.001$ Female: Intervention 29% Control 22%, NS
New York City Schools Condom Availability Program ⁵⁵	Condom availability scheme in 12 senior high schools	Controlled cross-sectional survey (controls = similar schools in Chicago without condom availability schemes)	Condoms available from trained volunteers in resource rooms	Not stated	1994	Not reported	Used condom at last vaginal, anal or oral intercourse: New students: NYC 57.7% Chicago 59.5%, NS Continuing students: NYC 60.8% Chicago 55.5%; $p<0.01$

continued

TABLE 31 Contraceptive use (continued)

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge?	Date data collected	Contraceptive use (sexually active students only)	Condom use (sexually active students only)
Oregon, School A ⁴⁶	Comprehensive SBHC in 1 senior high school	Controlled before/after case study (controls = students in school chosen for regional proximity and demographic comparability)	Contraceptives prescribed but not dispensed; long wait for appointments at referral clinics	Not stated	1990, 1992	Used valid birth control at last sex: SBHC: 1990 68.2% 1992 62.4% No SBHC: 1990 62.2% 1992 68.5%	Not stated
Oregon, School B ⁴⁶	Comprehensive SBHC in 1 senior high school	Controlled before/after case study (controls = students in school chosen for regional proximity and demographic comparability)	Contraceptives not prescribed or dispensed; referral for contraception not mentioned	Not stated	1990, 1992	Used valid birth control at last sex: SBHC: 1990 63.8% 1992 71.0% No SBHC: 1990 73.4% 1992 69.2%	Not stated
Oregon, School C ⁴⁶	Comprehensive SBHC in 1 senior high school	Controlled before/after case study (controls = students in school chosen for regional proximity and demographic comparability)	Contraceptives not prescribed or dispensed; students easily referred to health department near school that had no restrictions on reproductive health services	Not stated	1990, 1992	Used valid birth control at last sex: SBHC: 1990 65.8% 1992 63.3% No SBHC: 1990 59.7% 1992 60.5%	Not stated

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge?	Date data collected	Contraceptive use (sexually active students only)	Condom use (sexually active students only)
Oregon ⁴⁹	Comprehensive SBHCs in 15 high schools	Controlled cross-sectional survey (self-administered questionnaires) (controls = Grade 9–12 students in 35 high schools without SBHCs)	Not totally clear. Seems probable that 13/15 SBHCs could prescribe contraceptives	Yes	1995	Used method of birth control (other than withdrawal) during last sex: Intervention: 76% Control: 74%; $p < 0.05$	Used condom at last intercourse: Intervention: 58% Control: 58%, NS
'An urban area of the north-western United States' – apparently Oregon ⁵⁵	On-site dispensing of hormonal contraceptives in SBHCs in 6 urban high schools	Uncontrolled before/after study using routinely collected data	Hormonal contraceptives [oral contraception, depot medroxyprogesterone acetate, and levonorgestrel implants (Norplant)] and contraceptive foam available	Yes, both before and after introduction of on-site dispensing	1994, 1996	Did not select a contraceptive method: 1994: 41.4% 1996: 29.4%, $p < 0.001$	No data
Philadelphia, USA ⁶⁰	Condom availability scheme located in 9 senior high schools	Controlled before/after survey (survey administered to teenagers living in the catchment areas of the intervention schools using telephone interviews) (controls = teenagers living in the catchment areas of public high schools without condom availability schemes)	Condoms available from school-based drop-in HRCs staffed by health professionals from nearby health facilities	Not stated	1991, 1993	Not reported	Used condom at last intercourse: Intervention: 1991, 52.2%; 1993, 58.0% Controls: 1992, 61.9%; 1993, 64.6% Had sex without condom in last 4 weeks: Intervention: 1991, 7.5%; 1993, 5.6% Controls: 1991, 4.8%; 1993, 5.4%
Quincy Florida ⁴⁵	Comprehensive SBHC in 1 senior high school	Uncontrolled before/after case study	Contraceptives dispensed	Not clear	Not wholly clear: probably 1985 and 1987	Used condom or pill at last intercourse: Baseline: 66% Follow-up: 67%, NS	Used condom at last intercourse: Male: Baseline 57% Follow-up 53%, NS Female: Baseline 46% Follow-up 48%, NS

continued

TABLE 31 Contraceptive use (continued)

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge?	Date data collected	Contraceptive use (sexually active students only)	Condom use (sexually active students only)
San Francisco ⁴⁵	Comprehensive SBHC in 1 senior high school	Uncontrolled before/after case study	Contraceptives not prescribed or dispensed. Condoms readily available at a community health clinic <2 miles from the school. Not clear whether this was also where students were referred for other contraceptive services	Yes: the community health clinic provided condoms free of charge to anyone	Not wholly clear: probably 1985 and 1987	Used condom or pill at last intercourse: Baseline: 39% Follow-up: 62%; $p < 0.001$	Used condom at last intercourse: Male: Baseline 29% Follow-up 56%, $p < 0.001$ Female: Baseline 22% Follow-up 38%, $p < 0.001$
Seattle Condom Availability Program, Seattle, Washington ^{42,68}	Condom availability scheme supported by classroom instruction and a peer HIV education programme in 5 senior high schools with, and 5 without, teen health centres	Controlled before/after study (self-completed questionnaire, condom counts, student focus groups, staff interviews) (controls = nationally representative sample of students in grades 9–12)	Condoms available from baskets in teen health centres or from vending machines in public locations within the schools	Free from baskets; 25 cents each from vending machines	1993, 1995	Used condom or pill during most recent sex: Seattle: 1993, 62%, 1995, 60% National survey: 1993, 64%, 1995, 62%; $p = 0.805$	Students who had had sex in last 3 months: Used condom at last intercourse: Seattle: 1993, 57%, 1995, 51% National survey: 1993, 53%, 1995, 56%, $p = 0.042$
US school-based adolescent health-care programme (19 schools in large US cities) ⁴³	Comprehensive SBHCs	Controlled quasi before/after study (controls = randomly selected nationally representative sample of 9th and 10th grade students from 18 randomly selected cities with populations $\geq 10,000$ that did not have SBHCs sponsored by the Robert Wood Johnson Foundation)	10 SBHCs prescribed or dispensed contraceptives, 9 referred to other health-care providers ⁴⁴	Implicitly, yes	1988–92	Used contraception consistently in previous month: 1988: Intervention 43% Control: 47% 1992: Intervention: 60% Control: 55% Used effective contraceptive method at last intercourse: 1988: Intervention: no data Control: no data 1992: Intervention: 75% Control: 80%, $p = 0.05$	Not reported

TABLE 32 Pregnancy data

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge?	Date data collected	Pregnancy rates	Comments
Baltimore Comprehensive School Health Services Program: contraceptive continuation pilot project ⁴⁵	Monthly reproductive health assessment and counselling offered to female students enrolled in SBHCs in 7 middle or high schools and requesting contraceptive services	Uncontrolled before/after cohort study	Contraceptives including the pill and condoms distributed. Use of condoms with other contraception for STI prevention strongly promoted	Yes	1990–1992	13 students known to have become pregnant while enrolled on programme (rate 1.4% per month); pregnancy status of students who graduated, transferred or withdrew from school not known	It is impossible to estimate the significance of the pregnancy rate in the absence of any control data
Dallas, Texas ⁴⁵	Comprehensive SBHC also serving local 12- to 18-year-olds who did not attend that school	Controlled case study (control = nearby school with similar social and demographic characteristics)	An 'appropriate method' was provided to females wanting a contraceptive	Not stated	Not wholly clear: probably 1987	Sexually active students only: Males – ever caused pregnancy: intervention 11%, control 18% Caused pregnancy in last 12 months: intervention 10%, control 7% Females – ever pregnant: intervention 27%, control 18%, $p < 0.05$, but NS after controlling for background variables Pregnant in last 12 months: intervention 14%, control 10%	Only black students included in analyses: they formed 76% of population of intervention school, and 97% of control school; $p < 0.001$
Denver, Colorado ⁴⁷	Comprehensive SBHCs (3 high schools)	Controlled quasi-before/after study using routinely collected data (birth certificate and school enrolment data) (controls = 4 local high schools without SBHCs)	Students needing contraceptive supplies were referred to neighbourhood health centres	No. The neighbourhood health centres charged students for contraceptive supplies on an ability-to-pay basis	1991–7	Rates of live births to black females aged 15–17 resident in the attendance areas of the intervention and control schools: 1991: intervention 160/1000, control 96/1000 (actual numbers not given) 1992: intervention 165/1000 (actual numbers 56/340), control 86/1000 (actual numbers 44/514) 1997: intervention 38/1000 (actual numbers 19/504), control 38/1000 (actual numbers 21/552)	During the study period, the dropout rate of female black students increased in the schools with SBHCs and decreased in those without. Thus, the authors suggest that the estimated 1997 birth rates may overestimate rates for schools with, and underestimate rates for schools without, SBHCs, relative to 1992

continued

TABLE 32 Pregnancy data (continued)

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge?	Date data collected	Pregnancy rates	Comments
Gary, Indiana ⁴⁵	Comprehensive SBHC in 1 senior high school	Controlled case study (control = nearby school with similar social and demographic characteristics)	Contraceptives not prescribed or dispensed; staff provided information and counselling, and referred to other family planning providers only if the student raised the subject	Not stated	Not wholly clear: probably 1987	Sexually active students only: Males – ever caused pregnancy: intervention 17%, control 14% Caused pregnancy in last 12 months: intervention 10%, control 7% Females – ever pregnant: intervention 21%, control 27% Pregnant in last 12 months: intervention 11%, control 20%	Increasing contraceptive use and preventing pregnancy were not major goals in this SBHC
Jackson, Mississippi ⁴⁵	Comprehensive SBHC in 1 senior high school	Controlled case study (control = nearby school with similar social and demographic characteristics)	Pill and condoms dispensed	Not stated	Not wholly clear: probably 1987	Sexually active students only: Males – ever caused pregnancy: intervention 18%, control 12% Caused pregnancy in last 12 months: intervention 11%, control 6% Females – ever pregnant: intervention 25%, control 21% Pregnant in last 12 months: intervention 14%, control 12%	Only black students included in analyses (99% of population of intervention school, and 93% of control school; $p < 0.01$)
Kansas City ⁴⁸	Comprehensive SBHCs in 3 senior high schools; data presented only for the 1 SBHC where data were collected in the same year as in the control school	Controlled survey (control = high school without SBHC)	Unspecified family planning services provided	Not stated	1987	Females reporting ever having been pregnant: intervention 9.3%, control 11.0% Males reporting ever having got a girl pregnant: intervention 7.2%, control 11.7%	Surveys were carried out in different years in each of the 3 intervention schools; only one was surveyed in the same year as the control school. Before/after data are not presented as baseline data for all intervention schools predate 1985

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge?	Date data collected	Pregnancy rates	Comments
Massachusetts, USA ³⁸	Condom availability scheme located in 9 senior high schools	Controlled cross-sectional survey (implicitly self-administered) (controls = 50 schools without condom availability schemes)	Condoms (no further details available specifically for the study schools; in most condom availability schemes in Massachusetts, school nursing or teaching staff distributed condoms; only 10% used barrier-free methods, e.g. vending machines)	Not stated	1995	Said to be no difference between students in intervention and control schools in the proportion of students reporting pregnancy/ having got someone pregnant; actual data not presented	
Muskegon, Michigan ⁴⁵	Comprehensive SBHC in 1 senior high school	Controlled case study (control = school 90 miles away with similar social and demographic characteristics)	Vouchers issued to obtain the pill and condoms from a Planned Parenthood clinic about 1 mile away ⁶⁴	Yes for students referred by the SBHC; those going direct to the clinic had to pay	Not wholly clear: probably 1987	Sexually active students only: Males – ever caused pregnancy: intervention 12%, control 13% Caused pregnancy in last 12 months: intervention 8%, control 8% Females – ever pregnant: intervention 24%, control 20% Pregnant in last 12 months: intervention 15%, control 14%	The intervention school and clinic devoted considerable attention to pregnancy prevention. This study has considerable potential for bias in relation to the control group
New York City 'In Your Face' pregnancy prevention programme ⁵³	Pregnancy prevention programme operating through comprehensive SBHCs in 4 junior high schools	Uncontrolled before/after study. Withdrawal of programme funding from one school in 1995–6 effectively created a crossover control site for that year only	Referral for contraceptives from 2 hospital clinics staffed by the same health-care workers as the school-based clinics	Yes	1992–6	Pregnancy rates per 1000 female students (all students): 1992–3, 8.8; 1993–4, 5.3; 1994–5, 6.8; 1995–6: Schools continuing with programme: 5.8 School abandoning programme: 16.5	Because only average pregnancy rates for all 4 schools were presented for each of the first 3 years, in those years there may have been substantial differences in pregnancy rates between the school which abandoned the programme and the other 3 schools

continued

TABLE 32 Pregnancy data (continued)

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge?	Date data collected	Pregnancy rates	Comments
Oregon, School A ⁴⁶	Comprehensive SBHC in I senior high school	Controlled before/after case study (controls = students in school chosen for regional proximity and demographic comparability)	Contraceptives prescribed but not dispensed; long wait for appointments at referral clinics	Not stated	1990, 1992	Sexually active female students only: Ever pregnant – SBHC: 1990: 3.4%, 1992: 4.1% Ever pregnant – no SBHC: 1990: 4.2%, 1992: 4.4% Pregnant in last year – SBHC: 1990: 2.3%, 1992: 2.7% Pregnant in last year – no SBHC: 1990: 3.2%, 1992: 3.0%	Equivalent data available for male students reporting getting anyone pregnant
Oregon, School B ⁴⁶	Comprehensive SBHC in I senior high school	Controlled before/after case study (controls = students in school chosen for regional proximity and demographic comparability)	Contraceptives not prescribed or dispensed; referral for contraception not mentioned	Not stated	1990, 1992	Sexually active female students only: Ever pregnant – SBHC: 1990: 5.6%, 1992: 3.7% Ever pregnant – no SBHC: 1990: 2.9%, 1992: 4.4% Pregnant in last year – SBHC: 1990: 3.0%, 1992: 2.1% Pregnant in last year – no SBHC: 1990: 2.2%, 1992: 3.1%	Equivalent data available for male students reporting getting anyone pregnant
Oregon, School C ⁴⁶	Comprehensive SBHC in I senior high school	Controlled before/after case study (controls = students in school chosen for regional proximity and demographic comparability)	Contraceptives not prescribed or dispensed; students easily referred to health department near school which had no restrictions on reproductive health services	Not stated	1990, 1992	Sexually active female students only: Ever pregnant – SBHC: 1990: 5.9%, 1992: 6.8% Ever pregnant – no SBHC: 1990: 6.9%, 1992: 6.2% Pregnant in last year – SBHC: 1990: 3.7%, 1992: 5.1% Pregnant in last year – no SBHC: 1990: 4.3%, 1992: 4.9%	Equivalent data available for male students reporting getting anyone pregnant

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge?	Date data collected	Pregnancy rates	Comments
Oregon ⁴⁹	Comprehensive SBHCs in 15 high schools	Controlled cross-sectional survey (self-administered questionnaires) (controls = Grade 9–12 students in 35 high schools without SBHCs)	Not totally clear. Seems probable that 13/15 SBHCs could prescribe contraceptives	Yes	1995	Sexually active students only: Had ever been pregnant/got someone pregnant – SBHC: 13% Had ever been pregnant/got someone pregnant – no SBHC: 10%; $p < 0.05$	
Quincy, Florida ⁴⁵	Comprehensive SBHC in 1 senior high school	Uncontrolled before/after case study	Contraceptives dispensed	Not stated	Not wholly clear: probably 1985 and 1987	Sexually active students only: Males – ever caused pregnancy: baseline 11%, follow-up 7% Caused pregnancy in last 12 months: baseline 7%, follow-up 6% Females – ever pregnant: baseline 15%, follow-up 15% Pregnant in last 12 months: baseline 10%, follow-up 8%	Only black students included in analyses (89% of population at baseline, and 92% at follow-up; $p < 0.05$)
San Francisco ⁴⁵	Comprehensive SBHC in 1 senior high school	Uncontrolled before/after case study	Contraceptives not prescribed or dispensed. Condoms readily available at a community health clinic < 2 miles from the school. Not clear whether this was also where students were referred for other contraceptive services	Yes: the community health clinic provided condoms free of charge to anyone	Not wholly clear: probably 1985 and 1987	Sexually active students only: Males – ever caused pregnancy: baseline 16%, follow-up 12% Caused pregnancy in last 12 months: baseline 10%, follow-up 8% Females – ever pregnant: baseline 24%, follow-up 26% Pregnant in last 12 months: baseline 16%, follow-up 16%	

continued

TABLE 32 Pregnancy data (continued)

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge?	Date data collected	Pregnancy rates	Comments
St Paul Pregnancy-Free Club, St Paul, Minnesota ⁵²	School-based programme for parenting adolescents	Uncontrolled before/after study	Contraceptives apparently not dispensed; students referred to city health department	Not clear	1997–8 to 2006–7	Repeat pregnancy rates – 1997–8 (pre-programme): All school: 10/40 (25%) 1998–9 to 2006–7 Programme participants only: 20/276 (7.2%)	Because of failure to provide either school-wide pregnancy rates for 1998–9 to 2006–7 or information on programme participation rates, it is not clear that these before/after results are comparable
US school-based adolescent health-care programme (19 schools in large US cities) ⁴³	Comprehensive SBHCs	Controlled quasi before/after study (controls = randomly selected nationally representative sample of 9th and 10th grade students from 18 randomly selected cities with populations 10,000 which did not have SBHCs sponsored by the Robert Wood Johnson Foundation)	10 SBHCs prescribed or dispensed, 9 referred to other health-care providers ⁴⁴	Implicitly, yes	1988–92	All female students–ever been pregnant: 1988: intervention 5%, control 3% 1992: intervention 25%, control 25%	The study schools were not specified, but their locations were such ⁴⁴ that it is extremely likely that there was some overlap with studies summarised above

TABLE 33 Sexually transmitted infections

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge	Date data collected	STIs	Comments
Baltimore Comprehensive School Health Services Program: contraceptive continuation pilot project ⁵⁶	Monthly reproductive health assessment and counselling offered to female students enrolled in SBHCs in 7 middle or high schools and requesting contraceptive services	Uncontrolled before/after cohort study	Contraceptives including the pill and condoms distributed. Use of condoms with other contraception for STI prevention strongly promoted	Yes	1990–2	Sexually active students: At study entry: 47 separate STIs in 38/139 students (27%) After enrolment in the programme: 23 separate STIs in 18 students (denominator not clear)	No true comparison between baseline and follow-up data possible because only 56/139 (40%) students completed the programme. The authors note that STI rates during the study period are probably undercounted because many STIs are asymptomatic, many students did not remain in the programme, and others may have received care elsewhere
New Orleans ⁶¹	School-based screening and treatment for chlamydia and gonorrhoea in 3 high schools	Quasi-controlled before/after study (controls = 5 high schools in which screening was not introduced until year 3)	Not stated	Not stated	1995–6 to 1997	All students: <i>Chlamydia</i> – intervention schools: Winter 1996: overall 8.8%, males 5.9%, females 12.1% Autumn 1997: overall 6.7%, males 3.2%, females 10.3% <i>Chlamydia</i> – control schools: Autumn 1997: overall 9.3%, males 6.4%, females 11.9% <i>Gonorrhoea</i> – intervention schools: Autumn 1996: overall 2.2%, males 1.3%, females 3.1% Autumn 1997: overall 1.4%, males 1.0%, females 1.8% <i>Gonorrhoea</i> – control schools: Autumn 1997: overall 1.7%, males 1.1%, females 2.3%	Because of the inevitable lack of baseline data for the control schools, it is not clear to what extent differences in chlamydia prevalence seen in 1997 between the intervention and control schools may be attributed to the programme, and to what extent to secular changes in chlamydia prevalence. Moreover, the authors note that, because of relatively low participation rates (52–65%), it is not possible to exclude the possibility of participation bias, if students who participated in the earlier screening rounds were at higher risk than those who participated later ⁶¹

continued

TABLE 33 Sexually transmitted infections (continued)

Project	Intervention	Study design	Details of contraceptive provision	Service provided free of charge	Date data collected	STIs	Comments
Oregon, School, A ⁴⁶	Comprehensive SBHC in 1 senior high school	Controlled before/after case study (controls = students in school chosen for regional proximity and demographic comparability)	Contraceptives prescribed but not dispensed; long wait for appointments at referral clinics	Not stated	1990, 1992	All students: Ever had an STI – SBHC: baseline: 5.3%, follow-up: 4.3% Ever had an STI – no SBHC: baseline: 2.3%, follow-up: 2.1%	
Oregon, School, B ⁴⁶	Comprehensive SBHC in 1 senior high school	Controlled before/after case study (controls = students in school chosen for regional proximity and demographic comparability)	Contraceptives not prescribed or dispensed; referral for contraception not mentioned	Not stated	1990, 1992	All students: Ever had an STI – SBHC: baseline: 4.4%, follow-up: 4.0% Ever had an STI – no SBHC: baseline: 2.7%, follow-up: 1.4%	
Oregon, School, C ⁴⁶	Comprehensive SBHC in 1 senior high school	Controlled before/after case study (controls = students in school chosen for regional proximity and demographic comparability)	Contraceptives not prescribed or dispensed; students easily referred to health department near school that had no restrictions on reproductive health services	Not stated	1990, 1992	All students: Ever had an STI – SBHC: baseline: 2.7%, follow-up: 2.5% Ever had an STI – no SBHC: baseline: 2.9%, follow-up: 5.0%	

Appendix 3

Nature of interventions

School health centres

School health centres (SHCs) were developed in the USA, largely to provide comprehensive primary care health services to students. They usually served low-income communities, where adolescents were particularly likely to lack health insurance, and often provided services either free of charge or at very low cost. In some communities, SHCs formed the major source of health care for students; elsewhere, they provided supplementary care.¹⁰⁷ The majority of SHCs were located in schools or on school grounds: these are termed SBHCs. Other SHCs, termed SLHCs, were located near schools with which they had formal relationships; in many cases, staff from the SLHC attended the schools at specified times each week.¹⁰⁷ SLHCs frequently served more than one school.¹⁰⁸ Although most SHCs only served students enrolled in the school, a few also served family members, students from other schools or adolescents in the wider community.¹⁰⁷

The first SBHCs in the USA opened in the early 1970s. By 1994 there were 607, nearly half of which were located in high schools,¹⁰⁹ and by 2007, the most recent year for which data have been identified, the number had risen to 1800; 36% of these were located in senior high schools and 18% in middle or junior high schools.¹¹⁰

SBHCs are generally staffed by health-care professionals, such as nurse practitioners and physicians.¹¹¹ They usually provide general medical and counselling services, including:

- Comprehensive primary health care, including:
 - diagnosis and treatment of minor illnesses and injuries
 - prescription and/or dispensing of medications¹¹¹
 - laboratory tests
 - management of chronic conditions.^{49,107}
- Physical examinations (commonly required for students who participate in interscholastic sports to identify those at risk of sports-related injuries or sudden death¹¹²) immunisations⁴⁹
 - sexual health services
 - relationship and family counselling

- substance abuse counselling
- nutritional education.¹⁰⁷

Increasingly, many also provided mental health care.¹⁰⁷ Thus, SBHCs seek to integrate a range of services that had previously been fragmented.¹⁰⁸ SLHCs generally provide a more limited range of services than SBHCs.¹⁰⁸

The utility of SHCs as providers of primary care is restricted by their limited opening hours. In 1993, a survey found that, although 85% were open 5 days per week, only 55% were open during the summer vacation, and only 3% were open on Saturdays.¹⁰⁷ In 2002, 690 of the 1498 SBHCs that responded to a national survey (46%) were open fewer than 25 hours a week.¹¹⁰

The nature of the sexual health services offered by SBHCs varies from site to site: some dispense contraceptives, others supply prescriptions to be filled elsewhere, whereas others can only counsel students and refer them elsewhere for prescriptions and supplies. In 1997, only about one-quarter of the 448 SBHCs in secondary and combined-level schools that responded to a national survey, actually provided contraceptives on site. Over 23% of responding centres provided condoms, and 16% provided Depo-Provera. Overall, 27% prescribed oral contraceptives, but only 15% provided them on site, and only 8% provided emergency contraception. Seventy per cent of SBHCs reported prohibitions on providing or prescribing contraceptive services; these restrictions were primarily due to school district policy, but could also be due to state policy, the sponsoring agency, and/or individual health centre policy.²⁹ By 2001, of 250 high school SBHCs in the USA that responded to a survey, 30% provided prescriptions for emergency contraception,¹¹³ but it is not clear what proportion actually provided emergency contraception on site.

On average, in each school with an SBHC, 58% of students enrol with that SBHC, and between 52% and 72% of those who enrol actually use the clinic's services.¹⁰⁸ School-based clinics form the sole or primary source of health care for about one-half of

those who enrol.¹⁰⁵ However, parents may withhold consent for their children to enrol with an SBHC, or may permit them to enrol but place restrictions on the specific services that they may receive.¹¹⁴ So, for example, in Minneapolis, parents could choose to allow their children to receive any SBHC service; any service other than contraceptive counselling and prescription; or no service.⁵⁴

School-based health clinics

Because access to primary care is much more readily available in the UK than in the USA, UK school-based health clinics offer a narrower range of services than US SBHCs, and are less likely to include physicians in their staffing. So, for example, the Bodyzone school-based confidential drop-in clinics seek to address students' physical, emotional, mental health and sexual health needs; they are staffed by school nurses (who deal primarily with problems relating to health issues other than contraception – e.g. diet, smoking, acne, alcohol, stress and eating disorders), youth workers (who deal mainly with relationships and social issues) and family planning nurses (who issue condoms, emergency contraception and repeat supplies of the pill or contraceptive injections using protocols from the family planning service). Medical input is available only by phone, usually from local general practitioners, and students must be seen by a doctor (implicitly elsewhere) for a first prescription of the pill or injection, and for any complications arising from hormonal contraception.¹⁰⁴ In Croydon, the school-based drop-in clinics, run by school nurses, provide general services, including sexual health advice and signposting to local sexual health services, but do not provide pregnancy testing, condoms or emergency hormonal contraception.¹¹⁵ However, in Worcestershire, the Time 4U drop-in clinic was staffed by a youth adviser with family planning knowledge and counselling skills, a school nurse and a doctor. It aimed to provide advice on contraception and sexual activity, lifestyle choices and emotional issues, as well as mainstream health information; emergency contraception, condoms and pregnancy testing kits were available, and referrals were made to outside agencies.⁹²

The UK school-based health clinics differ from the US SBHCs not only in their staffing and the range of services that they provide, but also in their opening hours. As noted above, the majority of US SBHCs are open 5 days per week in term time; a substantial minority are open in the summer

vacation. In the UK, by contrast, opportunities for students to access clinic services are much more limited. The Worcestershire Time 4U clinic is open for only one lunch hour per week,⁹² as are most Bodyzone clinics.⁶³ Similarly, in Croydon, clinics are provided at different times in different schools, but most commonly at lunch time; although some schools offer a regular weekly service, some can only offer a more limited service (e.g. once per month).¹¹³

School-based sexual health services

Some UK schools host a specific school-based sexual health service. So, for example, the Brook Sexual Health Outreach in Schools Service provides a drop-in service, available weekly at lunchtime and staffed by a sexual health nurse and a youth worker, which offers advice and support on issues such as puberty, relationships and sexual health, together with contraception, pregnancy testing, and testing and treatment for STIs. However, staff shortages sometimes limit the choice of contraceptive methods to condoms.⁸⁸

Condom availability schemes

The male condom was originally intended to provide protection against pregnancy. However, it no longer forms the most reliable form of reversible contraception. This is partly due to condom failure. Estimates of breakage during heterosexual intercourse range from 0.41% in a prospective study, in which condoms were used almost exclusively for vaginal intercourse,¹¹⁶ to 3.4% in a population surveyed in France, in which they were used predominantly for vaginal intercourse.¹¹⁷ However, most instances of failure of protection against unintended pregnancy or STI transmission result from inconsistent or incorrect use rather than breakage.¹¹⁸ The most recent US estimates suggest that in the first 12 months of use in women aged 15–44, under 'typical' use (i.e. including incorrect and inconsistent use), condoms are associated with a failure rate (i.e. conception rate) that is twice that of the pill (*Table 34*).¹¹⁹ Young people, and those with less experience of condom use, have a higher failure rate with condoms than older, more experienced users.⁷³ Perhaps surprisingly, however, the likelihood of failure of any contraceptive method in the first year of use is only slightly higher in teenagers, at 13.1% (95% CI 10.6 to 16.0) than overall (12.4%, 95% CI 11.2 to 13.7).¹¹⁹

TABLE 34 US estimates of failure of the most popular reversible methods of contraception, corrected for under-reporting of abortion (data from the 2002 US National Survey of Family Growth)¹¹⁹

Method	Cumulative probability of failure, corrected for under-reporting of abortion (i.e. percentage of women experiencing contraceptive failure)		
	3 months	6 months	12 months (95% CI)
Injectable contraceptive (Depo-Provera)	2.0	3.2	6.7 (4.3 to 10.4)
Pill	2.6	5.3	8.7 (7.2 to 10.5)
Male condom	5.4	9.6	17.4 (14.8 to 20.5)
Withdrawal	7.8	11.3	18.4 (13.7 to 24.2)
Fertility awareness ^a	9.5	14.6	25.3 (16.1 to 37.5)
All methods	4.2	7.3	12.4 (11.2 to 13.7)

a Rhythm, calendar, mucus and temperature methods, 'periodic abstinence' and 'natural family planning'.

Subsequent to their development for contraceptive use, it was realised that male latex condoms, if used consistently and correctly, can reduce the risk of syphilis, chlamydia, gonorrhoea, genital herpes and sexually transmitted HIV infection;¹²⁰ they may possibly also reduce the risk of developing genital HPV infection, genital warts and cervical cancer.^{121,122} Male condoms made of other synthetic materials provide a level of protection against both STIs and pregnancy equivalent to that provided by latex condoms, whereas condoms made from natural membrane do not offer protection against STIs.¹¹⁸ Consistent condom use for all acts of heterosexual penetrative vaginal intercourse is associated with 1.14 (95% CI 0.56 to 2.04) seroconversions per 100 person-years, compared with 6.68 (95% CI 4.78 to 9.10) seroconversions per 100 person-years in couples who never use condoms, an overall reduction of approximately 80% (worst-and best-case scenarios 35% and 94%, respectively) in the risk of heterosexual HIV transmission.¹²³ Equivalent data could not be identified relating to the effectiveness of condoms in preventing disease transmission in other forms of sexual activity, including that in men who have sex with men, but it seems highly unlikely that condom use would not be associated with a reduction in disease transmission when used for activities other than heterosexual penetrative vaginal intercourse. Consequently, it is widely accepted that condoms should be used to prevent the transmission of STIs infections in any sexual activity that does not seek to result in conception, even when a more reliable form of contraception is also used to provide protection against pregnancy.

School condom availability schemes were introduced in the USA in the late 1980s and early

1990s with the primary aims of reducing the rates of both STIs (including sexually-transmitted HIV infection) and pregnancy. Although condoms were already widely available from pharmacists and family planning clinics, it was hoped that school condom availability schemes might reduce potential barriers to condom use by:

- eliminating or reducing the cost of obtaining condoms
- increasing their physical accessibility for young people who might not have a car or might have difficulty going to a store or family planning clinic alone
- reducing any embarrassment associated with obtaining condoms, if they were made available with sufficient privacy.⁶⁷

It was also hoped that the schemes would influence norms about condom use by reinforcing the need to obtain and use them, and by providing affirmative messages about them.⁶⁷

While broadly similar, school condom availability schemes might differ in details, such as:

- where condoms were made available (e.g. from SBHCs or from unattended sites)
- when they were made available (e.g. at any time or at set hours)
- who distributed them (e.g. SBHC staff, teaching staff)
- who was eligible to receive them (i.e. all students or only those with active or passive parental consent)
- whether counselling was mandatory.^{59,62}

STI screening programmes

Sexually active young people are at risk of STIs that may go unrecognised and therefore untreated. In the UK, the most common bacterial STI is chlamydia:¹²⁴ population-based studies suggest a prevalence of 5.0% (95% CI 3.2 to 7.6) in the under-20 age group, rising to 10.7% (95% CI 8.3 to 13.8) in those attending youth clinics, and 17.3% (95% CI 13.6 to 21.8) in those attending GUM clinics.¹²⁵ Chlamydia frequently has no symptoms: it has been estimated that around 50% of infections in men and 70% in women are asymptomatic,¹²⁴ and in 2007 a national audit found that about one-half of all cases identified in GUM clinics and sexual and reproductive health-care clinics in the UK were asymptomatic.¹²⁶ Consequently, chlamydia often goes unrecognised and untreated.

Untreated chlamydia has long-term implications for health. In men, it can cause epididymitis, which in turn can negatively affect fertility.¹²⁴ In women, it can lead to pelvic inflammatory disease (PID); this may be asymptomatic, or may cause chronic inflammation with severe abdominal pain.¹²⁴ It has been estimated that, if they are not adequately treated, 20–40% of women who are infected with

chlamydia develop PID; of these, 20% will become infertile, 9% will have an ectopic pregnancy, and 18% will develop chronic pelvic pain.⁶⁵ In England and Wales, PID is the leading cause of infertility, and chlamydia is responsible for 50% of cases of PID.¹²⁴

Gonorrhoea has also been found to be asymptomatic in around 52% of women and 68–92% of men.⁶¹ Like chlamydia, untreated gonorrhoea may cause PID,¹²⁷ and may also result in impaired male fertility.¹²⁸ Moreover, in both men and women, both gonorrhoea and chlamydia, if untreated, increase the risk of acquiring other STIs, including sexually transmitted HIV.⁶¹

In response to this situation, school-based screening programmes have been proposed as a means of identifying, and subsequently treating, asymptomatic infections. Such programmes typically offer infected students immediate counselling and treatment, and either offer, or strongly encourage, them to seek additional STI and HIV testing, and to refer their sexual partners for treatment.^{61,65,71}

Appendix 4

Tabulation of excluded studies

Study	Reason for exclusion
Anon 1989 ¹²⁹	Summarises data provided in Kirby <i>et al.</i> 1991 ⁴⁵
Anon 1994 ¹³⁰	Review
Allen <i>et al.</i> 1990 ¹³¹	Intervention not relevant (classroom-based discussions plus voluntary work)
Baraitser <i>et al.</i> 2002 ¹³²	Service provided for the general population
Barnes and Harrod 1993 ¹³³	Intervention not relevant (education only)
Beath <i>et al.</i> 1998 ¹³⁴	Description of projected study whose findings were never published (Lynn Beath, Wellington Dufferin Guelph Public Health, 2008, personal communication)
Beilenson <i>et al.</i> 1995 ¹³⁵	Not controlled study
Bergstrom 1998 ¹³⁶	Intervention not relevant (education only)
Bilodeau <i>et al.</i> 1995 ¹³⁷	Intervention not relevant (multifactorial intervention including educational intervention, clinical support and family intervention)
Britton <i>et al.</i> 1985 ¹³⁸	Not research studies
Clark <i>et al.</i> 1993 ¹³⁹	Not research study
Cook 1987 ¹⁴⁰	Not research study
Coyne-Beasley <i>et al.</i> 2003 ¹⁴¹	Study of acceptability of a hypothetical SBHC rather than evaluation of an actual service
Cromer and McCarthy 1999 ¹⁴²	General views on family planning services for adolescents, not specifically school-based or school-linked services
Dryfoos 1994 ¹⁴³	Not controlled study
Eubanks 1990 ¹⁴⁴	News item
Evans and Evans 1989 ¹⁴⁵	Not research study
Galavotti and Lovick 1989 ¹⁴⁶	Does not report relevant outcomes
Goldberg 1994 ¹⁴⁷	Not a true sexual health service; does not report relevant outcomes
Hardy 1988 ¹⁴⁸	Data predate 1985
Hawkins <i>et al.</i> 1990 ¹⁴⁹	Study of acceptability of a hypothetical SBHC rather than evaluation of an actual service
Hayes <i>et al.</i> 2005 ¹⁵⁰	Complex intervention in which it is impossible to isolate the school-linked component; describes methods only – results not published
Horner <i>et al.</i> 1994 ¹⁵¹	Appears to relate to the acceptability of hypothetical rather than actual services
Howard and McCabe 1990 ¹⁵²	Abstinence programme
Ingram and Salmon 2007 ¹⁵³	Clinics in GP surgeries or health centres only school-linked in-as-much as they opened from 3 pm to coincide with the end of the school day
Jackson and Plant 1996 ¹⁵⁴	Group intervention
Key <i>et al.</i> 2001 ¹⁵⁵	Multicomponent intervention in which the school-based clinic seems to play a minor part
Kirby <i>et al.</i> 1993 ⁷⁵	Baseline data predate 1985
Koo <i>et al.</i> 1994 ¹⁵⁶	Multicomponent intervention in which it is not possible to separate out the effect of the educational/community intervention from that of the service offered by the school nurse
Kyman <i>et al.</i> 1987 ¹⁵⁷	Does not evaluate a school-based or school-linked sexual health service
Langhaug <i>et al.</i> 2003 ¹⁵⁸	Does not evaluate a school-based or school-linked sexual health service

Study	Reason for exclusion
Langille <i>et al.</i> 1997 ¹⁵⁹	Does not evaluate a school-based or school-linked sexual health service
Levy <i>et al.</i> 1992 ¹⁶⁰	Does not evaluate a school-based or school-linked sexual health service
Lindley <i>et al.</i> 2001 ¹⁶¹	Study of acceptability of a hypothetical SBHC rather than evaluation of an actual service
Lyons 1987 ¹⁶²	Not evaluation study
Macphail 2006 ¹⁶³	Does not evaluate a school-based or school-linked sexual health service
Magnusson <i>et al.</i> 2004 ¹⁶⁴	Group (classroom) educational intervention
Mandel and Qazilbash 2005 ¹⁶⁵	Studies the effect of having students as SBHC advisory board members rather than evaluating the acceptability of the service
Middleman <i>et al.</i> 1997 ¹⁶⁶	Does not evaluate a school-based or school-linked sexual health service
Murray and Mess 1986 ¹⁶⁷	Does not evaluate a school-based or school-linked sexual health service
Nsuami <i>et al.</i> 2006 ¹⁶⁸	Not controlled study
Opuni <i>et al.</i> 1994 ¹⁶⁹	Relates to prenatal care
Paine-Andrews <i>et al.</i> 1999 ¹⁷⁰	Multicomponent intervention including sexuality education from kindergarten through to 12th grade, and increased access to health services
Parkes <i>et al.</i> 2004 ¹⁷¹	Does not evaluate a school-based or school-linked sexual health service
Peak and McKinney 1996 ¹⁷²	Reviews provision of, but does not evaluate, SBSHS or SLSHS
Peck 1989 ¹⁷³	Does not evaluate a school-based or school-linked sexual health service
Pfitzner <i>et al.</i> 2003 ¹⁷⁴	Programme not said to be school linked
Pollard and Rood 1990 ¹⁷⁵	Reviews provision of, but does not evaluate, school-linked health services
Reeves <i>et al.</i> 2006 ¹⁷⁶	Study of acceptability of hypothetical sexual health services rather than evaluation of an actual service
Rietmeijer <i>et al.</i> 1997 ¹⁷⁷	Does not evaluate a school-based or school-linked sexual health service
Rietmeijer <i>et al.</i> 1998 ¹⁷⁸	Does not evaluate a school-based or school-linked sexual health service
Riggs and Cheng 1988 ¹⁷⁹	Study of acceptability of a hypothetical SBHC rather than evaluation of an actual service
Ross <i>et al.</i> 2007 ¹⁸⁰	Multicomponent intervention: mainly class education, and other elements not school based
Schleich 1997 ¹⁸¹	Review
Thomas <i>et al.</i> 2006 ¹⁸²	Does not evaluate a school-based or school-linked sexual health service
Thrall <i>et al.</i> 2000 ¹⁸³	Does not evaluate a school-based or school-linked sexual health service
Tucker <i>et al.</i> 2007 ¹⁸⁴	Only evaluates the classroom education component of a multicomponent intervention
Viner 2002 ¹⁸⁵	Research registered in National Research Register; no related publications identified
Walter <i>et al.</i> 1996 ¹⁸⁶	Describes the characteristics of SBHC users, not the impact of SBHC use
Wicke 2006 ¹⁸⁷	Research registered in National Research Register; no related publications identified
Zabin <i>et al.</i> 1986 ¹⁸⁸	Data predate 1985
Zabin 1992 ¹⁸⁹	Data predate 1985
Zimmer-Gembeck <i>et al.</i> 1997 ¹⁹⁰	Does not evaluate a school-based or school-linked sexual health service

Appendix 5

Study design

This appendix provides information relating to the designs used by the studies included in the effectiveness review.

Uncontrolled before/after design

The uncontrolled before/after design studies the effect of a service on a population by measuring and comparing specific outcomes before and after its introduction, and attributing to the service any changes in the measured outcomes.¹⁹¹ However, because of the lack of a contemporary control group, it is impossible to differentiate between changes associated with the introduction of the service being evaluated and changes due to other factors, including national initiatives such as media campaigns.

Before/after studies are usually observational, but may be experimental if a service is introduced expressly in order to evaluate it. They may be prospective or retrospective: in the latter case, they are limited to routinely collected data, which may be incomplete, and which may not relate to the most relevant outcome (e.g. registrations of live births rather than numbers of pregnancies).

Controlled before/after design

The controlled before/after design adds a contemporary control population to the uncontrolled before/after design; the same outcomes are measured at the same points in time in both the control population and the population to whom the service is offered. The control population should be chosen to be as similar as possible to the population being offered the service, and all relevant prognostic factors should be measured in both populations to enable potential confounders to be identified and, if necessary, controlled for.

The controlled before/after design has two major advantages:

- It is better able than an uncontrolled before/after design to differentiate between changes associated with the introduction of the service

being evaluated and changes due to other factors because it controls for secular trends.

- It presents a realistic picture of the effect of introducing a service because it measures outcomes relating to the whole population to whom the service is offered, rather than to just those individuals who use it (who may only be a small proportion of those for whom it was intended).

However, if the control population is geographically distant from the population to whom the service is offered, any local initiatives that take place during the study period may affect outcomes in one group but not the other, and these factors will not be controlled for.

Uncontrolled or controlled before/after cohort design

Most before/after studies, whether controlled or uncontrolled, measure specific outcomes before and after a specific exposure (in this case to a SBSHS or SLSHS) in the relevant population as a whole. However, a cohort study measures those outcomes in a group of specific individuals who are then followed up, preferably prospectively, for a length of time appropriate to the outcomes being studied. In school populations, this is likely to make a particularly noticeable difference to findings such as pregnancy rates, as cohort studies will collect data from participants who are older at follow-up than at baseline, whereas non-cohort before/after studies will collect data at both time points from participants with the same age distribution.

The problems specifically associated with before/after cohort studies are:

- *Attrition* It can be difficult to follow individuals in the cohort up over time. This problem is likely to be particularly acute in relation to school populations, especially those in areas of deprivation where dropout and absentee rates are high.
- *Confounding* If participants select themselves, or are deliberately selected, for the exposure of interest, they may differ from non-exposed people in respect of other important

determinants of outcome. So, for example, sexually active students who choose to attend SBSHS or SLSHS may differ from those who choose not to attend, in terms of factors such as their commitment to consistent contraceptive use.

Case study and controlled case study design

The case study design uses multiple sources of evidence and multiple data collection techniques to conduct an in-depth investigation of a particular phenomenon within its real-life context.^{192,193} There is no single set of prescribed case study research strategies: each case study should use the combination of methods appropriate to its research question.¹⁹³ Thus, case studies may utilise qualitative methods alone, quantitative methods alone, or a combination of qualitative and quantitative strategies.

The unit of analysis within a case study (the ‘case’) may be either a single entity, such as one individual or event, or a ‘group case’ – a social or cultural unit such as a family or organisation.¹⁹² A research study may focus entirely on a single case, or may use cross-case analysis to integrate data from more than one case. Luck *et al.*¹⁹³ argue that studies which focus on several cases may take one of two forms, being either a multiple case study, whose goal is to identify similarities and differences between the cases in order to increase the generalisability of the findings, or a collective case study, which seeks to use the cases to develop a greater understanding of the shared phenomenon of interest, presumably in order to generate theory. Whilst recognising that, as Vallis and Tierney¹⁹⁴ note, multiple case studies may be comparative in nature, the term ‘controlled case study’ is used here to indicate research that specifically compares and contrasts relevant outcomes and experiences in a case selected because of the presence of one key characteristic of interest (such as the presence of a SBSHS or SLSHS) and an otherwise similar case that lacks that characteristic; such research appears to differ in its aims from both the multiple and the collective case study.

Case study research can yield a high level of detailed, contextual knowledge, presenting a more holistic picture than may be obtained using any other research design, because it typically collects data about a large number of variables.¹⁹⁵ It is therefore particularly suited to exploring the complex processes associated with the adoption of

new practices within organisations,¹⁹⁵ being able to address questions such as why these new practices may be adopted in some organisations rather than in others,¹⁹⁶ and also, by linking structure and process data with outcome data,¹⁹⁴ under which conditions they may be more likely to succeed.

Cross-sectional study design

Cross-sectional studies describe the frequency or level of particular characteristics within a population, or a sample of that population, at a single point in time.¹⁹⁷ They may be used to compare the prevalence of a characteristic within predefined subgroups. They have also been used to study the relationship between different variables (most often relating to exposure and disease) in an attempt to identify more cheaply the same sort of relationships as might be identified using cohort studies. However, because all the variables are measured at the same point in time, although cross-sectional studies may be used to identify statistical associations between variables, they cannot establish causality and can only be used to generate hypotheses.¹⁹⁸

Cross-sectional studies may be repeated after an interval in order to evaluate an intervention or to assess secular changes in the characteristic of interest.¹⁹⁷

The cross-sectional studies included in this review all utilise a questionnaire design. As the questionnaires were generally administered within the classroom, response rates among students who were present at the time of administration may be very high, and yet the respondents may not necessarily be representative of the enrolled school population because of factors such as:

- absenteeism, which may differentially affect students who might be most at risk of pregnancy or STIs
- exclusion from the sample of students with special needs, or who were not fluent in English
- lack of parental consent to participate in the study.

Furthermore, all research undertaken in school populations will inevitably underestimate rates of teenage pregnancy because it will fail to identify those adolescent girls who permanently dropped out of education, or transferred to special educational facilities, because of pregnancy or parenthood.

Qualitative research

Qualitative research is the only form of research that seeks to explore and understand social phenomena (attitudes and behaviours) in natural rather than experimental settings. It may be used to identify people's needs and preferences, and to study the acceptability of an intervention and

identify what influences how and why it works. Qualitative research draws on small numbers of participants who are specifically selected for what they can contribute to the study. Data, which are not numeric, are collected by methods such as individual interviews, focus groups and observation.

Appendix 6

The UK and USA secondary education systems

Age	UK	USA
11–12	Year 7 Secondary school	6th grade Elementary or junior high school
12–13	Year 8	7th grade Junior high school
13–14	Year 9	8th grade
14–15	Year 10	9th grade High school/senior high school (occasionally junior high school)
15–16	Year 11	10th grade High school/senior high school
16–17	Year 12 Secondary school or sixth form	11th grade
17–18	Year 13 college	12th grade

Appendix 7

Characteristics and quality of studies reporting students' reasons for and against using services

TABLE 35 Characteristics and quality of studies reporting students' reasons for and against using services

Study, year, location	Intervention, setting	Sample	Data collection	Outcomes	Quality
Zimmer-Gembeck 1996, ⁴⁹ north-western USA	Comprehensive SBHCs with limited sexual health services General health care, but including reproductive health services (20% dispense contraceptives, 30% can prescribe but not dispense; 50% offer no service) in 15 schools with clinics Staff: NR Not reported if parental consent required for attend clinic	All pupils in grades 9–12 <i>n</i> = 4511 Age: NR Gender: 50% female	Voluntary, closed-item self-report survey Validated: Checked for internal consistency	Reasons for using or not using clinics Descriptive statistics only	The sample was large but consisted of volunteers, and so was potentially self-selecting. The survey tool was validated but only used a closed-item format; interviews or focus groups may have been more appropriate for exploring participants' reasons for clinic use. The analysis consisted of presenting descriptive statistics only Low-quality survey study
Bar-Cohen 1990, ⁷⁹ Minnesota, USA	Comprehensive SBHCs with sexual health services Staff: NR Not reported if parental consent required for attend clinic	A convenience sample of all females attending the clinic for the first time for family planning, without a prior pregnancy, in the study period (February–June 1987), and who provided a complete questionnaire [RR = 100% (no refusals)] <i>n</i> = 144 Age: 90% = 14–17 years Gender: 100% female	Self-administered 38-closed-item questionnaire adapted from a previously developed and published tool	Reasons for using clinic: 1. general 2. specific visit Descriptive statistics, t-tests and chi-squared tests	The participants consisted of a convenience sample of females only and first-time attendees only, and had a high ratio (79%) from the lowest socioeconomic group. Findings are therefore only representative for this limited population. Study had a good sample size but used a closed-item questionnaire to collect data; interviews or focus groups may have been more appropriate for exploring participants' reasons for clinic use. Analysis of the survey data were basic but appropriate Low-quality survey study

Study, year, location	Intervention, setting	Sample	Data collection	Outcomes	Quality
Santelli et al. 1996, ⁸⁵ Baltimore, USA	Comprehensive SBHC with sexual health services Clinics open during school hours, immediately after school, and for 1 day per week during the summer Staff: Included a full-time school nurse, NP or physician assistant; health aide; medical office assistant; a full- or part-time mental health professional, and 0-1 WTE physicians Parental permission was required for enrolment, but students could self-enrol for sexual health services	A 'representative' sample of classes in 9 schools with SBHCs (5 high schools and 4 middle schools) and in 4 schools without SBHCs, chosen on the basis of similar sociodemographic factors and cooperation of school principals <i>n</i> = 3496 (RR = 26%) Mean age: 14.8 years (Schools with SBHCs); 14.3 years (schools without SBHCs) Gender (female): 61% vs 51% Ethnicity: African-American 75% vs 61%	Anonymous, closed-item questionnaire Partly validated (some items from existing national questionnaires)	Student attitudes towards SBHCs, and satisfaction with services Analysis: Descriptive statistics plus t-tests and chi-squared tests to compare groups (users of SBHCs, non-users in schools with SBHCs, and students in schools without SBHCs)	Sampling was performed by school principals, assisted by Baltimore City Health Department health educators and nurses, were asked to survey a representative sample of classrooms, i.e. representativeness of sample is questionable. Differences between participants and non-participants were not explored. Questionnaire had some validated items, but was closed and so was limited in terms of exploring student attitudes. Analysis was limited but appropriate Low- to medium-quality survey study
Emihovich and Herrington 1997, ⁸⁰ NR, USA	Comprehensive SBHC with sexual health counselling. Programme involved education, counselling and monitoring Staff: 1 school nurse and 1 health aide in each high school Parental opt-out in writing	Sample from 6 high schools serving 10,145 students located in rural/suburban/urban metropolitan area Sampling: NR Age, gender: NR	NR	Students' views of the service	No details were reported of the sample, its size of characteristics, its recruitment, or the data collection and analysis methods' used Findings consisted of apparently selected quotations from students A low-quality study
Kay 2006, ⁸⁷ Croydon, UK	Comprehensive school-based drop-in clinics Provision of general services, including sexual health advice and signposting to local sexual health services, but not pregnancy testing, condoms or emergency hormonal contraception. Clinics are provided at different times in different schools, but most commonly at lunch time. Some schools can offer a regular weekly service, some only a limited service (e.g. once per month). 11 secondary schools in a suburban SE London borough (Croydon) Staff: School nurses Parental consent not required	Adolescents (age 11-17) in 11 secondary schools with drop-in services 1. Participants were in tutor groups randomly selected from years 8, 10 and 11 (i.e. ages 12-13, 14-15 and 15-16) <i>n</i> = 590 students completed the school-based survey (RR = 100%) 2. All students attending the drop-in over a 6-month period <i>n</i> = 64 Gender (female): 1. 52%, 2. 86%	Voluntary, anonymous, closed-item surveys 1. School survey 2. User survey The school survey questionnaire was trialled in the Exeter area and amended for clarification	Knowledge, views, experience and use of the school drop-in only Descriptive statistics only	The samples were both sizeable. The response rate for the school survey was excellent, but no details were given of those approached for the user survey who refused to participate. Nor is it clear how representative the samples were of their populations. The school survey instrument had been validated, but the user survey had not. Interviews or focus groups would have been a more appropriate method of eliciting views about the service. The analysis was limited but appropriate A medium-quality questionnaire study

continued

TABLE 35 Characteristics and quality of studies reporting students' reasons for and against using services (continued)

Study, year, location	Intervention, setting	Sample	Data collection	Outcomes	Quality
Salmon and Ingram, ⁸⁸ Bristol, UK	School-based sexual health service Brook outreach sexual health clinic: full contraceptive service, or in cases where staff shortage, condoms, STI and pregnancy testing. Run weekly at lunchtimes in 16 schools across Bristol (school-based) Staff: Sexual health nurse and youth worker Parental consent: not required	School-aged young people (results show very small numbers of 11–12 and 18- to 20-year-olds also) 1. Survey (n=222) Gender (female): 73% Age (11–14 years): 40% 2. Focus groups and interviews (n=44) Gender (female): 61% Age: 11–16 years	1. Self-report closed-item survey (shortened version of a previously published tool) 2. Semistructured focus groups and 1–2–1 interviews	1. Young people's views of the service 2. Perceptions of barriers to service use 1. Descriptive statistics only 2. Transcription and thematic analysis	The sample was sizeable, but full details of sample are reported. Sampling procedure and response rate were not reported, nor was whether those not participating differed from those who did. Data collection and analysis methods were both appropriate A good mixed-methods study, some limits of reporting, but good external validity
Magnani 2001, ⁵⁰ Brazil	SLSHS Referral of students from project schools to partner clinics located within 5 km Programme: Education for 1–2 hours per week within school, plus referral to clinics; visits by schools to clinics, and by clinic staff to schools; meetings between school and clinic staff Staff: Nurse/physician teams with a demonstrated interest or positive attitude towards adolescent reproductive health issues; staff received training in reproductive health Not reported if parental consent required for attend clinic	6th or 8th grade student attending 1 of 10 secondary schools n = 385, 89% of the adolescents visiting 4 clinics in the data collection period (4 weeks in November–December 1998) Mean age: 17.5 years (43.6% = 12–17 years; 56.4% = 18–19 years) Gender (female): 96.9%	Structured interviews, using closed questions	1. Views regarding clinics 2. Reasons for going to a specific clinic 3. Views of clinic services Descriptive statistics only	The sample was sizeable with a good response rate in terms of those approached. However, it is not clear how representative this sample was of the population. The use of interview was appropriate, but process by which data were derived was unclear. The analysis was limited. External validity of the study was also limited because one-half of the population was just beyond school age, and almost exclusively female A low- to medium-quality interview study

Study, year, location	Intervention, setting	Sample	Data collection	Outcomes	Quality
Zabin 1991, ⁸¹ Baltimore, USA	SLSHS Clinics located outside a senior high schools and a junior high school; 1 clinic was adjacent, 1 was 4 blocks from the school; available every weekday afternoon. Clinics offer condoms, contraceptive counselling, pregnancy testing, other medical services and referrals. Full programme involves classroom presentations, small group and individual counselling; education, counselling and treatment at clinic Staff: Social worker and nurse practitioner or nurse midwife in each school each morning and in the linked clinic in the afternoon Not reported if parental consent required for attend clinic	Students at 2 intervention schools with 2 years' exposure to the intervention; survey administered on a single day to all students present who satisfied criteria (see below) (RR = 98%) n = 422 Age: < 18 years Gender: 100% female Ethnicity: 100% African-American Note: Population providing baseline data not reported here as comparisons made are not relevant	Self-report, closed-item questionnaire	1. What were the reasons for delay in attending the clinic? 2. What was the single most important reason for attending the clinic? Descriptive statistics	The sample was sizeable, but represented a single group in terms of ethnicity and gender. Within these limits, the response rate was good. The study used a closed-item questionnaire to collect data; interviews or focus groups may have been more appropriate for exploring participants' reasons for clinic use. Analysis of the survey data were basic but appropriate Low-quality survey study
Barna <i>et al.</i> 2002, ⁸⁹ North Staffordshire, UK	SLSHS Clinic in a Box: School nurses and health visitors visit places where young people meet for social purposes (youth clubs etc. and lunch times at schools and colleges) taking with them a box of condoms, emergency contraception, information leaflets, etc. during opening hours of host institution. Frequency varies (weekly, fortnightly, monthly) Staff: School nurse and health visitor Parental consent: not required	A convenience sample: those attending the clinic on a single day during a single hour; approached about informal interview n = 16 (5 women, 9 men) Age: Majority are 12–13 years (range 9–16 years)	One-to-one informal interviews in the waiting area of the clinic	Why were the young people using the service and what did they think of it?	The participants were recruited by convenience sampling, but the sample was a good size for an interview study. However, it was not reported how many people were approached and they differed from those who did. Data collection methods were appropriate but interviews were conducted in a public area, which may have affected participants' responses. Details of analysis not reported A medium- to low-quality interview study

continued

TABLE 35 Characteristics and quality of studies reporting students' reasons for and against using services (continued)

Study, year, location	Intervention, setting	Sample	Data collection	Outcomes	Quality
Schuster <i>et al.</i> 1997, ⁶² Los Angeles County, USA	School-based condom availability programme Condoms available in 1 urban high school in baskets placed in 4 classrooms and outside the nurse's office; some of these sites were accessible at times when students could obtain condoms unnoticed by others. A can was placed by each basket asking students to leave a quarter for each packet they took Staff: NA Parental consent was not required	All students in grades 9–12 present in school after 1 year's exposure to programme on day of survey administration $n = 1112$ (RR = 59%); (1878 = students present that day; 85% of enrolled eligible students) Age: NR Gender (female): 50%	Anonymous self-report survey administered during a regular class Validation: Examination of response inconsistencies, which were found to be rare	Knowledge, perceptions, and use of condom availability programme Descriptive statistics and correlations to investigate differences between groups	The sample was sizeable and apparently representative in terms of age and gender. The study used a validated, closed-item questionnaire to collect data; interviews or focus groups may have been more appropriate for exploring participants' reasons for attitudes towards the programme. Analysis of the survey data was basic but appropriate. Low-quality survey study
Guttmacher <i>et al.</i> 1995, ⁷⁰ New York, USA	School-based condom availability programme Free condoms are made available to students in specified school locations at specific times by school staff, who have received special AIDS training. Students are given a few condoms at a time, and may request them as frequently as they wish Staff: Unclear Parental consent not required	Survey: All students at 12 randomly selected New York high schools; $n = 3386$ (RR = < 50%) Focus groups: A sample of students; $n = 141$ or 239 Gender (female): 62% Age: 14–18 years Ethnicity: 50% were African-American	Self-report, closed-item survey 18 age-based focus groups of mixed gender held in 6 schools	To assess gender differences in attitudes towards Condom Availability Program Descriptive statistics and correlations to investigate differences between groups	The survey study sample was reported as being representative of New York schools' population, but the sampling and recruitment of the focus groups is unclear, and different numbers were given for participants. Focus groups were an appropriate method for collecting data on attitudes, but details of the data collection and analysis are not given. Basic descriptive statistics are provided for the analysis of the survey data. The two types of data are not obviously combined Low-quality mixed-methods study
Kirby <i>et al.</i> 1999, ⁴² Seattle, USA	School-based condom availability programme High schools with teen health centres (THCs) made condoms available in baskets, vending machines and at the THCs Staff: NA Parental consent not required	Students attending public high schools in Seattle Recruitment: NR Age: NR Gender (female): NR	16 focus groups of students. No more details about data collection process are reported	Unclear	An effectiveness study with a supplementary, qualitative element which is very poorly reported Very low-quality qualitative study

Study, year, location	Intervention, setting	Sample	Data collection	Outcomes	Quality
Washkansky 2008, ⁹⁰ London, UK	School-based and school-linked sexual health drop-in service. Sexual health drop-in service involving education and information, contraceptive provision, screening for chlamydia, pregnancy testing (programme is different at different schools). Service appears to be mostly school/sixth-form college-based, plus a Connexions site Staff: Unclear; a family planning nurse is available at one of the services Parental consent: not required	School aged young people (otherwise, not described) Recruitment process: NR Age, gender: NR	NR Note: Only 2 schools' service was evaluated	Rating of service, its staff, what the best thing about the service was, and what had been learnt from the service	The nature of the intervention is not consistent across schools, and the sample, its size and other details, as well as the sampling and recruitment procedure were all not reported. Data collection methods were not reported. Details of analysis were not reported and results are questionable given the absence of any reported, negative views about the service Very low-quality study
Zeanah et al. 1996, ⁸² Louisiana, USA	Comprehensive SBHCs with limited sexual health services Comprehensive health services, with counselling or referral regarding pregnancy prevention and STDs; pregnancy testing and STD testing provided in most clinics (no contraceptive availability) Staff: NR Parental consent required	Parents, staff and students relating to 3 schools selected for evaluation, representing rural and urban communities All participants were volunteers (n = NR) Age, gender: NR	1-hour semistructured focus groups; separate groups were held with different types of participants	Opinions of SBHCs: Perceived benefits and problems Tape-recording of sessions, transcription, content analysis	Details of the sample and the recruitment procedures used are not reported in any detail, which affects the external validity of the study's findings. Data collection and analysis methods were appropriate A low- to medium-quality interview study
Street 2004, ⁹¹ Lothian, Scotland, UK	SLSHS Drop-in services 'near to... schools', e.g. sports centre, local health centres, for 1–2 hours during lunchtime and/or after school, 3 times per week. Provision of information; c:card (for condoms); pregnancy testing, chlamydia testing, contraception and emergency contraception Staff: Teachers, school nurses, and youth workers, some with GP or family planning nurse or doctor, with 5 days' training for teachers Parental consent not required	Parents: Guardians of 13- to 18-year-olds from 10 secondary schools in Lothian, Scotland Students: Musselburgh Grammar School only Sampling: NR Parents: n = NR, except for 4 in East Lothian and > 20 in Midlothian Students: n = 678 Age, gender: NR	Parents: Consultation evening Students: Questionnaire	Parents and students' views on the provision and content of potential sexual health drop-in services	Details of the sample and the recruitment procedures used are not reported in any detail. Data collection tool was not reported. Form of analysis applied to data were not reported; data consisted of summary comments in text Very low-quality study

continued

TABLE 35 Characteristics and quality of studies reporting students' reasons for and against using services (continued)

Study, year, location	Intervention, setting	Sample	Data collection	Outcomes	Quality
Rafferty and Radosh 1997, ⁸² New York County, USA (Follow-up to Guttmacher 1995 ⁷⁰)	School-based sexual health programme. Programme involved HIV education and condom availability Staff: Trained school personnel (no other details) Parental opt-out required	Parents were recruited at NYC school functions/events n = 81 (64 women, 17 men) Age: Mostly between 36 and 40 years	12 focus groups (4–9 parents in each) in 2 successive years	Views about the programme Audiotaped, transcribed and analysed using appropriate software	It was recognised that this was a self-selecting sample, and therefore the focus groups may over-represent parents who are more likely to support the programme. However, the use of focus groups was appropriate. The method of analysis could have been reported in more detail: it is difficult to establish the validity of the data reported A low-to-medium-quality interview study
Ryan 1993, ⁸⁴ Nationwide, USA	Condom availability in school-based programmes as part of HIV counselling Staff: NR Not reported if parental consent required for attend clinic	Members of the AAFP n = 1678 (RR = 63.7%) Representativeness of sample tested and data weighted accordingly	Closed-item questionnaire (1 = strongly agree, 2 = agree, 3 = disagree)	Views on programme Factor analysis	Study had a good-sized, representative sample of family physicians. The range of questions asked was limited, and the perceptions behind the stated views were not researched, but it did employ appropriate methods of data analysis A medium-quality survey study
Hillard et al. 1996, ⁸⁸ Seattle, USA	Comprehensive SBHCs with sexual health services Comprehensive THCs, providing medical care, mental health counselling, on-site contraceptive provision, STD and pregnancy testing Staff: 1 full-time NP; mental health counsellor; part-time consultations with general practitioners	All students in Seattle High Schools Response rate: 69% n = 8469, but comments on the THCs are only from a subset of students at schools with a THC (n = 224) Age, gender: NR	Validated survey tool	Views on the THCs and the services provided	The sample size is good, but no details of the sample's characteristics are reported, they are simply a subgroup who offered comments on the THC. Data collection used a validated instrument with open-ended question for comments, which was appropriate. No details of transcription or analysis were given, but a complete list of comments was reported A medium-quality survey study with limitations of reporting

Study, year, location	Intervention, setting	Sample	Data collection	Outcomes	Quality
Stout <i>et al.</i> 1996, ⁴⁶ Oregon, USA	Comprehensive SBHCs, some with sexual health services SBHCs provided comprehensive medical care, plus differing levels of sexual health services (some provide contraception, some referrals or prescription only, some nothing) Staff: 1 or more sites might have a combination of the following: a nurse practitioner, clinic coordinator, health assistant, part-time mental health counsellor, paediatrician, child or family therapist, or community health nurse Consent: NR	Users of the SBHC among 9th–12th grade students in 5 Oregon schools Convenience sampling: of schools and individuals: selection based on geographic location (representing both urban and rural communities) $n = 3667$ (42.5% of total students surveyed, and who had used SBHC at least once) Age: NR	Self-report anonymous and confidential survey administered by teachers (passive consent by parents) Survey included 88 questions from existing national and regional adolescent health surveys (also questions developed specifically for the Oregon programme)	Acceptability of and satisfaction with SBHC	Intervention was not consistent. Sampling was convenience only, but was large and representative of different sociodemographic groups. Data collection instrument used partly validated, but closed-items. Interviews or focus groups would have better explored adolescents' attitudes to health services. The analysis was limited, consisting of presentation of descriptive statistics in the form of a graph only Low-quality survey study
Schaffer 2008, ⁵² Minnesota, USA	SBSHS PFC: PHNs from the city health department located within the school, and present for the whole school day, offer sexual health services, contraceptive provision, testing and counselling and education. During the summer, PHNs see most programme participants monthly at home, or in school if they attend summer school Staff: PHNs; teachers' mentor and support programme participants Parental consent not required	Parenting adolescents invited to participate; participation rates not given $n = 9$ Age: NR Gender: 100% female Ethnicity: African-American (5), Latino (2), Caucasian (2)	Focus groups	Satisfaction with service Focus groups were audiotaped, and transcribed, and analysed	The participants were recruited by convenience sampling, but the sample was a good size for an interview study. However, it was not reported how many people were approached and refused to participate, and whether or how much they differed from those who did. The sample consisted of teenage mothers only, and so findings are representative of only this group. Data collection methods were appropriate but full details of analysis not reported Low-quality interview study

continued

TABLE 35 Characteristics and quality of studies reporting students' reasons for and against using services (continued)

Study, year, location	Intervention, setting	Sample	Data collection	Outcomes	Quality
1. Nelson 1997, ⁹² 2. Tanner et al. 2003, ⁹³ Worcestershire, UK	School-linked drop-in sexual health services Weekly lunchtime drop-in 'Time 4U' clinic aiming to provide advice on contraception and sexual activity, lifestyle choices and emotional issues, as well as mainstream health information. Emergency contraception, condoms and pregnancy testing kits available Staff: Youth adviser with family planning knowledge and counselling skills; doctor and school nurse. Referrals made to outside agencies Parental consent not required	1. All pupils in Hanley Castle High School, Worcestershire (after 23 clinic sessions) n = 593 responses (RR = 95%) Gender: NR Age: 11–17 years 2. 1000 (RR 98%) year 11 students in 7 schools (n = 979) Attendees of service (interviews) (n = 11) Gender: NR Age: 15–16 years	1. Self-report, anonymous closed-item survey, based on the original needs assessment survey 2. Self-completion questionnaire, and interviews	Pupils' views on, and use of, the clinic 1. Descriptive statistics 2. Descriptive statistics and thematic analysis	The sample size is good, but no details of the sample's characteristics are reported. The response rates were apparently good. Data collection used a validated instrument with closed-items to elicit people's views, which was not the most appropriate design (1); interviews would have been better. Analysis of the survey data in (1) and (2) was basic but appropriate. Interviews were conducted with a limited sample, and appropriate analysis was performed (2) A low- to medium-quality mixed methods study
Santelli et al., 1992, ³⁰ USA, Baltimore	Comprehensive SBHCs with sexual health services Staff: NR Parental consent required to enrol in clinic	Random selection of parents who had consented to their child's enrolment in the SBHC n = NR Gender: 77% females Ethnicity: 'Majority' African-American	Pre-tested phone survey with both closed (Likert scale) and open-ended questions	1. Acceptability to parents of contraceptive prescribing and dispensing by SBHCs 2. Acceptability of treatment of STDs by SBC Descriptive statistics, chi-squared tests	A validated phone survey and use of open-ended questions was a good choice of design, and efforts were made to randomise the sample and make it representative, although the majority of respondents were female and African-American. Response rate was apparently good. However, the sample was made up of volunteers who had already enrolled their children into the SBHCs, and so was potentially self-selecting for this study Tests used were appropriate, and did consider confounding variables: they found that there were no differences in responses based on race, gender, student age or prior contact with clinic staff A medium-quality survey study

Study, year, location	Intervention, setting	Sample	Data collection	Outcomes	Quality
Guttmacher et al. 1995. ⁸⁶ New York, USA	School-based condom availability Free condoms are made available to students in specified school locations at specific times by school staff, who have received special AIDS training. Students are given a few condoms at a time, and may request them as frequently as they wish <i>Staff:</i> Unclear at the time of the evaluation, parents could not opt out of the programme, and students requesting condoms did not have to identify themselves in any way	Parents and guardians with children at 12 randomly selected New York high schools were approached parents as they entered the school building for a parents' event, and asked to complete the survey. Approximately 80% of those who attended were approached, and 90% participated (n = 716) 12 focus groups with parents from this set of parents from 6 study schools (n = 81) <i>Gender (female):</i> 78% <i>Age (30–50 years):</i> 85% <i>Ethnicity:</i> 37% were African-American	Pre-tested closed-item survey. 12 focus groups held in 6 schools	Parents' attitudes towards Condom Availability Program Descriptive statistics, and selected qualitative material	The study sample was self-selecting and predominantly female. Surveys and focus groups were an appropriate method for collecting data on attitudes, and the analysis combined the results and specified the source of findings A medium-quality mixed-methods study
Carlson and Peckham 2004, ⁶³ Oxfordshire, UK	School-based comprehensive drop-in service <i>Bodyzone:</i> A school-based programme of confidential drop-in clinics, usually operating on Monday lunchtime for 1 hour; to address young people's physical, emotional, mental and sexual health needs in 2 schools in small towns in rural communities. Included contraceptive advice and distribution <i>Staff:</i> School health nurse, family planning nurse, and a youth worker Parental consent not required	All students in years 8 and 10 (i.e. aged approximately 13 and 15 years) in both schools questionnaire n = 496 (RR = 88%) <i>Male:</i> 50% Students from 1 school were invited to take part in participatory group assessments made up of a series of exercises to facilitate group discussion n = 7 (100% female)	Questionnaire adapted from the validated University of Exeter school health questionnaire: descriptive statistics <i>Focus group:</i> notes taken using flipcharts; were verified and clarified by participants: thematic analysis of results	Students' views about and use of drop-in service Descriptive statistics, and selected qualitative material	The study sample for the questionnaire was representative, but for the focus groups it was self-selecting and exclusively female. Surveys and focus groups were an appropriate method for collecting data on views and service use, and the focus groups used respondent validation of the results. The forms of analysis were appropriate A medium-quality mixed-methods study

AAFP: American Academy of Family Physicians; c: card, card for free condom service; NA, not applicable; NP, nurse practitioner; NR, not reported; PFC, Pregnancy-Free Club; PHN, public health nurse; RR, relative risk; SBC, school-based clinic; THC, teen health centre; WTE, whole-time equivalent.

Appendix 8

Data tables and matrix for the mixed-method synthesis

Barriers and facilitators to using SBSHS or SLSHS

TABLE 36 Theme: awareness

Barriers	Facilitators
Not knowing service existed ^{68,85}	Friends attend ^{68,79,89}
Not knowing enough about the service ⁸⁵	Other people are known who attend ^{50,57}
Not knowing location of the service ⁸⁷	

TABLE 37 Theme: privacy

Barriers	Facilitators
Anxiety concerning confidentiality of service ^{49,52,63,87,88,199}	Trust in the confidentiality of the service ^{46,49,50,52,63,68,79,87-90}
Parental consent required to access service, so parents know if using the service ^{57,68,79}	Parental consent not required to access service ^{57,68,79}

TABLE 38 Theme: staff

Barriers	Facilitators
Absence of 'real doctors' ⁹²	Feeling that staff could be trusted ^{46,50,87,88,90}
Staff not paying attention ⁶³ or perceived as being judgemental ⁷⁰	Feeling relaxed and comfortable with staff, ⁸² feeling that staff were friendly, ⁸⁷⁻⁹⁰ supportive, helpful, ^{89,90} welcoming, ⁹⁰ good listeners who pay attention, ^{50,87} non-judgemental ^{52,88} and who care about teenagers ^{77,90}
Only male or female staff, which might make service users feel uncomfortable ⁸⁷	Making available both male and female nurses or other staff ⁸⁷
Staff holding positions in the school other than related to school health services, raising the possibility of encountering the same staff member in another capacity ^{63,92}	Being comfortable with staff as a result of being familiar with them ^{87,89}

TABLE 39 Theme: services location

Barriers	Facilitators
Services being located in very visible, public, non-private places ^{42,63,68,70,87-89,199}	Convenience, ease of access ^{46,49,68,79,82,88}
Services located near school staff rooms ^{87,88,92}	Closest to home or on way home from school ^{50,79,89}
Service being located in school building ⁸⁷	Service made available at locations frequented by young people outside of school ⁸⁹

TABLE 40 Theme: service flexibility

Barriers	Facilitators
Limited opening times ⁹⁰	Frequent and various opening times, e.g. lunchtime, after school, daily ^{63,68,87,90}
Lack of regular, daily sessions ^{52,63,87,90}	Longer sessions ⁹⁰
Not having the courage to attend alone ⁸⁸	Being able to attend with friends ^{88,89}

TABLE 41 Theme: service environment

Barriers	Facilitators
Physical environment and atmosphere is drab and uninviting ⁸⁷	Room or clinic has to be 'comfortable', inviting and relaxed ^{63,68,87-89}
Room is 'open' and not private, people can hear what is being said ^{63,87}	Room is completely private ^{63,88}

TABLE 42 Theme: service cost

Barriers	Facilitators
Cost of contraception and other services ^{42,49,68}	Provision of free contraception ^{42,49,68,79,88,90}

TABLE 43 Theme: service variety

Barriers	Facilitators
Providing just sexual health services ^{88,91}	Making contraception directly available from the service or clinic, especially condoms ^{42,50,57,68,70,79,85,87-90,92}
	Making contraception available at more locations ⁵⁷
	Offering pregnancy testing or STI testing services ^{52,79,81,88}
	Offering counseling and advice on sexual health; to be able to talk about problems, relationships, etc. ^{52,63,68,81,88-90}
	Provision of general medical or health services ^{70,82,88,91}

TABLE 44 Description of interventions

Study	Design	Details
Kirby <i>et al.</i> 1999 ⁴²	Controlled, before/after	<p><i>Contraception:</i> Condom availability</p> <p><i>Location:</i> Baskets in health centres (clinic reception, bathrooms; examination areas) and vending machines (in public places: the hall outside gyms, auditoriums, lobbies, career centres and student activity rooms)</p> <p><i>Cost:</i> None for baskets; 25 cents for machines</p> <p><i>Privacy:</i> No parental consent needed</p> <p><i>Awareness:</i> Preceded by a sex education programme</p> <p><i>Controls:</i> Schools without a service</p>
Furstenberg <i>et al.</i> 1997 ⁶⁰	Controlled, before/after	<p><i>Type of service:</i> HRC, sexual health only; drop-in</p> <p><i>Contraception:</i> Condom availability</p> <p><i>Information:</i> Reproductive information; general health referrals to linked general health facilities; counselling on abstinence</p> <p><i>Location:</i> In classrooms or office space; in two cases the service was sited in the SBHC</p> <p><i>Flexibility:</i> Some only open during lunchtimes, some only open at other specific times in school day – claimed to depend on what 'suited' student body in each school</p> <p><i>Privacy:</i> Parental consent considered passive; parents need to opt out for their child not to receive condoms</p> <p><i>Staff:</i> Health educators; nurses; psychologists; graduate interns</p> <p><i>Controls:</i> Schools without a service, schools with comprehensive health centres</p>
Stout <i>et al.</i> 1996 ⁴⁶	Controlled, before/after	<p><i>SBHC:</i> Details of intervention not provided</p>
Peckham and Carlson 2003, ⁵¹ (Carlson and Peckham 2004 ⁶³)	Controlled, not before/after	<p><i>Type of service:</i> Bodyzone: physical, emotional, mental and sexual health; drop-in</p> <p><i>Contraception:</i> Condoms, pill on repeat prescription from GP, emergency contraception</p> <p><i>Location:</i> 'Usually on school premises'</p> <p><i>Flexibility:</i> 'Usually during school hours'; one lunch hour per week (Mondays)</p> <p><i>Staff:</i> Youth workers; community health staff; health promotion workers</p> <p><i>Controls:</i> Schools with exposure to a similar school-linked service for only 1 year, compared with 3-year exposure for intervention</p>
Kirby 1991 ¹¹¹	Controlled, not before/after	<p><i>Type of service:</i> Primary health care and sexual health SBHC</p> <p><i>Contraception:</i> Available from some SBHCs (principally for girls), only information/counselling or referral by others</p> <p><i>Location:</i> On campus (unspecified)</p> <p><i>Flexibility:</i> Unspecified</p> <p><i>Other services:</i> Pregnancy testing</p> <p><i>Staff:</i> At least one part-time or full-time doctor and nurse practitioner</p> <p><i>Alternatives:</i> Young men referred to external sources for condoms, etc.</p> <p><i>Controls:</i> Schools without a service</p>

Synthesis of quantitative and qualitative evidence on SBSHS or SLSHS

TABLE 45 Theme: awareness

Barriers	Facilitators	Intervention	Evaluation
Not knowing service existed ^{68,85} Not knowing enough about the service ⁸⁵ Not knowing location of the service ⁸⁷		Publicising of condom availability scheme in classes ⁶⁰	No study evaluated the impact of this approach on sexual health outcomes
	Friends attend ^{68,79,89}	Publicising service to peers was not a specific element of any evaluated intervention	Not applicable
	Other people are known who attend ^{50,57}	Publicising service to peers was not a specific element of any evaluated intervention	Not applicable

TABLE 46 Theme: privacy

Barriers	Facilitators	Intervention	Evaluation
Parental consent required to access service, so parents know if using the service ^{57,68,79}	Parental consent not required to access service ^{57,68,79}	Absence of any need for parental consent was a specific component of condom availability schemes ^{42,60}	No study evaluated the impact of this approach on sexual health outcomes
Anxiety concerning confidentiality of service ^{49,52,63,80,81,87,88}	Trust in the confidentiality of the service ^{46,49,50,52,63,68,79,87-90}	Addressing concerns about confidentiality, or promoting confidentiality was not a specific element of any evaluated intervention	Not applicable

TABLE 47 Theme: location

Barriers	Facilitators	Intervention	Evaluation
	Convenience, ease of access ^{46,49,68,79,82,88}	Clinic sited on school premises ^{51,111}	Convenience of the school-based location in comparison with external services was only evaluated by one study: ⁵¹ there was limited impact on contraceptive use by sexually active students because alternative suppliers were already used, especially another clinic, doctor or drugstore (78–85%). The school-based clinic was viewed only as a substitute for alternatives

continued

TABLE 47 Theme: location (continued)

Barriers	Facilitators	Intervention	Evaluation
Services being located in very visible, public, non-private places ^{42,63,68,70,80,87-89,92} including being located next to staff rooms ^{87,88,92} or even in the main school building ⁸⁷		Condom availability schemes made contraception available at a range of locations, including sites specified as 'private', which could be accessed without being seen ^{42,60}	Two studies evaluated the impact of 'private' vs 'public' locations for accessing contraception: ^{42,60} The two schools with the largest mean numbers of condoms/student were also the only 2 schools that made condoms available in the clinic bathrooms; ⁶⁰ condom distribution was said to be less successful through the two school-based health clinics than through services based in comprehensive SBHCs ⁴²
	Closest to home or on way home from school ^{50,79,89} Service made available at locations frequented by young people outside of school ⁸⁹	There were no school-linked services as intervention or controls in any of the evaluated intervention studies	Not applicable

TABLE 48 Theme: staff

Barriers	Facilitators	Intervention	Evaluation
Absence of 'real doctors' ⁹²		Two services addressed this barrier by using doctors or community health professionals; ^{51,111} one service was staffed only by allied health professionals and youth workers ⁴²	No study evaluated the impact of the presence of absence of professional medical staff
	Feeling that staff could be trusted ^{46,50,87,88,90}	No intervention focused on addressing this issue with regard to staff	Not applicable
Staff not paying attention ⁶³ or perceived as being judgemental ⁷⁰	Feeling relaxed and comfortable with staff, ⁸² feeling that staff were friendly, ⁸⁷⁻⁹⁰ supportive, helpful, ^{89,90} welcoming, ⁹⁰ good listeners who pay attention, ^{50,87} non-judgemental ^{52,88} and who care about teenagers ^{79,90}	No intervention focused on addressing this issue with regard to staff	Not applicable
Only male or female staff, which might make service users feel uncomfortable ⁸⁷	Making available both male and female nurses or other staff ⁸⁷	No intervention addressed this issue with regard to staff	Not applicable
Staff holding positions in the school other than related to school health services, raising the possibility of encountering the same staff member in another capacity ^{63,92}	Being comfortable with staff as a result of being familiar with them ^{87,89}	One service only used staff that worked for the linked health service, not connected to the school ⁴²	No study evaluated the impact of the use of staff who were entirely external to the school

TABLE 49 Theme: service flexibility

Barriers	Facilitators	Intervention	Evaluation
Limited opening times; ⁹⁰ lack of regular, daily sessions ^{52,63,87,90}	Frequent and various opening times, e.g. lunchtime, after school, daily ^{52,63,68,87,90}	Two services failed to address this barrier by providing services only once per week, usually at lunchtime ^{42,111}	No study evaluated this component specifically, but the two studies that reported providing only very limited access also reported no statistically significant difference in sexual health outcomes between schools with and without a sexual health service ^{42,111}
	Longer sessions ⁹⁰	No intervention focused on addressing this issue	Not applicable
Not having the courage to attend alone ⁸⁸	Being able to attend with friends ^{88,89}	No intervention focused on addressing this issue	Not applicable

TABLE 50 Theme: service environment

Barriers	Facilitators	Intervention	Evaluation
Physical environment and atmosphere is drab and uninviting ⁸⁷	Room or clinic has to be 'comfortable', inviting and relaxed ^{63,68,87-89}	No intervention focused on addressing this issue	Not applicable
Room is 'open' and not private, people can hear what is being said ^{63,87}	Room is completely private ^{63,88}	No intervention focused on addressing this issue	Not applicable

TABLE 51 Theme: service cost

Barriers	Facilitators	Intervention	Evaluation
Cost of contraception and other services ^{42,49,68}	Provision of free contraception ^{42,49,68,79,88,90}	Two services addressed this barrier by making contraception available for free ⁶⁰	One study evaluated the impact of cost on the accessing of contraception: ⁶⁰ students accessed condoms 50+ times more frequently from baskets for free than from vending machines; schools only with vending machines had much smaller mean numbers of condoms/ student, and the likelihood of students acquiring condoms was 3 times lower in schools with vending machines requiring payment ⁶⁰

TABLE 52 Theme: service variety

Barriers	Facilitators	Intervention	Evaluation
Providing just sexual health services ^{88,91}	Provision of general medical or health services ^{70,82,88,91}	All but two of the evaluated services were sexual health only ^{42,51}	Only one study compared sexual health services with comprehensive school-based health services: ⁴² condom distribution was apparently less successful through two school-based sexual health clinics than through the comprehensive SBHCs
	Making contraception directly available from the service or clinic, especially condoms ^{42,50,57,68,70,79,85,87–90,92}	Three services, principally condom availability schemes, made contraception available on site; ^{42,60,111} one service compared on-site and off-site provision ⁵¹	Three studies evaluated the impact on contraceptive use of on-site, school-based provision of condoms compared to non-school-based provision, but found no statistically significant differences between interventions and controls in terms of contraceptive use; ^{42,60,111} one study evaluated the impact on access to contraceptive services of on-site vs off-site provision of contraceptives; ⁵¹ clinics that prescribed or dispensed contraceptives were accessed by far more students than those which provided counselling alone, and those which dispensed contraceptives on site were accessed by higher proportions of sexually experienced females than the one which provided vouchers
	Making contraception available at more locations ⁵⁷	Three condom availability schemes made contraception available at multiple locations ^{42,60,111}	Only one study evaluated the impact on access to contraceptive services of providing condoms at multiple locations: ⁶⁰ the greater the number of baskets and locations to access condoms, the greater the number of condoms accessed
	Offering pregnancy testing or STI testing services ^{50,52,79,88}	Two condom availability schemes did not offer such additional services); ^{42,60} provision of other evaluated interventions was unclear	No study evaluated the comparative impact of services offering either contraception only or broader sexual health services
	Offering counseling and advice on sexual health; to be able to talk about problems, relationships, etc. ^{50,52,63,68,88–90,92}	One condom availability scheme did not offer such additional services, ⁶⁰ but limited information, advice and counselling was provided by three evaluated interventions ^{42,51,111}	Only one study evaluated the impact of services that provided contraception compared to counselling alone: ⁵¹ clinics that prescribed or dispensed contraceptives were accessed by far more students than those which only provided counselling, but there was no evidence that the presence of school-based clinics reduced school-wide pregnancy rates, even when there were significant differences in the use of birth control

Appendix 9

School nurse questionnaire



The
University
Of
Sheffield.

School Nurse
Questionnaire
January
2008.

SSHYP: School-linked sexual health services for young people

Introduction

How well do sexual health advice services for young people work, when they are based in or linked with schools? We are carrying out a review of published evidence for the Department of Health, concerning any sexual health clinics, advice services and outreach projects for young people that are based in or linked with secondary schools or sixth form colleges.

In order to get a clear picture of the types of services currently being offered or developed in the UK, we would really appreciate your comments on the questions below. We are aware that school nurses have extensive knowledge and experience in this area. We will use your comments to build up a national picture, and to help us to identify relevant sources of research evidence – as well as to identify any gaps in current research. All responses will be treated in strict confidence.

We will treat your anonymous, returned questionnaire as confirmation of consent to take part in the study. Please return the questionnaire to us in the attached Freepost envelope (or to the address on the covering letter).

Finally, thank you for your help: it is very much appreciated.

Please return the questionnaire in the enclosed Freepost envelope to:

Dr Jenny Owen, Chief Investigator, SSHYP Project, School of Health and Related Research,
The University of Sheffield, Regent Court, 30 Regent St., Sheffield, S1 4DA

Please turn over to start completing the questionnaire.



SHARPENS YOUR THINKING

1 Your details

Please state your job title.....

Please state your academic and professional qualifications.....

How long have you been in your present post? years months

Are you employed by *(please tick box as appropriate)*

A Primary Care Trust? Another NHS organisation (please describe)?

Another non-NHS organisation (please describe)?

.....

Which Primary Care Trust or Health board area do you work in?.....

Please tick here to confirm:

That you have received the SSHYP project information sheet

That you agree that the information you provide below may be used in SSHYP project analyses and reports

The questionnaire includes the following sections:

Section 2: information about existing sexual health services for school-aged young people

NB there are separate questions for services dedicated only to sexual health (2.1, 2.2, 2.3) and for general health services which include sexual health as one aspect among others (2.4, 2.5). Please leave blank any that do not apply in your area, as far as you are aware.

Some questions are repeated for each different type of service: this is to help us collect full details.

Section 3: information about planned new service developments.

Section 4: information about any relevant research of which you are aware.

Section 5: concluding comments.

2 Existing services: basic information

Are you aware of any existing clinics, drop-in services or outreach services linked to schools or sixth form colleges in the area where you work, that provide sexual health advice?

YES NO NOT SURE

If YES: please complete the questions here in Section 2.

If NO or NOT SURE, please move straight on to Section 3.

For services established in the area where you work, please provide further details as far as you can, by ticking all the answers that apply. For instance, if an advice service is jointly funded by the NHS and the Local Authority, please tick both answers. Leave blank any questions for which you haven't got information.

2.1 In the area where I work, there are advice services dedicated to sexual health in particular, and located on school or sixth form college premises:

YES NO

If yes:

What are the services called in publicity material?

.....

Who funds them?

The NHS The Local Authority

Other* (please describe)

.....

Who employs the manager(s) of the service(s)?

Primary Care Trust Local Authority Service District Local Education Authority

School or college Health Board

Other* (please describe)

.....

Who are the service managers accountable to, i.e. where are activity returns from the services sent to?

Primary Care Trust Local Authority Service District Local Education Authority

School or college Health Board

Other* (please describe)

.....

Staff include (please tick all that apply):

School nurses Doctors Teachers Youth Workers

Volunteers Peer advisers or educators Social workers

Others* (please describe)

.....

Services include:

General advice about sex General advice about relationships

Emergency contraception Oral contraception

Condoms Other forms of contraception (please say which)

Pregnancy Tests Referrals to other services? (if yes, please say which)

Girls-only sessions Boys-only sessions

Other services (please say what these are)

.....

2.2 In the area where I work, there are advice services located near to school or sixth-form college premises, dedicated to sexual health in particular and clearly linked with the school or college (e.g. through shared planning processes or timetabling of sessions to fit with the school day)

YES NO

What are the services called in publicity material? _____

How are these services linked with schools or sixth form colleges? *Please describe briefly*

Who funds these?

The NHS The Local Authority

Other *(please describe)* _____

Who employs the manager(s) of the services?

Primary Care Trust Local Authority Service District Local Education Authority

School or college Health Board

Other *(please describe)* _____

Who are the service managers accountable to, i.e. where are activity returns from the service sent to?

Primary Care Trust Local Authority Service District Local Education Authority

School or college Health Board

Other *(please describe)* _____

Staff include:

School nurses Doctors Teachers Youth Workers

Volunteers Peer advisers or educators Social workers

Others *(please describe)* _____

Services include:

General advice about sex General advice about relationships

Emergency contraception Oral contraception

Condoms Other forms of contraception *(please say which)* _____

Pregnancy Tests Referrals to other services? *(if yes, please say which)* _____

Girls-only sessions Boys-only sessions

Other services *(please say briefly what these are)* _____

2.3 In the area where I work, there are outreach advice services for sexual health in particular (e.g. a school nurse or other practitioner linked with schools, who provides advice through visits or special sessions in youth clubs or other community facilities used by young people of secondary school age)

YES NO

What are the services called in publicity material? _____

Who funds these?

The NHS The Local Authority

Other *(please describe)* _____

Who employs the manager(s) of the services?

Primary Care Trust Local Authority Service District Local Education Authority
 School or college Health Board
 Other (please describe)

Who are the service managers accountable to, i.e. where are activity returns from the service sent to?

Primary Care Trust Local Authority Service District Local Education Authority
 School or college Health Board
 Other (please describe)

Staff include:

School nurses Doctors Teachers Youth Workers
 Volunteers Peer advisers or educators Social workers
 Others (please describe)

Services include:

General advice about sex General advice about relationships
 Emergency contraception Oral contraception
 Condoms Other forms of contraception (please say which)
 Pregnancy Tests Referrals to other services^P (if yes, please say which)
 Girls-only sessions Boys-only sessions
 Other services (please say what these are)

Services are delivered at:

Youth clubs Community centres Other locations (please say where)

2.4 In the area where I work, there are general health drop-in clinics or services located on school or sixth form college premises, and these include the capacity to advise on sexual health

YES NO

What are the services called in publicity material?

Who funds these?

The NHS The Local Authority

Other (please describe)

Who employs the manager(s) of the service(s)?

Primary Care Trust Local Authority Service District Local Education Authority

School or college Health Board

Other (please describe)

Who are the service managers accountable to, i.e. where are activity returns from the service sent to?

Primary Care Trust Local Authority Service District Local Education Authority
 School or college Health Board
 Other (please describe)

Staff include:

School nurses Doctors Teachers Youth Workers
 Volunteers Peer advisers or educators Social workers
 Others (please describe)

Services include:

General advice about sex General advice about relationships
 Emergency contraception Oral contraception
 Condoms Other forms of contraception (please say which)

Pregnancy Tests Referrals to other services^P (if yes, please say which)

Girls-only sessions Boys-only sessions
 Other services (please say what these are)

2.5 In the area where I work, there are general health services linked with schools or sixth form colleges, and these include the capacity to advise on sexual health (for example, advice services provided by a school nurse or other practitioner visiting youth clubs or other locations)

YES NO

How are these services linked with schools or sixth form colleges? Please describe briefly

.....

Who funds these?

The NHS The Local Authority
 Other (please describe)

Who employs the manager of the service?

Primary Care Trust Local Authority Service District Local Education Authority
 School or college Health Board
 Other (please describe)

Who is the service manager accountable to, i.e. where are activity returns from the service sent to?

Primary Care Trust Local Authority Service District Local Education Authority
 School or college Health Board
 Other (please describe)

Staff include:

School nurses Doctors Teachers Youth Workers
 Volunteers Peer advisers or educators Social workers
 Others (please describe)

Services include:

General advice about sex	<input type="checkbox"/>	General advice about relationships	<input type="checkbox"/>
Emergency contraception	<input type="checkbox"/>	Oral contraception	<input type="checkbox"/>
Condoms	<input type="checkbox"/>	Other forms of contraception <i>(please say which)</i>	<input type="checkbox"/>
Pregnancy Tests	<input type="checkbox"/>	Referrals to other services? <i>(if yes, please say which)</i>	<input type="checkbox"/>
Girls-only sessions	<input type="checkbox"/>	Boys-only sessions	<input type="checkbox"/>

Other services *(please say what these are)*

Services are delivered at:

Youth clubs Community centres

Other locations *(please say where)*

2.6 In the area where I work, there are other services or initiatives concerning sexual health for young people, linked with local schools or sixth form colleges

YES NO

if yes, please give a brief description of this service or initiative in you own words, including the way it is linked with a school or sixth form college:

.....

.....

What are the services called in publicity material?

Who funds this?

The NHS The Local Authority

Other *(please describe)*

Who employs the manager(s) of the services?

Primary Care Trust Local Authority Service District Local Education Authority

School or college Health Board

Other *(please describe)*

Who are the service managers accountable to, i.e. where are activity returns from the service sent to?

Primary Care Trust Local Authority Service District Local Education Authority

School or college Health Board

Other *(please describe)*

Staff include:

School nurses Doctors Teachers Youth Workers

Volunteers Peer advisers or educators Social workers

Others *(please describe)*

Services include:

General advice about sex	<input type="checkbox"/>	General advice about relationships	<input type="checkbox"/>
Emergency contraception	<input type="checkbox"/>	Oral contraception	<input type="checkbox"/>
Condoms	<input type="checkbox"/>	Other forms of contraception <i>(please say which)</i>	<input type="checkbox"/>
Pregnancy Tests	<input type="checkbox"/>	Referrals to other services ^P <i>(if yes, please say which)</i>	<input type="checkbox"/>
Girls-only sessions	<input type="checkbox"/>	Boys-only sessions	<input type="checkbox"/>
Other services <i>(please say what these are)</i>		<input type="checkbox"/>

Services are delivered at:

Youth clubs Community centres

Other locations *(please say where)*

3 Looking ahead: local service development

3.1 Are you aware of any plans for new sexual health services for young people in the area where you work, located in or near to schools/sixth form colleges?

YES *(please state briefly the type(s) of service)*

.....
.....
.....

NO

3.2 Are there any gaps in current services in your area, that you would like to see addressed?

YES *(please state brief details)*

.....
.....
.....

NO

3.3 Are there any changes in current policy on sexual health for young people (national or local) that you would like to see take place?

YES *(please state brief details)*

.....
.....
.....

NO

4 Looking ahead: relevant research

4.1 Has any published research evidence been useful to you/your organisation in planning sexual health and related services for young people? (Examples could be local evaluations, or national or international studies).

YES (please provide brief details if you can)

.....

.....

.....

.....

NO

4.2 Are there issues or questions that you would like to see investigated, in connection with sexual health services for young people?

YES (please indicate topic areas briefly)

.....

.....

.....

.....

NO

5 Conclusion

5.1 What in your opinion are the strengths of school-linked sexual health services?

.....

.....

.....

.....

5.2 What in your opinion are the weaknesses of school-linked sexual health services?

.....

.....

.....

.....

5.3 Any other comments?

5.4 Background information for monitoring purposes

Gender: male female Age: _____

Ethnic origin: *please tick the box that best describes your ethnic origin*

White:

British Irish Other White

Mixed/Dual heritage:

White and Black Caribbean White and Black African White and Asian
Other Mixed

Asian or Asian British:

Indian Pakistani Bangladeshi
Other Asian

Black or Black British:

Caribbean African Other Black

Chinese or Other Ethnic Group:

Chinese Other ethnic group

Prefer not to state

Appendix 10

Introductory letter, information sheet for telephone interviews and consent form

Letter of invitation to participants (version 1: 20 August 2007)

Health Services Research section,
Regent Court,
30 Regent St,
Sheffield S1 4DA

Tel: 0114 2220849
E-mail j.m.owen@sheffield.ac.uk

Name/address Date

Dear + + + + +

Sexual health services for young people: invitation to contribute to new research

We are writing to invite you to take part in a telephone interview, as part of an important research study concerning sexual health services for young people of secondary school age.

There is widespread concern in the UK about levels of STIs and unplanned pregnancies among teenagers. Our study is funded by the Department of Health (Health Technology Assessment programme). The research team will locate and review available research evidence in the UK and internationally, and will provide an analysis of the results concerning different service models and their reported effectiveness and acceptability. Full details of the study are summarised in the attached information sheet.

Before we can undertake this review, we need expert help in mapping current developments in policies and services in the UK. We want to make sure that our review accurately reflects these, and addresses the topics that are on the minds of professional staff in sexual health services. We will also be consulting separately with young people who use sexual health services.

The attached information sheet outlines what will be involved if you agree to take part. You will also find a reply slip: if you are happy to consider being interviewed, please either post this back to us in the Freepost envelope, or e-mail <e.formby@shu.ac.uk> putting 'SSHYP contact' in the subject line. This does not commit you to an interview; either Eleanor Formby or Marc Chattle from the research team will phone you first to discuss the details. If you are happy with arrangements after this, we will ask you to sign a short consent form and an interview date will be arranged to suit you.

Thank you for your time and we hope to hear from you,

Yours sincerely

Dr Jenny Owen, Chief Investigator

Version one 20/8/07

SSHYP Project Reply Slip: please return in the attached Freepost envelope

If replying by e-mail is easier, please e-mail <e.formby@shu.ac.uk> simply putting 'SSHYP contact' in the subject line. Eleanor Formby will then confirm details with you by e-mail.

Name: Date:

I am willing for a researcher involved in the study to call me to discuss the research and the possibility of taking part in a telephone interview.

Signed

My telephone number is

Please tick the most convenient times to contact you.

	Morning	Afternoon	Evening
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			

Any other comments:

Information sheet for telephone interviews – version one 20 August 2007

**THE SSHYP PROJECT:
School-linked Sexual Health Services for Young People
Chief Investigator: Dr Jenny Owen (University of Sheffield)**

Research team members: Dr Chris Carroll, Ms Jo Cooke, Dr Mark Hayter, Dr Myfanwy Lloyd-Jones, Dr Helen Stapleton, Dr Jon Karnon (University of Sheffield); Dr Julia Hirst, Ms Eleanor Formby (Sheffield Hallam University)

INFORMATION SHEET: TELEPHONE INTERVIEWS WITH SERVICE MANAGERS AND COORDINATORS

1 What is the purpose of the study?

While there have been a number of new developments in advice and treatment services for young people, concerning sexual health, there is still some uncertainty about which service models work best. This is why the Department of Health has commissioned our project, with the following aims:

- to map existing models of 'SLSHS' for young people in the UK
- to identify published research about relevant services and to report on the key findings.

We will have the opportunity both to consider research based in the UK and relevant studies from other countries. The Department of Health is particularly interested in research about sexual health services for young people that are either based in schools or sixth form colleges, or linked to these in some way (e.g. through partnership arrangements or joint funding). The study will provide guidance to the Department of Health, both about the evidence concerning existing services and about any gaps in research that should be addressed in future.

2 Who are the researchers?

Our team is based at the University of Sheffield and Sheffield Hallam University, where we have had considerable previous experience in research about young people and sexual health. Some of us have professional backgrounds in nursing and midwifery; others have experience in health and social policy research, cost-effectiveness modelling and the systematic review of research evidence.

We also have an Advisory Network to provide comments and guidance on the research process: this includes both experienced practitioners in the field of sexual health, and groups of young people who have used sexual health services.

3 What does the study involve?

The study will run from November 2007 to April 2009. In the first phase, we will be mapping current service types and relevant policy developments in the UK (at national and local levels). To do this, we will be carrying out telephone interviews with approximately 50 service managers and coordinators across the UK. We will also be carrying out a national survey of school nurses, using a postal questionnaire.

We will use the results of telephone interviews and questionnaire analysis to ensure that we can define relevant service types and developments accurately. These analyses will help us to make sure that we identify published research that is genuinely relevant to the ways in which UK services are funded and organised. Our questions will include topics such as where services are located and who staffs and manages them. We are also keen to hear managers' views on priorities for future research.

4 Why have I been chosen?

We have contacted you because of your role within a relevant service.

5 Do I have to take part?

There is no obligation to take part: this is entirely your decision. If you do decide to take part, we will ask you to keep this information sheet for reference, and also to sign a consent form. You will be free to withdraw at any time, without giving a reason.

6 What will happen if I take part?

We will ask you to take part in a single telephone interview, lasting between 30 and 45 minutes at most (the actual length will depend on how much local information there is to cover, and so will vary between interviewees to some extent). As indicated above, the emphasis of our questions will be on the kinds of policies, service developments and topics in sexual health services that you are aware of in your own area, with specific reference to young people of secondary school age. No fees or expenses are payable for the interview.

7 Will my comments be kept confidential?

All the data collected during the course of the research will be kept strictly confidential. Your name and contact details will be listed separately from the interview content, which will be coded and stored to preserve anonymity. We will ask your permission to record the interview digitally when we carry it out, as this makes it much easier for us to capture detailed information accurately. However, you will have the option of declining this, in which case the researcher will take written notes instead. Audio recordings, transcripts and written notes will all be securely stored in offices at the University of Sheffield.

8 What will happen to the results of the research study?

The results of the study will be used in our final report to the Health Technology Assessment programme and to linked conference presentations and journal articles. Summary versions will be available for service managers and other interested parties working in sexual health services, including all study participants.

9 Who is funding the research?

The study is being funded by the Department of Health, through the Health Technology Assessment programme.

10 Who has reviewed the proposal for this study?

Before being funded, the research proposal was reviewed in depth by independent academic reviewers. Their reports were then provided to the Health Technology Assessment programme commissioning board. The proposal has also been reviewed and approved by Essex 1 Local Research Ethics Committee.

11 Complaints

If at any time during this research you feel that you have grounds to complain about the researchers involved with this project, or have any concerns about any aspect of the way you have been approached, you should contact the Principal Investigator, Dr Jenny Owen (Tel: 0114 222 0849). If you would prefer to raise issues with someone unconnected with the project itself, you can contact the University's Registrar, Dr David Fletcher. He can be contacted through his personal assistant Helen Teasdale on <h.a.teasdale@sheffield.ac.uk> or by telephoning 0114 222 1101.

12 Full contact details for further information

Dr Jenny Owen,
Chief Investigator,
SSHYP Project,
School of Health and Related Research,
The University of Sheffield
Regent Court,
30 Regent St,
Sheffield
S1 4DA

Tel: +44 (0)114 222 0849
e-mail: j.m.owen@sheffield.ac.uk

Thank you for reading this information sheet and for considering taking part in the study.

Dr Jenny Owen and the research team

Consent form – version one 20 August 2007

THE SSHYP PROJECT
(Chief investigator: Dr Jenny Owen, University of Sheffield)
CONSENT FORM: TELEPHONE INTERVIEWS

Please tick the boxes below or circle yes or no as appropriate:

I have read the information sheet version one, dated 20/08/07	Yes/no
I have kept a copy	Yes/no
I have had the opportunity to ask questions and discuss the study (by phone)	Yes/no
I have received satisfactory answers to any questions raised	Yes/no
I know what the study will involve from my point of view	Yes/no
I understand that I can withdraw from the study at any time, without having to give a reason	Yes/no
I agree to the comments and information that I provide in my interview being used anonymously in study analyses and reports	Yes/no
I agree to digital audio recording of my interview	Yes/no
I confirm that I am happy to take part	Yes/no

SIGNATURE	DATE
NAME in BLOCK LETTERS	
Signature of Researcher receiving the form.	Date
Name of researcher	

PLEASE RETURN THE FORM IN THE ATTACHED FREEPOST ENVELOPE

Appendix I I

Telephone interview topic guide

Telephone interviews topic guide: managers and service coordinators in Strategic Health Authorities (England) and Health Boards (Scotland, Wales, Northern Ireland)

Introduction

- Check interviewee is happy with the scope and timing of the interview.
- Check and confirm details of post title, length of time in this post and current personal responsibilities in relation to sexual health policies and services for young people.

1 Background information about this SHA or Health Board area:

- Is there a formal strategy in place concerning school-linked or SBSHS for young people?
- Prompt if necessary: for example, have there been local responses to proposals in the recent DfES guidance (2007) on Extended Schools or to other policies and guidelines?
- Are there web-based or printed documents that we could access for details? These might include relevant reports, strategy documents, local service development plans, evaluations (take details for later web or hard copy access).

2 Current services based in, or linked with, schools/6th form colleges:

We are interested both in specialist sexual health clinics/advice services and in more general health initiatives for young people that may include sexual health in their remit. Are local schools/6th form colleges already involved in any of these – for example (these are possible prompts):

- A sexual health drop-in clinic or service based on school premises?
- A sexual health drop-in clinic or service based near to school premises, and linked with these through policy or planning agreements?
- A sexual health outreach service linked with school and/or involving school staff?
- A general health drop-in clinic or service based on school premises?
- A general health drop-in clinic or service based near to school premises, and linked with these through policy or planning agreements?
- A general health outreach service linked with school and/or involving school staff?
- Other relevant initiatives... ?

For any existing services, we would like a brief description if possible (or an alternative contact or source for this information, if more appropriate). The key points to cover here, in relation to each service model, are:

- the title and aims of the service and any links with local or national policies;
- the lead organisation; any partnership arrangements, if relevant;
- funding sources: education, health, voluntary sector? short-term, medium-term or long-term? mainstream or special initiative? pilot project or established service?
- is it possible to access information about the overall budget (to enable us to devise cost-effectiveness models)?
- when it was established and what the catchment area is;
- where it is physically based and what the opening hours are;
- the formal and informal relationship with local school(s) or 6th form colleges;
- whether young people have had any involvement in planning or establishing the service;
- the staffing mix (professional/qualified/unqualified; also volunteers if any, including young people as peer advisers or educators); any protocols, guidelines or training inputs for staff;
- any sources of evidence about marketing and take-up (e.g. age ranges, gender or ethnicity);
- any sources of evidence from monitoring or evaluation (e.g. published annual reports);
- any plans for future evaluation;
- any specific examples of support or opposition: for example, from parent or local community groups; from school governors or school senior management; from young people.

3 Looking ahead:

Local service development:

- Are any new developments envisaged, in terms of school-linked or SBSHS in this area? These might include changes or refinements within existing services, or entirely new initiatives.
- Are there gaps in current services that you would like to see addressed? If so, how?
- Are there any specific obstacles to the potential service developments you would like to see?
- Are there gaps in current policy (national or local) that you would like to see addressed, or changes you would like to see? If so, how?

Availability of relevant research:

- Has any specific, published research evidence been useful to you/your organisation in planning sexual health and related services for young people? (Examples could be local, national or international.)
- Are there gaps in currently available research evidence that you would like to see addressed? If so, what are the main priorities from your point of view?

4 Conclusion:

- Any other comments? or questions?
- Conclude by asking interviewee if he/she would like to receive information about the project findings when available.

Appendix 12

Study protocol

Project description: HTA Priority Area 06/69
School-linked sexual health clinics.

Project title: School-linked Sexual Health Services for Young People (SSHYP): a survey and systematic review concerning current models, effectiveness, cost-effectiveness and research opportunities.

Planned investigation

Background and research objectives

In the context of the national Teenage Pregnancy Strategy and Sexual Health and HIV Strategy, a wide range of national and local initiatives are in place with the aim of improving adolescent sexual health. The Department for Education and Skills (DfES) now provides specific guidance to schools on establishing school-based sexual health services (SBSHS), as part of wider policy commitments to 'Extended Schools' and 'Healthy Schools' (DfES 2007). However, evidence concerning interventions, including school-linked support, advice and health services, is uneven in terms of the study designs used and the questions addressed. Recent research and evaluation findings include examples of some services that are well received by young people, and also of perceived gaps and barriers (Stone and Ingham 2003). While the rates of teenage conceptions and births have been decreasing in some parts of the UK, progress has been slower and more uneven than anticipated; meanwhile the incidence and prevalence of STIs continue to cause concern.

Primary objectives

- To define and describe the range of models, settings, staffing patterns, funding arrangements and (where possible) take-up for school-linked sexual health services (SLSHS) for young people in the UK.
- To review and synthesise existing evidence from qualitative and quantitative studies, concerning the effectiveness, acceptability and cost-effectiveness of identified school-linked UK services.
- To assess the costs and benefits of specific interventions, using an appropriate baseline model.

- To identify potential areas for further research concerning SLSHS for young people in the UK.

Secondary objectives

- To establish and consult with a Project Advisory Network, including both lay and professional user representatives with experience in sexual health services.
- To extend the review of qualitative and quantitative research studies to selected reviews and primary research studies from countries in which the policy and social contexts have parallels with the UK (North America, Canada, Australia and New Zealand), in order to identify relevant service models and research findings that can inform priorities for further research.

Existing research

Recent UK research has consistently emphasised concern about rising levels of sexually transmitted infections (STIs), particularly among young people (Rogstad *et al.* 2002, Fenton *et al.* 2001, Johnson *et al.* 2001, Kane *et al.* 2003). Furthermore, despite a decline in births and conceptions to teenagers since 1999, this is uneven across the UK and also too slow to meet the Teenage Pregnancy Strategy target of a 50% decrease by 2010. Evidence from recent UK research indicates that young people, particularly, continue with sexual risk taking – including lack of condom use with casual partners and poor contraceptive compliance (Wellings *et al.* 2001, Johnson *et al.* 2001). One of the issues connected to this is the availability, accessibility and acceptability of sexual health services for young people and the ability of those services to intervene in a positive manner. In too many cases young people commence sexual activity prior to accessing services and advice.

Stone and Ingham (2003) note that an increasing proportion of young people aged under 16 are involved in sexual relationships, and that many access sexual health services after first sex, rather than beforehand. They also report that youth-oriented sexual health services are preferred by young people, in comparison with general practice

or other family planning services – a finding echoed in other studies (Donovan *et al.* 1997, Hardon and Ogdon 1999, Hayter 2005). Stone and Ingham also report that young women aged under 16 were the most likely to report a lack of awareness of sexual health services – a group also particularly at risk of chlamydia (Fenton *et al.* 2001). Finally, Stone and Ingham note an increasing uptake of sexual health advice services among younger teenagers, speculating that this may reflect the expansion in youth-oriented clinics and related facilities. Other research has also suggested that barriers faced by young people, in relation to sexual health information and advice services, include lack of awareness about services, embarrassment, worries about confidentiality and difficulty of access (Graham *et al.* 2002, Garside *et al.* 2002). These issues are especially seen in relation to general practice (Wilson and Williams 2000, Coleman 2001). Numerous studies also report the importance of listening to young people's views during the development of strategies for sexual health services, and sexualities and relationships education (SRE) (Aggleton 1997, Chambers *et al.* 2002, Hirst 2004, Hayter 2005).

Research on the sexual behaviour of young people clearly recognises the complexities of the issues involved. For example, Marston and King (2006) completed a systematic review concerning sexual behaviour among young people, based on a thematic analysis of data from qualitative studies. This emphasised the importance of a number of social factors, including for example the stigmatisation associated with condom use (indicating lack of trust in a sexual partner). At the same time, they noted the strong parallels among existing studies and the need to broaden the range and scope of research concerning sexual health and young people. However, despite these complex factors the literature does indicate that some interventions can be successful in changing the behaviour of young people – although this evidence needs to be stronger. A methodological review by Oakley *et al.* (1995) focused on sexual health education interventions for young people, but found a lack of rigorous studies: only 18% of 65 outcome evaluations were judged to meet basic methodological criteria. A major recommendation from this study was for the funding of a randomised controlled trial (RCT) with a follow-up of 5–10 years; however, our own searches have not identified any publications from a UK study of this type over the last 10 years. Graham *et al.* (2002) undertook an RCT to explore a teacher-led intervention to improve knowledge of emergency

contraception that, although demonstrating increased levels of knowledge, did not show an impact on sexual behaviour. Similarly, Dilorio *et al.* (2002) demonstrated that a school-based educational initiative based on social cognitive theory, improved self-esteem and self-efficacy skills, but the study did not measure actual impact on behaviour.

The empirical literature specifically around school-based sexual health clinics is sparse, with the majority originating from the USA. Whilst this literature can only be tangentially applied to the UK situation, it does demonstrate the potential impact for sexual health clinics within the school environment. For example, Sidebottom *et al.* (2003) demonstrated that school-based contraception clinics reduced teen pregnancy, although they did not explore other aspects of sexual health, such as STI acquisition. (Guttmacher *et al.* 1997) addressed the often-voiced concern that school-based sexual health clinics may precipitate sexual behaviour. Their study found that condom distribution via a school-based sexual health clinic did reduce the incidence of sexual risk taking, but did not increase the rates of sexual activity. A systematic review of school-based sexual health programmes was conducted by Kirby *et al.* (1994), measuring the incidence of behaviour change in 23 separate school-based clinics. The results were mixed – but some programmes did delay onset of sexual activity and reduce sexual risk-taking behaviour. Kirby *et al.* (1994) describe the features of the more successful school-based programmes as being those that concentrated upon specific, narrow goals – such as delaying intercourse or using condoms – rather than those programmes that spent time addressing other sexuality issues – such as parenting, gender roles and dating. The effective programmes also used experiential techniques to personalise information, as well as discussing media and peer influences. Fothergill and Feijoo (2000) conducted a systematic review of school-based sexual health clinics; having identified wide variations in the range of type of services offered within school-based clinics, they emphasised the need for a recognised best-practice approach. Finally, they identified the important role parental support can play in developing such services – a finding shared with a much earlier study by Santelli *et al.* (1992).

In smaller studies, several authors have claimed that school-based clinics can reduce sexual risk-taking (Bearss *et al.* 1995, Zimmer-Gembeck *et al.* 2001, McCarthy *et al.* 2005); however, these studies tended to concentrate on contraceptive

behaviour rather than broad sexual health-promoting behaviours, for example avoidance of STI. Few studies have explored the cost-effective aspect of such initiatives, although a study by Wang *et al.* (2002) did report that the implementation of school-based chlamydia screening was a cost-effective intervention when comparing treatment versus potential long-term health costs of chlamydia infection.

Within the UK there is certainly government recognition that SBSHS are an important element of sexual health promotion; indeed, this is a key element of the DfES strategy on *Extended schools: improving access to sexual health services* (DfES 2007). Importantly, this strategy document highlights the need for school-based clinics, given the difficulties young people often have accessing 'mainstream' sexual health services. The policy echoes the Department for Education and Employment (DfEE) (2000) guidance that SRE should 'provide young people with information about different types of contraception, safe sex and how they can access local sources of further advice and treatment' (p. 10). The need to develop targeted services is clearly recognised within the UK literature (Ingham 1996, Baird *et al.* 2002, Garside *et al.* 2002). However, there is also a need for much stronger evidence on what type of service works best, what range of activities should be included and who should deliver them.

Research methods

Phases One and Two will overlap; Phases Three and Four will follow as distinct activities.

Phase One: telephone survey, school nursing questionnaire and mapping exercise

A combination of a telephone survey (service coordinators and managers) and questionnaire survey (school nurses) is designed to capture details concerning current service delivery models and structures (including any imminent planned developments and completed evaluations). We are aware of substantial processes of organisational change, service development and policy development in this area [including primary care trust (PCT) reconfiguration, the development of Children's Trusts, local authority (LA) service districts and service directorates for children and young people]. The key contact for describing SLSHS may therefore be location- and context-specific. The sampling approach for the telephone survey will be sensitive to this. We will contact lead personnel for the Teenage Pregnancy Strategy

and Sexual Health Strategy, in the 10 English Strategic Health Authorities, and in Public Health/Health Promotion networks within the NHS in Wales, Scotland and Northern Ireland, using our Advisory Network contacts and a snowball sampling approach to locate appropriate contacts. The initial contact will receive a letter outlining the project and inviting consent to take part. We expect to involve approximately 50 respondents in total. Interviews will be digitally recorded and transcribed. Team members have found this approach successful in maximising access to service managers (Cooke *et al.* 2002). To complement this 'top-down' approach, we have secured agreement with the Community Practitioners' and Health Visitors' Association (CPHVA) to circulate a questionnaire via the organisation's school nurse database (1500 members). The questionnaire will be designed and piloted in consultation with Ros Godson (member of the Project Advisory Network and CPHVA Professional Officer for Schools and Public Health). The telephone survey and school nurse questionnaire survey will run in parallel. Data from both will include free text elements, as well as responses to closed questions. Free text responses will be coded in NVIVO in order to facilitate analysis (e.g. descriptions of current service patterns). Closed question responses will be summarised using SPSS where appropriate. Details of any published evaluations or other studies will be recorded in REFERENCE MANAGER.

Phase Two: systematic review of evidence for the effectiveness of school-linked sexual health clinics

The questions (scope), primary and secondary

We propose to undertake a mixed-method systematic review to identify the evidence for the effectiveness, feasibility and acceptability of school-linked sexual health clinics in a UK setting, including clinics in secondary schools, sixth form colleges, and linked drop-in clinics. This review will build on recent initiatives in topic areas related to children and young people (Harden and Thomas 2005; Oliver *et al.* 2005; Thomas *et al.* 2004; Graham and McDermott 2005). Our combined experience in research concerning sexual health indicates that in the UK, relevant quantitative or 'intervention' studies have been less prominent than qualitative or 'non-intervention' studies. Quantitative research offers robust evidence of the effectiveness of interventions, but can lack context and explanation; qualitative research offers context and interpretation, and can suggest feasible strategies, but does not seek to assess effectiveness on a wide scale (Dixon-Woods *et al.* 2004).

Qualitative research can also be used to establish whether an intervention is acceptable to providers and service users (Sharland *et al.* 2005).

Our mixed-method review will use appropriate types of study to answer these different questions. We will not adopt a single hierarchy of evidence, but will view the different forms of study data identified and synthesised as complementary. We will treat the different types of research separately for selection, appraisal and synthesis, applying tried-and-tested appropriate methods and tools for each element in the review (Thomas *et al.* 2004). This will enable us to avoid the limitations of converting qualitative to quantitative data, or vice versa, using the Bayesian model (Dixon-Woods *et al.* 2004, Roberts *et al.* 2002). It will also avoid some of the problems associated with evolving methods of mixed-methods synthesis, such as Critical Interpretive Synthesis (Dixon-Woods *et al.* 2006) and realist review (Pawson *et al.* 2005), which do not distinguish between study types, and apply the same criteria and methods to diverse study designs.

Our systematic review will therefore address to the following:

- The effectiveness of SLSHS, compared with standard practice, in reducing the number of STIs and unintended conceptions.
- The effect of such services on rates of sexual activity, use of contraception, levels of regretted sexual activity, risk-taking behaviour and self-confidence.
- The feasibility of such services, and their acceptability to key stake-holders (young people, parents, school governors, funding agencies).
- The cost-effectiveness of such services. This will include reviews of the literature regarding the incidence and prevalence of STIs in the defined population in the absence of the interventions. Estimates of the prevalence of different categories of related behaviour that affect the incidence of STIs in the 11–18 population will also be required to populate the cost-effectiveness model. These variables may include levels of sexual activity, and the likelihood of sexual partners who have left school.

Search strategy

We will use a variety of sources and search techniques in order to identify published and unpublished literature relating to SLSHS for young people. We will undertake comprehensive

searches in the major electronic bibliographic databases covering health, education and social care, including the Cochrane Library [Cochrane Database of Systematic Reviews (CDSR), Database of Abstracts of Reviews of Effectiveness (DARE), NHS Health Technology Assessment (HTA), NHS Economic Evaluation Database (EED)], MEDLINE, PREMEDLINE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), EMBASE, Allied and Complementary Medicine Database (AMED), Applied Social Sciences Index and Abstracts (ASSIA), International Bibliography of the Social Sciences (IBSS), Education Resources Information Center (ERIC), PsycINFO, Science Citation Index (SCI), Social Sciences Citation Index (SSCI), Health Management Information Consortium (HMIC) and Office of Health Economics Health Economic Evaluations Database (OHE HEED). We will search for recently completed research via the National Research Register (NRR), Research Findings Electronic Register (ReFeR), Index to Theses, and so on. We will also use our Advisory Network and relevant internet sources (such as the YWCA's internet site) to identify ongoing projects, evaluations and allied research. Finally, we will check the references lists of identified reviews, books and articles for additional studies and authors; where appropriate, citation searching will be conducted using the facilities available on Web of Science and CINAHL to search for specific authors and papers.

Search strategies will employ a combination of free text and, where available, keyword searching. The terms to be used will include: school or secondary school or secondary education or college (population); service or clinic or outreach (intervention); STI or STD (sexually transmitted disease) or VD (venereal disease) or STIs or diseases, including specific infections such as chlamydia, gonorrhoea and hepatitis B, pregnancy or conception (primary outcomes); or sexual activity or behaviour, or risk-taking activity or behaviour or contraception or self-confidence or self-esteem (secondary outcomes). The searches will use all relevant terms, including synonyms, acronyms, variant spellings and database keywords, where available. The search strategies will be modified for different databases to take account of the thesaurus and limitations of each. If the searches retrieve very large numbers of citations, validated filters will be added to the search strategies to identify particular study designs, such as the Cochrane Highly Sensitive Search Strategy to identify randomised trials and published filters for qualitative studies (Dickersin *et al.* 1994, Shaw

et al. 2004, Wong *et al.* 2004). The searches will not be restricted by date or language. Results of the electronic searches will be imported into REFERENCE MANAGER software and duplicates will be deleted (Reference Manager 2004). The final numbers of studies found, included and excluded, and their source, will be reported in the form of a QUOROM flowchart (Moher *et al.* 1999).

Study selection

References identified by the literature searches will be screened for relevance in three stages: first by title, then by abstract, and finally by full text, excluding at each stage those which clearly do not satisfy the inclusion and exclusion criteria (Meade and Richardson 1997). Two reviewers will each sift half of the titles and abstracts of the identified citations after a test sample has been sifted and acceptable inter-rater reliability scores achieved between the reviewers [NHS Centre for Reviews and Dissemination (CRD) 2001]. This statistic will be reported. If a question still remains over whether or not to include a study, the two reviewers will aim to reach a consensus; if consensus cannot be achieved, a third reviewer will take the decision about inclusion. All decisions will be coded and recorded in the REFERENCE MANAGER database.

If the number of relevant qualitative studies identified by the literature searches is so great that it is not feasible to combine them all within one metasynthesis, studies will be sampled using a purposive sampling strategy. This will seek to identify a wide range of types of papers reflecting as many themes or schools of thought as possible, thus reducing the danger of excluding relevant information, while reflecting diversity and promoting generalisability (Barbour and Barbour 2003; Booth 2001; Finfgeld 2003).

Where possible, we will limit the reviews to UK evidence, because of variations in cultural factors, education policies and welfare systems. However, we recognise that there are gaps in UK research in relation to school-linked services and that there may be relevant studies from other Anglophone countries in which trends in teenage conceptions and STIs have been comparable to those in the UK. We will therefore screen for relevance studies from the USA, Australia, Canada and New Zealand.

Study quality

Appropriate methods will be used to appraise each included article. The quality of RCTs and non-randomised quantitative studies will be assessed using criteria based on those proposed by the NHS

CRD (2001) in order to guide the interpretation of findings and determine the strength of the inferences drawn from the studies.

Qualitative studies will be appraised using a customised appraisal form that draws on the primary research appraisal tool proposed by Paterson *et al.* (2001) and on Sandelowski and Barroso's guide for reading qualitative studies (2002). The purpose of this appraisal is not to critique the quality of individual reports but to achieve an understanding of each study on its own terms (Sandelowski *et al.* 1997), thus enabling consideration of the ways in which the methodology used has shaped the understanding of the object of study (Paterson *et al.* 2001). Specialist advice will be obtained from experienced qualitative researchers in the team as required. Studies will be excluded for reasons of quality only if the researcher's 'political' agenda is evident throughout, or if the depth and breadth of the reported data are insufficient to suggest that the findings are trustworthy (Paterson *et al.* 2001).

Economic studies will be appraised using a standard economic evaluation checklist (Drummond *et al.* 2005).

Data extraction

For the quantitative studies, data extraction will be undertaken by one reviewer and checked by a second reviewer, using customised data extraction forms. For the qualitative studies, data extraction will be undertaken independently by two reviewers using JBI-QARI, the Joanna Briggs Institute's qualitative systematic review and synthesis software (Joanna Briggs Institute 2006). For both quantitative and qualitative studies, discrepancies will be discussed, and any that cannot be resolved will be referred for discussion to the project team.

The review of economic studies is designed to identify relevant studies with which our cost-effectiveness results can be compared, and also relevant methodological approaches, including modelling approaches and cost estimates. Data will be extracted to inform these multiple objectives.

Synthesis

The results of the quantitative studies will be summarised, and interstudy heterogeneity will be explored. Where appropriate, meta-analyses will be undertaken using the Cochrane Collaboration's REVIEW MANAGER software (The Cochrane Collaboration 2003), which derives summary statistics for each study and computes a weighted

average across the studies. For the qualitative studies, metadata-analysis and metasynthesis will be undertaken by two reviewers, using Paterson *et al.*'s metastudy techniques (2001), facilitated by use of the JBI-QARI software (Joanna Briggs Institute 2006).

Analysis of the STI and associated risk factors data will be undertaken to inform preliminary probability distributions for each required parameter (that will be refined through a process of model calibration). The analysis will, where possible, synthesise, interpolate and cross-validate the evidence. Established methods for specifying alternative distributional forms for different categories of parameters will then be used to define preliminary probability distributions (Briggs 1999, Karnon 2002).

Phase Three

The proposed study will develop a baseline model describing the incidence of STIs in a school-age population in the absence of specific interventions. Relevant interventions can then be overlaid on the baseline model to estimate the additional costs and benefits with respect to the defined outcomes, in particular, numbers of STIs and unintended conceptions. Mathematical models have been used extensively to evaluate and model the epidemiology of STIs, where the transmission dynamics are represented mathematically to describe population patterns of STI incidence (Garnett 2002). An example is the model of gonorrhoea rates in 16- to 25-year-olds, which was modelled as a function of the number of sexual partners (three groups) and ethnic groups (four groups). The model incorporated mixing patterns between men and women in the different activity and ethnic groups, as well as transmission probabilities and recovery rates (Turner *et al.* 2004). For the current study, the traditional mathematical modelling approach will be considered alongside the use of a novel simulation modelling approach. Discrete event simulation could be used to describe interactions within a closed population of young people aged 11–18 years. The model would simulate sexual activity within the population, recording the frequency of sexual activity and the incidence of relevant outcomes as attributes that inform costs and benefits, as well as the likelihood of subsequent infections. The form of model used, and the exact formulation of the model, will be determined following the initial phases of the research project, including consultation with relevant experts, including lay representatives and experienced service managers.

Clinical model parameters include baseline age-specific estimates of the frequency of sexual activity, condom use, incidence/prevalence of diagnosed and undiagnosed STIs, and unwanted conceptions, as well as transmission and pregnancy rates with and without contraception, and infection recovery rates. These parameters will be informed where possible by the planned review of the literature, unpublished primary data or elicitation from relevant lay and professional experts. It is likely that some clinical parameters will remain unpopulated, for example clinical presentation rates are not observable. Therefore, model calibration will be required. The methods of calibration will depend on the modelling technique used, but the applicants have relevant experience in calibrating models. Cost parameters for the treatment of STIs and unintended conceptions will be obtained from the literature. Cost estimates of defined interventions will be built up based on intervention provision algorithms. There may be areas of the cost-effectiveness model for which few data will be identified, and it will be necessary to elicit estimates from relevant experts. The methods used to elicit such information will be based on an ongoing research project based at the University of Sheffield. This research is part of a 3-year project that consists of a thorough literature review, experimental and theoretical research, and the application of the techniques assessed.

Another consequence of the anticipated data shortfall is an increase in the uncertainty concerning the cost-effectiveness outputs. Therefore, an analysis of the expected value of information (EVI) will be undertaken to describe the costs of the current uncertainty regarding the provision of new interventions in terms of the probability that a new intervention should be provided, and the benefits that are foregone as a result of providing a non-cost-effective intervention.

Phase Four

Synthesis and final report

The team will consider and synthesise findings from the mapping exercise, systematic review processes and modelling analyses. We will focus in depth on examining evidence concerning those interventions for which studies have shown support from young people, taking into consideration any age, gender or social differences that may be relevant. If evidence is lacking, recommendations will be made for appropriate research options. Research gaps and priorities will be identified

across the board, with reference to evidence from outside the UK where appropriate.

Planned inclusion/exclusion criteria

See *Study selection*.

Ethical arrangements

Ethical approval will be required for the telephone and questionnaire survey in Phase One of the project. As more than one domain will be involved, the application will be submitted via the Central Office for Research Ethics Committees (COREC) central allocation system. If funded, JO will submit the COREC application immediately, in advance of the project's formal start date. An appropriate information pack will be prepared for potential respondents, including invitation to participate, project background, details of safeguards concerning anonymity and confidentiality, and project team contact details.

Project timetable and milestones

Month 1 First team meeting; convene Project Advisory Network (including visits to user groups); prepare and pilot telephone interview schedule and school nurse questionnaire. Final research ethics and governance approval.

Months 2–4 Complete telephone and questionnaire survey and enter data; initiate literature searches; finalise review protocols, rating procedure and modelling options at second team meeting.

Months 4–6 Survey data analysis; consider findings at third team meeting, to inform review process.

Months 7–11 Complete distinct reviews of qualitative and quantitative studies; start synthesis, reporting to fourth team meeting. In-depth cost-effectiveness and decision modelling.

Months 12–15 Complete cost-effectiveness and modelling analyses; complete evidence synthesis and review all findings, in order to identify key findings including research gaps. Draft sections for final report.

Months 15–18 Produce final report and draft academic papers.

Expertise

Dr Jenny Owen has published research from three recent studies concerning teenage parenthood

in the UK (principal investigator in one study, co-applicant in the others). She has extensive experience in qualitative research and is currently a co-applicant in two large studies concerning family forms and relationships, funded by the Leverhulme Trust. She is also engaged in collaborative research with the Sheffield LA's Children and Young People's Directorate.

Mr Chris Carroll is experienced in designing and conducting literature searches and systematic reviews, in health and social care contexts, using a mixed-methods approach.

Ms Jo Cooke has extensive experience in nursing practice, in applied research and in partnership work with health and social care agencies. She has carried out research on teenage pregnancy and parenthood, including research on the sexual health needs of looked-after young people.

Dr Jon Karnon is a health economist who specialises in decision analytic modelling. He has worked on a wide range of systematic reviews and model-based economic evaluations, including a range of screening evaluations.

Ms Eleanor Formby is an experienced social researcher, with expertise in survey design, data collection and data analysis (qualitative/quantitative). She has experience in primary research and in literature reviews concerning youth, teenage parenthood and sexuality.

Dr Mark Hayter is a senior lecturer in nursing with extensive experience in research concerning sexual health, including research about young people, contraception and sexual health services.

Dr Julia Hirst is a senior lecturer in sociology who also has experience in delivering and advising on sex and relationship education (SRE). She is a member of the Sheffield Sexual Health Network. Her research experience includes studies and evaluations concerning teenage pregnancy, SRE, and the needs and views of young men in relation to sexual health.

Dr Myfanwy Lloyd-Jones is a senior research fellow with extensive experience in systematic reviewing. She has contributed to published reviews in a wide range of areas, and has also published work on

the application of systematic review methods to qualitative research.

Ms Helen Stapleton is a midwifery researcher who has completed studies concerning teenage pregnancy and motherhood and informed choice in maternity services. (Her PhD thesis on teenage motherhood was submitted in autumn 2006.)

Collaborators The heads of service at the Sheffield Centre for HIV and Sexual Health (Steve Slack), the Doncaster PCT Sexual Health service (Christina Harrison) and the Sheffield Central Health Clinic Young People's Community-Based Sexual Health Services (Kerry Parkin) have all agreed to join the project Advisory Network if our application is successful. Ros Godson (Professional Officer for Schools and Public Health from the Community Practitioners' and Health Visitors' Association) has also agreed to take part, to advise on the school nurse survey as well as other aspects of the project. After an initial Advisory Network meeting, we envisage consultation and planning with these professional advisers via phone and e-mail, until interim findings are available to present at a further meetings.

Service users

The project team plans to invite young people with experience of accessing sexual health services to join the project Advisory Network. The aim here is to ensure that both plans and findings (interim and final) are scrutinised from user perspectives. Team members have experience of working with young people as peer interviewers (JH, EF) and also have established links with groups of young people associated with the Sheffield Centre for HIV and Sexual Health, the YWCA in Doncaster (JH, EF) and the Doncaster PCT Sexual Health Service (MH). Through these links, the team will consult with young people and confirm arrangements for regular discussion. We envisage visiting youth group meetings in Sheffield and Doncaster to outline the project, and then inviting group representatives to small consultation meetings at venues of their choice. Expenses have been included in the budget.

Justification of support requested

The project is designed to be completed within 18 months. JO, JC, JH, MH and HS are in established academic posts (grades 8 and 9) and will provide project management (JO), advice on service-mapping (JH to coordinate; JC, MH, HS to advise) and contributions to the selection, review and synthesis of study data. Their input is

estimated at 10% full-time equivalent (FTE) (JO, JH), 6% (JC) and 3% (MH, HS) over the lifetime of the project. Owing to the relative complexity of the context and the topic area in terms of available evidence, we have costed for substantial input from a senior systematic reviewer throughout the project (45% FTE at grade 9, with additional 5% FTE input for support from MLJ, also grade 9). For the same reason, health economics and modelling input is provided at 30% FTE for 17 months (JK, grade 9). CC is costed at 30% FTE for literature search, rating and review, at grade 7. EF is costed for 50% for the first 6 months, at grade 7, to carry out the telephone and questionnaire survey; she is costed at 10% for the remaining 12 months of the project, to complete data analysis and contribute to evidence syntheses, articles and reports. We have budgeted for clerical support at 20% FTE throughout the project, to assist with the telephone and questionnaire survey (administration, data entry, transcription, reference management) and to support the production of final reports. We have budgeted for one PC and printer (£1154); consumables including modelling software and licence, digital voice recorder and transcription software, postage and other office expenses (£8750); and advisory network and user consultation expenses (£2000). Interlibrary loans are costed at £2250, and additional information resources support at £1250.

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Appendix I3

List of search strategies and dates

AMED (Allied and Complementary Medicine) database: (1985 to January 2008)

Search strategy

1. exp Schools/ or exp schools, middle/ or exp schools, secondary/ (591)
2. school\$.tw. (3330)
3. (secondary adj1 (school\$ or education)).tw. (92)
4. (sbc or sbhc).tw. (3)
5. or/1-4 (3469)
6. (service\$ or clinic\$ or outreach\$).tw. (41879)
7. exp Sexually Transmitted Disease/ (32)
8. (sexually transmit\$ or STI or STD or pregnanc\$ or conception\$).tw. (1455)
9. ((sexual\$ or risk\$) adj2 (activ\$ or behav\$)).tw. (411)
10. or/7-9 (1845)
11. 5 and 6 and 10 (12)
12. limit 11 to yr="1985 - 2008" (12)

ASSIA (Applied Social Sciences Index and Abstracts)

Thu Jan 17 16:14:42 UTC 2008

Cambridge Scientific Abstracts (CSA)

Database: ASSIA

Query: (((((sexual* activ*) or (risk* activ*) or (sexual* behav*)) or (risk* behav*)) or (((sexually transmit*) or STI or STD) or (pregnanc* or conception*)) or (DE=("sexually transmitted diseases" or "chancroid" or "chlamydia trachomatis" or "donovanosis" or "gardnerella vaginalis" or "genital herpes" or "genital human papillomavirus infection" or "genital mycosis" or "gonococcal infection" or "gonorrhoea" or "syphilis" or "congenital syphilis" or "trichomoniasis" or "vaginal schistosomiasis")))) and (service* or clinic* or outreach*) and ((sbc or sbhc) or ((secondary school*) or (secondary education)) or (school*) or (DE="secondary education") or (DE=("secondary schools" or "city

technology colleges")) or (DE="middle schools") or (DE=("schools" or "boarding schools" or "charter schools" or "classroom management" or "classrooms" or "comprehensive schools" or "denominational schools" or "missionary schools" or "protestant missionary schools" or "roman catholic schools" or "elementary schools" or "girls schools" or "grammar schools" or "grant maintained schools" or "high schools" or "continuation high schools" or "hospital schools" or "independent schools" or "infant schools" or "international schools" or "junior high schools" or "junior schools" or "junior secondary schools" or "kindergartens" or "language schools" or "middle schools" or "neighbourhood schools" or "nursery schools" or "preparatory schools" or "preschools" or "primary schools" or "private schools" or "public schools" or "religious schools" or "islamic schools" or "jewish schools" or "residential schools" or "religious residential schools" or "secondary schools" or "city technology colleges" or "special schools" or "steiner schools" or "summer schools" or "sunday schools" or "supplementary schools" or "truancy"))))

CINAHL (Cumulative Index to Nursing and Allied Health Literature) (1982 to December, week 1, 2007)

Search Strategy

1. exp Schools/ or exp schools, middle/ or exp schools, secondary/ (16164)
2. school\$.tw. (29388)
3. (secondary adj1 (school\$ or education)).tw. (809)
4. (sbc or sbhc).tw. (41)
5. or/1-4 (39840)
6. (service\$ or clinic\$ or outreach\$).tw. (213360)
7. exp Sexually Transmitted Diseases/ (30917)
8. (sexually transmit\$ or STI or STD or pregnanc\$ or conception\$).tw. (21172)
9. ((sexual\$ or risk\$) adj2 (activ\$ or behav\$)).tw. (6785)
10. or/7-9 (52969)
11. 5 and 6 and 10 (512)

Science and Social Sciences Citation Indexes

DocType=All document types; Language=All languages; Databases=SCI-EXPANDED, SSCI; Timespan=1985-2008

- #1 TS=(school* or secondary education or sbc or sbhc)
- #2 TS=(service* or clinic* or outreach*)
- #3 TS=(sexually transmit* or STI or STD or pregnanc* or conception*)
- #4 TS=((sexual* or risk*) SAME (activ* or behav*))
- #5 #4 OR #3
- #6 #5 AND #2 AND #1

Cochrane Library

- #1 MeSH descriptor Schools explode all trees
- #2 (school*):ti or (school*):ab
- #3 (secondary near/1 (school* or education)):ti or (secondary near/1 (school* or education)):ab
- #4 (sbc or sbhc):ti or (sbc or sbhc):ab
- #5 (#1 OR #2 OR #3 OR #4)
- #6 (service* or clinic* or outreach*):ti or (service* or clinic* or outreach*):ab
- #7 MeSH descriptor Sexually Transmitted Diseases explode all trees
- #8 (sexually transmit* or STI or STD or pregnanc* or conception*):ti or (sexually transmit* or STI or STD or pregnanc* or conception*):ab
- #9 ((sexual* or risk*) NEAR/2 (activ* or behav*)):ti or ((sexual* or risk*) NEAR/2 (activ* or behav*)):ab
- #10 (#7 OR #8 OR #9)
- #11 (#5 AND #6 AND #10)

EMBASE (1980–2008 week 2)

Search strategy

1. exp School/ (34564)
2. exp High School/ or exp Middle School/ (3666)
3. school\$.ab,ti. (69489)
4. (secondary adj1 (school\$ or education)).ab,ti. (2468)
5. (sbc or sbhc).ab,ti. (374)
6. 1 or 2 or 3 or 4 or 5 (87317)
7. (service\$ or clinic\$ or outreach\$).ab,ti. (1484230)
8. exp Sexually Transmitted Disease/ (26552)
9. (sexually transmit\$ or STI or STD or pregnanc\$ or conception\$).ab,ti. (172714)

10. ((sexual\$ or risk\$) adj2 (activ\$ or behav\$)).ab,ti. (24775)
11. 8 or 9 or 10 (208639)
12. 6 and 7 and 11 (1125)

ERIC (Education Resources Information Center)

Fri Jan 18 16:38:03 UTC 2008

CSA

Database: ERIC

Query: (((sexual* activ*) or (sexual* behav*) or (risk* activ*)) or (risk* behav*)) or (((sexually transmit*) or STI or STD) or (pregnanc* or conception*)) or (DE="sexually transmitted diseases") and (service* or clinic* or outreach*) and ((sbc or sbhc) or ((secondary school*) or (secondary education)) or (school*) or (DE="secondary schools" or "high schools" or "vocational high schools" or "junior high schools")) or (DE="middle schools") or (DE="schools" or "affiliated schools" or "bilingual schools" or "boarding schools" or "residential schools" or "british infant schools" or "colleges" or "agricultural colleges" or "black colleges" or "church related colleges" or "cluster colleges" or "commuter colleges" or "dental schools" or "developing institutions" or "experimental colleges" or "law schools" or "library schools" or "medical schools" or "multicampus colleges" or "noncampus colleges" or "private colleges" or "public colleges" or "community colleges" or "state colleges" or "state universities" or "residential colleges" or "selective colleges" or "single sex colleges" or "small colleges" or "two year colleges" or "technical institutes" or "universities" or "land grant universities" or "open universities" or "research universities" or "urban universities" or "upper division colleges" or "community schools" or "consolidated schools" or "correspondence schools" or "day schools" or "disadvantaged schools" or "elementary schools" or "experimental schools" or "folk schools" or "free schools" or "freedom schools" or "inclusive schools" or "international schools" or "laboratory schools" or "magnet schools" or "middle schools" or "military schools" or "montessori schools" or "multiunit schools" or "neighborhood schools" or "nursery schools" or "open plan schools" or "private schools" or "parochial schools" or "catholic schools" or "proprietary schools" or

“professional development schools” or “public schools” or “charter schools” or “racially balanced schools” or “regional schools” or “rural schools” or “schools of education” or “secondary schools” or “high schools” or “vocational high schools” or “junior high schools” or “single sex schools” or “slum schools” or “small schools” or “one teacher schools” or “special schools” or “institutional schools” or “hospital schools” or “state schools” or “suburban schools” or “summer schools” or “traditional schools” or “transitional schools” or “urban schools” or “vocational schools” or “career academies” or “year round schools”))

HMIC (Health Management Information Consortium)

No. records request

1. 222 explode “SCHOOL-HEALTH-SERVICES”
2. 7979 school*
3. 5263 school* in ti, ab
4. 1 sbc
5. 0 sbc in ti, ab
6. 0 sbhc
7. 0 sbhc in ti, ab
8. 5263 #3 or #5 or #7
9. 119400 service*
10. 68808 service* in ti, ab
11. 32572 clinic*
12. 26033 clinic* in ti, ab
13. 642 outreach*
14. 591 outreach* in ti, ab
15. 87009 #10 or #12 or #14
16. 1915 #8 and #9
17. 1938 #1 or #16
18. 410 explode “SEXUALLY-TRANSMITTED-DISEASES”
19. 926 sexually
20. 1007 transmit*
21. 50 STI
22. 158 STD
23. 2564 pregnanc*
24. 501 conception*
25. 2595 (sexually transmit* or STI or STD or pregnanc* or conception*) in ti, ab
26. 3714 sexual*
27. 16509 risk*
28. 12415 activ*
29. 9150 behav*
30. 1406 (sexual* or risk*) near ((activ* or behav*) in ti, ab)
31. 3967 #18 or #25 or #30
32. 82 #17 and #31
33. 274799 PY = 1985-2008
34. 79 #32 and (PY = 1985-2008)

IBSS (International Bibliography of the Social Sciences) (1951 to January, week 1, 2008)

Search strategy

1. [exp Schools/] (0)
2. school\$.tw. (20094)
3. (secondary adj1 (school\$ or education)).tw. (1420)
4. (sbc or sbhc).tw. (11)
5. or/1-4 (20382)
6. (service\$ or clinic\$ or outreach\$).tw. (33636)
7. [exp Sexually Transmitted Diseases/] (0)
8. (sexually transmit\$ or STI or STD or pregnanc\$ or conception\$).tw. (8443)
9. ((sexual\$ or risk\$) adj2 (activ\$ or behav\$)).tw. (2037)
10. or/7-9 (10303)
11. 5 and 6 and 10 (42)
12. limit 11 to yr=“1985 - 2008” (41)

Index to Theses

ti contains (school*) and (service* or clinic* or outreach*)

MEDLINE(R) (Ovid) (1950 to January, week 1, 2008)

Search strategy

1. exp Schools/ (56276)
2. school\$.tw. (119670)
3. (secondary adj1 (school\$ or education)).tw. (3657)
4. (sbc or sbhc).tw. (445)
5. or/1-4 (155223)
6. (service\$ or clinic\$ or outreach\$).tw. (1847903)
7. exp Sexually Transmitted Diseases/ (205484)
8. (sexually transmit\$ or STI or STD or pregnanc\$ or conception\$).tw. (236472)
9. ((sexual\$ or risk\$) adj2 (activ\$ or behav\$)).tw. (29705)
10. or/7-9 (445229)
11. 5 and 6 and 10 (1709)
12. limit 11 to yr=“1985 - 2008” (1624)

MEDLINE(R) (Ovid) In-Process & Other Non-Indexed Citations (15 January 2008)

Search strategy

1. exp Schools/ (0)
2. school\$.tw. (3284)
3. (secondary adj1 (school\$ or education)).tw. (134)
4. (sbc or sbhc).tw. (20)
5. or/1-4 (3318)

6. (service\$ or clinic\$ or outreach\$).tw. (52673)
7. exp Sexually Transmitted Diseases/ (1)
8. (sexually transmit\$ or STI or STD or pregnanc\$ or conception\$).tw. (5774)
9. ((sexual\$ or risk\$) adj2 (activ\$ or behav\$)).tw. (947)
10. or/7-9 (6560)
11. 5 and 6 and 10 (47)
12. limit 11 to yr="1985 - 2008" (47)

National Research Register

school* and service* or clinic* or outreach* in title

PsycINFO (1967 to January, week 2, 2008)

Search strategy

1. exp Schools/ or exp schools, middle/ or exp schools, secondary/ (19309)
2. school\$.tw. (178582)
3. (secondary adj1 (school\$ or education)).tw. (10630)
4. (sbc or sbhc).tw. (64)
5. or/1-4 (184446)

6. (service\$ or clinic\$ or outreach\$).tw. (336951)
7. exp Sexually Transmitted Disease/ (20694)
8. (sexually transmit\$ or STI or STD or pregnanc\$ or conception\$).tw. (35653)
9. ((sexual\$ or risk\$) adj2 (activ\$ or behav\$)).tw. (26818)
10. or/7-9 (73473)
11. 5 and 6 and 10 (1026)
12. limit 11 to yr="1985 - 2008" (939)

Research Findings Electronic Register (ReFeR)

school* and service* or clinic* or outreach* in title

SCIE (Social Care Institute for Excellence) Research Register

SCIE Research Register searched for "school*" as topic

0 records for: secondary education, sbc, sbhc

0 records for: school* and clinic* or service* or outreach*

Health Technology Assessment reports published to date

Volume 1, 1997

No. 1

Home parenteral nutrition: a systematic review.

By Richards DM, Deeks JJ, Sheldon TA, Shaffer JL.

No. 2

Diagnosis, management and screening of early localised prostate cancer.

A review by Selley S, Donovan J, Faulkner A, Coast J, Gillatt D.

No. 3

The diagnosis, management, treatment and costs of prostate cancer in England and Wales.

A review by Chamberlain J, Melia J, Moss S, Brown J.

No. 4

Screening for fragile X syndrome.

A review by Murray J, Cuckle H, Taylor G, Hewison J.

No. 5

A review of near patient testing in primary care.

By Hobbs FDR, Delaney BC, Fitzmaurice DA, Wilson S, Hyde CJ, Thorpe GH, *et al.*

No. 6

Systematic review of outpatient services for chronic pain control.

By McQuay HJ, Moore RA, Eccleston C, Morley S, de C Williams AC.

No. 7

Neonatal screening for inborn errors of metabolism: cost, yield and outcome.

A review by Pollitt RJ, Green A, McCabe CJ, Booth A, Cooper NJ, Leonard JV, *et al.*

No. 8

Preschool vision screening.

A review by Snowdon SK, Stewart-Brown SL.

No. 9

Implications of socio-cultural contexts for the ethics of clinical trials.

A review by Ashcroft RE, Chadwick DW, Clark SRL, Edwards RHT, Frith L, Hutton JL.

No. 10

A critical review of the role of neonatal hearing screening in the detection of congenital hearing impairment.

By Davis A, Bamford J, Wilson I, Ramkalawan T, Forshaw M, Wright S.

No. 11

Newborn screening for inborn errors of metabolism: a systematic review.

By Seymour CA, Thomason MJ, Chalmers RA, Addison GM, Bain MD, Cockburn F, *et al.*

No. 12

Routine preoperative testing: a systematic review of the evidence.

By Munro J, Booth A, Nicholl J.

No. 13

Systematic review of the effectiveness of laxatives in the elderly.

By Petticrew M, Watt I, Sheldon T.

No. 14

When and how to assess fast-changing technologies: a comparative study of medical applications of four generic technologies.

A review by Mowatt G, Bower DJ, Brebner JA, Cairns JA, Grant AM, McKee L.

Volume 2, 1998

No. 1

Antenatal screening for Down's syndrome.

A review by Wald NJ, Kennard A, Hackshaw A, McGuire A.

No. 2

Screening for ovarian cancer: a systematic review.

By Bell R, Petticrew M, Luengo S, Sheldon TA.

No. 3

Consensus development methods, and their use in clinical guideline development.

A review by Murphy MK, Black NA, Lamping DL, McKee CM, Sanderson CFB, Askham J, *et al.*

No. 4

A cost-utility analysis of interferon beta for multiple sclerosis.

By Parkin D, McNamee P, Jacoby A, Miller P, Thomas S, Bates D.

No. 5

Effectiveness and efficiency of methods of dialysis therapy for end-stage renal disease: systematic reviews.

By MacLeod A, Grant A, Donaldson C, Khan I, Campbell M, Daly C, *et al.*

No. 6

Effectiveness of hip prostheses in primary total hip replacement: a critical review of evidence and an economic model.

By Faulkner A, Kennedy LG, Baxter K, Donovan J, Wilkinson M, Bevan G.

No. 7

Antimicrobial prophylaxis in colorectal surgery: a systematic review of randomised controlled trials.

By Song F, Glenny AM.

No. 8

Bone marrow and peripheral blood stem cell transplantation for malignancy.

A review by Johnson PWM, Simnett SJ, Sweetenham JW, Morgan GJ, Stewart LA.

No. 9

Screening for speech and language delay: a systematic review of the literature.

By Law J, Boyle J, Harris F, Harkness A, Nye C.

No. 10

Resource allocation for chronic stable angina: a systematic review of effectiveness, costs and cost-effectiveness of alternative interventions.

By Sculpher MJ, Petticrew M, Kelland JL, Elliott RA, Holdright DR, Buxton MJ.

No. 11

Detection, adherence and control of hypertension for the prevention of stroke: a systematic review.

By Ebrahim S.

No. 12

Postoperative analgesia and vomiting, with special reference to day-case surgery: a systematic review.

By McQuay HJ, Moore RA.

No. 13

Choosing between randomised and nonrandomised studies: a systematic review.

By Britton A, McKee M, Black N, McPherson K, Sanderson C, Bain C.

No. 14

Evaluating patient-based outcome measures for use in clinical trials.

A review by Fitzpatrick R, Davey C, Buxton MJ, Jones DR.

No. 15

Ethical issues in the design and conduct of randomised controlled trials.

A review by Edwards SJL, Lilford RJ, Braunholtz DA, Jackson JC, Hewison J, Thornton J.

No. 16

Qualitative research methods in health technology assessment: a review of the literature.

By Murphy E, Dingwall R, Greatbatch D, Parker S, Watson P.

No. 17

The costs and benefits of paramedic skills in pre-hospital trauma care.

By Nicholl J, Hughes S, Dixon S, Turner J, Yates D.

No. 18

Systematic review of endoscopic ultrasound in gastro-oesophageal cancer.

By Harris KM, Kelly S, Berry E, Hutton J, Roderick P, Cullingworth J, *et al.*

No. 19

Systematic reviews of trials and other studies.

By Sutton AJ, Abrams KR, Jones DR, Sheldon TA, Song F.

No. 20

Primary total hip replacement surgery: a systematic review of outcomes and modelling of cost-effectiveness associated with different prostheses.

A review by Fitzpatrick R, Shortall E, Sculpher M, Murray D, Morris R, Lodge M, *et al.*

Volume 3, 1999

No. 1

Informed decision making: an annotated bibliography and systematic review.

By Bekker H, Thornton JG, Airey CM, Connelly JB, Hewison J, Robinson MB, *et al.*

No. 2

Handling uncertainty when performing economic evaluation of healthcare interventions.

A review by Briggs AH, Gray AM.

No. 3

The role of expectancies in the placebo effect and their use in the delivery of health care: a systematic review.

By Crow R, Gage H, Hampson S, Hart J, Kimber A, Thomas H.

No. 4

A randomised controlled trial of different approaches to universal antenatal HIV testing: uptake and acceptability. Annex: Antenatal HIV testing – assessment of a routine voluntary approach.

By Simpson WM, Johnstone FD, Boyd FM, Goldberg DJ, Hart GJ, Gormley SM, *et al.*

No. 5

Methods for evaluating area-wide and organisation-based interventions in health and health care: a systematic review.

By Koukounne OC, Gulliford MC, Chinn S, Sterne JAC, Burney PGJ.

No. 6

Assessing the costs of healthcare technologies in clinical trials.

A review by Johnston K, Buxton MJ, Jones DR, Fitzpatrick R.

No. 7

Cooperatives and their primary care emergency centres: organisation and impact.

By Hallam L, Henthorne K.

No. 8

Screening for cystic fibrosis.

A review by Murray J, Cuckle H, Taylor G, Littlewood J, Hewison J.

No. 9

A review of the use of health status measures in economic evaluation.

By Brazier J, Deverill M, Green C, Harper R, Booth A.

No. 10

Methods for the analysis of quality-of-life and survival data in health technology assessment.

A review by Billingham LJ, Abrams KR, Jones DR.

No. 11

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