

Facilitators and barriers to the delivery of school-based interventions to prevent the uptake of smoking among children: A systematic review of qualitative research

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1. EXECUTIVE SUMMARY

This report describes findings from a systematic review of qualitative research on school-based interventions to prevent the uptake of smoking among children in order to explore what factors aid the delivery of effective interventions and the barriers to successful delivery.

Methods: The review was conducted in four stages: search, screening, critical appraisal and synthesis. A total of 10625 abstracts were screened from English language publications published between 1990 to 2008. Full paper copies of 59 articles and reports were obtained. 21 articles were data extracted and quality assessed in the final review.

Results: The qualitative studies reviewed were of mixed quality, many were from the USA and some were mixed methods papers containing little qualitative data. However, a number of themes emerged from the papers and these were grouped into six topics.

Delivery context of the intervention. Facilitators include: timing to suit school assessment schedules; including multiple sessions; delivering school-based prevention as part of a wider tobacco control strategy; and involving other organizations in design and delivery. The main barrier is delivering prevention in schools where staff are smokers.

Characteristics of young people receiving the intervention. Where young people receiving the intervention are regular smokers, where they live with smokers, where community smoking rates are high and where those receiving school-based prevention are older teenagers, barriers to delivery can exist.

Peer interventions. Interventions that address peer-smoking norms through involving young people in delivery can be effective and can be facilitated by: peer-supporter nomination by fellow students; training for peer-supporters delivered by professionals away from school; flexibility in delivery; supporting peer interventions with other prevention materials; and good communication between external intervention development teams and the school.

Delivery mechanisms. Facilitators include: delivery of the intervention by trusted external professionals; delivery by non-smoking teachers; and involvement of parents. Barriers include teacher's reluctance to discuss parental smoking and the use of outdated communication methods in delivery.

Smokefree schools. The introduction and enforcement of smokefree school policies can act as an important facilitator (or barrier if smoking is permitted, even in the grounds) to school-based prevention interventions.

Programme content. A range of elements of programme content can act as facilitators, including, among others, content that is innovative, interactive, includes role play, includes new material and is culturally sensitive. Barriers include fear-based approaches and content that is too complex.

The studies reviewed provide a body of ++, + and – qualitative evidence that provides a useful insight into the factors that influence how well prevention messages are conveyed and what elements of particular programmes are viewed as effective by those delivering and those receiving the intervention.

2. SUMMARY EVIDENCE STATEMENTS

We provide here summary evidence statements illustrating the strength and applicability of evidence in relation to the six main themes identified by the review.

1. Delivery Context

Evidence from two UK (one ++, one +), one Canadian (++) and three American (three +) qualitative studies (Audrey et al, 2008, Dobbins et al, 2008, Hartland et al, 1996, Mahoney et al, 2000, Ott and Doyle, 2005, Sy and Glanz, 2008) suggests that aspects of the delivery context of school-based interventions act as barriers or facilitators to effective delivery. The main facilitators were:

- Timing the intervention to suit (i.e. not conflict with) school assessment schedules
- Timing the intervention to include multiple sessions over the course of a school year
- Reinforcing smoking prevention messages in school curricula until school leaving age
- Delivering school-based prevention interventions as part of a wider tobacco control strategy
- Involving key partner organisations in design and delivery (such as the school nursing service and universities)

The main barrier was:

- Delivering of the intervention in a setting where teachers and other school staff are smokers

2. Characteristics of Young People

There is evidence from three UK (one ++, one + and one -) and two American (two ++) qualitative studies (Audrey et al, 2006, Cole, 2000, D'Emidio-Casten et al, 1998, Mitschke et al, 2006, Spratt and Shucksmith, 2006) that particular characteristics of young people receiving the intervention (and their families and communities) can act as barriers. The main barriers were:

- The presence of regular smokers amongst young people receiving the intervention
- The presence of occasional smokers or those 'experimenting' with cigarettes amongst young people receiving the intervention
- The presence of young people who come from households with one or more smokers
- The presence of young people who come from communities with high smoking prevalence
- The age of young people – older teenagers can be more critical of prevention messages

3. Peer Interventions

There is evidence from three UK (two ++ and one +) and one American (+) study and one systematic review (++) (Audrey et al, 2006, Audrey et al, 2008, Newman et al, 1991, Ott and Doyle, 2005, Walsh and Tzelepis, 2007) that interventions that directly address peer smoking norms through involving young people in delivery can facilitate the successful implementation of school-based prevention interventions. The main facilitators to the delivery of peer interventions were:

- Nomination of peer-supporters by fellow students
- Training for peer supporters delivered away from school and by external professionals
- Flexibility for peer-supporters in how and when they deliver the intervention
- Adding 'value' to peer intervention by inclusion of other prevention education materials (i.e. videos) in schools
- Good communication between the external intervention development/research team and school staff

Barriers to the delivery of peer interventions were:

- Teacher's concern about 'suitability' of some peer supporters selected by fellow students
- Peer norms and peer group structure can influence how much and when adolescents smoke, and can also influence the extent to which young people are receptive to prevention messages delivered by peers

4. Delivery Mechanisms

There is evidence from three UK (one ++, one + and one -) and three American (three +) qualitative studies (Cain et al, 2006, Hahn et al, 1996, Hartland et al, 1998, Newman et al, 1991, Spratt and Shucksmith, 2006, Sy and Glanz, 2008) that specific elements of the delivery mechanism for school-based prevention interventions can act as facilitators or barriers. Facilitators include:

- Delivery of the intervention by trusted external professionals (such as doctors)
- Delivery of the intervention by non-smoking teachers
- Delivery of the intervention by teachers with higher self-efficacy
- Involvement of parents in delivery (primarily delivery of supporting materials at home)

Barriers included:

- Delivery of the intervention by teachers who are reluctant to discuss parental smoking
- Delivery of the intervention by teachers who use outdated methods to communicate prevention messages

5. Smokefree Schools

There is evidence from one UK (+), one Canadian (++) and one American (-) study (Badovinac, 1994, Baillie et al, 2008, Hartland et al, 1991) that the extent and enforcement of smokefree school policies can act as a facilitator or barrier to school-based smoking prevention. Facilitators included:

- Smokefree policies that include all internal areas and all school grounds
- Smokefree policies that applied to staff as well as pupils

Barriers included:

- Existing designated smoking areas in school grounds or buildings
- Poor enforcement of smokefree policies

6. Programme Content

There is evidence from seven American (seven +), one Canadian (++) and one UK (-) qualitative studies (Brown et al, 1995, Brown et al, 1997, Cain et al, 2006, Dobbins et al, 2008, D'Emidio-Casten et al, 1998, Hahn, 1996, Mitschke et al, 2008, Newman et al, 1991, Ott and Doyle, 1995, Parker et al, 1996, Sy and Glanz, 2008, Zavela, 2004) that specific elements of programme content can act as facilitators or barriers to the delivery of school-based prevention interventions. Facilitators include:

- Content that is innovative and interactive
- Content that includes role play
- Content that includes new material, such as on the cost of smoking
- Content that includes correcting misconceptions of high smoking prevalence amongst young people
- Content that is ethnically and culturally sensitive
- Content that is non-judgmental
- Content that included de-normalisation approaches (building on the Florida 'Truth' campaign approach, exposing the activities of the tobacco industry)

Barriers include:

- Content that included fear-based approaches to prevention
- Content that is too complex

3. INTRODUCTION

Reducing smoking uptake amongst young people is a policy priority in many developed countries, and England is no exception. In the recent national consultation on the future of tobacco control, the Department of Health stated that (DH, 2008, pg. 24):

The Government ... remains concerned about the uptake of smoking by young people, which perpetuates tobacco use and subsequent poor health in our communities ... To reduce the impact of tobacco on health and well-being in future generations, we must do more to prevent young people from taking up smoking in the first place. The Government is committed to doing more to protect young people from the harm of smoking.

The government's concern about smoking by young people stems from the fact that a small but significant number of young people continue to start smoking every year, and smoking rates are particularly high amongst some groups. Reductions in smoking amongst young people have not been as consistent as those amongst adult smokers, with smoking amongst 11-15 year olds declining by only one percentage point between 2001 and 2006 (Fuller, 2008). The prevalence of smoking amongst young people in England is measured in a number of surveys, but the main source for school-aged young people is the annual Smoking, Drinking and Drug Use in Young People survey. The most recent results from this survey suggest that 6% of young people aged 11 to 15 are regular smokers (Fuller, 2008). However, there are differences between groups of young people. For example, girls between the ages of 11 and 15 (8%) are more likely to be regular smokers than boys (5%). Smoking rates also increase with age - 15% of 15 year olds are regular smokers compared to only 1% of 11 year olds (Fuller, 2008). Young people from more disadvantaged areas are more likely to be smokers and more likely to start smoking at a younger age. Overall, risk factors associated with youth smoking include lower socioeconomic status, being female, mental illness, low parental education and living in a single parent household (BMA, 2007).

The school setting provides an important venue for efforts to reduce smoking uptake by young people. Almost all smokers start during their school years, and school environment can play an important role in determining who starts smoking and when. Studies have shown, for example, that smoking rates are lower in schools that have smokefree policies and that young people are more likely to start smoking when exposed to a peer group that includes regular smokers (Markham et al, 2008).

Despite the importance of the school setting, evidence of the effectiveness of school-based prevention interventions is mixed. A number of systematic reviews have been conducted, with several published recently (Flay, 2007, Flay, 2008, Fletcher et al, 2008, Thomas and Perera, 2006) and summarised in a report on young people and smoking submitted to the Department of Health in February 2009 (Amos et al, 2009). In particular, the Amos et al report highlights Flay's analysis of the potential long term effects of school-

based interventions which concludes that they can have long term effects if they take the form of interactive social skills or social influences programmes (rather than just information giving), if they involve 15 or more sessions up to aged 14-15 and if they produce substantial short term effects (Flay in Amos et al, 2009). However, many schools-based interventions have not included these components and there remains some uncertainty about what forms of intervention are most successful, particularly in different types of communities and with different age-groups.

A particularly promising approach to schools based prevention is the ASSIST (A Stop Smoking in Schools Trial) programme. Results from its two year follow up were published after the reviews listed above were completed (Campbell et al, 2008). ASSIST involved a peer-led intervention in schools in Wales and Bristol. At all three follow-up points the odds of being a smoker in intervention compared with control schools was significantly lower. The intervention involved school pupils selecting peer supporters who were then trained by external professionals to deliver prevention messages over a ten week period. The trial included a process evaluation with qualitative elements and the main qualitative articles are included in this review (Audrey et al, 2006, Audrey et al, 2008).

Background to the Review

Despite the existence of a number of systematic reviews of the effectiveness of school-based interventions for smoking prevention, these reviews have not included evidence from qualitative research in schools. To our knowledge, no qualitative systematic review in this area has been published to date. Qualitative research can shed useful insights into how interventions are delivered and what factors influence their effectiveness. Qualitative methods such as interviews, focus groups and participant observation provide information about people's experiences and perceptions. They help to generate understanding about what elements of an intervention are effective from the perspective of those delivering and those receiving the intervention. Well-conducted qualitative research is in-depth and can help to unpick how particular elements of an intervention might affect participants from particular groups or communities in a more detailed way than more traditional quantitative methods. Qualitative research is increasingly recognized as having a valuable role to play in informing the development of public health interventions (Dixon-Woods and Fitzpatrick, 2001).

This report describes findings from a systematic review of qualitative research on school-based interventions to prevent the uptake of smoking among children in order to address the following question:

What factors aid the delivery of effective school-based interventions to prevent the uptake of smoking? What are the barriers to successful delivery?

The review was undertaken by researchers at the University of Bath in collaboration with the West Midlands Health Technology Assessment Collaboration (WMHTAC) as part of the evidence review commissioned by

NICE to support the development of guidance. This qualitative review is complemented by three other reports (the 'cost-effectiveness review', the 'effectiveness review' and the 'economic modelling report') undertaken by the WMHTAC and collectively they form the evidence review.

4. METHODS

This review was limited to an examination of qualitative studies and did not examine the overall effectiveness of school-based interventions for smoking cessation. This issue is explored in the main effectiveness review conducted by colleagues from WMHTAC. This section of the report describes the methods used in this qualitative review.

Literature search

To address the questions “Which school-based interventions are effective and cost-effective in preventing young people from taking up smoking?” and “What factors aid the delivery of effective school-based interventions to prevent the uptake of smoking? What are the barriers to successful delivery?” the following types of literature were targeted:

- Primary studies located via searches of bibliographic databases and selected websites
- Primary studies identified from references in existing systematic reviews
- Studies suggested by experts/stakeholders.
- Studies obtained via public health and other appropriate websites

The searches of bibliographic databases involved: (1) an initial scoping search during which key references were identified and search strategies were refined; (2) a main search using the agreed search strategies to identify potentially relevant studies for all four reports (qualitative review, effectiveness review, cost-effectiveness review and economic modelling report). In addition, a cost-effectiveness search was conducted to facilitate the identification of economic studies. This has been described in the ‘cost-effectiveness review’ and will not be further described in this report.

Search process and methods

Bibliographic database search strategies

Our initial scoping searches targeted systematic reviews, evidence briefings and guidelines as well as a brief search for primary studies. A search strategy was developed (see Appendix 3) and tested using a number of significant studies retrieved during this scoping process. This strategy was then refined and expanded after discussion with information specialists at NICE. The key concepts of the search question are the intervention i.e. ‘interventions used to prevent the uptake of smoking’ and the population ‘children/young people in school/educational settings’.

The databases and websites that were searched are described later in this section. The final, full search strategy for the main search is detailed in Appendix 3. The search process has been clearly documented (databases searched, date searched, time span searched, results of individual searches) to ensure it is transparent and repeatable. Search results have been saved as text files and also stored in a Reference Manager database managed by the reviewers at WMHTAC.

Bibliographic databases

The following electronic databases were searched:

- Systematic reviews and primary studies: Cochrane Library (Wiley) (CDSR, DARE, HTA and CENTRAL) 2008 Issue 4 , York CRD database (DARE and HTA) October 2008, MEDLINE (Ovid) 1950 – November week 1 2008 , MEDLINE In Process at 12 November 2008, EMBASE (Ovid) 1980 – 2008 week 45, ERIC (CSA) at 12 November 2008, PsycINFO (Ovid) 1987 – November week 2 2008, ASSIA (CSA) at 14 November 2008, and HMIC (Ovid) October 2008

As the searches sought to retrieve both quantitative and qualitative studies, no study design filter was employed. Instead all studies retrieved were sifted by the reviewers at WMHTAC and tagged according to type of study. Studies that were tagged as potentially relevant to the qualitative review were forwarded to the review team at the University of Bath. The searches used the following limits: English language only and a date range of 1990-2008.

Selected websites

The database searches were also supplemented by searches of the websites shown in Box 1:

Box 1: Websites Searched

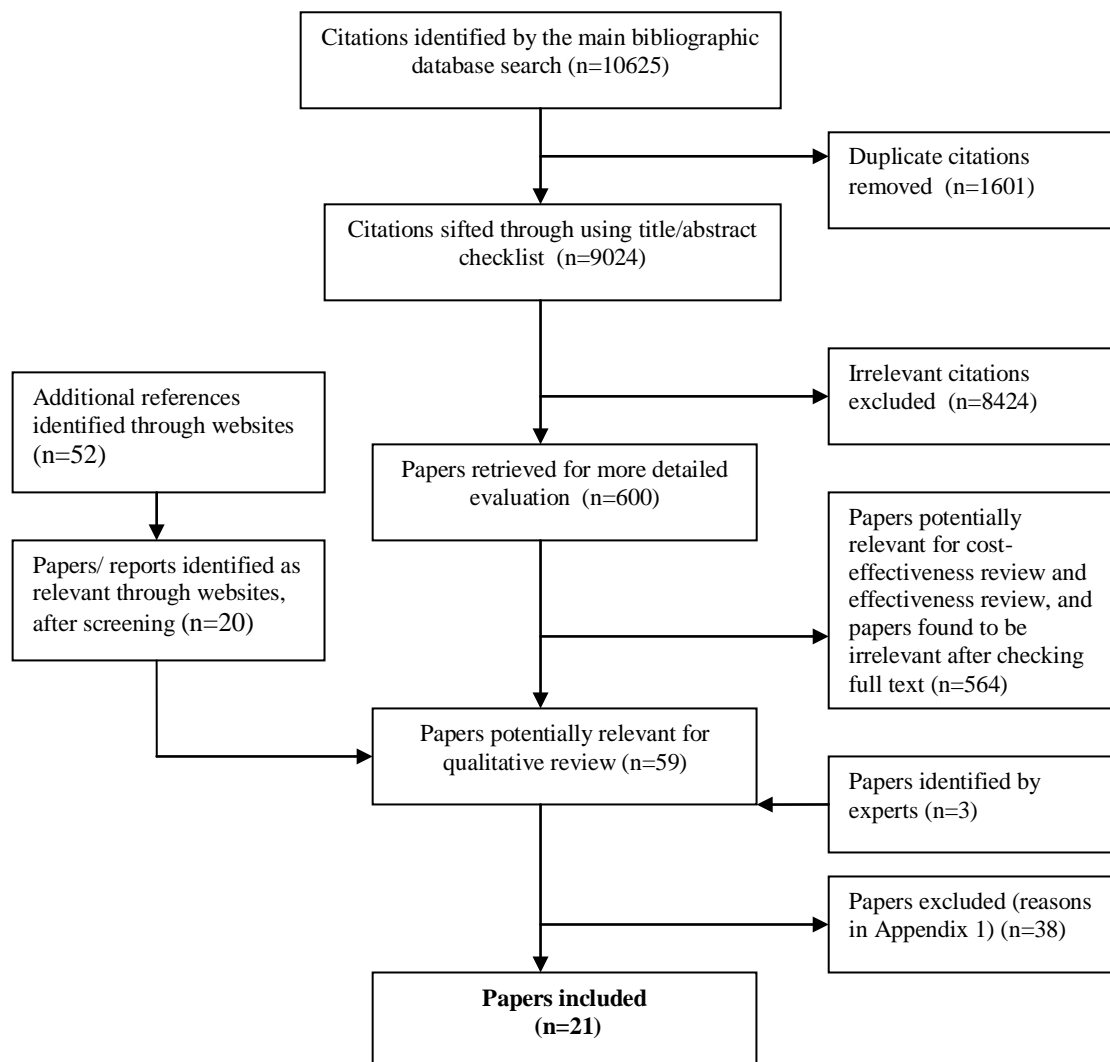
ARIF website and database <http://www.arif.bham.ac.uk/>
TRIP database <http://www.tripdatabase.com/index.html>
Clinical Evidence <http://clinicalevidence.bmj.com/ceweb/conditions/index.jsp>
Bandolier <http://www.medicine.ox.ac.uk/bandolier/index.html>
Cochrane Public Health Group <http://www.ph.cochrane.org/en/index.html>
The Campbell Collaboration <http://www.campbellcollaboration.org/>
The Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre Social Science Research Unit Institute of Education, University of London) <http://eppi.ioe.ac.uk/cms/>
The Trials Register of Promoting Health Interventions (TRoPHI) <http://eppi.ioe.ac.uk/webdatabases/Intro.aspx?ID=5>
NICE public health guidance <http://www.nice.org.uk/guidance/index.jsp?action=byType&type=5>
HDA publications via NICE website http://www.nice.org.uk/aboutnice/whoweare/aboutthehda/hdapublications/hda_publications.jsp
UK Public Health Association <http://www.ukpha.org.uk/>
Websites of Public Health Observatories
Department for Children Schools and Families <http://www.dcsf.gov.uk/index.htm>
National Service Framework for Children, Young People and Maternity Services Case studies Database <http://www.childretnsfcasestudies.dh.gov.uk/children/nsfcasestudies.nsf>
Every Child Matters : Change for Children <http://www.everychildmatters.gov.uk/>
Action on Smoking and Health (ASH) <http://www.ash.org.uk/>
Quit <http://www.quit.org.uk>
Centre for UK Tobacco Control Research <http://www.ctcr.stir.ac.uk>
ASH Scotland website <http://www.ashscotland.org.uk/ash/>
ASH Wales website <http://www.ashwales.co.uk/>
Health Scotland <http://www.healthscotland.com/>

Selection of studies for inclusion

Records retrieved from the main search of bibliographic databases were imported into a Reference Manager database, which detected and excluded

some of the duplicated records during importing. Among 10625 records imported, a further 1601 duplicated citations were identified and deleted manually. The title/abstract of the remaining 9024 records were screened by one reviewer to identify potentially relevant studies (of any design) using a pre-designed checklist (see Appendix 4). Six-hundred records were considered potentially relevant and full papers for these records were ordered. Of these, 36 papers were potentially relevant to the qualitative review. Further reports and articles were identified through searches of websites described above. A total of 52 references were identified from websites and 20 of these were examined in detail following initial screening. In addition, 3 other papers were suggested by tobacco control research experts who were contacted by the review team and sent the list of included papers. Overall, therefore, 59 articles/reports were examined in detail for inclusion using the criteria described in the next section. Of the articles that were considered potentially relevant, 21 met the selection criteria and were included. The 38 excluded papers, and the reason for exclusion, are listed in Appendix 1. The selection process is shown in Figure 1.

Figure 1 Flow chart (QUOROM diagram): study selection process



Critical Appraisal

All of the studies that met the inclusion criteria were rated by two independent reviewers in order to determine the strength of the evidence. Studies were assessed for their methodological rigour and quality based on the critical appraisal checklist for qualitative studies provided in “Methods for the development of NICE public health guidance” (NICE, 2006, p85). This checklist includes fourteen criteria and the extent to which each included study met these criteria is set out in Appendix 2.

Based on the outcomes from the critical appraisal assessment, each study was graded using a code ‘++’, ‘+’ or ‘-’, based on the extent to which the quality criteria had been fulfilled. These grading codes, as set out in the methods manual, are included in Table 1. In a small number of cases, the two reviewers could not agree on the rating and in those cases the article was given to a third reviewer for final evaluation. Following the grading process, evidence tables were then developed for each study.

Table 1: Evidence Grading

Grading the evidence	
++	All or most of the quality criteria have been fulfilled Where they have been fulfilled the conclusions of the study or review are thought <i>very unlikely</i> to alter
+	Some of the criteria have been fulfilled Where they have been fulfilled the conclusions of the study or review are thought <i>unlikely</i> to alter
-	Few or no criteria fulfilled The conclusions of the study are thought <i>likely or very likely</i> to alter

Synthesis

Data was extracted from all of the included articles in the form of main themes and issues emerging from the qualitative studies and used to inform the development of evidence tables which are included later in this report. Once evidence tables had been completed for all included studies, the research team had a discussion about the extent to which findings from the studies could be grouped into thematic headings. Some consideration was given to whether findings could be divided up in terms of whether the study had been conducted with school pupils, teachers or (in the case of one article) parents. However, it was felt that there were cross-cutting themes that arose in studies with each group and that dividing up the evidence in this way was not the most helpful way to proceed.

Further review of the evidence tables and some rereading of the original articles led to the development of six main themes emerging from the papers. Within each theme facilitators to the delivery of school-based interventions were identified, as well as barriers. The themes were:

- Delivery context of the intervention

- Characteristics of young people receiving the intervention
- Peer interventions
- Delivery mechanisms
- Smokefree schools
- Programme content

Findings from the review are described in relation to each of these themes.

5. FINDINGS

Delivery Context

Evidence from two UK (one ++, one +), one Canadian (++) and three American (three +) qualitative studies (Audrey et al, 2008, Dobbins et al, 2008, Hartland et al, 1996, Mahoney et al, 2000, Ott and Doyle, 2005, Sy and Glanz, 2008) suggests that aspects of the delivery context of school-based interventions act as barriers or facilitators to effective delivery. The main facilitators were:

- Timing the intervention to suit (i.e. not conflict with) school assessment schedules
- Timing the intervention to include multiple sessions over the course of a school year
- Reinforcing smoking prevention messages in school curricula until school leaving age
- Delivering school-based prevention interventions as part of a wider tobacco control strategy
- Involving key partner organisations in design and delivery (such as the school nursing service and universities)

The main barrier was:

- Delivering the intervention in a setting where teachers and other school staff are smokers

Qualitative studies of school-based prevention interventions suggest that issues around the *timing* of delivery are important in determining whether the intervention is delivered as intended. In interviews with teachers from schools that had participated in the ASSIST programme in England and Wales, researchers found that some of the success of the intervention was attributed by teachers to the fact that it took place in year eight (when pupils were aged 12-13) rather than in other school years. Teachers described year eight as a period when there was more flexibility in the school curriculum and fewer exams and exam preparation sessions. This made taking pupils out of class to attend training (peer supporter training) easier when compared with, for example, trying to implement the same intervention during year nine (Audrey et al, 2008) (++)). A similar observation was made by Badovinac (1994) (-) who reported findings from interviews with secondary school principals (head teachers) in New York, USA. Principals pointed out that the successful delivery of tobacco education interventions can vary depending on the available time for delivery in existing school curricula.

Timing prevention interventions to take place during several sessions over the course of a full school year was described as an important facilitator to successful implementation by Sy and Glanz (2008) (+). This study involved interviews and questionnaires with teachers who were involved in delivering the SPLASH (smoking prevention launch among students in Hawaii) programme in the USA. They found that more teachers who taught in a year long class schedule fully implemented the programme compared with those

who had to cover the material over a shorter period. Dobbins et al (2008) (++) in their synthesis of published literature and interviews with experts on the topic of school-based prevention also argued that tobacco prevention messages should be delivered at various points in pupils' journey through the education system, and ideally maintained in some form up until the age of 18 (or school leaving age). However, most studies in this review examined interventions delivered in a single school year. Dobbins et al also argue that school-based prevention programmes are more likely to be successfully delivered if they are conducted at the same time as other community-wide tobacco control initiatives (implemented as part of a comprehensive tobacco control strategy).

Most of the qualitative articles in this review focused on teachers, parents or pupils views regarding an intervention *after* it had been delivered and provide limited detail on how the intervention was developed. However, at least two studies emphasise the importance of involving key partner organisations in development and suggest that this form of partnership can contribute to successful delivery. Mahoney et al (2000) (++) describe the benefits of involving a family physician organisation in the Colorado Tar Wars programme (in which doctors visited schools to deliver prevention sessions) and also suggest that implementation can be facilitated by involving the school nursing service. Ott and Doyle (2005) (+) emphasise the value of building partnerships between schools and universities to deliver prevention programmes.

In terms of elements of the delivery context that can act as *barriers* to the successful delivery of school-based prevention interventions, studies point to the challenges posed by the presence of teachers or other school staff who are smokers. Hartland et al (1998) (+) in interviews with teachers in Wales explored the fact that, at the time of their study, some teachers felt they had a 'right' to smoke that pupils should accept. Some teachers expressed views that seeing staff smoking encouraged smoking uptake by young people and undermined prevention messages. This theme relates to the issue of smokefree schools which we explore in more detail below.

Characteristics of Young People

There is evidence from three UK (one ++, one + and one -) and two American (two ++) qualitative studies (Audrey et al, 2006, Cole, 2000, D'Emidio-Casten et al, 1998, Mitschke et al, 2006, Spratt and Shucksmith, 2006) that particular characteristics of young people receiving the intervention (and their families and communities) can act as barriers to effective delivery. The main barriers were:

- The presence of regular smokers amongst young people receiving the intervention
- The presence of occasional smokers or those 'experimenting' with cigarettes amongst young people receiving the intervention
- The presence of young people who come from households with one or more smokers

- The presence of young people who come from communities with high smoking prevalence
- The age of young people – older teenagers can be more critical of prevention messages

Successful delivery of school-based prevention interventions is more challenging when they are provided in schools and communities where smoking prevalence is high. Interviews with pupils who acted as peer-supporters in the ASSIST trial in England and Wales revealed that they were more confident in communicating prevention messages to those pupils that they felt could be influenced rather than those already smoking regularly or who were experimenting with smoking as part of 'smoking cliques' (Audrey et al, 2006). D'Emidio-Caston and colleagues (1998) (+) interviewed pupils aged 10-18 who took part in the California Drug, Alcohol and Tobacco Education Programme (DATE) and found that 'at risk' pupils (including those experimenting with smoking) were less receptive to prevention messages than other pupils.

Cole 2000 (-) reports findings from interviews with pupils who took part in a Home Office funded drug prevention project that included tobacco prevention. One of the children interviewed who was a smoker reported that her smoking was linked to the fact that her mother, dad and sister smoked and that quitting was made more difficult by the presence of other smokers in the family. The same study also found that drug education in general was more difficult to deliver to older children (i.e. those already in secondary school) who may be more critical of the information received. Spratt and Shucksmith (2006) (++) conducted interviews and focus groups with teachers who delivered tobacco prevention to 10-12 year olds in Scotland. Teachers reported that they found delivering prevention lessons much more difficult when children came from smoking households.

Mitschke et al (2008) (++) conducted focus groups with pupils to help inform the design of a prevention programme in the USA. They found that one in four young people who took part had tried smoking and two thirds lived with at least one smoker. These young people described being 'surrounded' by smoking, creating barriers to the effective delivery of prevention interventions.

Peer Interventions

There is evidence from three UK (two ++ and one +) and one American (+) study and one systematic review (++) (Audrey et al, 2006, Audrey et al, 2008, Newman et al, 1991, Ott and Doyle, 2005, Walsh and Tzelepis, 2007) that interventions that directly address peer smoking norms through involving young people in delivery can facilitate the successful implementation of school-based prevention. The main facilitators to the delivery of peer interventions were:

- Nomination of peer-supporters by fellow students
- Training for peer supporters delivered away from school and by external professionals

- Flexibility for peer-supporters in how and when they deliver the intervention
- Adding 'value' to peer intervention by inclusion of other prevention education materials (i.e. videos) in schools
- Good communication between external intervention development/research team and school staff

Barriers to the delivery of peer interventions were:

- Teacher's concern about 'suitability' of some peer supporters selected by fellow students
- Peer norms and peer group structure can influence how much and when adolescents smoke, and can also influence the extent to which young people are receptive to prevention messages delivered by peers

The main effectiveness review has outlined the evidence of the efficacy of peer interventions for smoking prevention. Qualitative studies shed light on the facilitators and barriers to implementing peer interventions.

Evidence from the two qualitative studies emerging from the ASSIST trial (one with pupils, Audrey et al, 2006, ++ and one with teachers, Audrey et al, 2008, ++) suggests that allowing pupils to choose peer-supporters from within their class can assist implementation. This approach ensures that peer-supporters are representative and accepted by pupils rather than 'chosen' by teachers who may be more inclined to select high achieving, often female, pupils for peer-supporter roles. Teachers from schools that took part in the ASSIST trial also reported that providing training for peer-supporters in a setting away from school, delivered by external professionals, enhanced pupil's interest in and commitment to the intervention and also served as a way into conversations about smoking (other pupils asked the peer supporters what they had learned during the training). Teachers also reported that good and regular communication between the external team who trained and monitored peer-supporters helped to facilitate successful delivery of the intervention and reassured them that the intervention would not disrupt school schedules or curricula. Interviews with peer supporters in ASSIST revealed that pupils valued the flexibility of deciding when and with whom they would discuss smoking and convey prevention messages. Pupils who were not peer-supporters but were the target for the ASSIST intervention also reported that the peer-support element was enhanced by other prevention activities in school such as being shown videos about the effects of smoking.

Two other studies included a (less substantial) peer-support element, such as including peer-led group work as part of the intervention. Newman and colleagues report the views of teachers who participated in the Smoking and Me (SAM) intervention in England and Wales during the late 1980s (Newman et al, 1991) (-). Part of the intervention involved teachers putting students into groups and selecting group leaders. This element of the programme was perceived as successful and teachers suggested that it was facilitated by: providing support and training to group leaders; including no more than six or seven pupils per group; and including support from teachers to 'sum up' after the peer-led group work was completed. Ott and Doyle (2005, +) also report

that the peer-led element of a drug prevention programme delivered in schools in the USA was well-received by pupils, but do not provide further details in the article.

Barriers to the successful implementation of peer-led interventions reflect in part the 'opposite' of some of the facilitators described above. Thus findings from the qualitative elements of the ASSIST trial suggest that some teachers were initially reluctant to allow students to choose peer supporters. They felt that popular pupils may not be the most appropriate young people to deliver prevention messages or to be allowed the privilege of time away from school to attend training (Audrey et al, 2008) (++). However, the qualitative study showed that initial reluctance to the peer-nomination element (recorded during pre-intervention interviews) had largely disappeared post-intervention, suggesting that teachers gained confidence about this approach when they saw that it worked in practice.

Walsh and Tzelepis (2007) (++) conducted a systematic review of qualitative studies relating to smoking and young people published up to 2002¹. One element of the review focused on peer influences on smoking. The review found evidence from a number of studies that peer influence can act as a barrier to smoking prevention. They found that: peers can encourage smoking initiation; some young people experience smoking as a social and group activity carried out with their peers; smoking is influenced by the desire to gain peer acceptance; smoking provides a vehicle to access and belong to a peer group; young people moving to a new school can use smoking to access friends; peer norms and peer group structure can influence how much and when young people smoke; and young smokers can use 'peer pressure' to coerce other young people into trying smoking.

Delivery Mechanisms

There is evidence from three UK (one ++, one + and one -) and three American (three +) qualitative studies (Cain et al, 2006, Hahn et al, 1996, Hartland et al, 1998, Newman et al, 1991, Spratt and Shucksmith, 2006, Sy and Glanz, 2008) that elements of the delivery mechanism for school-based prevention interventions can act as facilitators or barriers. Facilitators include:

- Delivery of the intervention by trusted external professionals (such as doctors)
- Delivery of the intervention by non-smoking teachers
- Delivery of the intervention by teachers with higher self-efficacy
- Involvement of parents in delivery (primarily delivery of supporting materials at home)

Barriers included:

¹ Within the Walsh and Tzelepis review just three papers that have been reviewed separately here were included: Brown et al, 1995, Brown et al, 1997 and D'Emidio-Caston et al (1998). All three of these papers relate to the qualitative elements of the evaluation of the California Drug, Alcohol and Tobacco Education Programme (DATE).

- Delivery of the intervention by teachers who are reluctant to discuss parental smoking
- Delivery of the intervention by teachers who use outdated methods to communicate prevention messages

The effectiveness of school-based prevention programmes can be influenced by who delivers them, and how they are delivered. Qualitative studies suggest that delivery by external professionals rather than teachers can be effective. Cain and colleagues (2006) (+) interviewed teachers, external presenters and pupils as part of the evaluation of the Colorado Tar Wars programme. The intervention was delivered by family doctors who visited schools. Pupils were receptive to material delivered by doctors and reported that they felt they were a trustworthy source of information. Teachers were also positive about physician delivery of prevention messages.

Where prevention interventions are delivered by teachers, these teachers should be non-smokers (Hartland et al, 1998) (+). Sy and Glanz, in their study of the SPLASH intervention in Hawaii, also found in interviews with teachers that those with higher levels of self-efficacy (measured by a closed ended questionnaire, but reflected upon in qualitative interviews) were more likely to deliver the prevention programme as intended (Sy and Glanz, 2008) (+).

Hahn et al (1996) (+) interviewed parents and teachers about parental involvement in a drug prevention (including tobacco) programme in primary schools in the USA. They found that parents and teachers felt that parental involvement, specifically attending information sessions about the programme and delivering supporting material in the home, facilitated the delivery of the programme. They explored the factors that encourage parental involvement. Some of these were structural/practical (providing transportation to information sessions, providing childcare while attending sessions, and providing an incentive for attendance) while others were about process issues (positive attitudes of school staff, a range of communication approaches with parents, offering different ways that parents could get involved, and being non-judgemental about parental tobacco/alcohol/drug use).

Some elements of delivery can act as barriers to implementation, most notably when the programme is delivered by teachers who are reluctant to discuss parental smoking. This finding emerges in two UK studies - Spratt and Shucksmith (2006) (++) and Newman et al (1991) (-). The way in which prevention messages are delivered can also influence how well they are received (Spratt and Shucksmith, 2006), although few details were provided in the studies included in this review.

Smokefree Schools

There is evidence from one UK (+), one Canadian (++) and one American (-) study (Badovinac, 1994, Baillie et al, 2008, Hartland et al, 1991) that the extent and enforcement of smokefree school policies can act as a facilitator or barrier to school-based smoking prevention. Facilitators included:

- Smokefree policies that include all internal areas and all school grounds
- Smokefree policies that applied to staff as well as pupils

Barriers included:

- Existing designated smoking areas in school grounds or buildings
- Poor enforcement of smokefree policies

This review did not set out to examine the barriers and facilitators to smokefree schools, but instead how smokefree schools can contribute to prevention in schools. As a result only a small number of articles from a wider literature on smokefree settings were picked up by the search strategy and included in the review. Two of these articles (Badovinac, 1994, -) and Hartland et al (1991 -) relate to research conducted at a time when smokefree legislation was not in place in either the UK or most US states. However, these articles still have some limited relevance. The research conducted by Baillie et al (2008, ++), in contrast, is highly relevant as it took place in British Columbia, Canada, when school buildings were smokefree but 30% of school districts in the province still permitted smoking in the grounds. This situation is similar to that in the UK and the lessons from this study, which involved focus groups with 14-18 year olds in two BC schools, are applicable to the UK.

These three studies suggest that the implementation of smokefree schools can facilitate prevention by developing and maintaining non-smoking norms during school hours. Grounds as well as internal areas should be smokefree. Policies should apply to staff as well as students, as visible evidence of staff smoking suggests that smoking is normal and acceptable behaviour.

Baillie and colleagues describe how any form of designated smoking area, even in school grounds, can act as a barrier to prevention. To deliver smoking prevention programmes in schools and at the same time to allow staff or students to smoke sends mixed messages. Baillie and colleagues describe, through direct quotes from young people, how surprised many young people were at moving from a completely non-smoking junior school to a secondary school where there were designated smoking areas in the grounds. The same young people describe how seeing other pupils smoke encouraged them to try cigarettes or made it more difficult to cut down or stop. One school had a rule that only older pupils (aged 15-18) could use the designated outside smoking area but interviewees reported that this did not prevent younger (aged 12-14) students from smoking and that age-specific rules were not enforced. One interviewee described receiving smoking prevention education in school and then going outside to smoke after the lesson had finished. Baillie et al conclude that smoking areas in all schools should be eliminated.

Programme Content

There is evidence from seven American (seven +), one Canadian (++) and one UK (-) qualitative studies (Brown et al, 1995, Brown et al, 1997, Cain et

al, 2006, D'Emidio-Casten et al, 1998, Dobbins et al, 2008, Hahn et al, 1996, Mitschke et al, 2008, Newman et al, 1991, Ott and Doyle, 1995, Parker et al, 1996, Sy and Glanz, 2008, Zavela, 2004) that specific elements of programme content can act as facilitators or barriers to the delivery of school-based prevention interventions. Facilitators include:

- Content that is innovative and interactive
- Content that includes role play
- Content that includes new material, such as on the cost of smoking
- Content that includes correcting misconceptions of high smoking prevalence amongst young people
- Content that is ethnically and culturally sensitive
- Content that is non-judgemental
- Content that included de-normalisation approaches (building on the Florida 'Truth' campaign approach, exposing the activities of the tobacco industry)

Barriers include:

- Content that included fear-based approaches to prevention
- Content that is too complex

The literature on school-based prevention interventions suggests that the content of programmes can influence how successfully they are delivered and what outcomes are achieved. In particular, qualitative studies involving interviews or focus groups with pupils and/or teachers suggest that if the content of prevention sessions is interactive, and involves new or innovative material, it is more likely to be well received by pupils (Dobbins et al, 2008 (++)), Ott and Doyle, 2005 (+), Zavela et al, 2004 (+)). Newman et al (2008) (-) in their study of a prevention intervention in England and Wales reported that teachers regarded the role play element of the intervention as successful, but that the novelty of role play wore off after three lessons (the programme consisted of seven separate sessions). Other studies have found that prevention interventions that provide pupils with new information, such as on the cost of smoking and content that allows them to discuss peer norms of tobacco use can serve as a facilitator to effective delivery (Cain et al, 2006, (+), Dobbins et al, 2008 (++)).

Young people can overestimate smoking prevalence amongst their peers and communities and correcting these misconceptions can be a valuable component of prevention (Ott and Doyle, 2005, +). Two American studies (Mitschke et al, 2008, ++, and Parker et al, 1990 -) involved qualitative research with young people from minority ethnic backgrounds and both studies concluded that to be meaningful to young people from different communities, prevention programmes should aim to include material that was ethnically and culturally sensitive and engages with community norms around tobacco use. Hahn et al (1996), (+) in their interviews with parents and teachers involved with a school prevention programme in the USA suggest that programme content should be non-judgmental, particularly concerning parental substance use, in order to encourage parents to participate in attending information sessions about school programmes and to agree to

deliver prevention messages at home. Finally, one American (Cain et al, 2006, +) and one Canadian study (Dobbins et al, 2008, ++) suggest that including a specific element in prevention programmes that deconstructs tobacco advertising and reveals to pupils what the 'real' tactics of the tobacco industry are (i.e. that they want to encourage smoking uptake amongst young people) can facilitate the delivery of school prevention interventions. This approach builds on the success of the Florida 'TRUTH' campaign in the USA, although the salience of this type of message in the UK, where almost all forms of tobacco advertising are banned, is as yet untested.

Elements of programme content can also serve as barriers to successful delivery. In particular, findings from the qualitative elements of the evaluation of the California Drug, Alcohol and Tobacco Education Campaign from the 1990s (Brown et al, 1995, (+) Brown et al, 1997 (+), D'Emidio-Caston et al, 1998 (+) suggest that fear-based information campaigns in schools are not successful. This school-based intervention focused largely on the harmful consequences of substance use (including tobacco). Pupils interviewed after the intervention reported that this type of content did not influence their attitudes or behaviour in relation to substance use. The pupils' personal narratives of the place of substance use in their lives and those of their families were at odds with the fear-based content of the programme.

Finally, programme content needs to be tailored to the age group that are the target for the intervention and those delivering the sessions need to be confident about the messages they are conveying. Sy and Glanz (2008) (+), in their process evaluation of project SPLASH in Hawaii found that teachers who reported that the prevention curriculum was too complex were more likely to only partially implement the programme.

6. DISCUSSION

The studies reviewed here provide a body of ++, + and – qualitative evidence about the factors that facilitate the delivery of effective school-based prevention interventions as well as the barriers to successful delivery. These facilitators and barriers were identified in studies that explored the views of school pupils, teachers (and/or professionals delivering the intervention) and parents. These studies provide a useful insight into the factors that influence how well prevention messages are conveyed and what elements of particular programmes are viewed as effective by those delivering and those receiving the intervention.

Delivery Context

The studies reviewed here suggest that the context in which school-based programmes are delivered is important. In particular, programmes are more likely to be successfully implemented if there is adequate time in the school curricula for prevention sessions, and in the case of peer-support interventions, for peer-supporters to be trained. Careful consideration of timing, both within the school year and in terms of which age group is targeted, is necessary to secure support for the programme from teachers and school management. This type of support has been shown to be essential in the delivery of school-based health promotion interventions in general, both smoking-related and on other topics (Buston et al, 2002, MacDonald and Green, 2001). Prevention education in schools is also likely to be enhanced by other tobacco control interventions in community settings, and one study in this review, that involved interviews with tobacco control experts, emphasised this wider context for school-based prevention (Dobbins et al, 2008, ++).

Another important element of the delivery context is how and with whom interventions are developed. Evidence from the qualitative research reviewed here suggests that programmes designed with university research teams or physicians can be well received by teachers and pupils. More indirect forms of support and involvement from external professionals (such as training peer-supporters in the ASSIST trial) can also be effective. This suggests that school-based prevention interventions should not necessarily be designed by schools or education authorities in isolation, but involve input from relevant experts.

Characteristics of Young People and Communities

The characteristics of the young people who receive prevention interventions, along with their families and communities, can be barriers to effective delivery. These characteristics can combine with elements of the delivery mechanism for interventions (in particular who delivers prevention) to inhibit successful implementation. These barriers exist at a number of different levels.

First, qualitative research with pupils and teachers suggests that successful delivery of prevention is difficult when the class contains young people who

are experimenting with smoking or are already regular smokers. These young people are less likely to be receptive to tobacco control messages, although peer-support may be an effective way to convey information even to these pupils. Review evidence from a number of studies shows that peer norms can encourage smoking uptake and inhibit cessation in a range of different ways. This therefore suggests (although direct evidence for this recommendation was limited in the literature reviewed here) that introducing prevention education to younger children (i.e. aged 10 and under) is important rather than focusing on older teens, some of whom may already be smokers.

Second, we know that young people who come from households where one or more adults smoke are more likely to become smokers themselves (Fuller, 2008, BMA, 2007). Thus the delivery of prevention messages at school can be undermined by children's exposure to smoking in the home. A number of the studies in this review include accounts from teachers and from young people about this tension. Some studies point out that it is important that those delivering the intervention are willing to discuss parental smoking with pupils in a non-judgmental way. Some teachers who deliver tobacco education may be reluctant to do this, but it is a potentially important element of effective school-based interventions.

Third, irrespective of whether or not parental smoking is an issue, young people may come from communities where tobacco use is common and this can act as a barrier to the successful delivery of prevention in schools. Two American studies reviewed here suggest that intervention content should acknowledge this issue (Mitschke et al, 2008, (++)), Parker et al, 1996 (-). These studies suggest that programme content should be tailored to address pro-smoking community norms. When pupils are from ethnic minority communities, the meaning, type and level of tobacco use in those communities should be considered and interventions should be culturally sensitive. This may be challenging to deliver in practice, particularly in schools where there is a mix of a range of ethnic groups, such as in urban areas in the UK.

Finally, smoking amongst teachers can act as a barrier to the successful delivery of school-based interventions. Some of the studies reviewed here suggest that when teachers are delivering smoking prevention they should be non-smokers. There is also evidence to suggest that visible smoking by teachers in school grounds undermines prevention messages. This relates to the theme of smokefree schools which we discuss below.

Smokefree Schools

This review also touches upon the issue of smokefree environments in schools and the link between smokefree and smoking prevention. An explicit objective of any smokefree policy is to denormalise smoking and this is perhaps particularly the case in school settings (Turner and Gordon, 2004). The articles on smokefree schools included here suggest that all parts of a school, including school grounds, should be smokefree. Permitting staff or students to smoke, even in the grounds, undermines prevention messages,

makes cutting down or quitting more difficult for staff and students and may even encourage uptake.

In England, the smokefree legislation introduced from July 1st 2007 applies to all indoor workplaces, including schools (Department of Health, 2007). It also applies to substantially enclosed structures that may be on school property, such as marquees and tents. It does not, however, apply to school grounds. Only those schools that have been awarded National Healthy School Status (HSS), or are working towards it, have smokefree grounds. This is a minimum requirement for HSS status. Other schools in specific districts may also have chosen to go smokefree, but it is a decision taken by individual schools or education authorities. It is therefore highly likely that some schools in England continue to permit smoking in school grounds. Findings from this qualitative review suggest that comprehensive smokefree policies should be introduced in schools to remove barriers to the successful delivery of school-based prevention interventions.

Programme Content

The literature reviewed here also suggests that the successful delivery of school-based prevention can be influenced by who delivers the intervention and elements of programme content. We highlighted above that there is some evidence that delivery by external professionals (such as physicians), or non-smoking teachers, is a promising delivery mechanism. We also identified a small number of articles that described how best to deliver peer-led interventions, which can be an effective form of smoking prevention in schools. Qualitative evidence from the process evaluation of the ASSIST trial in England and Wales suggests that peer-led interventions are well-received by teachers and pupils and that successful delivery is enhanced by: nomination of peer supporters by fellow students; training provided away from school by external professionals; flexibility in how peer-supporters deliver the intervention and to whom; good communication between teachers and those who designed the intervention and provided the training; and complementing the peer intervention with other prevention curricula in schools.

The literature on peer-led interventions also suggests, as does some of the other qualitative evidence reviewed here, that actively involving young people in the design and delivery of prevention interventions can contribute to success. Prevention messages are more likely to be relevant to young people if they resonate with their lived experience and their world-view (Amos et al, 2009). Sessions that are interactive and innovative are well received by young people and are more likely to be effective than those that focus on information giving and fear-based approaches.

Other elements of content also emerge as important facilitators to successful delivery including: including information not previously known by pupils, such as the cost of smoking; including role-play in the format; correcting misconceptions about the level of smoking prevalence amongst young people; including ethnically and culturally sensitive content; and including material that

explores the 'truth' behind tobacco advertising and the tactics of the tobacco industry.

Limitations

This review of qualitative studies faced a number of limitations. The first is that the literature search identified a relatively small number of studies that met the inclusion criteria for the review. This limits the extent to which we can be confident that findings included in only one or two studies have relevance for school-based interventions in general. A second limitation is that much of the research identified within this review was conducted in the USA. Although some broad similarities can be drawn between smoking patterns amongst young people in the US and UK, many of the studies identified referred to US specific interventions or were conducted in communities that had a different ethnic or cultural mix to communities in the UK. As a result it is not clear whether all findings in US studies are directly applicable to the UK.

A third limitation of the review is that although most studies were graded (+), the quality of the qualitative research conducted did vary. In particular, some articles reported results from surveys or other quantitative research and included only a small qualitative element. It was therefore sometimes difficult to separate the qualitative findings from those of the wider study. Finally, a number of studies were included that reported barriers or facilitators to the delivery of drug prevention interventions rather than tobacco-specific interventions. It was not always possible to determine if the views expressed by interviewees in the study related to issues that would apply to tobacco prevention or whether they were more applicable to drug or alcohol prevention. Despite these limitations, however, this review provides a useful insight into some of the determinants of successful school-based prevention programmes that have implications for policy and practice in this area.

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8. EVIDENCE TABLES

Table 2a: Evidence Tables

Reference	Aims of Research	Participants	Country	Design	Findings	Quality score
Audrey et al 2006	To examine the role of peer supporters in a school based health promotion intervention. The qualitative element was conducted as part of the process evaluation of the ASSIST trial.	Participants were peer supporters in two secondary level schools in the West of England and two schools in the South-east of Wales. Interviews n= 33 Peer supporter focus groups n=10 Non peer supporter interviews n=32	UK	Peer supporters were nominated by pupils, and were trained to engage with fellow pupils about the harm from smoking. They received support and acknowledgment. Peer supporters completed questionnaires about their experiences. Qualitative data came from focus groups and interviews conducted post intervention. Data were analysed using thematic analysis.	Nomination of peer supporters by fellow pupils ensured that they were acceptable to their peer group. Previously peer educators have been predominately female, often 'high achievers' selected by teachers. There were low rates of peer supporter drop out during the intervention. Peer supporters are more likely to take a pragmatic approach, concentrating upon friends/ peers whom they felt could be influenced rather than those already smoking regularly or in 'smoking cliques'. They often relied upon 'fear based' approaches. However, the study identified that these types of messages may be unsophisticated and soon lose momentum. Findings from the main trial suggest that the peer support intervention did reduce smoking uptake, including in high risk groups of occasional and experimental smokers. Peer support interventions in schools can therefore be effective but the nature and type of peer support needs to be carefully considered and implemented.	++
Audrey et al 2008	This study examined teacher	Participants were teachers in two secondary	UK	Process evaluation used mixed methods.	Overall, teachers welcomed an intervention that addressed smoking prevention.	++

	<p>perceptions of a peer support intervention. The qualitative element was conducted as part of the process evaluation of the ASSIST trial.</p>	<p>schools in the West of England and two schools in the South-east of Wales. Questionnaires were completed by 58 teachers</p> <p>Baseline interviews at the peer supporter recruitment phase were conducted with 8 teachers</p> <p>Post intervention interviews were conducted with 30 teachers</p>		<p>Teachers completed structured questionnaires and a small number of semi-structured interviews were conducted during the following phases of ASSIST:</p> <p>The baseline or recruitment phase, the peer supporter training phase and the follow up/post intervention phase.</p> <p>Data were analysed using thematic analysis.</p>	<p>Teachers were initially concerned about the concept of peer nomination of peer supporters as they felt some pupils would not be suitable to be peer supporters.</p> <p>Teachers accompanied peer supporters to their training sessions but were able to remain relatively removed during training, allowing external trainers to work with pupils.</p> <p>Concerns about curriculum disruption were contained by training year 8 pupils (12-13 year olds) (rather than Year 9 when pressure of exams is more of an issue) and good communication between the intervention/study team and staff.</p> <p>Teachers felt committed to the intervention and felt that that it was compatible with curriculum. During post-intervention interviews, peer nomination of supporters was better understood and more widely accepted.</p>	
Badovinac 1994	<p>A survey of school principals (head teachers) to determine current components of tobacco education, perceptions of pupil smoking and their expectations of the local Public</p>	<p>One hundred and fifty nine principals or teachers participated from public and separate schools in New York.</p>	New York USA	<p>It is not clear how the data were collected or analysed. Most data reported in the paper came from a structured questionnaire. Qualitative data was collected but methods for this element were not discussed. This was a very brief paper.</p>	<p>Principals (Head teachers) identified that the critical time for tobacco education were primary and junior levels.</p> <p>They felt that barriers to implementation were lack of time and lack of training. They felt that schools had varied curricula and that this impacted upon when tobacco education could be implemented. At the time of the study only some of the schools had total smoking bans and disciplinary action against staff and pupils was variable.</p> <p>The survey contained quantitative data regarding teacher estimates of levels of smoking in their schools and risk factors for smoking such as low self esteem and favourable attitudes to smoking. Overall education</p>	—

	Health Department.				strategies and policies were not consistent.	
Baille et al. 2008	To explore the meanings that pupils place on tobacco control policy and the impact that these meanings have on their own smoking behaviour (main focus of article is on smokefree areas in schools)	Between 18-30 (exact number not given) high school pupils aged 14-18 years old and who self-identified as current smokers, ex-smokers or never smokers. Pupils attended either of two high schools which had designated smoking areas.	British Columbia Canada	3 semi-structured focus groups, each involving 6-10 pupils and each of which asked different questions (attitudes towards tobacco use in self and others; sense of school-based support & information; school environmental risk).	Four main categories emerged from the qualitative analysis: <ol style="list-style-type: none"> 1. Surprise/opportunity 2. Pupil control/tobacco control 3. School indifference/individual concern 4. Quitting/isolation <p>Overall, there was a general sense that the pupils were surprised about and concerned at the presence of the designated smoking areas in school grounds, and that these areas had a negative impact on their smoking behaviour and their attempts to control or cease smoking. The authors 'strongly recommend that designated smoking areas in high schools be eliminated'. (p1014)</p>	++
Brown, DEmidio-Caston and Pollard 1997	To evaluate the California Drug, Alcohol and Tobacco Education program (DATE). For this study the authors considered the role of social influence in delivery and impact of drugs education.	388 teachers from at least two schools in each of 50 districts in California (143 interviews were then selected for analysis) and 240 pupils (grades 5-12, aged 10-18) from the same schools in 11 of those districts. In addition, this paper includes quantitative data	USA	The qualitative data reported here formed part of the wider evaluation of DATE. Interviews with school personnel were analysed using grounded theory. Findings from 40 focus groups with pupils at each school that were analysed using grounded theory and content analysis (unit of analysis was the focus group).	Three influence strategies were used by those who delivered the drugs education programs (and confirmed by the pupils) – highlighting the harmful consequences of substance use, offering rewards to pupils who committed to not using substances, and attempting to influence self-esteem (by teaching strategies to use to refuse offers of substances) so that pupils do not use substances. Data from the pupils indicated that many of them found such approaches counter-productive. Many pupils also said that they wanted more information and knowledge-oriented content to their drugs education. Overall, from the combined qualitative interview/focus group data and quantitative survey data, the authors conclude that DATE programs have little positive influence on substance use and in fact had counter effects. They concluded that, at the time, there needed to	+

		from a school-based survey with over 5,000 pupils at 118 schools in 77 Californian districts.		In addition, this paper includes data from a wider quantitative school survey.	be major conceptual shift in how drugs education programs in California are designed and delivered. NB: there was little specific mention of tobacco in this paper so it is hard to assess how the findings might be different or similar according to which substance(s) are considered.	
Brown and D'Emidio-Caston 1995	To evaluate the California Drug, Alcohol and Tobacco Education program (DATE). For this study the authors considered the impact of the State risk oriented policy to substance use prevention influenced delivery of the program and its impact on pupils.	388 teachers from at least two schools in each of 50 districts in California (149 interviews were then selected for analysis) and 240 pupils (grades 5-12, aged 10-18) from the same schools in 11 of those districts.	USA	The qualitative data reported here formed part of the wider evaluation of DATE. Interviews with teachers which were analysed using grounded theory. Focus groups (about 40) with pupils at each school which were analysed using grounded theory and content analysis (unit of analysis was the focus group).	The State wide 'risk' approach to substance use prevention had a negative impact on the local delivery of substance use programmes and the views of pupils of those programs. For example, it was viewed as unhelpful that a risk policy assumed that everyone was at risk, did not consider protective factors and did not allow for additional and particular help for groups of pupils believed to be at greater risk. Many pupils thought that the policy approach did not distinguish between use and abuse, and further actually excluded those who were in most need of help and support. NB: there was little specific mention of tobacco in this paper so it is hard to assess how the findings might be different or similar according to which substance(s) are considered.	+
Cain, Dickinson, Fernald, Bublitz, Dickinson and West 2006	To provide a quantitative and qualitative examination of the impact and effects of the Tar Wars	20 teachers and presenters (primarily physicians) and pupils aged 9-13 who participated in 5 focus groups	Colorado USA	A larger survey based quantitative evaluation was conducted. The qualitative component was a smaller part, involving telephone interviews with 9	The Colorado Tar Wars programme was operated by the Colorado Academy of Family Physicians Foundation and involved a 45 presentation to 5 th grade (aged 9-13) pupils on the 'short term, image based consequences of tobacco use'. The overall message of the Tar Wars programme was well received by teachers and pupils according to	+

	programme in Colorado elementary schools	(total number of pupils not given) who had attended sessions delivered as part of the Colorado Tar Wars Programme (numbers not given for qualitative component) during 2001 and 2002.		presenters (physicians), 8 teachers and 3 youth educators. Five focus groups with pupils (total number of pupils not provided) also took place. Analysis of transcripts from both interviews and focus groups was conducted using an 'editing' style of analysis and employing the analysis software package Atlas Ti.	interview and focus group findings. Pupils were particularly receptive to the message being delivered by family physicians. Teachers and pupils had previous knowledge that tobacco was harmful, but reported that previously known information about tobacco was reinforced by being presented in a different format. New information that was learned by pupils included the cost of smoking, the truth of tobacco advertising and peer norms of tobacco use.	
Cole 2000	To explore pupils' views on drugs and drug education in the transition from primary to secondary school	About 70 pupils from 6 schools across a range of neighborhoods in one area of England. Pupils were either in their final year of primary school or their first year of secondary school.	UK	The study was part of a bigger, Home Office funded, project on drugs education. Interviews with pupils from four primary schools and two secondary schools. 6 focus groups, involving about 70 pupils in total.	Only one part of the results section of the paper relates specifically to tobacco. The data suggest that very few of the children smoked and most held negative attitudes towards smoking. All had had some level of smoking-related drugs education in school. The authors suggest from one of the interviewee quotes that children are more likely to smoke if their parents and/or siblings smoke. For all substances considered in the study (tobacco, alcohol and illicit drugs), children are generally in favour of the drugs education they receive but become more critical as they get older.	-
D'Emidio-Caston and Brown 1998	To evaluate the California Drug, Alcohol and Tobacco Education	240 pupils (grades 5-12) from at least two schools in each of 11 Californian	USA	The qualitative data reported here came from part of the wider evaluation of DATE. Focus groups (about	All pupils used personal narrative (specifically personal experience by themselves or someone else relating to substance use and abuse) to make sense of drugs education and their own views and use of substances. Often the content of the personal narrative differed from	+

	<p>program (DATE).</p> <p>For this study the authors aimed to analyse the narrative stories told by pupils during focus groups in relation to their views on the drugs education they received.</p>	<p>districts.</p>		<p>40) with pupils at each school which were analysed using grounded theory (unit of analysis was the narrative story; about 490 stories were told and analysed).</p>	<p>what the pupil was taught during drugs education. Overall, the drugs education had little influence on their own decisions regarding substance use and abuse. The pupils constructed their own understandings, were able to distinguish between use and abuse, identify inconsistencies in the messages they got from home and from school. Pupils deemed to be more 'at risk' seem to get even less out of their drugs education.</p> <p>NB: there was little specific mention of tobacco in this paper so it is hard to assess how the findings might be different or similar according to which substance(s) are considered.</p>	
<p>Dobbins, DeCorby, Manske and Goldblatt 2008</p>	<p>A systematic synthesis of published literature evaluating the effectiveness of school based tobacco prevention interventions. This included interviews with experts in the field to determine if strategies identified in the review were plausible in practice.</p>	<p>11 interviews were conducted in 2002 with experts. A further 10 were conducted in 2004.</p> <p>A focus group with experts was also conducted</p> <p>31 studies were deemed relevant to this review</p>	<p>Canada</p>	<p>Purposive sampling was conducted via personal networks and snowballing. Telephone interviews were conducted with experts with 5+ years of experience in prevention programming, policy and research ensuring representation on type of experience, perspective and geography. Content analysis explored perceptions of effective prevention strategies.</p>	<p>Findings were that legislation and policy was required in order to make public spaces, including schools, smoke free to limit exposure to tobacco. This was as well as counter advertising via the mass media in conjunction with school and community based strategies. Public health involvement and partnership working was recommended for stakeholders, both to pool resources and strengthen activities. Strategies should be multi-faceted, consistent and simultaneous, involving young people in development and implementation. The qualitative results were triangulated with the review data leading to the following recommendations:</p> <ul style="list-style-type: none"> • Programmes should include active learning, awareness of influences to smoke, skill building and deconstructing media messages. • Programmes should be implemented along with other community wide tobacco control initiatives and maintained until the age of 18 and • Programmes should be adapted to the needs and culture of various minority groups. 	<p>++</p>

Hahn, Simpson & Kidd 1996	Using the Health Belief Model the study aimed to identify the strategies which promoted parental involvement with young people in an alcohol, tobacco and drugs prevention program (BABES – Beginning Alcohol and Addictions Basic Education Studies).	20 parents (with at least one child enrolled in prekindergarten or kindergarten classes) and 18 school personnel from two elementary schools (serving low income families) in one town.	USA	5 structured focus groups (3 with parents and 2 with school personnel), based on the Health Behaviour Model.	<p>The most commonly referenced Health Behaviour Model construct, by both parents and school personnel, was 'Cues to Action'. Children expressing enthusiasm for school activities to their parents was the core 'cue to action'.</p> <p>Requirements for parental involvement in general school activities and Alcohol, Tobacco or Drug (ATOD) prevention included transportation, child care and incentives.</p> <p>Cues ranked as important by parents in promoting and maintaining involvement in general school activities included:</p> <ul style="list-style-type: none"> • positive attitudes of school personnel • a range of communication approaches • numerous ways in which parents could get involved. <p>Cues more specific to involvement in ATOD prevention activities included non-judgmental communication styles and attitudes of school personnel/teachers and home-based opportunities for involvement.</p>	+
Hartland, Tudor Smith and Bowker 1998	To explore the reasons for variations in smokefree policies in secondary schools in Wales from the perspective of teachers and examine how	15 teachers in eight secondary schools in one unitary health authority area in Wales. Interviewees included: three head teachers, four deputy heads, five health	Wales	Semi-structured in depth interviews with the fifteen staff of around one hour in duration.	<p>All schools had a policy prohibiting pupils smoking. In five schools there was a written policy and in three and informal policy.</p> <p>Policies with regard to staff smoking in schools varied. Only one school was smokefree. Another school had a written policy that only permitted smoking in one area. The remainder had informal policies with smoking permitted in particular areas. At two schools the policy had been introduced without a staff vote, and 'unofficial' smoking rooms had emerged not long afterwards.</p>	+

	more consistent policies can be implemented.	education coordinators and three teachers with some responsibility for health education.			<p>Teacher managers felt that introducing further restrictions on staff smoking would endanger close working relationships with staff. Some teachers described smoking as an adults 'right' that pupils had to accept.</p> <p>Others expressed views that seeing staff smoking encourages smoking uptake in young people by normalizing smoking. Senior staff support for smokefree policies and promoting smoking prevention was described as essential if policies were to be successfully implemented. Staff had varied views on the imposition of smokefree policies by local education authorities.</p> <p>Findings relate only indirectly to delivering smoking prevention- but underline that smokefree schools are a necessary component of preventing smoking uptake by denormalising smoking in the school setting.</p>	
Mahoney, Stengel, McMullen and Brown 2000	This survey examined teachers, presenters and pupils' knowledge and attitudes to tobacco after implementation of the Colorado 'Tar Wars' programme	16 schools participated with 888 pupils completing questionnaires. 30 teachers also participated	Colorado USA	Post intervention, open ended questionnaires were used. Analysis was descriptive examining knowledge and attitudes.	<p>Main findings included:</p> <ul style="list-style-type: none"> • The programme was well received by pupils and teachers • Pupils had been exposed to much of the intervention information before • Instructors were credible members of the community and role models, who didn't charge for their involvement therefore reducing costs. • Future implementation could be facilitated through the school nursing service 	+
Mitschke, Segal, Matsunaga, Loebel, Tatafu and	To explore young, multi-ethnic adolescents' attitudes and	54 school pupils from a variety of ethnic backgrounds, ranging from 10-	Hawaii USA	Five semi-structured focus groups (with 8 to 15 participants) were held in a school setting for around one hour's	One in four of the pupils who took part had tried smoking and two-thirds lived with at least one smoker. Most participants reported a feeling that they were 'surrounded' by smoking influences in their communities, including at home. Pupils reported that they were	++

Robinett 2008	influences related to cigarette smoking for the purposes of developing and producing a youth-led, tobacco prevention drama	14 years old. Most participants (n=35) were female and 19 were male.		duration. Quantitative data relating to participants demographic characteristics, smoking behaviour and contact with smokers was also collected.	negatively influenced by others smoking and that they were looking for ways to help family members quit. The authors used this information about young people's attitudes towards and exposure to smoking in their family and communities to conclude that school-based smoking interventions with multi-ethnic young people should not simply focus on smoking in schools and young people's own smoking behaviour but also should: <ul style="list-style-type: none"> • Include key cultural references to the family and extended family • Take into account culture specific beliefs (such as respect for elders) in their design 	
Newman et al 1991	To examine the experience of teachers using the 'Smoking and Me' project (SAM)	65 teachers in 19 mixed sex comprehensive schools in four areas of England and Wales that were using the 'Smoking and Me' project	UK	The study was part of a larger evaluation using an experimental design. This article focused only on teachers involved in the intervention areas. Questionnaire distributed to teachers who had been trained (one day training) in delivering the 'Smoking and Me' intervention. Questionnaire asked about the time, date and duration of the lesson, teacher's opinion of the lesson outline, changes made during the lesson and	Teachers chose when to use SAM with nine choosing pastoral/tutorial time, three personal and social education lesson time, three specific health lessons time and three science periods. SAM was taught on average for 310 minutes and the mean number of lessons was seven. Part of the intervention involved the teachers putting the pupils into groups and selecting group leaders. The article reports that the group work element was well received overall by teachers and also reports that pupil groups should: <ul style="list-style-type: none"> • Be led by pupils who have received support and training; • Include fewer than six or seven children as larger groups can be unwieldy; • Be supported by teacher summing up at the end of group work. Most teachers followed lesson outlines and were happy with lesson format. Specific comments were included on four elements of the lessons: Role play – this format was successful in early lessons but the 'novelty wore off' after three lessons	–

				<p>the teacher's general feeling about the lesson. The questionnaire collected primarily quantitative data but some open ended questions were also included.</p>	<p>Record keeping- Group leaders were meant to write down things said in their group, but some pupils found this difficult and appointed a pupil scribe instead</p> <p>Making collages – pupils were asked to collect cigarette advertisements and make a collage. This was popular but not all pupils managed to collect ads</p> <p>Discussing smoking by family members- some children had difficulty deciding what constituted a family (i.e. was extended family included) for this element. Some teachers were uncomfortable discussing parental smoking.</p> <p>The majority of teachers (74%) felt SAM was very or reasonably useful as a teaching aid and 47% thought it would result in a reduction in youth smoking.</p>	
<p>Ott and Doyle 2005</p>	<p>To determine if pupil overestimation of drugs, alcohol and tobacco exists and can be corrected through a peer to peer 'Small groups, norms challenging model'.</p>	<p>414 pupils in 5 urban high schools</p>	<p>USA</p>	<p>Pre and post test design without a control group. This quantitative design included some open ended questions. These data were analysed using 'thematic unitizing'.</p>	<p>Key programme elements were:</p> <ul style="list-style-type: none"> • Use of local substance misuse data to illustrate levels of use • Assessment of pupil understandings • Use of peer educators • An interactive programme of university & school partnership • Young people challenging programme information. <p>There were three areas of findings in the qualitative data:</p> <ul style="list-style-type: none"> • Pupils were aware that they could misunderstand the prevalence of drug, alcohol and tobacco use. • Pupils identified future plans could be disrupted by substance use. • Pupils were positive about the peer intervention model. <p>This supplemented quantitative data, indicating misperceptions can be affected by peer to peer</p>	<p>+</p>

					intervention.	
Parker, Sussman, Crippens, Scholl and Elder 1996	To collect qualitative data from ethnic minority seventh grade pupils about their reasons for smoking and their perceptions on the efficacy of prevention program strategies	211 predominantly African American and Latino seventh grade pupils from 10 health and science classes at three urban junior high schools in LA	USA	Brief discussion groups with the pupils (the discussions lasted about 12 minutes). Two questions were asked – why do you think kids your age smoke cigarettes and what ideas do you have for the content of a video for young people your age about not smoking. Before and after the discussion groups a questionnaire was administered (no detail given here as there was no qualitative element to this).	Very little qualitative data are presented in this paper. Content analysis of the group discussion transcripts resulted in identification of eight conceptual categories for each of the two questions. The authors suggest that the reasons for smoking and the efficacy of smoking prevention programs are similar amongst ethnic minority pupils as to majority pupil populations. Nonetheless the authors suggest it is still necessary to consider ‘ethnoculturally specific features’ when developing prevention programs.	–
Spratt and Shucksmith 2006	To investigate Scottish primary school teachers’ approaches to tobacco education and issues raised in the classroom.	Interviews and focus groups were undertaken with teachers of years 6 and 7 (aged 10-12). From 25 schools from rural, urban, new and historic housing areas. 4 interviews and 4 focus groups	UK Scotland	Data collection was via semi-structured interview/ focus group on one occasion only. Thematic analysis was ongoing and data led.	Delivering tobacco education is difficult for teachers and they may use confusing or outdated methods. This was made more difficult when children came from smoking households. Teachers were conscious of openly challenging smoking, so not to undermine or alienate parents, in the best interests of the child. Tobacco education needs to consider the complexity of smoking behaviour so that children could make sense of health choices.	++
Sy and Glanz	To examine factors	62 middle school teachers in 20	Hawaii USA	A process evaluation was conducted as part	Questionnaires and interviews explored: <ul style="list-style-type: none"> • Pupil reactions to the intervention 	+

2008	associated with teacher's implementation of a smoking prevention curriculum in a cluster randomized trial of project SPLASH (Smoking Prevention Launch Among Pupils in Hawaii)	state schools in Hawaii from 200-2002		<p>of a larger trial of project SPLASH.</p> <p>One element of the process evaluation included questionnaires with teachers and some face to face, structured interviews with teachers. It is not clear from the article whether all 62 teachers were interviewed.</p>	<ul style="list-style-type: none"> • Teacher implementation • Teacher reaction to teaching SPLASH • Teacher training • External facilitators and barriers <p>More teachers who taught in year long class schedule formats fully implemented the prevention programme. In addition, teachers who had higher self-efficacy fully implemented lessons.</p> <p>Teachers who reported that the prevention programme curriculum was too complex were more likely to only partially implement the programme.</p>	
Zavela, Battisticj, Gosselink and Dean 2004	To follow up children who participated in the 'Say Yes First' prevention programme. The programme aims were to improve academic success of high risk pupils, reduce risk factors, increase extracurricular involvement and delay or reduce substance use.	Grade 4-8 pupils in schools based rural areas and small towns. Qualitative component consisted of two focus groups with 14 pupils who took part in the intervention. Quantitative element consisted of structured questionnaires completed by 120 pupils who received the intervention and	USA Colorado	<p>A mixed methods study with questionnaires and focus group after the programme had been implemented.</p> <p>Focus groups concentrated upon the purpose and activities of the programme, the impact on their schooling, extracurricular activities, career goals and the utility of the programme</p>	<p>This study was a long term follow up of a federally funded school-based drug and alcohol prevention intervention.</p> <p>Pupils reported that they believed that the programme was intended to reduce involvement in substance misuse, keep them involved in activities and increase drug awareness. It also helped to improve their self esteem and socialize with other pupils. The activities were fun and had helped some set and achieve career goals. Pupils felt the programme would be beneficial for other pupils and should be maintained.</p> <p>Although neither the questionnaire nor the focus group findings include data about tobacco use, this was not the main focus of the study – the study aimed to assess the wider benefits to pupils of participating in this type of prevention programme.</p>	+

		a comparison group of 136 pupils who completed the National Youth Survey.				
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Table 2b: Systematic Review

Walsh and Tzelepis 2007	To list and review peer-reviewed publications reporting qualitative data relevant to adolescent substance misuse	142 Peer-reviewed publications published up to September 2002 were included. Included articles had to report qualitative research findings on adolescent (aged 10-20) tobacco use		A qualitative systematic review of studies of adolescents and tobacco use. Some of the studies included examined the views of pupils receiving school-based prevention interventions. Only some parts of the article are relevant to this review.	This systematic review identified 142 qualitative studies on adolescents and tobacco published up to September 2002. From these studies three main themes were identified: Peer influences, dependence and addiction issues, and access and sales issues. Only the first of these is relevant to this review as some of the findings relate to peer influence in the context of smoking prevention in schools. The peer influence evidence synthesis found that, in relation to smoking uptake (peer influence on cessation was also covered but is not relevant to this review): <ul style="list-style-type: none"> • Peers can encourage smoking initiation amongst adolescents • Some adolescents primarily experience smoking as a social and group activity carried out with their smoking peers • Smoking is influenced by adolescent's need to gain peer acceptance • Smoking is a vehicle through which adolescents can enter and belong to a group • The desire to find friends when moving to a new school can be a motivating factor for smoking • Peer norms and peer group structure can influence how much and when adolescents smoke 	++
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					<ul style="list-style-type: none">• Adolescent smokers can directly coerce their nonsmoking friends into smoking ('peer pressure') but this is moderated by peer group structure and position within peer groups	
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10. APPENDIX 1 – Excluded studies

Authors	Year	Title	Journal	Reference	Reason for exclusion
Ariza- Cardenal, C. & Nebot-Adell, M.	2002	Factors associated with smoking progression among Spanish adolescents	Health Education Research	17 (6) 750-760	Quantitative data only
Awah, P.K., Kengne, A.P., Fezeu, L.L.K. & Mbanya, J.C.	2008	Perceived risk factors in cardiovascular diseases and diabetes in Cameroon	Health Education Research	23, 612-620	Inappropriate subject matter
Barnett, T.A., Gauvin, L., Lambert, M., O'Loughlin, J., Paradis, G. & McGrath, J.J.	2007	The influence of school smoking policies on student tobacco use	Arch Pediatric Adolescent Medicine	161 (9)	Quantitative data only
Barr, J.E., Tubman, J.G., Montgomery, M.J. & Soza- Vento, R.M.	2002	Amenability and Implementation in Secondary School Antitobacco Programs	American Journal Health Behaviour	26 (1) 3-15	Quantitative data only
Barrueco, M., Hernandez-Mezquita, M.A., Jimenez- Ruiz, C., Torrecilla, M., Vega, M.T. & Garrido, E.	2000	Attitudes of teachers about tobacco prevention at school	Allergol et Immunopathol	28 (4) 219-224	Quantitative data only
Bodinger & Austin	1991	Substance abuse among adolescent females	Prevention research update 9	9	Quantitative data only

Botvin, G.J., Dusenbry, L., Baker, E., James- Ortiz, S., Botvin, E.M. & Kerner, J.	1992	Smoking prevention among urban minority youth: assessing effects on outcome and mediating variables	Health Psychology	11 (5) 290- 299	Quantitative data only
Brown, E.J., Hill, M.A. & Giroux, S.A.	2004	A 28 program ain't helping the crack smoker- Perceptions of effective drug abuse prevention interventions by North Central Florida African Americans who use Cocaine	Journal of Rural Health	20 (30) 286- 295	Not tobacco
Buller, D.B., Young, W.F., Fisher, K.H. & Maloy, J.A.	2007	The effect of endorsement by local opinion leaders and testimonials from teachers on the dissemination of a web based prevention programme	Health Education Research	22 (5) 609- 618	Quantitative data only
Campbell, H. & MacDonald, S.	1995	The school health service in Fife: a survey of the views of school head and guidance teachers	Public Health	109 319- 326	No intervention, quantitative data only
Charlton, A.	1999	ASH 648 conference in Singapore			No data
Davis, C.	2007	A lesson in quitting	Nursing Standard	21 (29) 18- 20	No data
Ellickson, P.L., McCaffrey, D.F., Ghosh-Dastidor, B. et al	2003	Project ALERT reduces initiation of cigarette and marijuana use in 12-14 year olds	Am J Public Health	93 1830-6	Quantitative data only
Evans- Whipp, T.J., Bond, L., Toumbourou, J.W. & Catalano, R.F.	2007	School, parent and student perspectives of school drug policies	School Health Policy	77 (3) 138- 146	Quantitative data only
Gearhart Pucci, L.	1992	Focus groups: a tool for developing better	Health Promotion	7 (1) 11-15	Adults in the work

& Hagland, B.J.A.		health education materials and approaches for smoking intervention	International		place
Hayman, L.L., Williams, C.L., Daniels, S.R., Steinberger, J., Paridon, S., Dennison, B.A., & McCordle, B.W.	2004	Cardiovascular Health Promotion in Schools	Circulation	110, 2266-2275	Not primarily smoking prevention
Jette, S., Wilson, B. & Sparks, R.	2007	Female youths perception of smoking in popular films	Qualitative Health Research	17 (3) 323-339	Not a school intervention
Kandra, K.L., Goldstein, A.O., Gizlice, Z., Woldman, R.L. & Proescholdbell S.K.	2007	Attitudes about tobacco policies among North Carolina parents	NC Med J	68 (1)	Mass media campaign, quantitative data, no new intervention
Lynagh, M., Knight, J. Schofield, M.J. & Paras, L.	1999	Lessons learned from the Hunter region health promoting schools project in New South Wales, Australia	Journal of School Health	69 (6) 227-232	No data, lessons learned from RCT
Lynagh, M., Schofield, M.J. & Sanson-Fisher, R.W.	1997	School health promotion programs over the past decade: a review of the smoking, alcohol and solar protection literature	Health Promotion International	12 (1) 3-60	Review, no new data
Martino- McAllister, J. & Wessel, M.T.	2005	An evaluation of a social norms marketing project for tobacco prevention with middle, high and college students; use of funds from the tobacco master settlement (Virginia)	Journal of Drug Education	35 (3) 185-200	Media campaign, Community not school focused, no school intervention isolated
Muilenburg, J.L.,	2007	Self identification of smoking status in a	J Cancer	21 258-262	Quantitative data only

Johnson, W.D. & Kohler, C.L.		middle school population: assessing smoking behaviours through students personal perceptions	Education		
NIH State of the Science Panel	2006	National Institutes of Health State of the Science Conference Statement: Prevention, cessation and control	Annals of Internal Medicine	145 839-844	Context only
Park, E.	2006	School based smoking prevention programs for adolescents in South Korea: a systematic review	Health Education Research	21 (3)408-415	Quantitative data only
Prince, F.	1995	The relative effectiveness of a peer led and adult led smoking intervention program	Adolescence	30 (117) 187	Quantitative data only; smoking reduction not prevention
Richards-Colocino, N., McKenzie, P. & Newton, R.R.	1996	Project Success: comprehensive intervention for high risk youth	Journal of Adolescent Research	11 (1) 130-163	Not included because did not mention tobacco in the study, just other drugs.
Slater, M.D, Kelly, K.J., Edwards, R.W., Thurman, P.J., Plested, B.A, Keefe, T.J., Lawrence, F.R. & Henry, K.L.	2006	Combining in-school and community based media efforts: reducing marijuana and alcohol uptake among younger adolescents	Health Education Research	21 (1) 157-167	Quantitative data only
Starkey and Orme	2001	Evaluation of a primary school drug drama project: methodological issues and key findings	Health Education Research	16, 5, 609-622	Quantitative data only
Sun, P., Miyano, J., Rohrbach, L.A.,	2006	Short term effects of project EX: a classroom based smoking prevention and	Addictive Behaviours	32 342-350	Quantitative data only

Dent, C.W. & Sussman, S.		cessation intervention program			
Thomas, R.E. & Perera, R.	2008	School based programmes for preventing smoking	The Cochrane Collaboration	Issue 4	Systematic review of quantitative research
Van Dyke, E.M. & Riesenbunrg, L.A.	2002	Effectiveness of a school based intervention at changing preadolescents tobacco use and attitudes	Journal of School Health	72 (6) 221-225	Quantitative data only
Walker, J. Darling, H.	2007	Tobacco education: have New Zealand primary schools done their homework	Australian and New Zealand Journal of Public Health	31 (1)	Quantitative data only
Warner, J., Albanes, R. & Amitay, O.	1999	Ontario, Canada, High School Teachers as Enforcers in the War on Drugs: What Their Students See and Say	Journal of School Health	69 (6) 243-246	Not tobacco
West & Foulds	1999	Smokefree Schools –seven steps to success	HEA 1999 report		No data
Wiehe, S.E., Garrison, M.M., Christakis, D.A., Ebel, B.E. & Rivara, F.P.	2005	A systematic review of school based smoking prevention trials with long term follow up	Journal of adolescent health	36 162-169	Systematic review of quantitative research
Wong, G., Glover, M., Nosa, V., Freeman, B., Paynter, J. & Scragg, R.	2007	Young people, money and access to tobacco	The New Zealand Medical Journal	120 (1267)	No intervention
Wyman, J., Price, J.H., Jordan, T.R., Dake, J.A. &	2006	Parents perceptions of the role of schools in tobacco use prevention and cessation for youth	Journal of Community Health	31 (3) 225-248	Quantitative data only

Telljohann, S.K.					
Youdan, B. & Sandford, A.		Not Big, and Not Clever!	ASH Briefing note		No data
Ariza- Cardenal, C. & Nebot-Adell, M.	2002	Factors associated with smoking progression among Spanish adolescents	Health Education Research	17 (6) 750-760	Quantitative data only

11. APPENDIX 2 – Study Quality Ratings

Epistemology	Year	1, Is a qualitative approach appropriate?			2, Is the study clear in what it seeks to do?	
		Appropriate	Inappropriate	Not sure	Clear	Unclear
Audrey, S., Holliday, J. & Campbell, R.	2008	✓			✓	
Audrey, S., Holliday, J. & Campbell, R.	2006	✓			✓	
Badovinac, K.	1994			✓	✓	
Bailie, L.E., Lovato, C.Y., Taylor, E. Rutherford, M.B. & Smith, M.	2008	✓			✓	
Brown, J.H., D'Emidio-Caston & Pollard, J.A	1997	✓			✓	
Brown, J.H. & D'Emidio-Caston, M.	1995	✓			✓	
Cole, P.	2000	✓			✓	
Cain, J.J., Dickinson, W.P., Fernald, D., Bublitz, C., Dickinson, M. & West, D.	2006	✓			✓	
D'Emidio-Caston, M. & Brown, J.H	1998	✓			✓	
Dobbins, M., DeCorby, K., Manske, S. & Goldblatt, E.	2008	✓			✓	
Hahn, E.J., Rado Simpson, M. & Kidd, P.	1996	✓			✓	
Hartland, J., Tudor-Smith, C. & Bowker, S.	1998	✓			✓	

Mahoney, M.C., Stengel, B., McMullen, S & Brown, S.	2000			✓	✓		
Mitschke, D.B., Segal Matsunaga, D., Loebel, K., Tatafu, E. & Robinett, H.	2008	✓			✓		
Ott, C.H & Doyle, L.H.	2005			✓	✓		
Parker, V., Sussman, S., Crippens, D.L., Scholl, D. & Elder, P.	1996	✓			✓		
Spratt, J. & Shucksmith, J.	2006	✓			✓		
Sy, A. & Glanz, K.	2008	✓			✓		
Walsh, R.A. & Tzelepis	2007	✓			*		*
Zavela, K.J., Battistich, V., Gosselink, C.A. & Dean, B.J.	2004	✓			✓		
Study Design & Data Collection	Year	3, How defensible is the research design?			4, How well was the data collection carried out?		
		Defensible	Indefensible	Not sure	Appropriately	Inappropriately	Not sure
Audrey, S., Holliday, J. & Campbell, R.	2008	✓			✓		
Audrey, S., Holliday, J. & Campbell, R.	2006	✓			✓		
Badovinac, K.	1994			✓			✓
Bailie, L.E., Lovato, C.Y., Taylor, E. Rutherford, M.B. & Smith, M.	2008	✓			✓		
Brown, J.H., D'Emidio-Caston & Pollard, J.A	1997	✓					✓
Brown, J.H. & D'Emidio-Caston, M.	1995	✓					✓
Cole, P.	2000			✓			✓
Cain, J.J., Dickinson, W.P., Fernald,	2006	✓			✓		

D., Bublitz, C., Dickinson, M. & West, D.							
D'Emidio-Caston, M. & Brown, J.H	1998	✓					✓
Dobbins, M., DeCorby, K., Manske, S. & Goldblatt, E.	2008	✓			✓		
Hahn, E.J., Rado Simpson, M. & Kidd, P.	1996	✓			✓		
Hartland, J., Tudor-Smith, C. & Bowker, S.	1998	✓					✓
Mahoney, M.C., Stengel, B., McMullen, S & Brown, S.	2000	✓			✓		
Mitschke, D.B., Segal Matsunaga, D., Loebel, K., Tatafu, E. & Robinett, H.	2008	✓			✓		
Ott, C.H & Doyle, L.H.	2005	✓			✓		
Parker, V., Sussman, S., Crippens, D.L., Scholl, D. & Elder, P.	1996	✓			✓		
Spratt, J. & Shucksmith, J.	2006	✓			✓		
Sy, A. & Glanz, K.	2008	✓			✓		
Walsh, R.A. & Tzelepis	2007	*	*	*	*	*	*
Zavela, K.J., Battistich, V., Gosselink, C.A. & Dean, B.J.	2004	✓			✓		

Validity	Year	5, Is the role of the researcher clearly described?			6, Is the context clearly described?		
		Clear	Unclear	Not sure	Clear	Unclear	Not sure
Audrey, S., Holliday, J. & Campbell, R.	2008	✓			✓		

Audrey, S., Holliday, J. & Campbell, R.	2006	✓			✓		
Badovinac, K.	1994		✓		✓		
Bailie, L.E., Lovato, C.Y., Taylor, E. Rutherford, M.B. & Smith, M.	2008		✓			✓	
Brown, J.H., D'Emidio-Caston & Pollard, J.A	1997			✓	✓		
Brown, J.H. & D'Emidio-Caston, M.	1995		✓		✓		
Cole, P.	2000			✓		✓	
Cain, J.J., Dickinson, W.P., Fernald, D., Bublitz, C., Dickinson, M. & West, D.	2006		✓		✓		
D'Emidio-Caston, M. & Brown, J.H	1998		✓		✓		
Dobbins, M., DeCorby, K., Manske, S. & Goldblatt, E.	2008		✓		✓		
Hahn, E.J., Rado Simpson, M. & Kidd, P.	1996		✓			✓	
Hartland, J., Tudor-Smith, C. & Bowker, S.	1998		✓		✓		
Mahoney, M.C., Stengel, B., McMullen, S & Brown, S.	2000		✓		✓		
Mitschke, D.B., Segal Matsunaga, D., Loebel, K., Tatafu, E. & Robinett, H.	2008		✓		✓		
Ott, C.H & Doyle, L.H.	2005	✓			✓		
Parker, V., Sussman, S., Crippens, D.L., Scholl, D. & Elder, P.	1996			✓	✓		
Spratt, J. & Shucksmith, J.	2006		✓		✓		
Sy, A. & Glanz, K.	2008		✓		✓		
Walsh, R.A. & Tzelepis	2007	*	*	*	*	*	*
Zavela, K.J., Battistich, V., Gosselink, C.A. & Dean, B.J.	2004		✓				✓

Validity cont'd	Year	7, Were the methods reliable?		
		Reliable	Unreliable	Not sure
Audrey, S., Holliday, J. & Campbell, R.	2008	✓		
Audrey, S., Holliday, J. & Campbell, R.	2006	✓		
Badovinac, K.	1994		✓	
Bailie, L.E., Lovato, C.Y., Taylor, E. Rutherford, M.B. & Smith, M.	2008	✓		
Brown, J.H., D'Emidio-Caston & Pollard, J.A	1997	✓		
Brown, J.H. & D'Emidio-Caston, M.	1995	✓		
Cole, P.	2000			✓
Cain, J.J., Dickinson, W.P., Fernald, D., Bublitz, C., Dickinson, M. & West, D.	2006	✓		
D'Emidio-Caston, M. & Brown, J.H	1998	✓		
Dobbins, M., DeCorby, K., Manske, S. & Goldblatt, E.	2008	✓		
Hahn, E.J., Rado Simpson, M. & Kidd, P.	1996	✓		
Hartland, J., Tudor-Smith, C. & Bowker, S.	1998			✓
Mahoney, M.C., Stengel, B., McMullen, S & Brown, S.	2000			✓
Mitschke, D.B., Segal Matsunaga, D., Loebl, K., Tatafu, E. & Robinett, H.	2008	✓		
Ott, C.H & Doyle, L.H.	2005	✓		
Parker, V., Sussman, S., Crippens, D.L., Scholl, D. & Elder, P.	1996			✓

Spratt, J. & Shucksmith, J.	2006	✓		
Sy, A. & Glanz, K.	2008	✓		
Walsh, R.A. & Tzelepis	2007	*	*	*
Zavela, K.J., Battistich, V., Gosselink, C.A. & Dean, B.J.	2004			✓

Analysis	Year	8, Is the data analysis sufficiently rigorous?			9, Is the data rich?		
		Rigorous	Not rigorous	Not sure	Rich	Poor	Not sure
Audrey, S., Holliday, J. & Campbell, R.	2008	✓			✓		
Audrey, S., Holliday, J. & Campbell, R.	2006	✓			✓		
Badovinac, K.	1994		✓			✓	
Bailie, L.E., Lovato, C.Y., Taylor, E. Rutherford, M.B. & Smith, M.	2008	✓			✓		
Brown, J.H., D'Emidio-Caston & Pollard, J.A	1997	✓			✓		
Brown, J.H. & D'Emidio-Caston, M.	1995	✓			✓		
Cole, P.	2000			✓			✓
Cain, J.J., Dickinson, W.P., Fernald, D., Bublitz, C., Dickinson, M. & West, D.	2006			✓			✓
D'Emidio-Caston, M. & Brown, J.H	1998		✓		✓		
Dobbins, M., DeCorby, K., Manske, S. & Goldblatt, E.	2008	✓			✓		
Hahn, E.J., Rado Simpson, M. & Kidd, P.	1996	✓			✓		
Hartland, J., Tudor-Smith, C. & Bowker, S.	1998			✓	✓		

Mahoney, M.C., Stengel, B., McMullen, S & Brown, S.	2000			✓			✓
Mitschke, D.B., Segal Matsunaga, D., Loebel, K., Tatafu, E. & Robinett, H.	2008	✓					✓
Ott, C.H & Doyle, L.H.	2005			✓			✓
Parker, V., Sussman, S., Crippens, D.L., Scholl, D. & Elder, P.	1996	✓					✓
Spratt, J. & Shucksmith, J.	2006		✓		✓		
Sy, A. & Glanz, K.	2008	✓					✓
Walsh, R.A. & Tzelepis	2007	*	*	*	*	*	*
Zavela, K.J., Battistich, V., Gosselink, C.A. & Dean, B.J.	2004			✓		✓	

Analysis con'd	Year	10, Is the analysis reliable?			11, Are the findings credible?		
		Reliable	Unreliable	Not sure	Credible	Not credible	Not sure
Audrey, S., Holliday, J. & Campbell, R.	2008	✓			✓		
Audrey, S., Holliday, J. & Campbell, R.	2006	✓			✓		
Badovinac, K.	1994		✓				✓
Bailie, L.E., Lovato, C.Y., Taylor, E. Rutherford, M.B. & Smith, M.	2008	✓			✓		
Brown, J.H., D'Emidio-Caston & Pollard, J.A	1997	✓			✓		
Brown, J.H. & D'Emidio-Caston, M.	1995	✓			✓		
Cole, P.	2000			✓	✓		
Cain, J.J., Dickinson, W.P., Fernald, D., Bublitz, C., Dickinson, M. & West, D.	2006	✓			✓		

D'Emidio-Caston, M. & Brown, J.H	1998			✓	✓		
Dobbins, M., DeCorby, K., Manske, S. & Goldblatt, E.	2008	✓			✓		
Hahn, E.J., Rado Simpson, M. & Kidd, P.	1996			✓	✓		
Hartland, J., Tudor-Smith, C. & Bowker, S.	1998			✓	✓		
Mahoney, M.C., Stengel, B., McMullen, S & Brown, S.	2000		✓		✓		
Mitschke, D.B., Segal Matsunaga, D., Loebl, K., Tatafu, E. & Robinett, H.	2008	✓			✓		
Ott, C.H & Doyle, L.H.	2005			✓	✓		
Parker, V., Sussman, S., Crippens, D.L., Scholl, D. & Elder, P.	1996	✓					✓
Spratt, J. & Shucksmith, J.	2006			✓	✓		
Sy, A. & Glanz, K.	2008			✓	✓		
Walsh, R.A. & Tzelepis	2007	*	*	*	*	*	*
Zavela, K.J., Battistich, V., Gosselink, C.A. & Dean, B.J.	2004			✓			✓

Relevance & conclusions	Year	12, Are the findings relevant?			13, Conclusions		
		Relevant	Irrelevant	Not sure	Adequate	Inadequate	Not sure
Audrey, S., Holliday, J. & Campbell, R.	2008	✓			✓		
Audrey, S., Holliday, J. & Campbell, R.	2006	✓			✓		
Badovinac, K.	1994			✓		✓	
Bailie, L.E., Lovato, C.Y., Taylor, E. Rutherford, M.B. & Smith, M.	2008	✓			✓		

Brown, J.H., D'Emidio-Caston & Pollard, J.A	1997			✓	✓		
Brown, J.H. & D'Emidio-Caston, M.	1995	✓			✓		
Cole, P.	2000			✓		✓	
Cain, J.J., Dickinson, W.P., Fernald, D., Bublitz, C., Dickinson, M. & West, D.	2006	✓					✓
D'Emidio-Caston, M. & Brown, J.H	1998	✓			✓		
Dobbins, M., DeCorby, K., Manske, S. & Goldblatt, E.	2008	✓			✓		
Hahn, E.J., Rado Simpson, M. & Kidd, P.	1996			✓	✓		
Hartland, J., Tudor-Smith, C. & Bowker, S.	1998			✓	✓		
Mahoney, M.C., Stengel, B., McMullen, S & Brown, S.	2000			✓	✓		
Mitschke, D.B., Segal Matsunaga, D., Loebl, K., Tatafu, E. & Robinett, H.	2008			✓	✓		
Ott, C.H & Doyle, L.H.	2005			✓	✓		
Parker, V., Sussman, S., Crippens, D.L., Scholl, D. & Elder, P.	1996			✓			✓
Spratt, J. & Shucksmith, J.	2006	✓			✓		
Sy, A. & Glanz, K.	2008	✓			✓		
Walsh, R.A. & Tzelepis	2007	✓			*	*	*
Zavela, K.J., Battistich, V., Gosselink, C.A. & Dean, B.J.	2004	✓			✓		

Ethics	Year	14, How clear and coherent is the reporting of ethics?
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		Appropriate	Inappropriate	Not sure
Audrey, S., Holliday, J. & Campbell, R.	2008			✓
Audrey, S., Holliday, J. & Campbell, R.	2006	✓		
Badovinac, K.	1994		✓	
Bailie, L.E., Lovato, C.Y., Taylor, E. Rutherford, M.B. & Smith, M.	2008	✓		
Brown, J.H., D'Emidio-Caston & Pollard, J.A	1997		✓	
Brown, J.H. & D'Emidio-Caston, M.	1995		✓	
Cole, P.	2000		✓	
Cain, J.J., Dickinson, W.P., Fernald, D., Bublitz, C., Dickinson, M. & West, D.	2006			✓
D'Emidio-Caston, M. & Brown, J.H	1998		✓	
Dobbins, M., DeCorby, K., Manske, S. & Goldblatt, E.	2008			✓
Hahn, E.J., Rado Simpson, M. & Kidd, P.	1996		✓	
Hartland, J., Tudor-Smith, C. & Bowker, S.	1998	✓		
Mahoney, M.C., Stengel, B., McMullen, S & Brown, S.	2000		✓	
Mitschke, D.B., Segal Matsunaga, D., Loebl, K., Tatafu, E. & Robinett, H.	2008	✓		
Ott, C.H & Doyle, L.H.	2005	✓		
Parker, V., Sussman, S., Crippens, D.L., Scholl, D. & Elder, P.	1996			✓
Spratt, J. & Shucksmith, J.	2006			✓
Sy, A. & Glanz, K.	2008			✓

Walsh, R.A. & Tzelepis	2007	*	*	*
Zavela, K.J., Battistich, V., Gosselink, C.A. & Dean, B.J.	2004			✓

* indicates checklist could not be completed as document was a systematic review of multiple studies

12. APPENDIX 3 – Search Strategy

Cochrane Library (Wiley) 2008 Issue 4

- #1 young next people*
- #2 young next person*
- #3 young next adult*
- #4 adolescent*
- #5 youth*
- #6 teenage*
- #7 girl*
- #8 boy*
- #9 MeSH descriptor Adolescent explode all trees
- #10 child*
- #11 (#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10)
- #12 school*
- #13 academy
- #14 academies
- #15 city next technology
- #16 sixth next form*
- #17 education next centre*
- #18 secure next unit*
- #19 training next unit*
- #20 secure next training
- #21 referral next unit*
- #22 offender near/1 institute*
- #23 further next education
- #24 MeSH descriptor Schools explode all trees
- #25 (#12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24)
- #26 health next promotion
- #27 health next education
- #28 primary next prevention
- #29 MeSH descriptor Health Education explode all trees
- #30 MeSH descriptor Health Promotion explode all trees
- #31 MeSH descriptor Primary Prevention explode all trees
- #32 campaign* or teach* or advis* or counsel* or promot* or encourag*
- #33 program* or lectur* or train* or workshop* or seminar* or lesson* or learn* or curricul* or course* or educat*
- #34 (#26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33)
- #35 (#11 AND #25 AND #34)
- #36 smoking
- #37 MeSH descriptor Smoking explode all trees
- #38 smok*
- #39 tobacco*
- #40 cigarette*
- #41 nicotine*
- #42 (prevent* or abstain* or abstin* or stop* or discourag* or anti* or no or non) near/2 (smok*)
- #43 (#36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42)
- #44 (#35 AND #43)
- #45 <nothing>, from 1990 to 2008
- #46 (#44 AND #45)

Database: Ovid MEDLINE(R) <1950 to November Week 1 2008>

Search Strategy:

-
- 1 young people.mp.
 - 2 young person\$.mp.
 - 3 young adult\$.mp.
 - 4 adolescent\$.mp.
 - 5 youth\$.mp.
 - 6 teenage\$.mp.
 - 7 girl\$.mp.
 - 8 boy\$.mp.
 - 9 exp Adolescent/
 - 10 Child/
 - 11 child\$.mp.
 - 12 or/1-11
 - 13 exp Schools/
 - 14 academy.mp.
 - 15 academies.mp.
 - 16 city technology.mp.
 - 17 sixth form\$.mp.
 - 18 education centre\$.mp.
 - 19 secure unit\$.mp.
 - 20 training unit\$.mp.
 - 21 secure training.mp.
 - 22 referral unit\$.mp.
 - 23 school\$.mp.
 - 24 (offender\$ adj institute\$.mp.
 - 25 further education.mp.
 - 26 or/13-25
 - 27 26 and 12
 - 28 health promotion.mp. or exp Health Promotion/
 - 29 health education.mp. or exp Health Education/
 - 30 primary prevention.mp. or exp Primary Prevention/
 - 31 (campaign or teach\$ or advis\$ or counsel\$ or promot\$ or encourag\$.mp.
 - 32 (program\$ or lectur\$ or train\$ or workshop\$ or seminar\$ or lesson\$ or learn\$ or curricul\$ or course\$ or educat\$.mp.
 - 33 or/28-32
 - 34 27 and 33
 - 35 exp Smoking/ or smoking.mp.
 - 36 smok\$.mp.
 - 37 tobacco\$.mp.
 - 38 cigarette\$.mp.
 - 39 nicotine\$.mp.
 - 40 ((prevent\$ or abstain\$ or abstin\$ or stop\$ or discourag\$ or anti\$ or no or non) adj2 smok\$.mp.
 - 41 or/35-40
 - 42 34 and 41
 - 43 limit 42 to (english language and yr="1990 - 2008")

**Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations
<November 12, 2008>**

Search Strategy:

- 1 young people.mp.
- 2 young person\$.mp.
- 3 young adult\$.mp.
- 4 adolescent\$.mp.
- 5 youth\$.mp.
- 6 teenage\$.mp.
- 7 girl\$.mp.
- 8 boy\$.mp.
- 9 child\$.mp.
- 10 or/1-9
- 11 school\$.mp.
- 12 academy.mp.
- 13 academies.mp.
- 14 city technology.mp.
- 15 sixth form\$.mp.
- 16 education centre\$.mp.
- 17 secure unit\$.mp.
- 18 training unit\$.mp.
- 19 secure training.mp.
- 20 referral unit\$.mp.
- 21 (offender\$ adj institute\$.mp.
- 22 further education.mp.
- 23 or/11-22
- 24 health promotion.mp.
- 25 health education.mp.
- 26 primary prevention.mp.
- 27 (campaign or teach\$ or advis\$ or counsel\$ or promot\$ or encourag\$.mp.
- 28 (program\$ or lectur\$ or train\$ or workshop\$ or seminar\$ or lesson\$ or learn\$ or
curricul\$ or course\$ or educat\$.mp.
- 29 or/24-28
- 30 23 and 10 and 29
- 31 smoking.mp.
- 32 smok\$.mp.
- 33 tobacco\$.mp.
- 34 cigarette\$.mp.
- 35 nicotine\$.mp.
- 36 ((prevent\$ or abstain\$ or abstin\$ or stop\$ or discourag\$ or anti\$ or no or non)
adj2 smok\$.mp.
- 37 or/31-36
- 38 37 and 30
- 39 limit 38 to (english language and yr="1990 - 2008")

Database: EMBASE <1980 to 2008 Week 45>

Search Strategy:

- 1 young people.mp.
- 2 young person\$.mp.
- 3 young adult\$.mp.
- 4 Adolescent/
adolescent\$.mp.
- 5 adolescent\$.mp.

6 youth\$.mp. or exp Juvenile/
7 teenage\$.mp.
8 girl\$.mp. or exp GIRL/
9 boy\$.mp. or exp BOY/
10 Child/
11 child\$.mp.
12 or/1-11
13 school\$.mp.
14 academy.mp.
15 academies.mp.
16 city technology.mp.
17 sixth form\$.mp.
18 education centre\$.mp.
19 secure unit\$.mp.
20 training unit\$.mp.
21 secure training.mp.
22 referral unit\$.mp.
23 (offender\$ adj institute\$.mp.
24 further education.mp.
25 or/13-24
26 health promotion.mp. or exp Health Promotion/
27 health education.mp. or exp Health Education/
28 primary prevention.mp. or exp Primary Prevention/
29 (campaign\$ or teach\$ or advis\$ or counsel\$ or promot\$ or encourag\$).mp.
30 (program\$ or lectur\$ or train\$ or workshop\$ or seminar\$ or lesson\$ or learn\$ or
curricul\$ or course\$ or educat\$).mp.
31 or/26-30
32 25 and 31 and 12
33 exp SMOKING/ or smoking.mp.
34 smok\$.mp.
35 tobacco\$.mp.
36 cigarette\$.mp.
37 nicotine\$.mp.
38 ((prevent\$ or abstain\$ or abstin\$ or stop\$ or discourag\$ or anti or no or non)
adj2 smok\$).mp.
39 or/33-38
40 32 and 39
41 limit 40 to (english language and yr="1990 - 2008")

Database: PsycINFO <1987 to November Week 2 2008>

Search Strategy:

1 young people\$.mp.
2 young person\$.mp.
3 young adult\$.mp.
4 adolescent\$.mp.
5 youth.mp.
6 teenage\$.mp.
7 girl\$.mp.
8 boy\$.mp.
9 child\$.mp.
10 or/1-9
11 school\$.mp. or exp Schools/

- 12 academy.mp.
- 13 academies.mp.
- 14 city technology.mp.
- 15 sixth form\$.mp.
- 16 education centre\$.mp.
- 17 secure unit\$.mp.
- 18 training unit\$.mp.
- 19 secure training.mp.
- 20 referral unit\$.mp.
- 21 or/11-20
- 22 21 and 10
- 23 health promotion.mp. or exp Health Promotion/
- 24 health education.mp. or exp Health Education/
- 25 primary prevention.mp.
- 26 (campaign\$ or teach\$ or advis\$ or counsel\$ or promot\$ or encourag\$).mp.
- 27 (program\$ or lectur\$ or train\$ or workshop\$ or seminar\$ or lesson\$ or learn\$ or curricul\$ or cours\$ or educat\$).mp.
- 28 or/23-27
- 29 22 and 28
- 30 smoking.mp. or exp Tobacco Smoking/
- 31 smok\$.mp.
- 32 tobacco\$.mp.
- 33 cigarette\$.mp.
- 34 exp Nicotine/ or nicotine\$.mp.
- 35 ((prevent\$ or abstain\$ or abstin\$ or stop\$ or discourag\$ or anti or no or non) adj2 smok\$).mp.
- 36 or/30-35
- 37 36 and 29
- 38 limit 37 to (english language and yr="1990 - 2008")

Database: HMIC Health Management Information Consortium < October 2008 >

Search Strategy:

-
- 1 young people\$.mp. or exp YOUNG PEOPLE/
 - 2 young person\$.mp.
 - 3 young adult\$.mp. or exp YOUNG ADULTS/
 - 4 adolescent\$.mp.
 - 5 youth.mp.
 - 6 teenage\$.mp.
 - 7 girl\$.mp. or exp GIRLS/
 - 8 boy\$.mp. or exp BOYS/
 - 9 child\$.mp.
 - 10 or/1-9
 - 11 exp schools/
 - 12 school\$.mp.
 - 13 academy.mp.
 - 14 academies.mp.
 - 15 city technology.mp.
 - 16 sixth form\$.mp.
 - 17 education centre\$.mp.
 - 18 secure unit\$.mp.
 - 19 training unit\$.mp.
 - 20 secure training.mp.
 - 21 referral unit\$.mp.

22 or/11-21
 23 22 and 10
 24 health promotion.mp. or exp HEALTH PROMOTION/
 25 health education.mp. or exp HEALTH EDUCATION/
 26 primary prevention.mp.
 27 (campaign\$ or teach\$ or advis\$ or counsel\$ or promot\$ or encourag\$).mp.
 28 (program\$ or lectur\$ or train\$ or workshop\$ or seminar\$ or lesson\$ or learn\$ or
 curricul\$ or course\$ or educat\$).mp.
 29 or/24-28
 30 22 and 29
 31 exp ANTI SMOKING CAMPAIGNS/ or exp SMOKING/ or smoking.mp.
 32 smok\$.mp.
 33 tobacco\$.mp.
 34 cigarette\$.mp.
 35 nicotine\$.mp.
 36 ((prevent\$ or abstain\$ or abstin\$ or stop\$ or discourag\$ or anti or no or non)
 adj2 smok\$).mp.
 37 or/31-36
 38 37 and 30
 39 limit 38 to yr="1990 - 2008"

Wed Nov 12 6:21:52 EST 2008

CSA

Database: ERIC

Query: (young people or young person* or young adult* or adolescent* or youth or teenage* or girl* or boy* or child*) and (school* or academy or academies or city technology or sixth form* or education centre* or secure unit* or training unit* or secure training or training unit* or secure training or referral unit*) and (health promotion or health education or primary prevention or campaign* or teach* or advis* or counsel* or promot* or encourag* or program* or lecture* or train* or workshop* or seminar* or lesson* or learn* or curricul* or course* or educat*) and (smok* or smoking or tobacco* or cigarette* or nicotine*) or (prevent* or abstin* or stop* or discourag* or anti or no or non) and (smok*)

Limit to : English language and yr= 1990-2008

Fri Nov 14 7:54:50 EST 2008

CSA

Database: ASSIA: Applied Social Sciences Index and Abstracts

Query: ((young people) or (young person*) or (young adult*) or adolescent* or youth or teenage* or girl* or boy* or child*) and (school* or academy or academies or (city technology) or (sixth form*) or (education centre*) or (secure unit*) or (training unit*) or (referral unit*)) and ((health promotion) or (health education) or (primary revention) or campaign* or teach* or advis* or counsel* or promot* or encourag* or program* or lecture* or train* or workshop* or seminar* or lesson* or learn* or curricul* or course* or educat*) and (smok* or smoking or tobacco or cigarette* or nicotine*) or (prevent* or abstin* or stop* or discourag* or anti or no or non) and smok*

Limit to : English language and yr= 1990-2008

13. APPENDIX 4 – Sifting Checklist

School-based intervention to prevent smoking sifting criteria – applied to title and abstract of search results

Q1	Is the full paper in English and published from 1990 onwards?	YES / UNCLEAR	Go to Q2	Reference Manager labelling
		NO	Exclude	
Q2	Does the study address prevention of uptake of smoking in children?	YES / UNCLEAR	Go to Q3	
		NO	Exclude	
Q3	Was the study carried out in an OECD country?	YES / UNCLEAR	Go to Q4	
		NO	Exclude	
Q4	Is it a school-based intervention or is there a school-based component within a combined intervention?	YES / UNCLEAR	Go to Q5	
		NO	Exclude	
Q5	Is there reporting of outcomes (quantitative or qualitative)?	YES / UNCLEAR	RELEVANT (TAG)	USER DEF 2= get paper
		NO	Exclude	

Member countries of the Organisation for Economic Co-operation and Development (OECD):

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Spain	Sweden
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Source: <http://www.oecd.org/>