

NATIONAL INSTITUTE FOR HEALTH AND CLINICAL EXCELLENCE

PUBLIC HEALTH DRAFT GUIDANCE

Front cover

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School-based interventions to prevent the uptake of smoking among children and young people

NICE public health guidance X

Introduction

The Department of Health (DH) asked the National Institute for Health and Clinical Excellence (NICE) to produce public health guidance on school-based interventions to prevent the uptake of smoking among children and young people.

The guidance is for those who have a direct or indirect role in, and responsibility for, preventing the uptake of smoking by children and young people. This includes national policy makers, teachers, support staff, governors and professionals with public health as part of their remit working in education (including the independent sector), local authorities, the NHS and the wider public, voluntary and community sectors. It may also be of interest to school-aged children and young people, their parents and other members of the public.

The guidance complements, but does not replace, NICE guidance on: preventing the uptake of smoking by children through mass-media and point-of-sale interventions; smoking cessation; and school-based interventions on alcohol (for further details, see section 7).

The Public Health Interventions Advisory Committee (PHIAC) has considered both the reviews of the evidence and the economic analysis.

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This document sets out the Committee's preliminary recommendations. It does not include all sections that will appear in the final guidance. NICE is now inviting comments from stakeholders (listed on our website at www.nice.org.uk).

Note that this document does not constitute NICE's formal guidance on school-based interventions to prevent the uptake of smoking. The recommendations made in section 1 are provisional and may change after consultation with stakeholders and fieldwork.

The stages NICE will follow after consultation (including fieldwork) are summarised below.

- The Committee will meet again to consider the comments, reports and any additional evidence that has been submitted.
- After that meeting, the Committee will produce a second draft of the guidance.
- The draft guidance will be signed off by the NICE Guidance Executive.

For further details, see 'The NICE public health guidance development process: an overview for stakeholders including public health practitioners, policy makers and the public (second edition, 2009)' (this document is available at www.nice.org.uk/phprocess).

The key dates are:

Closing date for comments: 1 October 2009.

Second Committee meeting: 6 November 2009.

Members of PHIAC are listed in appendix A and supporting documents used to prepare this document are listed in appendix E.

This guidance was developed using the NICE public health intervention process.

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1 Recommendations

When writing the recommendations, the Public Health Interventions Advisory Committee (PHIAC) (see appendix A) considered the evidence of effectiveness and cost effectiveness. Note: this document does not constitute NICE's formal guidance on this intervention. The recommendations are preliminary and may change after consultation.

The evidence statements underpinning the recommendations are listed in appendix C.

The evidence reviews, supporting evidence statements and economic analysis are available at www.nice.org.uk/guidance/PHG/Wave18/27

For the purposes of this guidance, 'schools' is used to refer to:

- state-sector, special and independent primary and secondary schools
- city technology colleges, academies and grammar schools
- pupil referral units, secure training and local authority secure units
- further education colleges
- 'extended schools' where childcare or informal education is provided outside school hours.

Recommendation 1 Organisation-wide¹ approaches

Who is the target population?

- Children and young people under the age of 19 who attend school.
- School workforce.
- Parents.

Who should take action?

Head teachers, school governors, teachers, support staff and others who work with primary and secondary schools. This includes: school nurses, counsellors, healthy school leads, personal, social and health education

¹ 'Whole-school' is commonly used to refer to organisation-wide approaches in schools.
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(PSHE) coordinators in primary schools and personal, social, health and economic (PSHE) education coordinators in secondary schools.

What action should they take?

- In consultation with young people and staff, develop an organisation-wide smokefree policy which includes smoking prevention activities (led by adults or young people) and staff training and development. The policy should sit within a wider healthy school policy incorporating wellbeing, relationships and behaviour. It should also take account of children and young people's cultural, special education or physical needs. (For example, Braille versions of information may be needed.)
- Apply the policy to everyone using the school premises, for any purpose. This includes the school grounds as well as buildings. (Any designated smoking areas should be removed from the school grounds.)
- Widely publicise the policy and ensure it is easily accessible (this includes making a printed version available). Everyone using the school facilities should be aware of its content, by providing clear reminders of its key messages throughout school buildings and grounds.
- Schools should offer staff and pupils help to quit smoking, either in-house or by advising them about local NHS Stop Smoking Services.

See also: 'Workplace interventions to promote smoking cessation' (NICE public health guidance 5); 'School-based interventions on alcohol' (NICE public health guidance 7); 'Smoking cessation services' (NICE public health guidance 10); and 'Social and emotional wellbeing in primary education' (NICE public health guidance 12).

Recommendation 2 Adult-led interventions

Who is the target population?

Children and young people under the age of 19 who attend school.

Who should take action?

Head teachers, school governors, teachers, support staff and others who work with primary and secondary schools. This includes: school nurses, counsellors, healthy school leads, PSHE coordinators and PSHE education coordinators.

What action should they take?

- Deliver interventions that aim to prevent the uptake of smoking as part of PSHE, PSHE education, activities related to Healthy Schools status or as part of the core curriculum (for example, science). They should be linked to the school's organisation-wide, smokefree policy. Interventions should be innovative, factual and interactive. They should:
 - be tailored to age and ability
 - be ethnically, culturally and gender-sensitive and non-judgemental about individual children or young people
 - aim to develop decision-making skills and include strategies for enhancing self-esteem and resisting the pressure to smoke from the media, family members, peers and the tobacco industry (this could involve roleplay)
 - include accurate information about smoking including its prevalence and its consequences: tobacco use by adults and family members should be considered and challenged
 - be delivered by trained external professionals such as school nurses, doctors and teachers or support staff who do not smoke and who are confident about dealing with the subject.
- Children and young people should be involved in the design of the interventions.
- Parents should be encouraged to help, for example, by providing them with support materials to use at home.

- Two or more sessions should be delivered over the course of an academic year, supported by additional 'booster' activities throughout every academic year.
- Schools should link with partners involved in smoking prevention and cessation activities in the wider community, such as NHS Stop Smoking Services or regional tobacco policy leads, to deliver the interventions.

See also 'Behaviour change' (NICE public health guidance 6); 'School-based interventions on alcohol' (NICE public health guidance 7) and 'Preventing the uptake of smoking by children and young people' (NICE public health guidance 14).

Recommendation 3 Peer-led interventions

Who is the target population?

Children and young people under the age of 19 who attend secondary school.

Who should take action?

- Head teachers, school governors, teachers and support staff in secondary schools and others who work with them. This includes: school nurses, counsellors, healthy school leads, PSHE education coordinators.
- Young people.

What action should they take?

- Secondary schools should consider offering peer-led interventions to support their smokefree policy. The interventions should link to relevant PSHE education programme activities and any other relevant adult-led interventions.
- They should ensure the interventions can be delivered both in class and informally, outside the classroom.
- Young people should nominate the peer leaders.

- Peer leaders should receive training outside school delivered by adults who are experts. They should be in regular contact with the peer leaders while they are performing this role.
- The interventions should be set up to ensure young people consider and, if necessary, challenge peer and family norms in relation to smoking, discuss the risks associated with it and the benefits of not smoking (environmental and economic).

See also 'School-based interventions on alcohol' (NICE public health guidance 7).

Recommendation 4 Training and development

Who is the target population?

Teachers, support staff and others with a remit for improving the health and wellbeing of children and young people in schools. This includes school nurses, counsellors, healthy school leads, PSHE coordinators and PSHE education coordinators.

Who should take action?

Head teachers, school governors, commissioners, teacher training bodies and providers of continuing professional development.

What action should they take?

- Provide training for all those working in schools to prevent the uptake of smoking by children and young people.
- Work with key partners (for example, the school nursing service, voluntary sector organisations and universities) to design and deliver training and smoking prevention interventions.

See also: 'Brief interventions and referral for smoking cessation' (NICE public health guidance 1); 'Behaviour change' (NICE public health guidance 6) and 'Smoking cessation services' (NICE public health guidance 10).

Recommendation 5 National context

Who is the target population?

Children and young people under the age of 19 who attend school.

Who should take action?

Government departments, school inspectorates, school governing bodies, children's trusts, school commissioners and local authorities (in particular, children and young people's services).

What action should they take?

- Ensure school-based interventions to prevent smoking and to encourage young people to quit are part of a community-wide tobacco control strategy, with clear outcome indicators and involving key partner organisations.
- Ensure schools deliver evidence-based smoking prevention interventions which are linked to their smokefree policy and consistent with regional and national tobacco control strategies. The interventions may be delivered as part of PSHE, PSHE education and work associated with Healthy Schools status, as well as being integrated within relevant curriculum subjects (for example, science).

See also 'Behaviour change' (NICE public health guidance 6).

2 Public health need and practice

Smoking is the main cause of preventable morbidity and premature death in England. In 2007, it is estimated that 82,900 adults aged 35 and over died as a result of smoking. This translates into nearly two in ten deaths in England of people aged 35 and over (The Information Centre 2008a).

Once children and young people start to smoke they become addicted to nicotine very quickly and tend to continue the habit into adult life. They can show signs of addiction within 4 weeks of starting to smoke, even before they start to smoke regularly (Di Franza et al. 2000). Those who start smoking

before the age of 16 are twice as likely to continue to smoke as those who begin later in life – and are more likely to be heavier smokers (Muller 2007).

The earlier children become regular smokers, the greater their risk of developing lung cancer or heart disease if they continue smoking into adulthood (Muller 2007).

Girls are more likely than boys to smoke on a regular basis. In 2007, 8% of English girls aged 11–15 smoked compared with 5% of boys (The Information Centre 2008b).

Regular and experimental smoking increases with age. Only 1% of children aged 11 regularly smoke, while 7% have tried smoking. At age 13, the proportion who regularly smoke increases to 4%. By the age of 15, 15% of young people are regular smokers and more than half (55%) have tried smoking (The Information Centre 2008a).

Although about two-thirds of those over the age of 16 say they started to smoke before the age of 18, prevalence continues to increase among young people until they are in their early 20s. General Household Survey data indicate that about one in five young people aged 16–19 smoke, as do about three in ten of those aged 20–24 (Goddard 2008).

Factors linked to smoking

Children and young people are more likely to smoke if they have:

- used alcohol or drugs
- a history of truancy or exclusion from school
- a lack of educational aspirations beyond age 16

(Goddard 1992; The Information Centre 2008b).

They are also more likely to smoke if they have emotional, conduct or hyperkinetic disorders. For example, in a 2004 survey, almost a quarter of young people aged 11–16 with emotional disorders reported that they smoked – compared with an 8% average for this age group (Office for National Statistics 2005).

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The family also has a key influence (British Medical Association 2008). Those aged 11–15 who live in households where both parents smoke are almost three times more likely to smoke regularly than those whose parents do not smoke. Children with an older sibling who smokes are five times more likely to smoke regularly compared to a child whose older siblings do not smoke (Owen and Bolling 1995). They are also more likely to smoke if they live with one parent (Goddard 1992; Owen and Bolling 1995).

A range of external factors also influence whether or not children and young people take up smoking. These include:

- tobacco pricing and availability
- restrictions on smoking in public places
- smoking in films
- tobacco industry advertising and other promotional tactics including product placement (for example, in films)

(Dalton et al. 2003; DiFranza et al. 2006; Emery et al. 2001; Pierce et al. 2005).

National context: policy

The ‘Smoking kills’ white paper (DH 1998) set targets to reduce the number of children aged 11–15 who were regularly smoking (‘regular smoking’ was defined as having one cigarette a week). The targets were: to reduce the total smoking from 13% (in 1996) to 11% by 2005 and to 9% by 2010 (DH 1998). In England, it is estimated that the 9% target was achieved in 2003. In 2007, the proportion who were regularly smoking is estimated to have dropped to 6% (The Information Centre 2008b).

Protecting children and young people from smoking remains one of the key elements in the government's strategy to tackle tobacco use. Respondents to a 2008 DH consultation made suggestions for extensive measures to control the supply of tobacco to children and young people and to stem their demand for it.

The Health Bill 2009, introduced into Parliament on 15 January 2009, includes proposals to remove tobacco displays in shops and to restrict sales from vending machines.

National context: schools

All secondary schools include information aimed at preventing tobacco use as part of the core science curriculum. Some include it as part of personal, social and health education (PSHE) and personal, social, health and economic (PSHE) education (in primary and secondary schools respectively). Schools that have (or are working towards) National Healthy School status may get involved in additional activities to prevent the uptake of smoking or to help pupils quit the habit.

The Secretary of State for the Department for Children, Schools and Families (DCSF) asked the Qualifications and Curriculum Authority to conduct a consultation on DCSF proposals to change the national curriculum. The proposals, which will affect tobacco education in primary and secondary schools, include changes to PSHE education. The consultation ended in July 2009.

3 Considerations

PHIAC took account of a number of factors and issues when developing the recommendations.

- 3.1 PHIAC noted that no single intervention or programme can prevent children and young people from taking up smoking. Rather, it requires a comprehensive approach embracing individual, social, community and societal issues. PHIAC also noted that different elements of a comprehensive approach may act synergistically. For example, activities targeting young people in schools may also have an effect on parents' smoking habits. Likewise, if parents are encouraged and supported to quit smoking, this will affect their children's attitudes and behaviour in relation to smoking.

- 3.2 Many of the studies reviewed were not carried out in the UK. This is important to note, as the UK context differs in many respects from the US, Australia and other parts of Europe (for example, in terms of our health and education systems).
- 3.3 The last decade (and the last 3 years, in particular) has seen major changes in the UK in relation to tobacco control. This includes the introduction of smokefree public places, a ban on tobacco advertising, and mass-media messages and services focused on helping people to quit smoking. In turn, this has led to a more favourable climate for interventions aiming to discourage children and young people from taking up smoking.
- 3.4 PHIAC acknowledged that it is difficult to interpret research literature –in particular, evidence from RCT and other controlled studies – in the current UK context, where smoking prevention and cessation initiatives are improving apace. Changes in national policies and programmes can make it difficult to detect and interpret differences between control and intervention groups, especially when trying to compare them to earlier trials.
- 3.5 PHIAC noted that smoking is dangerous at any age. However, it also noted that the earlier someone starts, the more likely they are to smoke for longer – and to die earlier from a related condition or disease. As the risk of disease relates to the overall length of time someone smokes, PHIAC considered that delaying the onset of smoking is worthwhile (in addition to preventing uptake). Furthermore, it noted that young people who take up smoking later in life are also more likely to stop smoking (Breslau and Peterson 1996; Khuder et al. 1999; Park et al. 2004).
- 3.6 On the basis of the economic modelling, PHIAC concluded that school-based smoking prevention programmes – whether they prevent or delay the uptake of smoking – are likely to be cost effective.

- 3.7 The evidence was mixed on when to start delivering school-based smoking prevention interventions. However, it was clear that smoking prevalence among schoolchildren increases with age. In light of this, PHIAC considered prevention efforts would be most effective if they begin in primary school and continue throughout their school 'career'.
- 3.8 Many school-based smoking prevention interventions involve a range of components (such as family, mass-media or community-based activities). In addition, they often form part of initiatives aimed at tackling misuse of a range of substances. Little UK evidence is available to demonstrate the effectiveness of these multi-component approaches.
- 3.9 Schools vary considerably in terms of their catchment, geographic setting (for example, urban or rural), and type (for example, state-sector, special, or independent). Primary and secondary schools are structured very differently, both in their physical organisation and the way lessons are taught. In addition, policies about how schools operate are under review and often change. Where relevant, the recommendations in this guidance link to current national policy and the national curriculum. PHIAC recognised that this context may change, but is confident that the guidance will continue to be relevant to all schools.

This section will be completed in the final document.

4 Implementation

NICE guidance can help:

- Schools meet their duty to promote wellbeing and to aim for – or maintain – National Healthy School status.

- National and local organisations within the public sector, including education authorities and schools, meet government indicators and targets to improve health and reduce health inequalities.
- NHS organisations, social care and children's services meet the requirements of the DH's 'Operating framework for 2008/09' and 'Operational plans 2008/09–2010/11'. It can also help them meet the Department of Communities and Local Government's 'The new performance framework for local authorities and local authority partnerships'.
- Provide a focus for children's trusts, health and wellbeing partnerships and other multi-sector partnerships working on health.
- Local authorities fulfil their remit to promote the economic, social and environmental wellbeing of communities, including their responsibilities under the Children and Young Persons (Sale of Tobacco) Order (2007).
- Local authorities, the NHS and other national organisations to fulfill their responsibilities under the 'National service framework for children, young people and maternity services' (DH 2004). In addition, it can help them to benefit from any identified cost savings, disinvestment opportunities or opportunities for re-directing resources.

NICE will develop tools to help organisations put this guidance into practice. Details will be available on our website after the guidance has been issued (www.nice.org.uk/PHxx).

5 Recommendations for research

This section will be completed in the final document.

More detail on the gaps in the evidence identified during development of this guidance is provided in appendix D.

6 Updating the recommendations

This section will be completed in the final document.

7 Related NICE guidance

Published

Preventing the uptake of smoking by children and young people. NICE public health guidance 14 (2008). Available from www.nice.org.uk/PH14

Social and emotional wellbeing in primary education. NICE public health guidance 12 (2008). Available from www.nice.org.uk/PH12

Smoking cessation services. NICE public health guidance 10 (2008). Available from www.nice.org.uk/PH10

School-based interventions on alcohol. NICE public health guidance 7 (2007). Available from www.nice.org.uk/PH7

Workplace interventions to promote smoking cessation. NICE public health guidance 5 (2007). Available from www.nice.org.uk/PH5

Varenicline for smoking cessation. NICE technology appraisal 123 (2007). Available from www.nice.org.uk/TA123

Brief interventions and referral for smoking cessation in primary care and other settings. NICE public health guidance 1 (2006). Available from www.nice.org.uk/PH1

Under development

Social and emotional wellbeing in secondary education. NICE public health guidance (publication expected September 2009)

Alcohol-use disorders (prevention). NICE public health guidance (publication expected March 2010)

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Personal, social and health education focusing on sex and relationships and alcohol education. NICE public health guidance (publication expected January 2011)

8 References

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Dalton MA, Sargent JD, Beach ML et al. (2003) Effect of viewing smoking in movies on adolescent smoking initiation: a cohort study. *Lancet* 362 (9380): 281–5

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Muller T (2007) Breaking the cycle of children's exposure to tobacco smoke. London: British Medical Association

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Park SM, Son KY, Lee YJ et al. (2004) A preliminary investigation of early smoking initiation and nicotine dependence in Korean adults. *Drug Alcohol Dependency* 74 (2): 197–203

Pierce JP, White MM, Gilpin EA (2005) Adolescent smoking decline during California's tobacco control programme. *Tobacco Control* 14 (3): 207–12

The Information Centre (2008a) *Statistics on smoking: 2008*. Leeds: The Information Centre

The Information Centre (2008b) *Drug use, smoking and drinking among young people in England in 2007*. Leeds: The Information Centre

Appendix A Membership of the Public Health Interventions Advisory Committee (PHIAC), the NICE project team and external contractors

Public Health Interventions Advisory Committee

NICE has set up a standing committee, the Public Health Interventions Advisory Committee (PHIAC), which reviews the evidence and develops recommendations on public health interventions. Membership of PHIAC is multidisciplinary, comprising public health practitioners, clinicians (both specialists and generalists), local authority officers, teachers, social care professionals, representatives of the public, patients and/or carers, academics and technical experts as follows.

Professor Sue Atkinson CBE Independent Consultant and Visiting Professor, Department of Epidemiology and Public Health, University College London

Mr John F Barker Associate Foundation Stage Regional Adviser for the Parents as Partners in Early Learning Project, DfES National Strategies

Professor Michael Bury Emeritus Professor of Sociology, University of London. Honorary Professor of Sociology, University of Kent

Professor K K Cheng Professor of Epidemiology, University of Birmingham

Ms Joanne Cooke Programme Manager, Collaboration and Leadership in Applied Health Research and Care for South Yorkshire

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Ms Amanda Hoey Director, Consumer Health Consulting Limited

Mr Alasdair J Hogarth Head Teacher, Archbishops School, Canterbury

Mr Andrew Hopkin Assistant Director, Local Environment, Derby City Council

Dr Ann Hoskins Director, Children, Young People and Maternity, NHS North West

Ms Muriel James Secretary, Northampton Healthy Communities Collaborative and the King Edward Road Surgery Patient Participation Group

Dr Matt Kearney General Practitioner, Castlefields, Runcorn. GP Public Health Practitioner, Knowsley PCT

Ms Valerie King Designated Nurse for Looked After Children, Northampton PCT, Daventry and South Northants PCT and Northampton General Hospital. Public Health Skills Development Nurse, Northampton PCT

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Ms Sharon McAteer Public Health Development Manager, Halton and St Helens PCT

Mr David McDaid Research Fellow, Department of Health and Social Care, London School of Economics and Political Science

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Ms Jane Putsey Lay Representative, Chair of Trustees of the Breastfeeding Network

Dr Mike Rayner Director, British Heart Foundation Health Promotion Research Group, Department of Public Health, University of Oxford

Mr Dale Robinson Chief Environmental Health Officer, South Cambridgeshire District Council

Ms Joyce Rothschild Children's Services Improvement Adviser, Solihull Metropolitan Borough Council

Professor Mark Sculpher Professor of Health Economics, Centre for Health Economics, University of York

Dr David Sloan Retired Director of Public Health

Dr Stephanie Taylor Reader, Applied Research, Centre for Health Sciences, Barts and The London School of Medicine and Dentistry

Dr Stephen Walters Reader, Medical Statistics, University of Sheffield

Dr Dagmar Zeuner Joint Director of Public Health, Hammersmith and Fulham PCT

Expert testimony to PHIAC:

Ehow Armah National Coordinator, Healthy Schools Programme, Department of Health

Lisa Gill Youth Project Manager, Roy Castle Lung Foundation

Lucy Holdstock Tobacco Policy Manager, Department of Health

Judith MacMorran Senior Health Promotion Specialist, Newcastle Primary Care Trust, North East region

NICE project team

Mike Kelly

CPHE Director

Catherine Swann

Associate Director

Andrew Hoy

Analyst

Patti White

Analyst

Lesley Owen

Technical Adviser (Health Economics).

External contractors

External reviewers: effectiveness reviews

Review 1: 'School-based interventions to prevent the uptake of smoking among children and young people: effectiveness review' was carried out by the West Midlands Health Technology Assessment Collaboration (University of Birmingham). The principal authors were: Olalekan Uthman, Ismail Yahaya, Mary Pennant, Sue Bayliss, Paul Aveyard, Mark Jit, Pelham Barton, Catherine Meads and Yen-Fu Chen.

Review 2: 'Facilitators and barriers to the delivery of school-based interventions to prevent the uptake of smoking among children: a systematic review of qualitative research' was carried out by the UK Centre for Tobacco Control Studies (University of Bath). The principal authors were: Linda Bauld, Janet Brandling and Lorna Templeton.

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External reviewers: economic analysis

The economic review: 'School-based interventions to prevent the uptake of smoking among children and young people: cost-effectiveness review' was carried out by the West Midlands Health Technology Assessment Collaboration (University of Birmingham). The principal authors were: Mark Jit, Pelham Barton, Olalekan Uthman, Sue Bayliss, Yen-Fu Chen and Catherine Meads.

The economic model: 'School-based interventions to prevent the uptake of smoking among children and young people: cost-effectiveness model' was prepared by: Mark Jit, Pelham Barton, Yen-Fu Chen, Olalekan Uthman, Paul Aveyard and Catherine Meads.

Appendix B Summary of the methods used to develop this guidance

Introduction

The reports of the reviews and economic analysis include full details of the methods used to select the evidence (including search strategies), assess its quality and summarise it.

The minutes of the PHIAC meetings provide further detail about the Committee's interpretation of the evidence and development of the recommendations.

All supporting documents are listed in appendix E and are available at www.nice.org.uk/guidance/PHG/Wave18/27

Guidance development

The stages involved in developing public health intervention guidance are outlined in the box below.

1. Draft scope released for consultation
2. Stakeholder meeting about the draft scope
3. Stakeholder comments used to revise the scope
4. Final scope and responses to comments published on website
5. Evidence review(s) and economic analysis undertaken
6. Evidence and economic analysis released for consultation
7. Comments and additional material submitted by stakeholders
8. Review of additional material submitted by stakeholders (screened against inclusion criteria used in review/s)
9. Evidence and economic analysis submitted to PHIAC
10. PHIAC produces draft recommendations
11. Draft guidance released for consultation and for field testing
12. PHIAC amends recommendations
13. Final guidance published on website
14. Responses to comments published on website

Key questions

The key questions were established as part of the scope. They formed the starting point for the reviews of evidence and were used by PHIAC to help develop the recommendations. The overarching question was:

- Which school-based interventions, or combination of school-based interventions, are effective and cost effective in preventing children and young people from taking up smoking?

The subsidiary questions were:

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

These questions were made more specific for the reviews (see reviews for further details).

Reviewing the evidence of effectiveness

Both the effectiveness review and the qualitative evidence review made use of the same base literature search. This is detailed below, followed by more information on the specific criteria used by both reviews in selecting evidence.

Identifying the evidence

The following databases were searched for relevant studies (searches were conducted for studies published from January 1990 to November 2008):

- ASSIA (Applied Social Science Index and Abstracts)
- Cochrane Library (Wiley):
 - Cochrane Database of Systematic Reviews (CDSR)
 - Cochrane Central Register of Controlled Trials (CENTRAL)
- EMBASE
- ERIC
- MEDLINE
- Health Management Information Consortium (HMIC)
- PsycINFO
- York Centre for Reviews and Dissemination database (Database of Abstracts of Reviews of Effects [DARE] and Health Technology Assessment [HTA] database)

The database searches were supplemented by searches of the following websites:

- ARIF website and database www.arif.bham.ac.uk
- ASH (Action on Smoking and Health) www.ash.org.uk
- ASH Scotland website www.ashscotland.org.uk/ash
- ASH Wales website www.ashwales.co.uk/
- Bandolier www.medicine.ox.ac.uk/bandolier/index.html
- Centre for UK Tobacco Control Research www.ctcr.stir.ac.uk
- Clinical Evidence
<http://clinicalevidence.bmj.com/ceweb/conditions/index.jsp>
- Cochrane Public Health Group www.ph.cochrane.org/en/index.html
- Department for Children, Schools and Families www.dcsf.gov.uk/index.htm
- 'Every child matters: change for children' www.everychildmatters.gov.uk
- Health Scotland www.healthscotland.com
- 'National service framework for children, young people and maternity services' case studies database
www.childrensnscasestudies.dh.gov.uk/children/nsfcasestudies.nsf
- NICE website – for previous Health Development Agency publications at www.nice.org.uk/aboutnice/whoweare/aboutthehda/hdapublications/hda_publications.jsp and NICE public health guidance at www.nice.org.uk/guidance/index.jsp?action=byType&type=5
- Public health observatories (East Midlands, Eastern Region, London, North East, North West, Scotland, South East, South West, West Midlands, Yorkshire and Humber, Wales Centre for Health)
- Quit www.quit.org.uk
- The Campbell Collaboration 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>
- TRIP database www.tripdatabase.com/index.html

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- UK Public Health Association www.ukpha.org.uk

Selection criteria

Inclusion and exclusion criteria for each review varied and details can be found at www.nice.org.uk/guidance/PHG/Wave18/27

Review 1 (the effectiveness review) included:

- randomised controlled trials (RCTs) with a follow-up of 6 months or more and with a sample size of 500 or greater. They had to include a comparator and report a change in smoking prevalence as an outcome.

Review 2 (the qualitative review) included:

- studies that involved qualitative reporting of outcomes.

In general, studies were included in both reviews if they:

- addressed the prevention of smoking among children and young people aged under 19 who attended an educational institution
- were school-based or included a school-based component as part of a combined intervention
- were conducted in Organization for Economic Cooperation and Development (OECD)-listed countries
- were published in English from 1990 onwards
- were reported in English.

Studies were excluded from review 1 if they were not an RCT, had a follow-up of less than 6 months and the sample size was less than 500.

Studies were excluded from both reviews if they:

- focused on:
 - children under age 5 who do not attend an educational institution
 - children and young people who are educated at home
 - children and young people who are excluded from school
 - young people aged over 16 who are not in education
 - young people aged 19 and older

- had no school component
- were conducted in non-OECD countries
- were published before 1990
- were not published in English.

Quality appraisal

Included papers in both reviews were assessed for methodological rigour and quality using the NICE methodology checklist, as set out in the NICE technical manual 'Methods for the development of NICE public health guidance' (see appendix E). Each study was graded (++, +, –) to reflect the risk of potential bias arising from its design and execution.

Study quality

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

Summarising the evidence and making evidence statements

The review data was summarised in evidence tables (see full reviews).

The findings from the reviews were synthesised and used as the basis for a number of evidence statements relating to each key question. The evidence statements were prepared by the external contractors (see appendix A). The statements reflect their judgement of the strength (quantity, type and quality) of evidence and its applicability to the populations and settings in the scope.

Economic analysis

The economic analysis consisted of a review of economic evaluations and a cost-effectiveness analysis.

Review of economic evaluations

A systematic review of economic literature was undertaken by searching major bibliographic databases from their inception up to October 2008. These included:

- ASSIA
- Cochrane Library
- EMBASE
- ERIC
- HMIC
- MEDLINE
- PsycINFO
- York Centre for Reviews and Dissemination database.

This database search was supplemented by searches of selected websites.

Economic evaluations were selected if they:

- were conducted in OECD countries
- were published in English from 1990 onwards
- assessed the cost-effectiveness of school-based interventions to prevent the uptake of smoking among children and young people.

The methodological quality of each study was rated using the Drummond checklist, and its applicability to the relevant population in the UK assessed. Applicability for economic evaluations was assessed on the basis of two dimensions:

- Whether or not the **population** being studied was comparable to the current UK population.

- Whether or not the **methodology** of the study was likely to yield results similar to a study based on the NICE reference case.

Cost-effectiveness analysis

A number of assumptions were made which could underestimate or overestimate the cost effectiveness of the interventions (see review modelling report for further details).

An economic model was constructed to incorporate data from the reviews of effectiveness and cost effectiveness. The results are reported in: 'School-based interventions to prevent the uptake of smoking among children and young people: cost-effectiveness model'. It is available at

www.nice.org.uk/guidance/PHG/Wave18/27

Fieldwork

This section will be completed in the final document.

How PHIAC formulated the recommendations

At its meeting in May 2009 PHIAC considered the evidence reviews and review of cost effectiveness to determine:

- whether there was sufficient evidence (in terms of quantity, quality and applicability) to form a judgement
- whether, on balance, the evidence demonstrates that the intervention is effective, ineffective or equivocal
- where there is an effect, the typical size of effect.

PHIAC developed draft recommendations through informal consensus, based on the following criteria.

- Strength (quality and quantity) of evidence of effectiveness and its applicability to the populations/settings referred to in the scope.
- Effect size and potential impact on the target population's health.
- Impact on inequalities in health between different groups of the population.

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- Cost effectiveness (for the NHS and other public sector organisations).
- Balance of risks and benefits.
- Ease of implementation and any anticipated changes in practice.

Where possible, recommendations were linked to an evidence statement(s) (see appendix C for details). Where a recommendation was inferred from the evidence, this was indicated by the reference 'IDE' (inference derived from the evidence).

Appendix C The evidence

This appendix lists evidence statements from two reviews provided by external contractors (see appendix A) and links them to the relevant recommendations (see appendix B for the key to quality assessments). The evidence statements are presented here without references – these can be found in the full review (see appendix E for details). It also sets out a brief summary of findings from the economic appraisal.

Evidence statement ES8 indicates that the linked statement is numbered ES8 in the review ‘School-based interventions to prevent the uptake of smoking among children and young people: effectiveness review’. **Evidence statement QR3** indicates that the linked statement is numbered QR3 in the review ‘Facilitators and barriers to the delivery of school-based interventions to prevent the uptake of smoking among children: a systematic review of qualitative research’.

The reviews and economic appraisal are available on the NICE website at www.nice.org.uk/guidance/PHG/Wave18/27 Where a recommendation is not directly taken from the evidence statements, but is inferred from the evidence, this is indicated by **IDE** (inference derived from the evidence) below.

Recommendation 1: evidence statements QR1, QR5

Recommendation 2: evidence statements QR6, ES1, ES13, ES19, ES21

Recommendation 3: evidence statements ES13, ES25, QR4; IDE

Recommendation 4: evidence statements QR3, ES11

Recommendation 5: evidence statement QR4

Recommendation 6: evidence statement ES4; IDE

Evidence statements

Evidence statement ES1

There is evidence from 27 studies that provided usable data for meta-analysis that interventions may be effective. Meta-analysis of 27 randomised controlled trials (RCTs) demonstrated a significant intervention effect for school-based intervention for preventing uptake of smoking among children. There was moderate statistical heterogeneity between the trial results.

Applicability: most of the studies took place outside of the UK. It is not clear if these findings are directly applicable to the UK.

Evidence statement ES4

There is good evidence about the differential effect according to type of outcome measures (prevalence of regular or experimental smoking). Results from 16 RCTs that used prevalence of regular smokers provided evidence that interventions may be effective in reducing smoking uptake among children. Pooled results from 10 RCTs that used experimental smoking as the main outcome also found that interventions could be marginally effective in preventing smoking uptake. Programmes that used prevalence of regular smoking tended to produce statistically significant results but the size of combined effect was very similar to that for programmes that used experimental smoking as an outcome measure. The main difference between the two was the width of the confidence intervals, giving one as statistically significant but not the other, so this difference may be a statistical artifact.

Applicability: most of the studies took place outside of the UK. It is not clear if these findings are directly applicable to the UK.

Evidence statement ES11

It is not clear whether effectiveness of school-based smoking prevention programmes depend on the status of the person delivering it. There is conflicting evidence whether peer-led programmes produced most effective intervention effects on smoking initiation. It is important to note that a peer-led programme may be differentially effective based on how leaders are selected.

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and how groups are formed, and may be curriculum-dependent. There is some evidence that teacher-led, health educator-led, and peer-led programmes tend to be equally effective.

Seven RCTs examined whether effectiveness of school-based smoking prevention programmes depend on the status of the person delivering it. Three other studies provided evidence that peer-led interventions tend to enhance smoking prevention programmes. For example, results from one (+) USA RCT showed a marked suppression in the onset of both experimental and regular smoking among those students exposed to the resistance training with peer involvement. Similarly, one (-) USA RCT found that a cognitive-behavioural approach when carried out by peer-leaders and when additional boosters are provided can reduce tobacco use. Yet one (+) USA RCT provided evidence that a peer-led programme will be differentially effective based on how leaders are selected and how groups are formed, and this effect may be curriculum dependent. In one RCT ([-] USA), there was no statistically significant difference in regular smoking rates among students taught by health educators and those taught by adult teachers assisted by older teens. One (+) UK RCT found that the effect of ASSIST intervention was much the same for peer supporters and non-peer supporters. Similarly, one (-) Australia RCT confirmed non-superiority of peer-led programmes to teacher-led programmes. However, this result was gender-specific. Both the teacher-led and peer-led programmes reduced, to about the same degree, the uptake of smoking by girls while only the teacher-led programme appeared to be effective in boys. One (++) Canada RCT provided evidence that teachers and nurses were equally effective providers regardless of delivery method. While, one (-) USA RCT reported that students exposed to interactive health educator-led interventions were less likely to use tobacco compared to those not exposed to health educator-led instruction.

Applicability: most of the studies were conducted in the USA. It is not clear if these findings are directly applicable to the UK since the interventions under investigation are specific to USA. Furthermore, demographics of the

participants are different from those in the UK. Only one (+) UK study is likely to be directly applicable.

Evidence statement ES13

There is clear evidence that the addition of booster sessions enhanced effectiveness of main programmes.

Four studies (one [++] and three [-]) analysed effectiveness of booster sessions. Evidence from one (++) USA study suggests that addition of booster sessions significantly enhanced the effectiveness of the main programme and was more effective than the delayed programme controls. One (-) USA study found that boosters can be an effective tool for maintaining or increasing the effectiveness of smoking prevention programmes. One (-) USA study revealed that addition of booster sessions to cognitive-behavioural approach can reduce tobacco use. Another (-) USA study showed that continued intervention students reported significantly less smoking than lapsed intervention and continued control students.

Applicability: all four studies were conducted in the USA. It is not clear if the findings are directly relevant to the UK.

Evidence statement ES19

There is conflicting evidence of differential effect of intervention according to the sex of the target audience. There is moderate evidence that sex is an important predictor of post-test smoking, but direction of effect (either in male or female student) is inconclusive. Furthermore, association of sex with smoking prevalence depends on how the outcome was measured. One recent study ([+] UK) found no significant difference in effectiveness of school-based intervention among male and female students. Another study ([++] USA) provided no evidence of Hutchinson Smoking Prevention Project impact on the prevalence of daily smoking, either for girls or for boys. Three studies (one [++] Canada; one [+] Canada and one [-] USA) demonstrated that the intervention was more effective among male students; while only one study ([-] Australia) found that both teacher-led and peer-led programmes reduced the taking up of smoking by girls to about the same degree. There was also

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conflicting evidence from nine studies whether sex was an important predictor of post-test smoking. Only one study ([-] The Netherlands) provided evidence that sex was not associated with post-test smoking. Two studies (one [+] USA and one [-] USA) found that female students were more likely than male students to have reported smoking at follow-up and only one study ([-] Australia) found that boys were less likely than girls to have reported smoking at follow-up. Yet, three studies (two [-] USA; and one [-] The Netherlands) revealed that males were more likely to be a smoker than their female counterparts. Another two studies (one [+] USA and one [+] Italy), demonstrated that compared to male students, female students were less likely to have used tobacco.

Applicability: most of the studies were conducted in the USA. It is not clear if these findings are directly applicable to the UK since the interventions under investigation are specific to the USA. Furthermore, demographics of the participants are different from those in the UK. Only one study is likely to be directly applicable.

Evidence Statement ES21

There is moderate evidence that ethnicity is an important predictor of smoking behaviour, such that white students were less likely to be smokers. Similarly, there is moderate evidence that the observed association between race and smoking behaviour depended on how the outcome was measured.

Four studies (two [+] USA and two [-] USA) specifically studied whether ethnicity is an important factor in predicting post-test smoking among students exposed to school-based smoking prevention programmes. Only one study ([-] USA) demonstrated no association between ethnicity and smoking status. However, three studies found that ethnicity was an important factor in predicting post-test smoking behaviour. For example, one study ([+] USA) provided evidence that white students were less likely to be classified as smoker. Two studies (one [+] USA and one [-] USA) revealed that ethnicity affects smoking prevalence depending on how the outcome was measured. One multi-country study ([-] EU) in six European countries, provided evidence that in The Netherlands there was differential significant effects for School-based interventions to prevent smoking consultation draft

adolescents with a Dutch and non-Dutch origin. The Dutch ESFA programme was effective for non-native adolescents with fewer new weekly smokers compared to new weekly smokers in the control group. An opposite effect was found in native Dutch adolescents with more new weekly smokers in the experimental compared to new smokers in the control group.

Applicability: none of the studies were conducted in the UK. It is not clear if the USA/EU findings are directly applicable to the UK since the school-based prevention programmes under investigation are specific to USA. Furthermore, demographics of the participants are different from those in the UK.

Evidence statement ES25

An obvious barrier to interventions may be poor student attendance so that interventions, regardless of their value, will fail to have positive effects. In one RCT, a dose-response relationship was observed between programme participation and changes in smoking status.

Evidence statement QR1

Delivery context: evidence from two UK (one [++], one [+]), one Canadian (++) and three American (all [+]) qualitative studies 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 (that is, 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.

Evidence statement QR3

Peer interventions: there is evidence from three UK (two [++] and one [+]) and one American (+) study and one systematic review (++) 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 (such as videos) in schools
- good communication between the external intervention development or 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.

Evidence statement QR4

Delivery mechanisms: there is evidence from three UK (one [++], one [+] and one [-]) and three American (all [+]) qualitative studies 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.

Evidence statement QR5

Smokefree schools: there is evidence from one UK (+), one Canadian (++) and one American (-) study 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.

Evidence statement QR6

Programme content: there is evidence from seven American (all [+]), one Canadian (++) and one UK (-) qualitative studies 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

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- content that includes new material, such as on the cost of smoking
- content that includes correcting misconceptions of high smoking prevalence among 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.

Expert testimony

Expert testimony to PHIAC (see appendix A) was used to inform the recommendations. Please refer to the PHIAC minutes for further details.

Cost effectiveness evidence

Overall, school-based smoking prevention programmes were found to be cost-effective, although there was a lack of evidence on the long-term effects of such programmes.

A modelling analysis was undertaken to explore whether a delay in the age of smoking uptake makes it more likely that someone will quit later in life. Effect sizes were based on 26 RCTs identified during the systematic review of effectiveness.

The outcome of the analysis suggests that a school-based smoking prevention programme may be cost effective at a threshold of £20,000 to £30,000 per quality adjusted life year (QALY) gained. This was the case when taking into account a range of factors including the relationship between age of smoking initiation and probability of smoking in later life, the mortality of smokers compared to non-smokers, the health-related quality of life of people who smoke and their lifetime medical costs.

For further details, see 'School-based interventions to prevent the uptake of smoking among children and young people: cost-effectiveness model' at www.nice.org.uk/guidance/PHG/Wave18/27

Appendix D Gaps in the evidence

PHIAC identified a number of gaps in the evidence relating to the interventions under examination, based on an assessment of the evidence and expert comments. These gaps are set out below.

1. There is little UK evidence on how different factors such as age, gender, ethnicity or socioeconomic status affect the effectiveness or cost effectiveness of school-based interventions.
2. There is little evidence, particularly evidence applicable to the UK, of interventions likely to be effective with pupils who are most at risk of starting to smoke.
3. There is little UK evidence of the effectiveness of multi-component interventions, such as combining school-based with mass-media or family-based interventions.
4. There is little evidence of what elements of a programme work best to prevent smoking among children of different ages.
5. There is little evidence about how to make programmes culturally sensitive in a multi-cultural setting such as an English school.
6. There is little evidence of the long-term effects of school-based smoking prevention programmes because young people are seldom followed-up after school leaving age.
7. It is not clear from UK evidence whether it is more effective to provide interventions focused on smoking prevention alone, or as part of an initiative to prevent a range of risky behaviours.
8. It is not well understood how the policy climate in the UK – particularly the ban on tobacco advertising and promotion – affects the effectiveness of interventions. For example, the US ‘Truth’ campaign has been successful there, but in the absence of advertising and promotion in the UK, it is unclear how relevant programmes of this sort would be in the

UK. (The Truth campaign aims to educate children and young people about the environmental and human rights issues in the production and supply of tobacco.)

Appendix E: supporting documents

Supporting documents are available from the NICE website

(www.nice.org.uk/guidance/PHG/Wave18/27). These include the following.

- Reviews:
 - Review 1: ‘School-based interventions to prevent the uptake of smoking among children and young people: effectiveness review’
 - Review 2: ‘Facilitators and barriers to the delivery of school-based interventions to prevent the uptake of smoking among children: a systematic review of qualitative research’.

- Economic analysis:
 - ‘School-based interventions to prevent the uptake of smoking among children and young people: cost-effectiveness review’
 - ‘School-based interventions to prevent the uptake of smoking among children and young people: cost-effectiveness model’.

For information on how NICE public health guidance is developed see:

- Methods for the development of NICE public health guidance (second edition, 2009) available from www.nice.org.uk/phmethods

- ‘The NICE public health guidance development process: An overview for stakeholders including public health practitioners, policy makers and the public (second edition, 2009)’ available from www.nice.org.uk/phprocess