Educational and psychosocial interventions to prevent uptake of smoking by young people

Evidence briefing prepared for the Norfolk and Waveney Clinical Commissioning Groups

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Executive summary

Introduction:

More than 200,000 UK children aged 11–15 years start smoking each year and up to 50% of children who try smoking will become regular smokers within 2–3 years. Given the high personal, social and economic cost of smoking, intervening to prevent children and young people from beginning to smoke is an important public health goal. Whilst rates of smoking uptake have decreased significantly in recent years, the social gradient in young people taking up smoking remains marked, contributing to health inequalities.

Methods:

Using National Institute for Health Research (NIHR) Research Capability Funding (RCF) from a pooled fund contributed to by the Norfolk and Waveney Clinical Commissioning Groups, a team at the University of East Anglia undertook a comprehensive literature review and programme of public and patient involvement (PPI) in order to gather current evidence about the educational and psychosocial interventions that are effective in preventing smoking uptake, and improve understanding of current smoking prevention practice. The aim was both to provide evidence to inform commissioning decisions and to facilitate the development of an application for research funding for a trial of an intervention to support young people to choose not to start smoking.

Results of review:

The literature review identified a large number of educational and psychosocial interventions that have been found to be effective in reducing smoking uptake. Most of the identified interventions are universal, classroom-based interventions, designed to be delivered in mainstream schools. There is evidence that approaches to smoking prevention that combine elements designed to help young people refuse offers to smoke by improving general social competence, with elements aimed at increasing awareness of the social influences that promote smoking, may be most effective. However, it is important that smoking prevention interventions are tailored to the developmental stage of the age group targeted: interventions effective in one group may be ineffective, or even detrimental, in other populations. The ASSIST approach, involving training influential children to encourage their peers not to smoke, was the only approach identified with recent, UK evidence of both effectiveness and cost-effectiveness. Despite a clear rationale for targeting smoking prevention at high-risk groups, few interventions specifically targeting such groups have been trialled to-date.

Results of PPI work:

The PPI work carried out suggests that teaching in science lessons and/or Personal Social and Health education are the most common approaches to smoking prevention in Norfolk secondary schools. Providing information about the health

threats of smoking was perceived by both teachers and pupils to be the most effective means of preventing smoking uptake. Given that research findings suggest that simply providing information about smoking is not the most effective means of preventing young people from taking up smoking, this may point to the need to provide schools with evidence-based information about optimum smoking prevention strategies. The use of peers to discourage smoking initiation was rarely reported as a currently used strategy in Norfolk, but most teachers and pupils responded that they believed this to be a good idea when specifically asked about this approach. Whilst all teachers and majority of pupils reported that their school had a policy in place in the event that pupils are found to be/suspected of smoking, fewer had a similar policy for pupils found to be/suspected of vaping (using e-cigarettes). Teachers reported awareness of school policies to also support smoking cessation where applicable (e.g. referral to specialist services), but pupils were generally unaware of such policies.

Conclusions/recommendations:

A range of evidence-based educational/psychosocial interventions for preventing uptake of smoking by young people are available, most of which are designed to be delivered within the school environment. The implementation of these interventions within schools has the potential to significantly reduce smoking prevalence, contributing to improvements in public health. However, it appears that many Norfolk schools may not be implementing these evidence-based interventions at present. Schools should be provided with information about the most effective strategies for preventing uptake of smoking by children and young people and encouraged to implement evidence-based smoking prevention initiatives. Equally, further research is needed to identify interventions that are effective in targeting groups of young people at high-risk of smoking uptake.

Introduction

Background

The recent NHS 5 Year Forward View[1] emphasised the need for a renewed focus on prevention in order to stem the rising burden of preventable disease. The report states that 'the future health of millions of children, the sustainability of the NHS, and the economic prosperity of Britain all now depend on a radical upgrade in prevention and public health'. As the primary cause of preventable illness and premature death in the UK, and a major contributor to health inequalities, reducing smoking is a central element of this plan[2]. While rates of smoking have declined in the UK in recent years, smoking remains a considerable public health concern. Nearly one in five adults in the UK were smokers in 2013 and it is estimated that 17% (78,200) of all deaths and 4% (454,700) of all hospital admissions of those aged 35 and over were attributable to smoking[2].

More than 200,000 UK children aged 11–15 start smoking each year[3] and evidence suggests that up to 50% of children who try smoking will become regular smokers within 2–3 years[4]. In 2014, 4% of 11 year olds had tried smoking at least once, increasing to 35% of 15 year olds[5], and 8% of 15 year olds were regular smokers (smoking at least 1 cigarette per week)[5]. It should be noted that this represents a considerable reduction since 2000 when 23% of 15 year olds were regular smokers and 45% of 11-15 year olds had tried smoking at least once[5].

Whilst the reduction in smoking among school-aged children represents a substantial public health achievement, uptake of smoking by young people remains a critical problem. In 2013, 23% of young people aged 16-25 were current smokers[2]. Whilst rates of smoking in this age-group have also fallen significantly since the 1970s, decreases have been less pronounced than in older groups[6]. This suggests that reductions in smoking among school-aged children may reflect, at least in part, a delay in the onset of smoking initiation as opposed to success in preventing longer term uptake of smoking. However, given the association between earlier age of smoking onset and greater nicotine dependence[7] and reduced odds of successful cessation[8], even a delay in the typical age of smoking initiation can be considered a public health success.

Many approaches to smoking prevention have been trialled in recent decades, including media campaigns, purchasing restrictions, marketing restrictions and school and community based interventions[9]. The reduction in the number of school-aged children who have tried smoking is a testament to the potential for concerted smoking prevention efforts to positively impact youth smoking rates. However,

smoking uptake, like other contributors to poor health, is patterned by disadvantage: children from the most deprived backgrounds are at highest risk of smoking initiation[10] and begin smoking at an earlier age than their better off peers[10]. Worryingly, there is evidence that inequalities in smoking uptake by socioeconomic status may have increased in recent years[11].

The marked social gradient in smoking is recognised as a major contributor to health inequalities[10,12]: more than half of the inequality in life expectancy between social classes can be explained by higher prevalence of smoking amongst poorer people[1]. Smoking cessation interventions are less likely to support the most disadvantaged smokers to give up smoking than their more affluent neighbours[13]. Thus supporting children from the most deprived backgrounds to choose not to take up smoking in the first place is an important means of reducing health inequalities.

How this report was produced

Using National Institute for Health Research (NIHR) Research Capability Funding (RCF), the Norfolk and Waveney Clinical Commissioning Groups funded a comprehensive literature review and programme of public and patient involvement (PPI) to gather evidence about educational and psychosocial interventions that have been found to be effective in preventing the uptake of smoking by young people, and improve understanding of current practice. The purpose of the RCF funding was to allow a research team to undertake developmental work to support an application for NIHR Public Health Research funding.

In order to achieve these aims, the team carried out work two pieces of work.

Part 1: Literature Review

- Conducted a systematic search for systematic reviews of educational or psychosocial interventions designed to prevent uptake of smoking by children or young people and summarised the findings of these reviews.
- Conducted a systematic search for trials of educational or psychosocial interventions designed to prevent uptake of smoking by children or young people from groups identified as at high-risk of smoking uptake, including looked after children and children excluded from mainstream education.

Part 2: PPI work

- Conducted discussion groups with secondary school pupils to gather their ideas about smoking prevention.
- Conducted two online surveys – one of secondary school pupils and one of senior staff (Head teachers and PSHEE (Personal Social Health and

Economic Education) leads) – about current smoking prevention practice and views regarding effective smoking prevention interventions.

Literature review

Aims

The aim of the review was to summarise current evidence for educational and/or psychosocial interventions designed to prevent uptake of smoking by children and young people. Young people were defined in this context as those under the age of 25 years (since smoking rates continue to rise until the mid-twenties). The review aimed to identify universal and targeted interventions effective in reducing smoking initiation, contributing to improved public health and the reduction of health inequalities.

Method

A series of systematic searches of key academic databases were carried out with the aim of identifying all relevant studies published in the English Language in a peer-reviewed journal. Databases searched included: Medline, PsychINFO and The Cochrane Library. Examples of the search strategies employed are detailed in Appendix A. A stepwise approach was taken to identify relevant studies. First, the titles of all articles returned by the search were screened in order to exclude duplicate and clearly irrelevant articles. Next, abstracts were screened and then full texts reviewed. Key data was then extracted from the identified studies and their findings summarised in narrative form with the aid of tables where appropriate.

Systematic searches for published, peer-reviewed articles were supplemented by searches from relevant 'grey' literature, including records of ongoing trials and reports of informal evaluations of relevant interventions.

Searches focused on identifying:

- Systematic reviews of educational and/or psychosocial interventions designed to prevent uptake of smoking by children or young people.
- Primary research investigating the effectiveness of educational or psychosocial interventions designed to prevent uptake of smoking by children or young people from groups at high-risk of smoking uptake. Two high-risk groups were a particular focus of the search: looked after children and children excluded from mainstream education.
- Research identifying factors important in tailoring smoking prevention interventions to meet the needs of groups at high-risk of smoking uptake.

Findings

Effectiveness of educational/psychosocial interventions designed to prevent uptake of smoking by children or young people

The systematic search uncovered 26 relevant systematic reviews which synthesised the findings of up to 228 primary studies. Of these 26 systematic reviews, 11 used meta-analysis to synthesis the results of primary studies, thus allowing clear conclusions to be drawn about the effectiveness, or otherwise, of the interventions reviewed. All but one of the 11 studies found evidence for a beneficial effect of smoking prevention interventions on smoking behaviour. In should be noted that there will almost certainly have been a degree of overlap in the primary studies on which these reviews were based and, as such, caution should be exercised in the interpretation of this consensus. However it is clear that the available evidence indicates that education and psychosocial interventions are useful tools in smoking prevention. Interventions found to be effective included those conducted in schools, primary care and community settings. The systematic review that did not find a beneficial effect of smoking prevention interventions focused on interventions that included an incentive aimed at preventing smoking uptake, i.e. prizes/rewards for not smoking. The characteristics and conclusions of these systematic reviews are summarised in Table 1.

These findings demonstrate the potential for the implementation of educational and psychosocial interventions in schools, primary care and/or community settings to result in reductions in smoking uptake by children and young people.

Table 1. Summary of systematic reviews of interventions designed to prevent uptake of smoking by young people which incorporated meta-analysis.

Authors	Year of publication	Intervention context	Intervention details	Number of studies included	Intervention favoured over control for smoking outcome(s) at longest follow-up?
Peirson et al.[14]	2016	Primary care	Any intervention conducted in a primary care setting.	9	Yes
Thomas et al.[15]	2015	Community	Interventions involving both children and family members.	27	Yes
Thomas et al.[16]	2015	Schools	School-based curricula.	57	Yes
Patnode et al.[17]	2013	Primary care	Interventions conducted in or are feasible for use in primary health care settings.	19	Yes
Thomas et al.[18]	2013	Schools	Any school-based intervention.	134	Yes
Isensee et al.[19]	2012	Schools	'Smoke-Free Class competition'	5	Yes
Johnston et al.[20]	2012	Schools	Interventions using incentives not to take up smoking.	7	No
Teesson et al.[21]	2012	Australian schools	Any school-based intervention trialled in Australia.	2	Yes
Hwang et al.[22]	2004	US schools	Any school-based (or school-community combined) intervention trialled in mainstream US schools.	65	Yes
Rooney et al.[23]	1996	Schools	School-based social or peer-type smoking prevention programmes.	90	Yes
Bruvold[24]	1993	Schools	Any school-based intervention.	70	Yes

Universal interventions: what works and for whom?

The majority of educational/psychosocial interventions trialled to date have been universal classroom-based programmes designed to be delivered by teachers to secondary school pupils in mainstream educational settings. One review[25] of school-based interventions divided interventions trialled to date into five categories according to their theoretical orientation:

1. *Information only curricula* – content and activities to correct inaccurate perceptions regarding high smoking prevalence.
2. *Social competence curricula* – interventions that aim to help young people refuse offers to smoke by improving general social competence, e.g. increasing problem solving skills, coping strategies for stress, assertiveness skills.
3. *Social influence curricula* – interventions that aim to increase awareness of the social influences that support smoking and how to effectively avoid these influences.
4. *Combined social competence and social influence* – intervention containing elements drawn from both the social competence and social influence approaches.
5. *Multimodal programmes* – programmes that combine curricula approaches with initiatives within and beyond the school, e.g. initiatives targeting or the local community.

The subsequent meta-analysis found that, considered together, there was a significant effect of the identified interventions at longest follow-up, with an average 12% reduction in smoking initiation compared to the control groups. However, interventions from the five categories were not equally effective. Social competence curricula and combined social competence and social influence approaches were found to be more effective than information only, social influences, and multimodal interventions. For follow-ups of less than one year, only the combined social competence and social influence interventions were found to be effective.

Most school-based interventions trialled to date have targeted children aged 13 years or younger[25]. Historically, increases in smoking prevalence were most marked between the ages of 13 and 14 years[26], providing a strong rationale for providing smoking prevention interventions early in a child's secondary school career (ages 11-16), shortly before the age of peak smoking initiation. However, the apparent later onset of smoking uptake in recent years suggests a possible need for a corresponding delay in the timing of school-based smoking prevention interventions in order that they remain sufficiently proximal to the age of first smoking experimentation.

This presents a challenge for school-based smoking prevention interventions found to be effective when delivered in early adolescence, since it cannot be assumed that they can be successfully transferred to an older population without adaptation. One systematic review identified[27] highlights the importance of tailoring school-based smoking prevention interventions to the developmental stage of the age-group targeted. Onrust et al. reviewed 288 school-based programmes for smoking prevention and concluded that the effectiveness of an intervention is related to how well the intervention's theoretical underpinnings fit the psychological and cognitive needs and capacities of the target age-group. Approaches targeting social norms, such as normative feedback, mentoring and peer education, were found to be effective in early adolescence when young people are increasingly concerned with peer-relationships and social acceptance. In contrast, social influence approaches, involving preparing young people to effectively resist social pressure to smoke, were found to be ineffective in this age group. Conversely, older adolescents, whose primary developmental tasks are identity formation, future planning and preparation for the transition to adulthood, benefited most from the social influences approach.

The ASSIST approach: an evidence-based approach to smoking prevention in the UK

The ASSIST approach was singled out from among the many educational and/or psychosocial approaches trialled to date since it was the only approach identified which is supported by recent UK evidence of both effectiveness and cost-effectiveness[28–30]. The ASSIST approach involves training influential Year 8 pupils (aged 12-13 years) to act as peer-supporters. Peer-supporters are selected via peer nomination and attend an external two day training programme which prepares them to encourage other students not to smoke during informal interactions outside the classroom (e.g. at break-time, after school). For 10 weeks post training, peer-supporters are asked to keep a diary of their smoking related interactions and attend follow-up sessions to encourage and support them in their efforts.

Based on diffusion of innovations theory[31], the approach aimed to create new smoking norms through encouraging informal dissemination of information about the effects of smoking and benefits of not smoking through social networks. Given that the developmental priorities of early adolescents are in forming peer-relationships and gaining social acceptance, this approach is arguably well suited to this developmental stage. The ASSIST intervention is recommended by NICE as an intervention for preventing smoking in schools[32]. Over 650 schools have been involved in the programme to date[33]. It has been estimated that were ASSIST to be implemented throughout the UK, 20,000 young people would be prevented from taking up smoking each year[34].

Targeted interventions

Only one systematic review of interventions tailored to a high-risk target group (indigenous young people) was identified. This systematic review identified only two completed studies that met the review's inclusion criteria. The search for primary research investigating the effectiveness of interventions tailored to the two high-risk target groups chosen by the research team as a focus – looked after children and children excluded from mainstream education – revealed just one relevant study[35]. Noting the paucity of research in this area, the authors of the most recent NICE guidelines on smoking prevention in schools called for further research focusing on targeted, intensive smoking prevention interventions aimed at high-risk groups of school-aged children[32].

Factors important in tailoring smoking prevention interventions to meet the needs of high-risk groups

Effective targeted interventions must be informed by an understanding of the reasons why disadvantaged young people are more likely to start smoking than their peers. A WHO report on health inequalities divided the factors contributing to the social gradient in smoking uptake into: those contributing to differential vulnerability; and those contributing to differential exposure[10]. Factors contributing to differential vulnerability include: having fewer skills to resist peer pressure; insufficient awareness of the harms of tobacco; greater scepticism regarding health education messages; and increased prevalence of mental health problems. Factors contributing to differential exposure include: the modelling of tobacco use by parents and peers; greater access to tobacco products; and more permissive local cultural attitudes to smoking. Given the range of differential factors implicated in higher rates of smoking initiation amongst disadvantaged young people, it should not be surprising that the elements associated with smoking prevention effectiveness for high-risk groups are not the same as those associated with effective universal prevention programmes[27]. Interventions targeting high-risk young people must be tailored to address the additional barriers to remaining smoke-free faced by disadvantaged groups.

Summary

- A range of educational and psychosocial interventions that have been found to be effective in reducing smoking uptake by children and young people. Most such interventions are universal, classroom-based interventions, deigned to be delivered in mainstream schools.
- There is evidence that approaches to smoking prevention that combine elements designed to help young people refuse offers to smoke by improving general social competence with elements aimed at increasing awareness of the social influences that promote smoking may be most effective.
- It is important that smoking prevention interventions are tailored to the developmental stage of the age group targeted: interventions effective in one group may be ineffective, or even detrimental, in other age groups. Approaches targeting social norms are most effective in early adolescence. Social influence approaches are more suitable for older adolescents.
- The ASSIST approach, involving training influential children to encourage their peers not to smoke, was the only approach identified with recent, UK evidence of both effectiveness and cost-effectiveness.
- Interventions targeting high-risk young people must be tailored to address the additional barriers to remaining smoke-free faced by disadvantaged groups. Further research is needed to develop such interventions.

Patient and Public Involvement

Aims

To learn about the views of young people and teachers regarding smoking prevention and understand current smoking prevention practice in Norfolk schools. Questions about vaping (using e-cigarettes) were also included to learn about pupils' awareness and schools' approach to this relatively new addition to the landscape of smoking-like behaviours.

Methods

First, two online surveys were conducted. One survey, comprising 17 questions, was distributed via email to senior staff at all secondary schools in Norfolk (n = 52). Emails inviting staff to participate were initially sent 'FAO Head Teacher [name]'. A second email was sent 'FAO PSHE Lead' to all schools that did not respond to the initial email. Personal contacts were also approached to maximise the number of responses. A second survey, comprising eight questions, was distributed to secondary school pupils by teachers who gave their contact details in the first survey and expressed a willingness to be contacted by the research team. Details of the emails sent and questions contained in the online surveys are provided as appendices.

Second, three discussion groups were conducted. The first was with year 12 and 13 pupils (aged 16 – 18) from, a High School located in Norwich Participants were members of the school's 'Young Health Champions' scheme, peers available to mentor other students on health and wellness issues. The discussion group was attended by 15 Youth Health Champions (two male) and the lead Teacher of Health and Social Care, Personal, Social, Health and Economic Education (PSHEE) and Sixth Form Studies Coordinator.

The second group was conducted with year 10 pupils from a Rural Norfolk High School. The discussion group was attended by 15 year 10 pupils (seven male and seven female) from a PSHEE class, and the PSHEE lead. We also spoke to the Head teacher.

The final discussion group was conducted with year 10 pupils from a High School located in the North of Norwich. The group was attended by eight year 10 females taking the GCSE Health and Social care option. We also spoke to the PSHEE teacher.

Findings

Surveys

22 teachers responded to the staff survey and 249 to the pupil survey. Pupils who responded reported being from the following year groups.

- Year 7 2.4%
- Year 8 2.0%
- Year 9 34.5%
- Year 10 35.8%
- Year 11 13.0%
- Year 12 11.4%
- Year 13 0.8%

Responses to key questions are summarised below.

Does your school currently use any of these approaches to smoking prevention? Please tick all that apply.

	Teachers	Pupils
Teaching in PSHEE	81.8%	64.4%
Teaching in science	95.5%	43.2%
Support groups	22.7%	10.6%
Information resources	36.4%	24.6%
Peer mentoring	4.5%	6.4%
Other (please specify)	36.4%	18.2%

What do you think works / helps in preventing young people from taking up smoking? Please tick all that apply.

	Teachers	Pupils
Information about the health threats in smoking	81.8%	76.6%
Risky behaviour and choice training	63.6%	32.2%
Assertiveness skills training	40.9%	22.2%
Peer mentoring	50.0%	28.4%
Other (please specify)	18.2%	16.3%

Do you think training peer mentors in year 10/some young people, to support others in their year group not to try smoking, is a good idea?

	Teachers	Pupils
Yes	71.4%	75.4%

Does your school have a policy of applying any of the following if pupils are known or suspected to be smoking/vaping?

	Smoking cigarettes		Vaping	
	Teachers	**Pupils**	**Teachers**	**Pupils**
No: there is no policy about smoking/vaping	0.0%	28.6%	9.1%	51.0%
Sanctions	100.0%	53.9%	86.4%	38.0%
Referral pathways for help/advice	81.8%	11.6%	63.6%	6.5%
Support from staff, e.g. stop smoking information	50.0%	21.2%	54.5%	10.6%
Support from peer mentors	0.0%	4.1%	0.0%	2.9%
Other (please specify)	9.1%	11.2%	13.6%	10.0%

Discussion Groups

Questions asked and summary of responses:

Why do you think young people start smoking?

Most of the young people we spoke to agreed that the most significant reason to try smoking is peer pressure; there was no doubt in their minds about this. In addition they thought that for some, there is the desire to rebel and also to try new things. They also acknowledged that there are other reasons why one might be inclined to smoke, such as your family, or seeing images of smoking that make it appear ‘cool’.

How many of your year group do you think smoke regularly?

In the first discussion group, the young people said ‘You’ll be really surprised at this!’ – and estimated that about 75% of their peers smoke regularly at parties. They didn’t have any friends who ‘needed’ a cigarette and ‘had to leave to have a cigarette’, but they talked about ‘social smoking’. They thought that smoking was like alcohol – done socially. They seemed to think that drugs are very different and very much

more serious. Their teacher was very surprised as she had estimated that about 10% would smoke.

In the second discussion group there was variation in estimates in prevalence for boys and girls, and some discussion about the difference between 'trying' and one off smoking and regular smoking. For boys it was estimated that 5 – 10 % of year 10 pupils smoked, and - agreement at 7% being regular smokers. It was estimated that 15 – 20% had ever tried smoking. Rates of prevalence were thought to be higher for girls, with 10 – 20% estimated as regular smokers, and 40% having ever tried smoking.

There was disagreement in the third discussion group, with young people unsure on whether over or under half of the year 10 cohort were regular smokers. With regards to having ever tried smoking, comments included: *'Everyone has tried,' 'new things, peer pressure,' 'everyone is doing it,' 'everyone gets second hand smoke which is even worse'.*

Does your school have a policy about smoking?

In the first discussion group young people reported that there was a rule against smoking at all while in uniform – even in the city, well away from the school grounds. If found smoking in the city by a teacher, they would expect to be told off and have sanctions applied. This applies to sixth formers too who don't wear uniform; no smoking while wearing their lanyard. Sanctions are applied if found smoking.

In the second group, pupils felt that sanctions were quite harsh, citing*: 'exclusion, IEU (internal exclusion unit) – go for lunches, or lessons or days, detention slips (disciplinary action list printed on these)'*. They did not think that they would be told where to go for help and advice on smoking cessation.

The third group also reported harsh sanctions: *'break and lunch time detentions, pupils may be excluded. Smoking materials are confiscated, the teachers call home and let the parents know. There is a fine of £50 if caught in the school building'*. It was not known that any help or advice would be offered for smoking cessation, beyond notifying parents of the incident. Interestingly, our discussions with PSHEE teachers proved perceptions to be overly punitive, and actual school policies were more lenient than pupils expected, with support and referral pathways in place for smoking cessation (although informally or sometimes ad hoc).

Does your school have any policy about vaping?

In the first discussion group, young people reported that there was no policy on vaping at all. The young people there thought people vaped just to look cool; they didn't think it was cool though. They thought vaping was good for helping people to stop smoking, but vaping non-nicotine liquid was not cool.In the second and third discussions groups, there was lots of confusion about vaping. No students thought that the school had an official policy on vaping, but generally thought that electronic

cigarette use would be treated the same as smoking. There was a general lack of knowledge and understanding about e cigarettes, and many young people asked questions of the researchers about the content of e liquids, for example. There were a number of misconceptions*: 'Vaping is just as bad, all those gases'.*

Have you experienced any help/advice about not starting smoking that was aimed at young people?

The young people in the first discussion group had experience of 'Talk to Frank' regarding drugs but nothing about smoking cigarettes. However, in Year 12 PSHEE they are asked to choose a topic they care about, and this year group chose smoking.

In the second and third discussion groups, the young people recalled some teaching about the harmful effects of smoking during science lessons: *'what it does to the body, picture of lungs, healthy and rotten'.* There had also reportedly been some teaching in PSHEE, with some young people mentioning *'about effects, tumour on lip, cigarette packets and rotten liver'*. Concrete information and understanding seemed to be lacking, although young people were able to recall images that had been impactful, such as when a science teacher had shown them a jar of tar and talk about tar collecting in the lungs of a smoker.

What do you think might work in helping young people not start smoking?

The young people in the first discussion group spoke of a video that showed a child, maybe seven years old, asking people in the street for a light and were disgusted that a young person actually did give him a light. They couldn't think of anything else.

In the second discussion group it was felt that there was: *'no way of stopping it'.* The view that trying smoking was inevitable was framed in terms of 'trying' being about 'growing up' and 'making mistakes' - a natural part of childhood. If friends and family smoked it was felt almost inevitable that a young person would at least try smoking: *'if someone is going to smoke will have seen it with parents and more older people around them who smoke'*. It was felt that the pressures were different for girls. One young person in particular was quite vocal that parents should do more to help prevent smoking*: 'Parents don't do enough about smoking, some let them carry on. Other parents more strict i.e. threaten to "kill" their children if found smoking'*. Others suggested that they thought schools should do more – more penalties for smoking, more support for not smoking, bag searches and more support about positive decision making and avoiding peer pressure.

In the final discussion group, the young people were quite fatalistic, saying that: *'Nothing will help, as peer pressure to try some' 'easy to get cigarettes as lots of shops will believe you if you say you are 18' 'mostly newsagents' 'if wearing make-up, a dress, revealing clothes will get served' 'our generation look older than they are'*

Do you think training some young people, to support others in their year group, not to try smoking is a good idea?

In the first discussion group, the facilitator asked the young people what they thought of peer mentoring. As expected, they thought this was a good idea, as this is their role. They thought it was good because they might be more honest and open with a peer than an adult, and also because they thought the adult would judge them or tell them off.

They thought that it might be more difficult with year 10s as they are less mature and just want to be having a good time, not taking school seriously, whereas when you were in year 13 you had to get serious about school. However, they thought that year 10 was a good time to start telling people not to start smoking.

Similarly, young people in the second and third discussion groups also thought that peer mentoring would be a good idea:

> *'They will be able to get through more' 'useful to be in the same age range' 'more comfortable speaking to someone in same year' 'intimidating talking to teachers who have too much power'*
>
> *'Think this would be useful any year from Year 7 – Year 11, especially useful in Year 7 as all hits them when they come up (smoking, alcohol, drugs, cannabis especially)'*

Likewise, the PSHEE teachers and the head teacher that we spoke to were all enthusiastic about peer mentoring. This was an approach used by some schools for specific reasons, e.g. anti-bullying initiatives. The approach was not used consistently across school however, and within schools peer mentoring approaches seemed to vary depe3nding on the input and drive of particular staff leads. Generally, it was felt that the approach could work very well as young people listened carefully to their peers.

In the initiative with year 8s that was effective, the peer mentors had to keep a diary of interactions and report this back to the research team – what do you think is the best way to do this?

In the first discussion group there was discussion about WhatsApp groups and texting but they thought the best method would be to write the diary up in an email. They were concerned about what information that was being shared however, as they felt that any interaction as a peer should be confidential.

Young people in the second and third discussion groups reported that 'everyone' had use of a smartphone, and that this might be a good way to keep in touch for research purposes. However, there were barriers to this on a school by school basis, as pupils from the second discussion group reported that current policy was for all smartphones to be collected in at the start of the school day.

Implementing an intervention

Both pupils and the PSHEE leads / head teacher that we spoke to felt that a peer mentoring intervention for smoking prevention would be well received. There was disagreement about the best age to intervene, with some suggesting that intervening in year 7 was essential, to try to prevent smoking uptake before young people had even tried a cigarette. Although later age of smoking initiation was discussed, it was felt that intervening in year 10 might be 'too late'. The school staff we spoke to felt that, on the whole, parents would be supportive of selected peer mentors being taken out of school for 1-2 days specialist training (although not in year 11), as it was felt that parents would understand the value and extra benefits of being a peer supporter (e.g. good for CV/personal statement leading up to college applications).

Limitations

Whilst the findings of the online surveys and discussion group taken together offer an informative picture of knowledge and attitudes towards smoking prevention in Norfolk schools, their limitations should be acknowledged. While efforts were made to reach a broad cross-section of school staff and pupils from a range of Norfolk schools, the findings of the online surveys cannot be assumed to be representative of the views of all staff and pupils. Not all staff members invited to take part completed the survey. Since we relied on teachers to pass on the invitation to participate to their students, it is likely that some pupils did not receive this invitation. It is possible that some groups of pupils may have been less likely to accept an invitation to take part than other groups. The views expressed in the discussion group cannot be assumed to generalise beyond the group of pupils who participated. In both the online survey and discussion group, it is possible that the role of teachers in facilitating pupils' participation may have impacted on pupils' willingness to express views that they perceived might not be approved of by their school.

Summary

- Pupil estimates of the proportion of their peers engaged in 'social' smoking were high (up to 75% of peers) in the discussion groups conducted.
- Participants in the discussion groups perceived peer pressure to be the primary reason that young people choose to start smoking.
- Teaching in science lessons and teaching in Personal Social, Health and Economic Education were the approaches to smoking prevention most commonly reported as constituting current practice by both staff and pupils from Norfolk secondary schools.

- Providing information about the health threats of smoking was perceived by both teachers and parents as the most effective means of preventing smoking uptake.
- The use of peers to discourage smoking initiation was rarely reported as a currently used strategy but most teacher and pupils responded that they believed this to be a good idea when asked for their views on this approach.
- Whilst all teachers and the majority of pupils reported that their school had a policy in place in the event that pupils are found to be/suspected of smoking, fewer had a similar policy for pupils found to be/suspected of vaping (using e-cigarettes).

Conclusions and recommendations

A range of evidence-based educational/psychosocial interventions for preventing uptake of smoking by young people are available, most of which are designed to be delivered within the school environment. The implementation of these interventions within schools has the potential to reduce smoking prevalence significantly, contributing to improvements in public health. It appears that many Norfolk schools may not be implementing such evidence-based interventions at present.

Recommendations:

- Schools should be provided with information about the most effective strategies for preventing uptake of smoking by children and young people.
- Schools should be encouraged to implement evidence-based smoking prevention initiatives.
- Commissioners should consider funding the ASSIST intervention for smoking prevention in secondary schools, as this is the most recent UK developed evidence based intervention, with demonstrated effectiveness and cost effectiveness.
- Given limited budgets, Commissioners may consider a targeted approach to commissioning ASSIST for smoking prevention. Piloting the approach in schools where smoking prevalence amongst older pupils is particularly high may be a pragmatic approach.
- If ASSIST is piloted we would recommend formal evaluation and monitoring of implementation.
- Further research is needed to identify interventions that are effective in targeting high-risk groups. In particular, interventions aimed at those excluded from or otherwise unable to access smoking prevention interventions delivered within mainstream schools should be explored.
- The most recent NICE guidelines on smoking prevention in schools called for further research focusing on targeted, intensive smoking prevention interventions aimed at high-risk groups of school-aged children[32]. There is a need for intervention development and feasibility testing of interventions for this target group.

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Appendices

Appendix A. Example Search Strategies

Medline (EBSCO) search strategy for systematic reviews of educational or psychosocial interventions designed to prevent uptake of smoking by young people:

S1 Smoking OR Tobacco OR Cigarette* (278,562)

S2 Prevention (1,377,805)

S3 S1 AND S2 (50,213)

S4 S1 AND S2, Limiter = Review Articles (7,821)

S5 Systematic review OR Meta-analysis (134,023)

S6 S4 AND S5 (519)

PsychINFO (EBSCO) search strategy for primary research testing the effectiveness of an intervention(s) to reduce health-risking behaviour in looked after children:

S1 looked after child OR looked after children OR lac OR children in care OR cic OR foster care (67,335)

S2 Narrow by Methodology: - treatment outcome/clinical trial (479)

Appendix B. Text of Introductory Email and Online Survey – Staff Version

Subject line of email:

FAO [actual name] Head Teacher, UEA Medical School, smoking prevention

Text in email

Dear [actual name of Head Teacher]

- We are a team of researchers based at the Norwich Medical School, University of East Anglia, working with other universities across the UK
- We're interested in helping young people decide not to start smoking
- Our research is in response to an NHS public health priority to examine smoking prevention in young people
- There is good evidence that peer mentors can help prevent young people (year 8) from smoking, but we don't know if this approach might work with older age groups (year 10 children)
- We would like to know about anything you do in your school around smoking prevention, and if you have any ideas about what might be helpful?
- Please follow this link to a really quick anonymous survey which takes only **2** minutes [Insert survey link]

  . . . really . . . **only 2** minutes (we've timed it!)
- Please do send this link to your colleagues

Many thanks for your help.

Dr Caitlin Notley

Dr Caitlin Notley
??????????????
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University of East Anglia. Norwich Research Park
Norwich. NR4 7TJ.
Phone: ????????

Survey questions

Current education / prevention and policies

1. Does your school currently use any of these approaches to smoking prevention? [Tick all that apply]
    - Teaching in PSHEE
    - Teaching in science
    - Support groups
    - Information resources
    - Peer mentoring
    - Other (please state what . . .)
        - Text box

2. What do you think works / helps in preventing young people from taking up smoking? [Tick all that apply]
    - Information about the health threats in smoking
    - Risky behaviour and choice training
    - Assertiveness skills training
    - Peer mentoring
    - Other (please state what . . .)
        - Text box

3. What do you think may be especially effective in helping prevent smoking in pupils during year 10 (14-15 year olds)? [Tick all that apply]
    - Information about the health threats of smoking
    - Risky behaviour and choice training
    - Assertiveness skills training
    - Peer mentoring
    - Other (please state what . . .)
        - Text box

4. Does your school have a policy of applying any of the following if pupils are known or suspected to be smoking? [Tick all that apply]
    - No: there is no policy about smoking
    - Sanctions
    - Referral pathways for help/advice
    - Support from staff, e.g. stop smoking information
    - Support from peer mentors
    - Other (please state what . . .)
        - Text box

5. Does your school have a policy of applying any of the following if pupils are known or suspected to be using electronic cigarettes? [Tick all that apply]
    - No: there is no policy about using e-cigarettes
    - Sanctions
    - Referral pathways for help/advice
    - Support from staff
    - Support from peer mentors
    - Other (please state what . . .)
        - Text box

Smoking Prevalence

What is your perception (a very rough estimate will do) of the numbers of pupils within year 10 in your school who have:

1. Tried smoking? [Tick one box]
    - About 25%
    - About 10%
    - About 5%
    - Less than 5%
    - Other (please state . . .)
        - Text box

2. Are regular smokers (smoking at least once per week)? [Tick one box]
    - About 25%
    - About 10%
    - About 5%
    - Less than 5%
    - Other (please state . . .)
        - Text box

3. Have tried using an electronic cigarette? [Tick one box]
    - About 25%
    - About 10%
    - About 5%
    - Less than 5%
    - Other (please state . . .)
        - Text box

4. Are regular users of an electronic cigarette? [Tick one box]
    - About 25%
    - About 10%
    - About 5%
    - Less than 5%

- Other (please state . . .)
    - Text box

Helping Children in Year 10

1. Do you think your school would allow some (15-20%) of year 10 pupils to be trained as peer supporters to help prevent pupils start smoking? [Tick one box]
    - No
    - Yes

2. Do you think your school would allow some year 10 pupils to attend off-site training? [Tick one box]
    - No
    - Yes – they'd allow two days off-site training
    - Yes – they'd allow one days off-site training

3. Do you think parents would allow their year 10 children to attend off-site training? [Tick one box]
    - No
    - Yes – they'd allow two days off-site training
    - Yes – they'd allow one days off-site training

4. If you were considering the previous three questions for years 8 and 9, would give different responses? [Tick one box]
    - No
    - Yes (please state . . .)
        i. Text box

5. Do you think there are issues from a school perspective that could impact on helping young people in year 10 not to start smoking? [Tick all that apply]
    - No
    - Yes – possibly time constraints
    - Yes – possibly resource constraints
    - Other (please state . . .)
        - Text box

6. Do you think training peer mentors in year 10, to support others in their year group not to try smoking, is a good idea?
    - Yes
    - No (state why . . .)
        - Text box

7. Is there anything else you want to say about smoking prevention for young people?
    - No thanks
    - Yes (please state . . .)
        - Text box

8. Are you are interested and willing to talk to us more about smoking prevention for young people?
    - No thanks
    - Yes (please leave your name and preferred contact details below . . .)
        - Text box

        We will treat your details confidentially and will not share with any third parties. We may contact you for an informal chat.

Sincere thanks for your help

Appendix C. Text of Introductory Email and Online Survey – Pupil Version

Subject line of email:

Smoking in young people – your views

Text in email

- We are a team of researchers based at the Norwich Medical School, University of East Anglia, working with other universities across the UK
- We're interested in helping young people decide not to start smoking
- We would like to know what you, as a young person, thinks would work
- Please follow this link to a **really quick anonymous survey** which takes **LESS THAN 2** minutes
  [Insert survey link]
  . . . really . . . **less than 2** minutes (we've timed it!)
- Please do send this link to your friends

Many thanks for your help.

Dr Caitlin Notley

Dr Caitlin Notley
??????????????
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Phone: ?????????

UK Top 15 (14th in the Guardian University Guide 2015; 14th in the Times and Sunday Times Good University Guide 2015)
UK Top 3 for Student Experience (Times Higher Education Student Experience Survey 2014)
World top 1% (Times Higher Education World Rankings 2014-15)
World Top 100 (Leiden Ranking 2014)

Smoking prevention in young people

1. Does your school currently use any of these approaches to smoking prevention? [Tick all that apply]
    - Teaching in PSHEE
    - Teaching in science
    - Support groups
    - Information resources
    - Mentoring from other young people in their year group
    - Other (please state what . . .)
        - Text box

2. Does your school have a policy of applying any of the following if pupils are known or suspected to be smoking? [Tick all that apply]
    - No: as far as I know there is no policy about smoking
    - Sanctions
    - Tell us where to go for advice / support
    - Support from staff, e.g. stop smoking information
    - Support from peer mentors
    - Other (please state what . . .)
        - Text box

3. Does your school have a policy of applying any of the following if pupils are known or suspected to be using electronic cigarettes? [Tick all that apply]
    - No: as far as I know there is no policy about using e-cigarettes
    - There are penalties / punishments
    - Tell us where to go for advice / support
    - Support from staff
    - Support from peer mentors
    - Other (please state what . . .)
        - Text box

4. What do you think might work / help in preventing young people from taking up smoking? [Tick all that apply]
    - Information about the health threats in smoking
    - Risky behaviour and choice training
    - Assertiveness skills training
    - Mentoring from other young people in their year group
    - Other (please state what . . .)
        - Text box

5. Do you think training some young people, to support others in their year group, not to try smoking is a good idea?
    - Yes
    - No (state why . . .)
        - Text box

6. What school year are you in?
    - Year 7
    - Year 8
    - Year 9
    - Year 10
    - Year 11
    - Year 12
    - Year 13

7. What percentage of your year group (a rough estimate will do) do you think are smoking regularly (smoking at least once per week):
    - About 75%
    - About 50%
    - About 25%
    - About 10%
    - About 5%
    - Less than 5%
    - Other (please state . . .)
        - Text box

8. Is there anything else you want to say about smoking prevention for young people?
    - No thanks
    - Yes (please state . . .)
        - Text box