NICE RAPID REVIEW

Workplace interventions to promote smoking cessation

February 2007

November 2021: NICE guideline PH5 (April 2007) has been updated and replaced by NG209.

The recommendations labelled [2007] or [2007, amended 2021] in the updated guideline were based on these evidence reviews.

See www.nice.org.uk/guidance/NG209 for all the current recommendations and evidence reviews.

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1. Executive Summary

This review contains assessments of the available evidence on workplace interventions for smoking cessation. The available data has been assessed to answer 8 preset questions examining in detail the effectiveness of workplace interventions in facilitating smoking cessation. A comprehensive literature search was conducted and a total of 13,023 titles and abstracts were screened, with 32 studies identified as direct evidence.

Results: Although there are no studies exploring which workplace interventions are most effective in the context of smoke-free legislation, there is some evidence that the most effective workplace interventions (regardless of context) are those with proven effectiveness in other settings. Group therapy, individual counselling and pharmacological treatments all have an effect in facilitating smoking cessation. Workplace health assessments with feedback may also have a role to play, although evidence on their impact on smoking cessation amongst employees is currently inconclusive. Alternative methods for smoking cessation that may have a role to play in the workplace are Allen Carr seminars, online smoking cessation support, and integrated smoking cessation and occupational health and safety programmes. However, evidence on the effectiveness of these intervention types is presently weak and further research is needed to determine their effectiveness.

There is also evidence that a 'one size fits all' approach to employed smokers is less effective than interventions tailored to different sectors of the workforce. Thus, women exhibit less confidence in their ability to quit and may require extra stimuli in order to quit smoking, therefore they are particularly likely to benefit from workplace interventions. It is also clear that workplace interventions should be tailored for multiethnic populations; intervention approaches should be inclusive of workers from diverse backgrounds and materials should be developed in the appropriate languages. Unfortunately, there is very little information on how to tailor interventions for temporary/casual workers and further research is urgently needed in this area.

Monitoring data from countries that have gone smoke-free indicates that compliance with smoke-free policies is unlikely to be a significant issue. However, support for and compliance with smoking bans can be improved by encouraging smokers to think about the harms of passive smoking, and educating smokers about the health consequences of second-hand smoke. Creating and enforcing a smoking compliance strategy is also an effective way to increase compliance.

Employers can encourage smokers to quit in a variety of ways including offering smoking cessation support and providing incentives to quit. Employers can also take steps to support smokers who are not ready to quit – as smokers in this category are likely to outweigh the number of smokers who are highly motivated to quit. It is therefore important that smoking cessation materials are tailored to deal with smokers at different stages of change and proactive interventions are required. Encouragingly, there is some evidence that an 'enriched' environment (including smoking bans, educational campaigns and worksite health promotion activities alongside of smoking cessation support) does influence those smokers who are not ready to quit. Although an enriched environment may not lead these smokers to cease smoking, it may encourage them to reduce their consumption and reduce the perceived barriers to quitting.

A central factor predicting whether a workplace will offer smoking cessation support is the personal attitude of the employer towards employee health. Thus, it may be important to directly target leaders and persuade them of the benefits of investing in employee health and the role it plays in company success. However, despite the advantage of supporting smoking cessation in the workplace, small enterprises appear to have significant financial constraints that impede their ability to offer smoking cessation support and may also have characteristics that do not lend themselves to formal onsite programmes. It is also important to emphasise that workplace tobacco control activities do have some side effects, as smoking bans may also increase tensions between smokers and non-smokers, increase perceived exposure to ETS because of intensified contact with smoking at entrances and exits to buildings and may also lead to unsafe smoking practices. However, although questions have been raised regarding the feasibility of implementing smoke-free legislation in mental health settings, there is some evidence that smoking bans can be introduced without significant problems.

EVIDENCE STATEMENTS

No.	Statement	Grade	Country/s	Evidence
	Which interventions work best in workplaces where comprehensive smoke-free legislation has been introduced in other jurisdictions?			
1	Although there are no available studies exploring which workplace interventions are most effective in the context of smoke-free legislation, one 2+ study of a variety workplace intervention types offered in the context of a localised smoking ban found that more intensive interventions (e.g. group treatment and one-hour clinics) produce higher success rates than less intensive interventions (e.g. brief individual counselling and self-help manuals). It is unclear how readily these findings translate to workplaces in jurisdictions where comprehensive smoke-free legislation has been introduced.	One 2+ study	USA	(Waranch et al. 1993 2+)
2	A 1++ systematic review and a 1+ meta-analysis of the available international literature indicates that the most effective smoking cessation interventions in workplace settings are those interventions that have proven effectiveness more broadly. There is strong evidence that group therapy, individual counselling and pharmacological treatments all have an effect in facilitating smoking cessation. However, both reviews failed to identify effects due to particular intervention type. There is also evidence that minimal interventions including brief advice from a health professional are effective. Self help manuals appear to be less effective, although there is limited evidence that interventions tailored to the individual have some effect.	One 1++ systematic review and one 1+ meta-analysis	International	(Moher et al. 2005 1++; Fisher et al. 1990 1+)
3	Available evidence on the effectiveness of workplace health assessments with feedback in reducing smoking prevalence is inconclusive. A 1+ study and a 2+ study both found that health assessments failed to produce an effect on cigarette consumption and smoking prevalence. However, a 1++ study found that workplace health assessments combined with behavioural counselling led to statistically significant higher CO-	One 1++ study, one 1+ study and one 2+ study	Scotland, Switzerland, Australia	(Gomel et al. 1993 1++; Hanlon et al. 1995 1+; Prior et al. 2005 2+)

	validated smoking cessation rates. Although only one of the studies was British, these findings are likely to be broadly applicable to a UK setting.			
4	Two 2- studies have identified Allen Carr workplace seminars to be an effective means of facilitating smoking cessation in the workplace and online smoking cessation programmes have also been highlighted in a 4+ report as a potentially effective way of facilitating smoking cessation in the workplace. Another 4+ report emphasises the value in integrating smoking cessation support with occupational health and safety issues. However, evidence on the effectiveness of these intervention types is presently weak and further research is needed to determine their effectiveness.	Two 2- studies, two 4+ reports	Austria, USA	(Moshammer & Neuberger 2006 2-; Hutter, Moshammer & Neuberger 2006 2-; Etter 2006 4+; Sorensen 2001 4+)
	What are the most effective and appropriate interventions for different sectors of the workforce such as men and women, younger and older workers, minority ethnic groups and temporary/casual workers?			
5	A 1+ study and a 2++ study found that men and women were equally successful in achieving abstinence in workplace smoking cessation programmes; however, important gender differences were apparent in smoking attitudes and behaviours. Women had less confidence in their ability to quit and required extra stimuli in order to quit smoking. Although these findings are based on American studies, they are likely to be broadly applicable to a UK setting.	Two 1+ studies and one 2++ study	USA	(Campbell et al. 2000/2002 1+; Stockton et al. 2000 2++; Gritz et al. 1998 1+)
6	Although no studies were identified in the literature search that specifically address effective workplace interventions for younger and older smokers, evidence from a 2++ study indicates that older smokers are more likely to achieve successful abstinence in workplace interventions than younger smokers (although these employees were also more likely to be managers and light smokers). Furthermore, two 2+ studies examined the impact of age and job stress on cessation. Results from one study revealed that younger employees benefited more from higher demands than older employees with regards to smoking cessation. However, these	One 2++ study, two 2+ studies	USA	(Olsen et al. 1991 2++; Albertson et al. 2004 2+; Chan & Heaney 1997 2+)

	findings were not supported in the other 2+ study. Therefore, although further research is needed in this area it may be possible that younger employees who smoke require more intensive support for smoking cessation than older smokers and that specifically tailoring interventions based on age may be beneficial. Although these findings are based on American studies, they are likely to be broadly applicable to a UK setting.			
7	A 2+ study found that although there were ethnic differences in baseline smoking patterns and attitudes towards cessation, ethnicity was not a significant predictor of successful abstinence. Another 1+ study found that a tailored intervention which incorporated linguistically and culturally appropriate materials, was effective in promoting behaviour change in a working class multiethnic population. Although these studies are from the USA, which has a different ethnic composition to the UK, it is likely that their findings are broadly applicable to a UK setting.	One 1+ study, one 2+ study	USA	(Daza et al. 2006 2+; Hunt et al. 2003/Emmons et al 2005 1+)
8	No studies were identified in the literature search that specifically addressed effective workplace interventions for temporary or casual workers. As delivering workplace interventions to this population pose a significant challenge, research is urgently needed in this area.			
	What are the most effective ways of encouraging employee compliance with a smoke-free policy?			
9	3+ monitoring data from countries that have gone smoke-free indicates that employee non-compliance with smoke-free policies is unlikely to be a significant issue. Evidence from Ireland, Scotland and New Zealand reveal extremely high levels of compliance (between 94-98%) with smoke-free workplace legislation. However, one 2+ study found that support for and reported compliance with smoking bans in Australia, USA, Canada, and the United Kingdom was higher among smokers who reported thinking about the harms of passive smoking more frequently, and among those who endorsed the belief that second-hand smoke can cause lung	Four 3+ case studies and one 2+ study	International	(Pisano 2006 3+; Ministry of Health 2005 3+; Office of Tobacco Control - Ireland 2005 3+; Scottish Executive 2006 3+; Borland et al. 2006 2+)

	cancer in non-smokers. These findings are likely to be directly applicable to a UK setting.			
10	Various 4+ sources have indicated that creating and enforcing a smoking compliance strategy is an effective way to increase compliance. Specific tips for enforcing smoke-free policy include providing training on how to enforce the policy, establishing links between the policy and HR policies, increasing awareness of the consequences of breaching policy, providing reminders that it is a criminal offence not to comply with smokefree legislation and notifying staff that action will be taken if someone is in breach of the policy.	Four 4+ reports	International	(Griffiths 2005 4+; Quit 2001a 4+; Quit 2001b 4+; Worldbank 2002 4+)
	How can employers support and encourage smokers to quit?			
11	According to a 1++ systematic review, a key way that employers can encourage smokers to quit is by offering smoking cessation support. Such support is particularly important in the context of workplace smoking bans. A 2+ study concludes that because different types of smokers appear to choose different strategies for cessation, making a variety of smoking cessation strategies available to employees may meet the needs of more employees and increase participation in workplace programmes.	One 1++ systematic review and one 2+ study	International	(Moher et al. 2005 1++; Waranch et al. 1993 2+)
12	Two 1++ systematic reviews of international studies indicate that financial incentives can support and encourage smokers to quit. While the addition of incentives does not appear to increase the quit rates of smoking cessation interventions in the workplace, there is evidence that such incentives do improve recruitment rates into worksite cessation programmes, which may lead to higher absolute numbers of successful quitters in the long-term.	Two 1++ systematic reviews	International	(Moher et al. 2005 1++; Hey et al. 2005 1++)

	What support can employers offer smokers who are not currently ready to quit?			
13	According to a 2+ study, the majority of employed smokers are not ready to quit smoking. Therefore, smoking cessation materials and programmes need to recognise that smokers are at different stages of change rather than tailoring their materials only to those smokers who are highly motivated to quit. The researchers argue that proactive interventions are required, including access to subsidised pharmacological cessation aids, monetary incentives for assessment of smoking risk, direct personalized feedback, media/social marketing campaigns, and changes in the social norms and physical environment at the workplace, in public places, and in the home. Although this is an American study, its findings are likely to be broadly applicable to a UK setting.	One 2+ study	USA	(Abrams & Biener 1994 2+)
14	Two 2+ studies and a 2- study have explored the impact of an 'enriched' environment (including smoking bans, worksite health promotion activities and smoking cessation programmes) on those smokers who are not ready to quit. Although a 2+ study found that an enriched environment did not increase cessation amongst those smokers who do not engage in formal cessation activities, a 2- study and a 2+ study have both found that an enriched environment increases the motivation of smokers to change their smoking behaviours and may lead to a reduction in cigarette consumption and a reduction in perceived barriers to quitting. Although these findings are based on American studies, their findings are likely to be broadly applicable to a UK setting.	One 1++ systematic review, one 2++ study, one 2+ study	USA, Netherlands	Waranch et al. 2003 2+; Willemsen 1999 2+; Conrad et al. 1996 2-)
	How can employers be encouraged to provide smoking cessation support?			
15	Two 2++ studies indicate that a key factor predicting whether a workplace will offer smoking cessation support is the personal attitude of the employer towards employee health. Thus, a key way of encouraging employers to provide smoking cessation support	Two 2++ studies	USA	(Sorensen et al. 1997 2++; Emmons et al. 2000 2++)

	may be to directly target leaders and persuade them of the benefits of investing in employee health and the role it plays in company success.			
	What are the resource needs of large, medium and small enterprises in implementing smoke-free legislation and supporting smokers to quit?			
16	Two 2++ American studies, one 2- Canadian study and one 2+ Scottish study provide strong evidence that small enterprises are far less likely to offer smoking cessation support than large enterprises. The findings of these studies suggest that small workplaces may have significant financial constraints that impede their ability to offer smoking cessation support and may also have characteristics that do not lend themselves to formal onsite programmes. Thus, unlike large enterprises, small enterprises have substantial needs in implementing smoking control activities in their worksite. As the conclusions of the US studies are echoed in a Scottish study, these findings are likely to be directly applicable to a UK setting.	Two 2++ studies, one 2- study and two 2+ studies	USA, Scotland, Canada	(Ashley 1997 2-; Biener et al. 1994 2+; Sorensen et al. 1997 2++; Emmons et al. 2000 2++; Docherty et al. 1999 2+)
	What are the adverse or unintended outcomes in the workplace of smoke-free legislation?			
17	Overall, one 2- study found that a workplace smoking ban was not a significant source of tensions between smokers and non-smokers, despite the minor advantages that were seen to be associated with exiled smoking. According to a 4+ report, the increased visibility of smoking that often accompanies the introduction of workplace smoking bans may lead to the stigmatisation of smokers and contribute to discriminatory practices and social stereotyping. It is unclear how readily these findings translate to a UK setting.	One 2- study and one 4+ report	Australia, USA	(Clarke et al., 1997 2-; Greaves & Jategaonkar 2006 4+)
18	Overall, one 2+ Scottish study and a 2+ study from the Republic of Ireland indicate that smoke-free legislation may encourage smokers to congregate around building entrances and exits, thereby increasing the exposure of non-smokers to second-hand smoke through more intensive contact with the smoke as they enter buildings and	One 2+ study, one 2+ study	Scotland and Republic of Ireland	(Parry et al. 2000 2+; Mulcahy et al. 2006 2+)

	contact with drifting smoke. These findings are directly applicable to a UK setting.			
19	Two 2- English studies and one 2+ Scottish study report that workplace smoking bans may lead to an increase in dangerous smoking practices (such as smoking in inappropriate locations and the build-up of smoking related debris). One of the English studies also raises the potentially negative effects of bans on smokers who must venture outside to smoke, even in poor weather conditions. These findings are directly applicable to a UK setting.	Two 2- studies and one 2+ study	UK	(Strobl & Latter 1998 2-; Parry et al. 2000 2+; Anderson 1991 2-)
20	According to one 2+ study and 3+ reports from Scotland, smoke-free legislation leads to an increase in smoking-related litter which creates costs for local authorities in cleaning up/providing disposal for cigarette butts in outdoor public places. These findings are directly applicable to a UK setting.	One 2+ study and two 3+ case reports	UK	(Parry et al. 2000 2+; MacDonald 2006 3+; Vallely 2006 3+)
21	Although questions have been raised regarding the feasibility of implementing smoke-free legislation in mental health settings, one 2- English study found that in psychiatric units where a smoking ban had been introduced, few problems had been experienced following the initial adjustment period. These findings are directly applicable to a UK setting.	One 2- study	UK	(Jochelson & Majrowski 2006 2-)

2. Background

2.1 Health and economic effects of smoking

Cigarette smoking is the leading cause of preventable death in the United Kingdom today. In England alone, between 1998 and 2002 smoking was estimated to be responsible for 86,500 deaths per year (Twigg et al. 2004). More than half of all smoking-related deaths were due to respiratory diseases such as lung cancer, chronic obstructive pulmonary disease (COPD) and pneumonia, while ischaemic heart disease, other cancers, circulatory and digestive diseases accounted for the rest (Royal College of Physicians 2000). However, although the harms caused by cigarette smoking are well established, there is a growing body of evidence that environmental tobacco smoke (ETS), otherwise known as second-hand smoke or passively ingested smoke, also causes harm to those exposed to it.

The first study linking passive smoking and lung cancer was published in 1981 (Hirayama 1981) and since that time there has been a groundswell of literature on the health-related harms connected with ETS. In a recent assessment of the available evidence, the Scientific Committee on Tobacco and Health (SCOTH 2004) concluded that exposure to ETS substantially increases the risk of lung cancer and ischemic heart disease amongst non-smokers. Children exposed to ETS are at increased risk of bronchitis, asthma attacks, pneumonia, middle ear disease, sudden infant death syndrome (SIDS) and a reduction in lung function.

Given that approximately one quarter of Britons smoke (Lader and Goddard 2005), exposure to ETS remains a significant issue. Indeed, a recent study (Jamrozik 2005) estimates that across the United Kingdom as a whole, passive smoking in the workplace is likely to be responsible for the death for more than two employed people per working day (617 deaths per year), including 54 deaths in the hospitality industry each year – almost three times the number of deaths from industrial injuries and accidents (Health and Safety Commission 2003).

Aside from the health effects of smoking, it has considerable economic costs as well. Smoking currently costs the National Health Service (NHS) between approximately 1.4-1.5 billion pounds annually, from health care expenditure on smoking induced disease to sickness/invalidity benefits, widows' pensions and other social security benefits for dependants (Parrot and Godfrey 2004). Employee smoking also imposes a variety of costs on employers. There is evidence that employees who smoke decrease productivity, increase absenteeism and insurance rates, and cause smoking area costs (Parrot, Godfrey & Raw 2000). For example, employees who smoke are more likely to take smoke breaks (interrupting work time), require medical treatment and take time off work due to illness (Parrot, Godfrey & Raw 2000). Furthermore, smokers may increase facility insurance rates as a result of fire or smoke damage claims (Parrott, Godfrey & Raw, 2000), and increase disability and life insurance premiums due to higher morbidity rates (Health Canada, 2006). Parrott, Godfrey, and Raw (2000) estimate that the annual cost of employee smoking in Scotland is in the region of £450 million due to lost productivity, £40 million due to absenteeism, and £4 million as a result of fire damage.

2.2 Smoking control in UK workplaces

In 1998 the landmark White Paper *Smoking Kills* (Department of Health 1999) was published. *Smoking Kills* laid out a comprehensive plan for reducing the prevalence of smoking in the UK, and entailed measures such as a ban on tobacco advertising, increases in the price of tobacco, a significant injection of funding into smoking cessation services and strategies to reduce smoking in work and public places (McNeill et al. 2005). The 2004 White Paper *Choosing Health* (Department of Health 2004) solidified the government's

commitment to reducing smoking in UK workplaces by proposing action to introduce smoke-free workplaces through a stepped approach:

1) by the end of 2006, government departments and the NHS will be smoke-free
2) by the end of 2007, all enclosed work and public places, other than licensed premises
3) by the end of 2008, arrangements for licensed premises in place.

The proposed legislation was brought forward in the Health Bill in 2005, although strong public and political sentiment that this legislation was not strong enough led the government to bring forward alternative options for extending the smoke-free provisions. The option to create "national legislation to make all indoor public places and workplaces completely smoke-free (with minimal exemptions)" was resoundingly favoured by the House of Commons and the legislation is due to be implemented in 2007 (Department of Health 2006).

The successful campaign for comprehensive smoke-free legislation in England represents a significant achievement for the tobacco control movement and a turning point in the development of a national, comprehensive tobacco control policy – which has led some commentators to describe it as the single most important public health measure of the past 30 years (Willmore 2006). Through this legislation, the government's objective is to:

- reduce the risks to health from exposure to second-hand smoke
- recognise the right to be protected from harm and to enjoy smoke-free air
- increase the benefits of smoke-free enclosed public places and workplaces for people trying to give up smoking so that they can succeed in an environment where social pressures to smoke are reduced
- save thousands of lives over the next decade by reducing both exposure to hazardous second-hand smoke and overall smoking rates (Department of Health 2006).

Although smoke-free legislation represents a key element of workplace tobacco control, another essential element of successful workplace smoking control strategies is smoking cessation support. Indeed, workplace interventions for smoking cessation hold a number of potential advantages over interventions in other settings. First, given that a large proportion of the employed population spends a third of their waking hours at work, workplace interventions provide access to large numbers of people who constitute a relatively stable population and may have the potential for higher participation rates than non-workplace environments (Moher et al. 2005; Hunt et al. 2003). Second, worksites also have the potential to provide sustained peer support and positive peer influence for quitting (Moher et al. 2005; Hunt et al. 2003). Third, worksites may have occupational health staff to provide professional support. However, most importantly, workplace interventions provide an opportunity to target people (such as blue-collar workers) at particularly high risk of smoking-related disease who may not otherwise be accessible (Moher et al. 2005; Hunt et al. 2003).

Nevertheless, despite the potential advantages of workplace support for smoking cessation, there are some substantial problems with health promotion interventions currently delivered in workplace settings. First, the majority of interventions offered in the workplace were designed in a clinical setting and are delivered without change; therefore, because they are not tailored to the workplace, they fail to maximise the unique possibilities offered by this setting (Kreis and Bodeker 2004). A second issue is that despite the potential that the workplace provides for accessing large numbers of smokers who might otherwise be unreachable, workplace interventions tend to produce very low participation rates; often the people who would most benefit from such interventions choose not take part (Kreis and Bodeker 2004). It is therefore clear that smoking cessation support offered in the workplace

needs to be tailored to the unique characteristics of this setting, including the large numbers of employed smokers who may not be actively seeking to change their smoking behaviours.

This review provides an overview of existing evidence that provides some clues as to how workplace interventions can be delivered most effectively in the workplace in light of the upcoming smoke-free legislation to be implemented in 2007. Integrating tailored smoking cessation support into workplaces will not only to support those employed smokers who are interested in quitting, but will also maximise the unique opportunity this legislation provides to positively transform smokers' behaviours.

3. Methodology

3.1 Literature Search

Julie Glanville and Kate Light (Centre for Reviews and Dissemination, University of York) conducted the searches for this rapid review in May 2006, with input from NICE and the British Columbia Centre of Excellence for Women's Health (BCCEWH) team. The first literature search covered systematic reviews in the standard databases and produced 533 records (see Appendix D, parts 1a & 1b). The second literature search covered non-reviews in the standard databases and produced 6878 records (see Appendix D, part 2). A further Medline search of both reviews and non-reviews was undertaken using the earlier Medline search strategy, but changing line 18 to include abstracts as well as titles (see Appendix D, part 3). This search produced 740 records (reviews) and 4872 records (non-reviews) respectively. In total the BCCEWH team received 13,023 references. A detailed report of processes, databases, and search terms used in the review is presented in Appendix D. Studies not published in English were excluded from the review. A further search was undertaken of key websites (see Appendix D, part 4) in order to obtain reports and documents relevant to the review; a further 20 reports were obtained through this process.

3.2 Selection of Studies for Inclusion

Once the literature search was complete the project team selected relevant studies based on the criteria outlined in section 4.1 of the *Public Health Guidance Methods Manual*. Before acquiring papers for assessment, preliminary screening of the literature search was carried out to discard irrelevant material. Titles were initially scanned by one reviewer who removed the clearly irrelevant studies. The remaining 200 abstracts were independently scrutinised in relation to the research questions by two reviewers and those that did not directly deal with the issues raised in the research questions were eliminated. Once this sifting process was complete, paper copies of the selected studies or reviews were acquired for assessment.

3.2.1 Populations

Groups covered in this review are smokers aged 16 and over who are engaged in paid or voluntary employment outside of the home.

3.2.1 Interventions

The review was international in scope and included workplace interventions for smoking cessation. All types of intervention were considered, such as group therapy, individual counselling, self-help materials, and nicotine replacement therapy (NRT). Broader health promotion interventions that included a smoking cessation component were also considered.

3.2.3 Outcomes

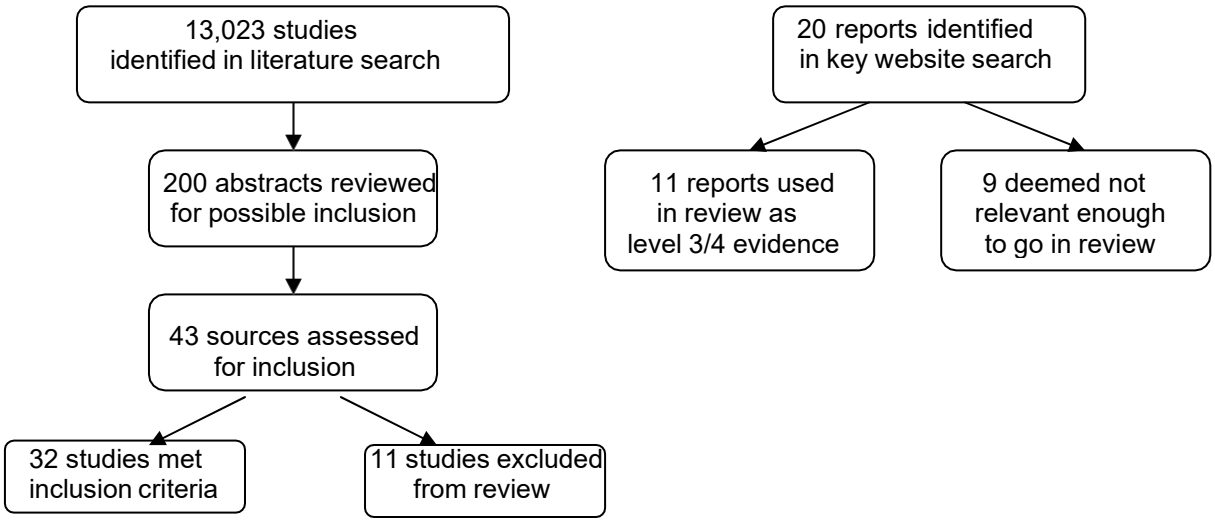
The key outcome of interest was:

1. Changes in smoking-related knowledge, attitudes and behaviours following the intervention (with biochemical validation where recorded).

Following the elimination of 12,823 irrelevant records based on title alone, the two reviewers assessed abstracts of 200 records for possible inclusion and 42 records were determined to be addressing the key outcomes and populations of interest based on their abstract. Full copies of these studies were obtained and were independently assessed for inclusion by two reviewers. Of these studies, 32 met the inclusion criteria for this rapid review (see figure 1). A list of excluded studies with reasons for exclusion is presented in Appendix B.

A recent Cochrane Review (Moher et al. 2005) on the effectiveness of workplace interventions for smoking cessation provided a key source of evidence in the following review. When evaluating the effectiveness of workplace interventions for smoking cessation, the Cochrane Review has been used as the preferred source of evidence over the individual studies identified in the literature search on this topic. However, studies identified in the literature search that covered other key issues of interest have been incorporated into this review, even in cases where they are also discussed in the Cochrane Review.

Figure 1. The evidence



3.3 Quality Appraisal

All of the studies that met the inclusion criteria were rated by two independent reviewers in order to determine the strength of the evidence. Once the research design of each study was determined (using the NICE algorithm), studies were assessed for their methodological rigour and quality based on the critical appraisal checklists provided in Appendix C of the *Public Health Guidance Methods Manual* (see table 1). Each study was categorised by study type and graded using a code '++', '+' or '–', based on the extent to which the potential sources of bias had been minimised. Those studies that received discrepant ratings from the two reviewers were given to a third reviewer for final evaluation.

There is currently no methodological checklist for cross-sectional studies in the *Public Health Guidance Methods Manual.* In order to assess the quality of these studies, modifications to existing NICE checklists are recommended and a cross- sectional checklist based on the cohort study checklist in the manual was created (see Appendix E).

Table 2. Level and quality of evidence

Type and quality of evidence	
1++	High quality meta-analyses, systematic reviews of RCTs, or RCTs (including cluster RCTs) with a very low risk of bias
1+	Well conducted meta-analyses, systematic reviews of RCTs, or RCTs (including cluster RCTs) with a low risk of bias
1^-	Meta-analyses, systematic reviews of RCTs, or RCTs (including cluster RCTs) with a high risk of bias
2++	High quality systematic reviews of these types of studies, or individual, non-RCTs, case-control studies, cohort studies, CBA studies, ITS, and correlation studies with a very low risk of confounding, bias or chance and a high probability that the relationship is causal
2+	Well conducted non-RCTs, case-control studies, cohort studies, CBA studies, ITS and correlation studies with a low risk of confounding, bias or chance and a moderate probability that the relationship is causal
2-	Non-RCTs, case-control studies, cohort studies, CBA studies, ITS and correlation studies with a high risk – or chance – of confounding bias, and a significant risk that the relationship is not causal
3	Non-analytic studies (for example, case reports, case series)
4	Expert opinion, formal consensus
Grading the evidence	
++	**All or most of the quality criteria have been fulfilled** Where they have been fulfilled the conclusions of the study or review are thought *very unlikely* to alter
+	**Some of the criteria have been fulfilled** Where they have been fulfilled the conclusions of the study or review are thought *unlikely* to alter
-	**Few or no criteria fulfilled** The conclusions of the study are thought *likely or very likely* to alter

3.4 Synthesis

Due to heterogeneity of design among the studies, a narrative synthesis was conducted.

4. Summary of Findings

This review focuses on workplace interventions to promote smoking cessation in order to ascertain what works in motivating and changing employees' health behaviour.

The following research questions were addressed in this review:

1. Which interventions work best in workplaces where comprehensive smoke-free legislation has been introduced in other jurisdictions?
2. What are the most effective and appropriate interventions for different sectors of the workforce such as men and women, younger and older workers, minority ethnic groups and temporary/casual workers?
3. What are the most effective ways of encouraging employee compliance with a smoke-free policy?
4. How can employers support and encourage smokers to quit?
5. What support can employers offer smokers who are not currently ready to quit?
6. How can employers be encouraged to provide smoking cessation support?
7. What are the resource needs of large, medium and small enterprises in implementing smoke-free legislation and supporting smokers to quit?
8. What are the adverse or unintended outcomes in the workplace of smoke-free legislation?

4.1 Which interventions work best in workplaces where comprehensive smoke-free legislation has been introduced in other jurisdictions?

Given the very recent implementation of comprehensive smoke-free legislation in countries such as the Republic of Ireland, Norway, Scotland and Italy, there are no available studies exploring which workplace interventions are most effective in jurisdictions where comprehensive smoke-free legislation has been introduced. However, there is some evidence on the effectiveness of workplace interventions in the context of localised smoking bans.

4.1.1 Effective workplace interventions in the context of smoking bans

The literature search produced one study which explored the effectiveness of different intervention types in the context of a workplace smoking ban. Waranch and co-workers (Waranch et al. 1993) (rating 2+) focus on the influence of a smoking ban and educational campaign at Johns Hopkins Hospital in Maryland, USA on employee participation in different types of worksite-sponsored stop smoking programmes. The new smoking policy was officially announced six months prior to its implementation and was followed by an extensive internal communication and educational campaign emphasising the health effects of passive smoking and the benefits of stopping smoking. Free health screening for exhaled CO, cholesterol and blood pressure was also offered to all employees beginning six months pre-ban and continuing for one year post-ban. Smoking cessation materials and programmes were also offered free of charge to all employees. Four distinct forms of treatment were offered: intensive group-oriented treatment incorporating behavioural and pharmacotherapy, two different types of self-help manual, one hour clinics, and brief individual counselling given to employees who called asking for help in stopping smoking.

At one year follow up, the two programmes with the highest success rate were the multi-component group (12.5%) and the one-hour clinics (21.7%[1]); the less intensive programmes produced even lower quit rates – the three self/minimal help programmes had the largest numbers of participants but very low success rates (between 1.7-9.1%[2]). Interestingly, the programme that produced the highest quit rates (one hour clinics) was also the least popular option for smokers employed at the hospital, who had a strong preference for group interventions and self-help materials. The findings of this study echo the findings on workplace interventions more broadly.

No. 1

Strength and applicability of evidence

Although there are no available studies exploring which workplace interventions are most effective in the context of smoke-free legislation, one 2+ study of a variety workplace intervention types offered in the context of a localised smoking ban found that more intensive interventions (e.g. group treatment and one-hour clinics) produce higher success rates than less intensive interventions (e.g. brief individual counselling and self-help manuals).

It is unclear how readily these findings translate to workplaces in jurisdictions where comprehensive smoke-free legislation has been introduced.

[1] Although this number seems quite high, there were only 23 people who took part in the programme. Therefore, this percentage should be treated with some caution as it represents only 5 people.
[2] Again, the numbers of people taking part in the brief individual counselling were extremely small. Only 3 people successfully quit at one year.

4.1.2 Workplace interventions for smoking cessation

A recent Cochrane Review (Moher et al. 2005) (rating 1++) provides the most up-to-date source of international evidence on which smoking cessation interventions in the workplace are most effective. This review concludes that the most successful smoking cessation interventions in the workplace are those with proven effectiveness in other settings. Thus, there is strong evidence that group therapy, individual counselling and pharmacological treatments all have an effect in facilitating smoking cessation. However, the authors of the review are unable to determine the incremental effectiveness of the different intervention types. Drawing on previous Cochrane Reviews they indicate that while group therapy approximately doubles the odds of quitting in workplaces and other settings (OR 1.97, 95% CI 1.57 to 2.48 compared with self help), there is no evidence that more intensive counselling was more effective than brief counselling (R 0.98, 95% CI 0.51 to 1.56). In addition, there is no evidence of a difference in effect between individual counselling and group therapy (OR 1.33, 95% CI 0.83 to 2.13).

The Cochrane Review (Moher et al. 2005) also found that some minimal interventions are effective, including brief advice from a health professional (OR 1.69 95% CI 1.45 to 1.98). However, they found that self help interventions are less effective than the aforementioned interventions, although there is limited evidence that interventions tailored to the individual have some effect.

These findings are echoed in an early meta-analysis of workplace interventions for smoking cessation (Fisher et al. 1990) (rating 1+) which similarly failed to identify effects due to particular intervention strategies. The authors provide three possible explanations for the lack of significant differences in effect size based on intervention type: first, many worksite smoking cessation interventions are multi-component and it is difficult to provide an unconfounded test of individual components; second, in a number of studies there is low statistical power to detect possible effects; finally, it could be that there is no one “silver bullet” or optimal approach.

However, although the findings of the Cochrane Review on workplace interventions (Moher et al. 2005) and the earlier meta-analysis (Fisher et al. 1990) (rating 1+) failed to find significant differences in effect size based on intervention type, both reviews found that interventions of greater intensity were more effective than those of less intensity. According to the meta-analysis (Fisher et al. 1990), more intensive interventions produce an increased effect size of .42 (± .13 for 2 to 6 hours; QR = 18%). Nevertheless, as Waranch and co-workers (Waranch et al. 1993) found, more intensive interventions may *not* be the most attractive option for employees. Therefore, it seems that offering a range of intervention types in the workplace is important.

No. 2

Strength and applicability of evidence

A 1++ systematic review and a 1+ meta-analysis of the available international literature indicates that the most effective smoking cessation interventions in workplace settings are those interventions that have proven effectiveness more broadly. There is strong evidence that group therapy, individual counselling and pharmacological treatments all have an effect in facilitating smoking cessation. However, both reviews failed to identify effects due to particular intervention type. There is also evidence that minimal interventions including brief advice from a health professional are effective. Self help manuals appear to be less effective, although there is limited evidence that interventions tailored to the individual have some effect.

4.1.3 Workplace health assessments with feedback

Three studies discuss the effects of workplace interventions that provide health assessment with feedback. All three studies aimed to explore the impact of health assessments on cardiovascular risk factors – which in each case included smoking. Hanlon and co-workers (Hanlon et al. 1995) (rating 1+) report the results of a Scottish study to determine the impact of cholesterol health checks in the workplace on cholesterol concentration and coronary heart disease risk factors such as smoking, drinking and diet. In this study participants were randomised to either health education, health education and feedback on cholesterol concentration, health education and feedback on risk score, full health checks, no health intervention. The study found that the health check had only a small effect on coronary risk, and feedback on cholesterol concentration and risk score did not provide additional motivation for a change in behaviour. Specifically, although the health check did lead to self-reported behaviour change for things such as alcohol consumption and diet, the impact on smoking was negligible.

These findings are echoed in a Swiss study by Prior and co-workers (Prior et al. 2005) (rating 2+), who assessed the impact of a multi-component worksite health promotion programme for reducing cardiovascular risk factors such as systolic and diastolic blood pressure, cholesterol, body mass index (BMI) and smoking. The intervention consisted of a one-time 15-minute screening and counselling session by a team of two health educators and ended with a printout of a 'personal cardiovascular risk factor card'. At 3.7-year follow-up, an overall improvement was noted in mean diastolic blood pressure in both men and women, while BMI, body weight and physical score worsened. Although smoking and daily cigarette consumption decreased in both men and women, it did not reach statistical significance and the researchers attribute the reduction to the natural trend for smoking cessation in the Swiss population more broadly.

Gomel and co-workers (Gomel et al. 1993) (rating 1++) also report on the results of an Australian worksite cardiovascular risk reduction intervention on risk behaviours such as smoking, BMI, body fat, cholesterol, systolic and diastolic blood pressure and aerobic capacity. In this study participants were randomised to health risk assessment, risk factor education, behavioural counselling, or behavioural counselling plus incentives. While positive short-term changes were witnessed in participants receiving behavioural counselling in percentage of body fat, blood pressure and aerobic fitness, by 12 months, participants had returned to baseline levels. No reduction in cholesterol was seen in any of the intervention groups and BMI increased in all groups (although significantly less in participants who received behavioural counselling). However, at 12-month follow-up, in the behavioural counselling conditions there were significantly higher validated continuous smoking cessation rates. Therefore, at this stage, the evidence on the impact of health assessment feedback on smoking cessation is inconclusive and further research is needed to determine its effectiveness.

No. 3

Strength and applicability of evidence

Available evidence on the effectiveness of workplace health assessments with feedback in reducing smoking prevalence is inconclusive. A 1+ study and a 2+ study both found that health assessments failed to produce an effect on cigarette consumption and smoking prevalence. However, a 1++ study found that workplace health assessments combined with behavioural counselling led to statistically significant higher CO-validated smoking cessation rates.

Although only one of the studies was British, these findings are likely to be broadly applicable to a UK setting.

4.1.4 Alternative workplace interventions

Several alternative workplace intervention types were identified in the literature search; however, these interventions have not been subject to sustained evaluation and their short and long-term effectiveness is presently unclear. Allen Carr's Easyway To Stop Smoking, a commercial smoking cessation programme, currently offers workplace smoking cessation seminars to a number of corporate clients in both the UK and abroad. This method, based on a combination of psychotherapy and hypnotherapy (Allen Carr's Easyway to Stop Smoking 2006) entails one five to six-hour long seminar where a trainer provides structured talk and open group discussion to help participants discover why they smoke and in order to allay their fears about quitting. During this process, participants are encouraged to smoke so that they can consciously analyse why they engage in this activity amidst the act of smoking itself (Hutter et al. 2006).

Two recent journal articles (Hutter et al. 2006; Moshammer and Neuberger 2006) report on the results of Allen Carr Easyway seminars in Austrian workplaces. In one of the studies (Moshammer and Neuberger 2006) (rating 2-), focusing on employees in a steel factory, 51.4% of respondents (N=262) self-reported continuing abstinence at 3 years. The other study (Hutter et al. 2006) (rating 2-), focusing on a variety of workplaces, produced self-reported quit rates at one year of 40%. However, high-quality research needs to be conducted to verify these results, as the Easyway seminars have not been subject to previous independent evaluation (Hutter et al. 2006).

Another alternative to traditional workplace interventions is online smoking cessation programmes, which provide access to large numbers of smokers and have the potential to be a cost effective means of cessation counselling – especially in workplaces which do not have adequate resources to offer onsite smoking cessation support (see section 4.7). One example of an online workplace smoking cessation programme is Nicotest (G-nostics 2005). This programme involves both online support and diagnostic testing, producing a personalised behaviour therapy programme. Nicotest online support consists of two components, an initial questionnaire (assessing nicotine dependence and the necessary lifestyle changes needed) and an eleven week follow up course consisting of motivational emails, coping plans and chat rooms. These online measures assist to create a cessation programme tailored to the specific needs of each individual. However, there is a lack of research and evaluation outlining the effectiveness of Nicotest and other online smoking cessation programmes; as a result, it is not known which components of these programmes are effective, or if they are successful in the long term (Etter 2006) (rating 4+). Further research needs to be conducted to determine the reach and efficiency of these programmes (Etter 2006).

A final alternative to traditional smoking cessation interventions in the workplace is integrated tobacco control and occupational health and safety programmes. Sorensen (2001) (rating 4+) argues that such integrated programmes may prove to be a particularly effective option, especially for blue-collar smokers – who are less likely to participate in traditional worksite health promotion programmes than their white-collar colleagues, and who are more likely to work in environments where they may experience a high prevalence of hazardous exposures. Sorensen argues that integrated programmes may help to increase the attractiveness of smoking cessation to blue-collar employees, who tend to view tobacco use as a personal health behaviour that lies outside the domain of management control, but who may see job-related health and safety issues as a management responsibility that is often ignored (Sorensen 2001). He suggests that management efforts to reduce job risks may allow them to gain more credibility with blue-collar workers and, in turn, increase the receptivity of these workers to health education programmes focusing on individual behaviour change (Sorensen 2001). Nevertheless, as there are no available controlled studies comparing programmes integrating tobacco control and occupational health with traditional smoking cessation programmes, their relative effectiveness is unclear.

No. 4

Strength and applicability of evidence

Two 2- studies have identified Allen Carr workplace seminars to be an effective means of facilitating smoking cessation in the workplace and online smoking cessation programmes have also been highlighted in a 4+ report as a potentially effective way of facilitating smoking cessation in the workplace. Another 4+ report emphasises the value in integrating smoking cessation support with occupational health and safety issues. However, evidence on the effectiveness of these intervention types is presently weak and further research is needed to determine their effectiveness.

4.2 What are the most effective and appropriate interventions for different sectors of the workforce such as men and women, younger and older workers, minority ethnic groups and temporary/casual workers?

Unfortunately, the body of literature on which interventions are most effective and appropriate for different sectors of the workforce is not large, which reflects a broader gap in our knowledge about the effectiveness of either individual or societal level smoking cessation interventions among particular sub-populations (Lawrence et al. 2003). However, there are a few available studies that examine the differential effectiveness of smoking cessation interventions for particular sectors of the workforce as well as several important studies that have attempted to tailor interventions to these sectors.

4.2.1 Effective interventions for men and women

Gritz and co-workers (Gritz et al. 1998) (rating 1+) present gender-specific data from the results of the Working Well Trial (WWT), a large worksite cancer prevention study aimed primarily at blue-collar worksites that included a smoking cessation component. Worksites assigned to the intervention condition received a comprehensive health promotion intervention including strategies to encourage smoking cessation. Control sites received minimal interventions consisting of the distribution of widely available materials such as posters and brochures. The researchers found substantial differences in outcome based on education, although gender was not significantly related to cessation outcomes. For both men and women, those with more than a high school education quit at a higher rate than those with a high school education or less on both short-term and long-term measures of cessation. However, although there were no significant differences in female and male long-term (6 months) or short-term (7 days) self-reported quit rates on the final survey, there were important gender differences in male and female quit attempts and smoking behaviours. For example, women engaged in significantly fewer processes of change than men and were significantly more likely to be in the pre-contemplation stage of change, indicating that they were less ready to quit.

One particularly significant finding of the study was that more women in the intervention condition achieved long-term cessation (15%) than women in the control condition (10.6%). In other words, women were 1.5 times more likely to quit if there were cessation opportunities available to them than if there were not. Importantly, this difference was not apparent for men – who were equally likely to quit whether assigned to the intervention or control condition. The researchers speculate that the worksite setting may have provided enough additional opportunities and encouragement for women to make a quit attempt – extra stimuli that were not necessary for men. The authors conclude, “This study supports the need for worksite smoking intervention programmes for assisting female smokers to stop smoking”.

Similar gender differences were apparent in smoking behaviour in another study exploring the effectiveness of a worksite smoking cessation programme (Stockton et al. 2000) (rating 2++). The researchers found no gender differences in short and long-term quit rates following the completion of a multi-component smoking cessation programme which included workers from 63 different US companies. However, some important gender differences were found in male and female smoking behaviours at baseline. Although men and women were equally likely to quit smoking, logistic regression analyses indicated that men reported being heavier smokers than women at pre-test, at the 6 month assessment and at the 24 month assessment. Women were found to be more likely to have previously tried to quit smoking and men were more likely to report that they would quit smoking on their own if the programme were not offered at their company. Men also reported significantly more confidence in their ability to quit with the programme than women and rated quitting as requiring less effort than women. The authors conclude that although gender did not predict outcome, males and females appear to differ in the psychological variables that comprise their approach to smoking cessation, which could have important implications for targeting and implementing smoking cessation support.

Another study (Campbell et al. 2000) (rating 1+) discusses a tailored and targeted worksite health promotion programme specifically for blue-collar women. The Health Works for Women (HWW) project was a 5-year worksite health promotion project focusing on rural, blue-collar women working in North Carolina manufacturing plants that did not have health promotion programmes. The programme focused on multiple health behaviours including physical inactivity, unhealthy diet, smoking and breast and cervical cancer screening. Women were asked to select among several options for health behaviour change; only one-third of current smokers wanted to focus on quitting, with the majority choosing a different behavioural priority.

According to Campbell and co-workers (Campbell et al. 2002) at the 18-month follow-up period, the intervention group had significantly increased a number of health promoting behaviours (such as fruit and vegetable consumption and exercise) and reduced their red meat and fat intake, although the rates of smoking cessation and cancer screening did not differ between study groups. However, the authors speculate that experiencing success in changing one ‘gateway’ behaviour, such as lowering fat intake or increasing exercise levels, may provide increased motivation and confidence to attempt other more difficult changes such as quitting smoking.

These findings provide support for a choice-based approach to behaviour change, rather than trying to affect multiple behaviours simultaneously, or offering only single-component interventions (such as smoking cessation alone). The authors point out that most previous tailored interventions have focused on single risk behaviours such as smoking cessation; however, as the majority of smokers in the study were not currently ready to quit smoking, a single-component intervention would have enrolled a far smaller number of participants. While a multi-behavioural approach to change that allows women to prioritize behaviour changes does entail the likelihood that women may not choose to work on the behaviour that may be most beneficial to their health (e.g. quitting smoking), the authors argue that “…allowing women to choose a behaviour (rather than having one chosen by an expert) may result in a greater sense of control and empowerment, which may ultimately lead to more behaviour change” (p. 312-313).

No. 5

Strength and applicability of evidence

A 1+ study and a 2++ study found that men and women were equally successful in achieving abstinence in workplace smoking cessation programmes; however, important gender differences were apparent in smoking attitudes and behaviours. Women had less confidence in their ability to quit and required extra stimuli in order to quit smoking

Although these findings are based on American studies, they are likely to be broadly applicable to a UK setting.

4.2.2 Effective interventions for younger and older workers

No studies were identified in the literature search that specifically addressed effective workplace interventions for younger and older smokers. However, one study of the long-term effectiveness (5 year follow-up) of a smoking cessation incentive programme for employees in a US chemical factory (Olsen et al. 1991) (rating 2++) found that age was an important predictor of smoking cessation – although those who quit successfully were also more likely to have been managers and lighter smokers. This finding supports monitoring data from NHS stop smoking services which indicates that younger smokers are less likely to successfully quit smoking than older smokers (Baker et al. 2006). Therefore, it is likely that younger employees who smoke will require more intensive support for smoking cessation than older smokers in the workforce.

Another study also highlights the importance of age in workplace interventions. A recent Danish longitudinal study of a cohort of employed smokers (Albertsen et al. 2004) (rating 2+) found that the while the probability of cessation was reduced by environmental factors such as noise and physical load and increased when the employee's work was associated with responsibility and high psychological demands, younger employees benefited more from higher demands than older employees with regards to smoking cessation. More specifically, results revealed that high demand was positively associated with cessation among employees under 30, while negatively associated with employees over 50. These findings may have important implications on the design and delivery of cessation programmes. For example, specifically tailoring interventions according to age and stress levels may prove to be beneficial in assisting employees to quit smoking.

The positive impact of workplace demands on efforts to quit smoking is also supported in another study (Chan and Heaney 1997) (rating 2+). However, findings did not reveal that age was an important variable when examining job stress and intention to participate in a worksite smoking cessation programme. Chan and Heaney found that perceived job stress was significantly and positively associated with employees' intentions to participate in a smoking cessation programme (OR = 1.61, 95% CI = 1.10-2.30) regardless of demographic variables such as age.

No. 6

Strength and applicability of evidence

Although no studies were identified in the literature search that specifically addressed effective workplace interventions for younger and older smokers, evidence from a 2++ study indicates that older smokers are more likely to achieve successful abstinence in workplace interventions than younger smokers (although these employees were also more likely to be managers and light smokers). Furthermore, two 2+ studies examined the impact of age and job stress on cessation. Results from one study revealed that younger employees benefited more from higher demands than older employees with regards to smoking cessation, although these results were not supported in the other 2+ study. Therefore, although further research is needed in this area it may be possible that younger employees who smoke require more intensive support for smoking cessation than older smokers and that specifically tailoring interventions based on age may be beneficial.

Although these findings are based on American studies, they are likely to be broadly applicable to a UK setting.

4.2.3 Effective interventions for working class, multiethnic populations

Daza and co-workers (Daza et al. 2006) (rating 2+) discussed the racial and ethnic differences in predictors of smoking cessation amongst the study participants[3] in the Working Well Trial (WWT). The researchers found that African Americans and Hispanics smoked fewer cigarettes per day than did Whites, Hispanics waited longer before having their first cigarette, and African Americans reported more confidence in relation to quitting smoking than did whites. African Americans also used more behavioural processes of change and reported more cons of smoking. However, ethnicity was not predictive of abstinence at follow up, although education was. Participants with less than a high school education and those with a high school degree or some college were less likely to be abstinent than participants with a college or postgraduate degree (OR = .08, p ,.01 and OR=.46, p , .02, respectively). Gender, age and marital status were not predictive of abstinence.

The authors argue that the racial/ethnic differences that were found on the significant predictors of abstinence may have implications for tailoring treatment to the needs of specific groups. Thus, interventions with a greater focus on alleviating withdrawal symptoms, enhancing motivation, and teaching coping skills to increase self-efficacy might be more helpful for whites. However, although Hispanics and African Americans displayed more favourable profiles in relation to cessation than whites, they were not significantly more likely to successfully quit smoking. The authors suggest that this discrepancy may be explained by the fact that Hispanics and African Americans typically have a lower socioeconomic status than whites, which may counterbalance their more favourable profiles – although the lack of racial/ethnic differences persisted even after controlling for education and occupational status. The authors argue that other factors that may reduce the abstinence rates among minority groups are negative affect and stress – as there is evidence that minority populations have higher levels of stress and fewer resources to cope with this stress. Thus, incorporating a stress reduction component into interventions aimed at minority populations may be beneficial (Daza et al. 2006).

Hunt and co-workers (Hunt et al. 2003) (rating 1+) conducted a health promotion intervention targeting cancer prevention with a working class, multiethnic population. This

[3] 78% of participants were male. The researchers found that gender, age and marital status were not predictive of abstinence and there were no significant interactions between these variables.

intervention integrated health promotion and occupational health activities. For example, the researchers used a carbon monoxide analyser not only to address smoking, but also the possible synergistic effects of smoking with exposure to hazardous substances. The intervention included joint worker-management participation and Employee Advisory Boards (EAB) were created that served as channels for worker-manager input into intervention activities. EAB included representation from workers, management and various departments and met for approximately 1 hour each month.

Group delivery of the intervention activities meant that they were not ethnically tailored but the researchers used intervention approaches that would be inclusive of workers from diverse backgrounds (e.g. they avoided making assumptions about activities and foods familiar to participants, or using culturally specific phrases like 'lunch' or 'dinner'). First, they planned strategies such as self-assessments with feedback and used open-ended questions that enabled workers to from varying cultural backgrounds to draw on their own life experiences in intervention activities. Second, they developed materials in the language primarily represented in the study worksites (Spanish, Portuguese, Vietnamese and English) and assigned bilingual field staff to appropriate worksites. Third, intervention staff were trained in and sensitised towards cultural difference.

Although the researchers (Emmons et al. 2005) do not report on the intervention's effect on secondary outcomes (smoking and occupational exposures), the intervention did lead to significant behaviour change among the treatment group in relation to primary outcomes (fruit and vegetable consumption, multivitamin intake and red meat consumption). The intervention effect was not changed when gender, education, race/ethnicity were included in the analysis; thus, it was effective for all minority groups (Emmons et al. 2005).

No. 7

Strength and applicability of evidence

A 2+ study found that although there were ethnic differences in baseline smoking patterns and attitudes towards cessation ethnicity was not a significant predictor of successful abstinence. Another 1+ study found that a tailored intervention, which incorporated linguistically and culturally appropriate materials, was effective in promoting behaviour change in a working class multiethnic population.

Although these studies are from the USA, which has a different ethnic composition to the UK, it is likely that their findings are broadly applicable to a UK setting.

4.2.4 Effective interventions for temporary/casual workers

No studies were identified in the literature search that specifically addressed effective workplace interventions for temporary or casual workers. As delivering workplace interventions to this population pose a significant challenge, research is urgently needed in this area.

No. 8

Strength and applicability of evidence

No studies were identified in the literature search that specifically address effective workplace interventions for temporary or casual workers. As delivering workplace interventions to this population pose a significant challenge, research is urgently needed in this area.

4.3 What are the most effective ways of encouraging employee compliance with a smoke-free policy?

The literature search produced no studies which explore the most effective ways of encouraging employee compliance with a smoke-free policy. However, based on available evidence from countries which have gone smoke-free, employee non-compliance with smoke-free policies is unlikely to be a significant issue. For example, monitoring data from the Republic of Ireland indicates that there have been consistently high levels of compliance with smoke-free workplace legislation (Office of Tobacco Control - Ireland 2005) (rating 3+). On average, 94% of hotels, restaurants, licensed premises and other worksites (such as offices and factories) have been compliant with the legislation, based on the 34,957 inspections and compliance checks conducted over the nine month period from the introduction of the law on March 29 to the end of 2004. Similarly, in Scotland compliance rates with the smoke-free legislation as of 30 June 2006 were 98% on average for hotels, restaurants, licensed premises and other worksites (Scottish Executive 2006) (rating 3+). Recent monitoring data from Italy (Pisano 2006) (rating 3+) and New Zealand (Ministry of Health 2005) (rating 3+) also indicates that there have been high levels of compliance with smoke-free legislation, although full compliance data are not presently available for these countries.

Although there are no available studies that systematically examine the most effective ways of encouraging employee compliance with smoke-free policies, a recent study (Borland et al. 2006) (rating 2+) does shed light on this issue. The study explores support for and compliance with smoke-free legislation by smokers in four countries: Australia, USA, Canada, and the United Kingdom. The researchers found that support for the bans was higher among smokers who reported thinking about the harms of passive smoking more frequently, and among those who endorsed the belief that second-hand smoke can cause lung cancer in non-smokers; they also found that support for bans was related to reported compliance with them. The researchers conclude that support for (and compliance with) smoke-free legislation can be strengthened among smokers by informing the public about the adverse health effects of passive smoking and by encouraging them to continue thinking about this issue. Thus, an informed workforce will be more receptive to smoke-free policy since employees will understand their personal connection to creating a healthy environment.

No. 9

Strength and applicability of evidence

3+ monitoring data from countries that have gone smoke-free indicates that employee non-compliance with smoke-free policies is unlikely to be a significant issue. Evidence from Ireland, Scotland and New Zealand reveal extremely high levels of compliance (between 94-98%) with smoke-free workplace legislation. However, one 2+ study found that support for and reported compliance with smoking bans in Australia, USA, Canada, and the United Kingdom was higher among smokers who reported thinking about the harms of passive smoking more frequently, and among those who endorsed the belief that second-hand smoke can cause lung cancer in non-smokers.

These findings are likely to be directly applicable to a UK setting.

Despite the benefits of using education as a means of encouraging employee compliance, people affected by the policy or approach should be aware that it is underpinned by enforcement measures (Griffiths 2005). Various sources (Worldbank 2002; Griffiths 2005; Quit 2001a; Quit 2001b) (rating 4+) all support developing a non-compliance strategy. It is

suggested that outlining a simple step-by-step process telling employees what to do if they encounter someone smoking in a smoke-free area may assist with compliance (Quit 2001b). Specific tips outlined by *Smoke-free Scotland* (rating 4+) include:

1) Make managers, or those who are responsible for enforcing the policy, aware of the implications of the policy and their role in implementing it.
2) Train managers and staff on the specifics of enforcement: how to raise the issue with a member of staff suspected of breaching the policy; collecting evidence; making a record of the discussions with the individuals concerned, etc.
3) Remind managers and staff of the terms of the smoke-free legislation and that it is a criminal offence to fail to comply.
4) Establish clear links between the tobacco policy and other HR policies such as the Disciplinary Policy and the Health and Safety Policy.
5) Make all staff aware of their responsibilities and of the consequences of being in breach of the policy.
6) Notify staff that action will be taken if anyone is found to be smoking in breach of the policy.

It is felt that effectively implementing and enforcing a workplace smoke-free policy will limit the incidence of non-compliance, create a supportive environment for all staff, and achieve better working conditions (Quit 2001b).

No. 10

Strength and applicability of evidence

Various 4+ sources have indicated that creating and enforcing a smoking compliance strategy is an effective way to increase compliance. Specific tips for enforcing smoke-free policy include providing training on how to enforce the policy, establishing links between the policy and HR policies, increasing awareness of the consequences of breaching policy, providing reminders that it is a criminal offence not to comply with smokefree legislation and notifying staff that action will be taken if someone is in breach of the policy.

4.4 How can employers support and encourage smokers to quit?

There are several ways that employers can support and encourage smokers to quit: 1) offering a variety of smoking cessation support options and 2) providing incentives to attend smoking cessation programmes.

4.4.1 Offering smoking cessation support

The key way that employers can support and encourage smokers to quit is through the offer of smoking cessation support (Moher et al. 2005) (rating 1++), whether this takes the form of an on-site programme, release time to attend off-site services (such as local NHS stop smoking services), or providing access to self-help materials or pharmacotherapies (e.g. NRT or bupropion). Indeed, smoking cessation support becomes particularly important in the context of smoke-free legislation and workplace smoking bans should be accompanied by provision of help and support for smokers (Moher et al. 2005). Based on the findings of their study on the effectiveness of smoking cessation interventions in the context of a smoking ban (see section 4.1) Waranch and co-workers (Waranch et al. 1993) (rating 2+) conclude that different types of smokers appear to choose different strategies for cessation and they suggest that making a variety of smoking cessation strategies available to employees may meet the needs of more employees and also increase participation in workplace programmes.

No. 11

Strength and applicability of evidence

According to a 1++ systematic review, a key way that employers can encourage smokers to quit is through the offer of smoking cessation support. Such support is particularly important in the context of workplace smoking bans. A 2+ study concludes that because different types of smokers appear to choose different strategies for cessation, making a variety of smoking cessation strategies available to employees may meet the needs of more employees and increase participation in workplace programmes.

These findings are broadly applicable to a UK setting.

4.4.2 Incentives

Another key way that employers can support and encourage smokers to quit is through the offer of incentives. The Cochrane Review *Workplace interventions for smoking cessation* (Moher et al. 2005) (rating 1++) and the Cochrane Review *Competitions and incentives for smoking cessation* (Hey and Perera 2005) (rating 1++) both discuss the types of incentives employers have provided to encourage employees to comply with workplace smoking bans and take up provision of support for smoking cessation. The incentives offered in the studies were largely financial in nature and included the following:

1) Cash payments rewarding verified abstinence: for example, in one study smokers were paid US$10 each time they were confirmed abstinent by CO validation at monthly meetings over the course of the year-long programme; in another study, smokers were paid US$1 per day for every day of verified abstinence up to six months, provided the quitter had not relapsed between readings).
2) Smokers were paid for signing up to a programme, for completing it and for a set period of continuing abstinence following completion.
3) Cash payments were provided to programme registrants to entitle them to complete for cash rewards.
4) Lottery tickets and prize draws (such as expense-paid holidays) for successful abstainers (these were often combined with smaller cash payments for ongoing verified abstinence)

Both Cochrane Reviews found evidence that incentives increase recruitment rates into worksite interventions, thereby leading to potentially higher absolute numbers of quitters in the long-term. However, there is limited evidence that incentives increase the effectiveness of workplace interventions. Moher and co-workers (Moher et al. 2005) report the findings of five studies which involved comparison sites: three studies failed to detect an effect of monetary incentives on quit rates, one study found that contingent payments delayed but did not necessarily prevent relapse to smoking, and a fifth study found that although programme recruitment was higher in worksites that offered incentives, this did not translate into higher quit rates overall.

No. 12

Strength and applicability of evidence

Two 1++ systematic reviews of international studies indicate that financial incentives can support and encourage smokers to quit. While the addition of incentives does not appear to increase the quit rates of smoking cessation interventions in the workplace, there is evidence that such incentives do improve recruitment rates into worksite cessation programmes, which may lead to higher absolute numbers of successful quitters in the long-term.

4.5 What support can employers offer smokers who are not currently ready to quit?

The key evidence on how employers can support smokers who are not currently ready to quit comes from studies that have been conducted with smokers who choose not to take part in workplace smoking cessation programmes. Several studies identified in the literature search focus on smokers who are not currently ready to quit and provide valuable information about the characteristics of these smokers and how their smoking attitudes and behaviours are impacted by workplace smoking cessation programmes and the worksite environment more broadly.

Abrams & Biener (Abrams and Biener 1992) (quality rating 2+) discuss the motivational characteristics of white- and blue-collar smokers who did not volunteer for cessation at a worksite programme. Using the transtheoretical[4] model, the researchers found that less than 8% of smokers surveyed were currently ready to quit smoking – and blue-collar smokers were less motivated than white-collar smokers to quit. Thus, 1% of white-collar workers and 14.7% of blue-collar workers surveyed had no thought of quitting, 17.7% of white-collar workers and 18.2% of blue-collar workers indicated that they needed to consider quitting someday, 39.6% of white-collar workers and 36.7% of blue-collar workers indicated that they are not quite reading to quit. However, while only 7.1% of white-collar workers and 8% of blue-collar workers were currently taking action to quit, 29.6% of white-collar workers and 22.4% of workers were currently thinking about how to change their smoking patterns.

Given these results, the authors point out that accelerating cessation on a population-wide basis is going to be a significant challenge – especially for blue-collar workers. However, the researchers do provide a useful discussion on how to address this challenge. First, they point out that many available intervention materials are designed to focus on quitting skills, and are underwritten by an assumption that the smoker is highly motivated and therefore ready to take action. Therefore, even if interventions are specifically targeted to lower income workers, they tend to utilise materials that are unlikely to be relevant to the majority of individuals who are not ready to quit. The researchers argue that proactive interventions are required, including access to subsidised pharmacological aids to cessation, monetary incentives for assessment of smoking risk, direct personalized feedback, media/social marketing campaigns, and changes in the social norms and physical environment at the workplace, in public places, and in the home. They conclude,

> Interventions must begin to target those individual and environmental factors (i.e. norms and policy) that influence the mediating processes along the path towards cessation. This needs to be done over longer time periods in a sustained effort, in sharp contrast to the current practice of offering 'one-shot' clinics or simply distributing self-help manuals designed for the small minority of smokers who are ready to quit (p. 686).

[4] The transtheoretical model delineates at least five distinct stages of motivation: pre-contemplation, contemplation, preparation, action, and maintenance (Prochaska, Velicer & DiClemente 1988).

No. 13

Strength and applicability of evidence

According to a 2+ study, the majority of employed smokers are not ready to quit smoking. Therefore, smoking cessation materials and programmes need to recognise that smokers are at different stages of change rather than tailoring their materials only to those smokers who are highly motivated to quit. The researchers argue that proactive interventions are required, including access to subsidised pharmacological aids to cessation, monetary incentives for assessment of smoking risk, direct personalized feedback, media/social marketing campaigns, and changes in the social norms and physical environment at the workplace, in public places, and in the home.

Although this is an American study, its findings are likely to be broadly applicable to a UK setting.

Clearly, the implementation of smoke-free legislation will have an important role to play in addressing those 'environmental' factors that may influence the mediating processes along the path towards cessation. Indeed, there is evidence (Waranch et al. 1993) (rating 2+) that smoking bans may encourage smokers who are not currently motivated to quit to enrol in workplace smoking cessation programmes in order to reduce their smoking and gain more control over their consumption. Thus, while structural changes in the workplace environment may not necessarily spur all smokers to enrol in cessation programmes with the intention of quitting smoking, they may be stimulated to make positive changes to their smoking behaviour (such as reducing their consumption).

Indeed, some researchers have hypothesised that an 'enriched' environment including anti-smoking health education and a broader health promotion environment (as well as smoking restrictions) may impact people who do not take part in formal cessation activities (i.e. those smokers who are not ready to quit). To test this hypothesis, Willemsen and co-workers (Willemsen et al. 1999) (rating 2+) conducted a case-control study of smokers in an 'enriched' environment and those in organisations with minimal smoking cessation activities who did not engage in formal cessation activities. In the enriched environment an intensive health education campaign occurred. A central feature of this campaign was an exhibition at strategic locations in each intervention worksite. Exhibitions provided up-to-date information about the ongoing cessation programme, as well as education about the health risks of smoking and passive smoking and general information about smoking cessation. Smoking employees were invited to measure the CO content of their expired breath and their lung capacity at the exhibition sites and they could compare their score with those of non-smokers. Company newsletters also contained discussions of passive smoking and the ongoing cessation programme.

At the conclusion of the study, the researchers found that smoking cessation did not differ significantly between the enriched environment and control worksites, although they point out that the measures used to assess programme exposure were rather crude and may not have been able to detect an effect had one existed. The authors therefore tentatively conclude that a comprehensive smoking cessation programme and enriched environment had little effect on smokers who did not directly take part in cessation activities.

However, although Willemsen and co-workers (Willemsen et al. 1999) found that an 'enriched' environment did not increase cessation amongst smokers who did not take part in the smoking cessation programme, it may nevertheless have positive if less dramatic effects on smokers. Thus, Conrad and co-workers (Conrad et al. 1996) (rating 2-) found that an enriched environment had statistically significant direct and indirect effects[5] on smokers who did not take part in formal cessation programmes, leading to both a reduction in daily cigarette consumption and the amount smokers inhaled as well as a reduction in the perceived barriers to quitting smoking.

No. 14

Strength and applicability of evidence

Two 2+ studies and a 2- study have explored the impact of an 'enriched' environment (including smoking bans, worksite health promotion activities and smoking cessation programmes) on those smokers who are not ready to quit. Although a 2+ study found that an enriched environment did not increase cessation amongst those smokers who do not engage in formal cessation activities, a 2- study and a 2+ study have both found that an enriched environment increases the motivation of smokers to change their smoking behaviours and may lead to a reduction in cigarette consumption and a reduction in perceived barriers to quitting.

Although these findings are based on American studies, their findings are likely to be broadly applicable to a UK setting.

4.6 How can employers be encouraged to provide smoking cessation support?

In their examination of 351 worksites that participated in the Community Intervention Trial for Smoking Cessation (COMMIT), Sorensen and co-workers (Sorensen et al. 1997) (rating 2++) found that the only worksite characteristic consistently predictive of cessation programme offering was the existence of other health-promotion programmes – worksites offering other health promotion activities were four times as likely to initiate cessation programmes. The findings of this study therefore indicate that employers who are concerned generally with employee health are more likely to recognise the importance of providing smoking cessation support in the workplace.

The importance of individual employer attitudes is even more apparent in Emmons and co-workers' (Emmons et al. 2000) (rating 2++) study of worksites participating in the Working Well Trial. The researchers found that companies in which leaders held attitudes that were favourable toward employee health were much more likely to provide tobacco control activities. The authors conclude,

> Leadership characteristics are key to the acceptance and implementation of… smoking control activities. It is important to understand leaders' attitudes and values regarding smoking as part of intervention implementation and to target the leaders directly if necessary. Focusing on the broader issue of the role that employee health plays in company success may be an effective strategy for companies in which leaders themselves are smokers or initially resistant to efforts focused on smoking (p. 499).

Thus, it appears that an important means of encouraging employers to provide smoking cessation support may be to directly target leaders and persuade them of the benefits of

[5] The study does not indicate the size of reduction for these three outcomes – just that a 'statistically significant' reduction occurred.

investing in employee health. As Docherty and co-workers (Docherty et al. 1999) note, efforts must be made to convince workplaces of the positive impact of health promotion, and workplaces are more likely to divert resources to health promotion activities such as smoking cessation, if the issue is perceived as being of direct relevance to them.[6]

Potential benefits to employers that have been identified to date are:
1) enhanced morale and image: "smoke-free workplace policies and other initiatives to help employees give up smoking communicate that the employer cares about the health and safety of its employees and community (PACT 2002).
2) Increased productivity and reduced medical costs: smoking cessation initiatives reduce the costs of doing business by controlling the increased absenteeism and medical costs attributed to smokers (PACT 2002).

No. 15

Strength and applicability of evidence

Two 2++ studies indicate that a key factor predicting whether a workplace will offer smoking cessation support is the personal attitude of the employer towards employee health. Thus, the key way of encouraging employers to provide smoking cessation support may be to directly target leaders and persuade them of the benefits of investing in employee health and the role it plays in company success.

4.7 What are the resource needs of large, medium and small enterprises in implementing smoke-free legislation and supporting smokers to quit?

There is a considerable body literature that suggests that workplace size has a direct impact on employers' desire and ability to implement smoke-free legislation and smoking cessation programmes. One early study (Biener et al. 1994) explored the characteristics of those companies that either accepted or declined to take part in a health promotion intervention. The researchers found that although very few characteristics distinguished reliably between the participants and non-participants, the companies that declined to participate were more financially stable and employed fewer workers. However, the authors emphasised that this was an exploratory study only and its results were largely inconclusive. Indeed, more recent studies have reached very different conclusions. Thus, Sorensen and co-workers (Sorensen et al. 1997) (rating 2++) explore worksite characteristics and changes in worksite tobacco control initiatives in worksites taking part in COMMIT and focused on two variables: adoption of a smoking ban and offering smoking cessation services – which included any "lectures, classes, materials or other programs to help or encourage employees to quit smoking." The researchers found that small worksites were the least likely to initiate smoking cessation activities and the authors speculate that financial factors are likely to be the key reason for his difference.

Similar findings have been produced in several other studies focusing on workplace size and smoking control activities. Thus, using survey data from 114 worksites that participated in the Working Well Trial, Emmons and co-workers (Emmons et al. 2000) (rating 2++) found that the key predictor of worksite smoking control activities was the size of the worksite, with larger worksites significantly more likely to offer smoking control activities. Companies that were highly centralised were also more likely to offer smoking cessation assistance for their employees.

[6] Help2Quit, a service developed in Shropshire with considerable experience in workplace interventions for smoking cessation, discuss methods they have found to be effective in approaching employers about the creation of workplace clinics – see Appendix 1 for details.

In a Canadian study explicitly exploring the relationship between workplace size and the existence of restrictions and cessation programmes, Ashley and co-workers (Ashley et al. 1997) (rating 2-) also found that small organisations were significantly less likely to report the provision of pamphlets or lectures about smoking and health, and the availability of incentive programmes to assist smokers in quitting. The researchers argue that, “Small workplaces may have fewer resources and skills to facilitate compliance with smoke-free legislation or to mount smoking related programmes. Further, they may have workforces and social dynamics that have implications for how such legislation and programming is viewed and implemented” (Ashley et al. 1997). Their findings indicate that programme interventions in small worksites present a distinctive challenge because their characteristics may not lend themselves to formal onsite programmes, and further research is needed in this particular setting (Ashley et al. 1997).

Although the studies discussed so far are North American, a Scottish study confirms the salience of workplace size in determining employers’ ability to offer health promotion activities such as smoking cessation support. Docherty and co-workers (Docherty et al. 1999) conducted a postal survey of Scottish worksites to assess the current state of health promotion activity in the workplace, and they found that large workplaces had higher levels of health promotion activity than small or medium workplaces. Large workplaces were more significantly more likely to provide smoking cessation support than small workplaces (31% vs. 7%, respectively). Indeed, large workplaces tended to have a more positive attitude overall towards health promotion than either medium or small workplaces. The researchers also found that occupational health services were more often provided by the public sector (74% vs. 39% respectively). According to the authors, “The public sector showed the most appreciation of the benefits of workplace health promotion compared with the manufacturing and service sectors” (p. 570). The researchers conclude that the barriers to health promotion in the workplace are both motivational *and* resource-related. As smaller businesses lack both resources and time, their less positive attitude to health promotion in the workplace is unsurprising and their impaired ability to offer health promotion activities needs to be taken into account when planning or implementing health promotion resources.

These studies indicate that large, medium and small enterprises have very different resource needs in implementing smoke-free legislation and supporting smokers to quit and that there is an inverse relationship between the size of an organisation and its ability to undertake smoking control activities. Thus, it appears that large enterprises with a centralised structure often have the capacity and resources to implement smoking control activities, and it may therefore be largely a matter of encouraging employers to undertake these activities (see section 4.5). However, the available evidence indicates that small enterprises may have substantial needs in implementing smoking control activities in their worksite, as they may lack the financial resources to fund worksite programmes (both in terms of direct financial outlays and the indirect costs associated with employee leave time to attend the programmes) and facilitate compliance with legislation.

No. 16

Strength of evidence

Two 2++ American studies, one 2- Canadian study and one 2+ Scottish study provide strong evidence that small enterprises are far less likely to offer smoking cessation support than large enterprises. The findings of these studies suggest that small workplaces may have significant financial constraints that impede their ability to offer smoking cessation support and may also have characteristics that do not lend themselves to formal onsite programmes. Thus, unlike large enterprises, small enterprises have substantial needs in implementing smoking control activities in their worksite.

As the conclusions of the US studies are echoed in a Scottish study, these findings are likely to be directly applicable to a UK setting.

4.8 What are the adverse or unintended outcomes in the workplace of smoke-free legislation?

Although the available evidence indicates that smoke-free legislation is likely to positively transform the smoking norms in the workplace, several adverse and unintended outcomes may accompany the introduction of smoking bans in the workplace.

Effects on the relationship between smokers and non-smokers

A potential side effect of smoking bans is that they may lead to an increase in tension between smokers and non-smokers in the workplace. An Australian study (Clarke et al. 1997) (rating 2-) explores the extent to which antagonism may build up between exiled smokers[7] and non-smokers, as smokers may be perceived to be afforded special privileges such as taking longer and more frequent breaks than those available to non-smokers, and the extent to which such breaks are seen to add to the work load of non-smoking colleagues (such as having to answer phones in the absence of the smokers on a break).

The researchers found that most non-smokers perceived smokers to be obtaining some advantages from exiled smoking. For example, they thought smokers took either a lot more time (32%) or a little more time (46%) away from work than non-smokers. However, although non-smokers (regardless of gender, occupation or education) saw smokers as getting something extra, it was not generally seen as something highly desirable and they did not feel strongly deprived; thus, exiled smoking was not a significant source of tension between smokers and non-smokers.

Workplace smoking bans may also increase the visibility of smokers as they move outdoors into highly visible public places to smoke (Greaves and Jategaonkar 2006) (rating 4+). This increased visibility may increase the stigma associated with smoking (Greaves and Jategaonkar 2006), particularly for certain populations: for example, low SES pregnant women and ethnic minorities such as Bangladeshi males (both of whom have particularly high rates of smoking). The resultant divide between smokers and non-smokers may contribute to discriminatory practices and social stereotyping (Greaves and Jategaonkar 2006).

[7] 'Exiled smokers' refers to smokers frequently leaving their workstations to smoke because of workplace smoking policies and congregating outside their work buildings, on rooftops, in alleys or car parks.

No. 17

Strength and applicability of evidence

Overall, one 2- Australian study found that a workplace smoking ban was not a significant source of tensions between smokers and non-smokers, despite the minor advantages that were seen to be associated with exiled smoking. According to a 4+ report, the increased visibility of smoking that often accompanies the introduction of workplace smoking bans may lead to the stigmatisation of smokers and contribute to discriminatory practices and social stereotyping.

It is unclear how readily these findings translate to a UK setting.

Increases in Exposure to Smoke and Drifting Smoking Issues

There is some evidence that although smoking bans significantly reduce the amount of smoking at work, and overall ETS exposure, they may actually increase the perception of exposure to ETS by some non-smokers at work due to the changes in smoking patterns that occur. In a study of a university smoking ban in Scotland (Parry et al. 2000) (rating 2+), the researchers found that the removal of designated areas had a significant effect on smoking patterns at work. While the ban led to a 43% reduction in smoking at work, it increased the level of smoking at entrances and exits of university buildings – so much so that non-smokers who took part in the survey described entering buildings as 'running the smoking gauntlet'. Non-smokers objected to the smoke pollution that they now had to breathe when entering or leaving buildings; ironically, the ban was perceived to lead to an increase in passive smoking because of the greater interaction with intense smoking activity outside buildings. People in offices with windows directly above the entrances and exits where smokers congregated also complained about the increased smoke drifting into their offices.

Although the Scottish study took place before the implementation of national smoke-free legislation, a recent study evaluating second-hand smoke exposure following the Irish smoking ban (Mulcahy et al. 2005) (rating 2+) indicates that similar side effects may be associated with large scale legislation. According to the Irish study, despite the significant reduction in ETS in hotels and bars witnessed following the implementation of the national legislation, exposure to ETS amongst hotel staff has still not been totally eliminated. This appears to be related to the concentration of smokers outside of entrances and near windows which allows tobacco smoke to migrate into indoor areas.

No. 18

Strength and applicability of evidence

Overall, one 2+ Scottish study and a 2+ study from the Republic of Ireland indicate that smoke-free legislation may encourage smokers to congregate around building entrances and exits, thereby increasing the exposure of non-smokers to second-hand smoke through more intensive contact with the smoke as they enter buildings and drifting smoke issues.

These findings are directly applicable to a UK setting.

Unsafe Smoking

Another adverse outcome that may be associated with workplace smoking bans is the potential for unsafe smoking, which may take two forms: dangerous smoking practices and smoking in unsafe environments. In an English study of nurse attitudes to smoking bans in an NHS trust (Anderson et al. 1999) (rating 2-), interviewees reported anecdotal evidence of dangerous smoking practices, such as 'little old ladies' stubbing out cigarettes in bins that

contained paper towels. Similar concerns were also reported in a study at another English hospital (Strobl and Latter 1998) (rating 2-) following the introduction of a smoking ban. The vast majority of responses to open-ended questions expressed concern about non-compliance with the policy, poor enforcement, as well as safety issues due to smoking taking place secretly in inappropriate locations, particularly with respect to patients. Similarly, following the university smoking ban in Scotland (Parry et al. 2000) (rating 2+) the increase in smoking debris associated with 'doorstop smoking' led to two incidents of smoking related fire.

The safety of smokers also needs to be considered in relation to smoking bans. The nurses in one of the English hospital studies (Anderson et al. 1999) (rating 2-) UK study report that the hospital smoking ban on smoking had potentially detrimental effects on patients who wished to smoke while still abiding by the policy – which necessitated patients venturing out of the hospital to smoke, even in poor weather conditions.

No. 19

Strength and applicability of evidence

Two 2- English studies and one 2+ Scottish study report that workplace smoking bans may lead to an increase in dangerous smoking practices (such as smoking in inappropriate locations and the build-up of smoking related debris). One of the English studies also raises the potentially negative effects of bans on smokers who must venture outside to smoke, even in poor weather conditions.

These findings are directly applicable to a UK setting.

Another unintended consequence of smoke-free legislation is the increase in smoking-related debris and the costs to local authorities in cleaning up/providing disposal for cigarette butts in outdoor public places. At the Scottish university where the smoking ban was implemented (Parry et al. 2000) (rating 2+) 'doorstop smoking' was blamed for the increase in smoking debris (particularly cigarette butts) which littered the ground outside of entrances and exits to buildings. Indeed, an increase in smoking-related litter seems to be an inevitable side effect of smoke-free legislation – newspapers in Scotland have already indicated that litter has increased substantially since the implementation of the ban (MacDonald 2006; Vallely 2006) and the majority of the littering fines that have been handed out since the onset of the ban have been to smokers throwing away cigarette butts.

No. 20

Strength and applicability of evidence

According to one 2+ study and 3+ reports from Scotland, smoke-free legislation leads to an increase in smoking-related litter which creates costs for local authorities in cleaning up/providing disposal for cigarette butts in outdoor public places.

These findings are directly applicable to a UK setting.

Impact in Mental Health Settings

The potential impact of smoke-free legislation in mental health settings has been hotly debated, with critics arguing that it will infringe on the right of patients to smoke, is likely to exacerbate their psychiatric symptoms, and will provoke aggressive and violent behaviour (Jochelson and Majrowski 2006). However, a recent survey of mental health service providers in psychiatric units in England (Jochelson and Majrowski 2006) (rating 2-) found that amongst those units which had already introduced bans on indoor smoking (N=16), few

problems had been experienced. In these contexts, the ban had not caused conflict between patients and staff. Although there were some initial complaints and occasional breaches of the no smoking policy, staff and patients did adjust to the new rules. Indeed, several respondents reported that the closure of smoking rooms had some therapeutic benefits, as rooms were now used for clinical and other social activities.

No. 21

Strength and applicability of evidence

Although questions have been raised regarding the feasibility of implementing smoke-free legislation in mental health settings, one 2- English study found that in psychiatric units where a smoking ban had been introduced, few problems had been experienced following the initial adjustment period.

These findings are directly applicable to a UK setting.

5. Overview and Discussion

Workplaces can offer services with proven effectiveness to smokers who are seeking to quit (Moher et al. 2005). Although there are no available studies exploring which workplace interventions are most effective in the context of smoke-free legislation, one 2+ study of a variety workplace intervention types offered in the context of a localised smoking ban found that more intensive interventions (e.g. group treatment and one-hour clinics) produced higher success rates than less intensive interventions (e.g. brief individual counselling and self-help manuals). Although it is unclear how readily these findings translate to workplaces in jurisdictions where comprehensive smoke-free legislation has been introduced, they do echo the broader evidence base on which workplace interventions are most effective.

According to a 1++ systematic review and a 1+ meta-analysis, interventions that are most effective in the workplace are those with proven effectiveness in other settings. Thus, there is strong evidence that group therapy, individual counselling and pharmacological treatments all have an effect in facilitating smoking cessation. Self-help interventions appear less useful although there is limited evidence that interventions tailored to the individual have some effect. Workplace health assessments with feedback may also have a role to play in facilitating smoking cessation amongst employees. However, evidence on their impact is currently inconclusive: one 1+ study and a 2+ study failed to find an effect on smoking cessation, although one 1++ study does provide support for the positive impact of behavioural counselling.

Alternative methods for smoking cessation may have a role to play in the workplace. Two 2- studies have identified Allen Carr workplace seminars to be an effective means of facilitating smoking cessation in the workplace and online smoking cessation programmes have also been highlighted in a 4+ report as a potentially effective way of facilitating smoking cessation in the workplace. Another 4+ report emphasises the value in integrating smoking cessation support with occupational health and safety issues. However, evidence on the effectiveness of these intervention types is presently weak and further research is needed to determine their effectiveness.

Unfortunately, the body of literature on which interventions are most effective and appropriate for different sectors of the workforce is not large; however, there are a few available studies that examine the differential effectiveness of smoking cessation interventions for particular sectors of the workforce, as well as several important studies that have attempted to tailor interventions to these sectors.

A 1+ study and a 2++ study indicate that men and women are equally successful in achieving abstinence in workplace smoking cessation programmes, although important gender differences are apparent in smoking attitudes and behaviours. Women have less confidence in their ability to quit and may require extra stimuli in order to quit smoking. In light of these factors, a 1+ study indicates that a multi-behavioural approach to behaviour change may be effective for female smokers as it allows women to prioritise behaviour changes and may result in a greater sense of control and empowerment which increases women's confidence in tackling more challenging issues such as smoking cessation.

The literature search did not produce any studies that specifically address effective workplace interventions for younger and older smokers; however, evidence from a 2++ study indicates that older smokers are more likely to achieve successful abstinence in workplace interventions than younger smokers (although these employees were also more likely to be managers and light smokers. Two 2+ studies also examined the impact of age and job stress on cessation. Results from one study revealed that younger employees benefited more from higher demands than older employees with regards to smoking

cessation. However, these findings were not supported in the other 2+ study. Therefore, although further research is needed in this area it may be possible that younger employees who smoke require more intensive support for smoking cessation than older smokers and that specifically tailoring interventions based on age may be beneficial.

Although the literature search did not produce any studies on worksite interventions for minority ethnic groups in the UK, several US studies have found racial and ethnic differences in predictors of smoking cessation amongst participants in a workplace intervention which indicates that tailoring treatment to the needs of specific ethnic groups may increase abstinence rates. Another 1+ study found that a tailored intervention which incorporated linguistically and culturally appropriate materials was effective in promoting behaviour change in a working class multiethnic population. Using tailored intervention approaches that would be inclusive of workers from diverse backgrounds and developing materials in the appropriate languages seem equally important for a UK setting.

Unfortunately no studies were identified in the literature search that specifically addressed effective workplace interventions for temporary or casual workers and there appears to be a dearth of research in this area. Given the unique challenges that exist in delivering workplace interventions to this population, further studies are urgently needed in this area.

3+ monitoring data from countries (Ireland, Scotland, Italy and New Zealand) that have gone smoke-free indicates that employee non-compliance with smoke-free policies is unlikely to be a significant issue. However, one 2+ study found that support for and compliance with smoking bans in Australia, USA, Canada, and the United Kingdom was higher among smokers who reported thinking about the harms of passive smoking more frequently, and among those who endorsed the belief that second-hand smoke can cause lung cancer in non-smokers. Thus, educating smokers about the health effects of ETS seems to be the most effective way of encouraging employee compliance with smoke-free policies. Nevertheless, various 3+ sources have indicated that creating and enforcing a smoking compliance strategy is also an effective way to increase compliance. Specific tips for enforcing smoke free policy include providing training on how to enforce the policy, establishing links between the policy and HR policies, increasing awareness of the consequences of breaching policy, providing reminders that it is a criminal offence not to comply with policy and notifying staff that action will be taken if someone is in breach of the policy.

Anecdotal reports indicate that a key way that employers can support and encourage smokers to quit is through the offer of smoking cessation support, whether this takes the form of an on-site programme, release time to attend off-site services (such as local NHS stop smoking services), or providing access to self-help materials or pharmacotherapies (e.g. NRT or bupropion). This support becomes particularly important in the context of smoke-free legislation. Employers can also provide incentives to support smokers to quit. Two 1++ systematic reviews have found that although the addition of incentives does not appear to increase the quit rates of smoking cessation interventions in the workplace, there is evidence that such incentives do improve recruitment rates into worksite cessation programmes, which may lead to higher absolute numbers of successful quitters in the long-term.

However, according to a 2+ study, the majority of employed smokers are not ready to quit smoking. Therefore, smoking cessation materials and programmes need to recognise that smokers are at different stages of change rather than tailoring materials only to those smokers who are highly motivated to quit. The researchers argue that proactive interventions are required, including access to subsidised pharmacological aids to cessation, monetary incentives for assessment of smoking risk, direct personalised

feedback, media/social marketing campaigns, and changes in the social norms and physical environment at the workplace.

Several studies have conducted further research into the impact of an 'enriched' workplace environment (including smoking bans, worksite health promotion activities and smoking cessation programmes) on those smokers who are unready to quit. Although a 2+ study found that an enriched environment did not increase cessation amongst those smokers who do not engage in formal cessation activities, a 2- study and a 2+ study have both found that an enriched environment increases the motivation of smokers to change their smoking behaviours and may lead to a reduction in cigarette consumption and a reduction in perceived barriers to quitting.

Although there are many ways that employers can support smokers in the workplace, not all employers and enterprises are interested in providing smoking cessation. Two 2++ studies indicate that a key factor predicting whether a workplace will offer smoking cessation support is the personal attitude of the employer towards employee health. Thus, the key way of encouraging employers to provide smoking cessation support may be to directly target leaders and persuade them of the benefits of investing in employee health and the role it plays in company success.

However, two 2++ American studies and one 2+ Scottish study provide strong evidence that small enterprises are far less likely to offer smoking cessation support than large enterprises. The findings of these studies suggest that small workplaces may have significant financial constraints that impede their ability to offer smoking cessation support and may also have characteristics that do not lend themselves to formal onsite programmes. Thus, unlike large enterprises, small enterprises have substantial needs in implementing smoking control activities in their worksite.

Although smoking control activities in the workplace have a number of clear health advantages, it is important to be aware of the potential side effects that may accompany bans. One potential side effect of smoking policies is that they may cause tension between smokers and non-smokers who feel that smokers are being advantaged by the opportunity to take smoking breaks. However, one 2- study indicates that although non-smokers may perceive exiled smokers to be obtaining some advantages from exiled smoking (such as increased time away from work), they did not feel strongly deprived as a result. Nevertheless, the increased visibility of smoking that often accompanies the introduction of workplace smoking bans may lead to the stigmatisation of smokers and contribute to discriminatory practices and social stereotyping.

According to two 2+ studies, another adverse outcome that may be associated with workplace smoking bans – and national smoke-free legislation more broadly – is that indoor smoking prohibitions may encourage smokers to congregate around building entrances and exits, thereby increasing the exposure of non-smokers to second-hand smoke through more intensive contact with the smoke as they enter buildings and drifting smoke issues.

Two 2- English studies and one 2+ Scottish study report that workplace smoking bans may also lead to an increase in dangerous smoking practices (such as smoking in inappropriate locations and the build-up of smoking related debris). One of the English studies also raises the potentially negative effects of bans on smokers who must venture outside to smoke, even in poor weather conditions. Finally, according to a 2+ study and two 3+ reports from Scotland, other minor unintended consequences of smoke-free legislation are the costs to local authorities in cleaning up/providing disposal for cigarette butts in outdoor public places. However, although questions have been raised regarding the feasibility of implementing smoke-free legislation in mental health settings, there is some inconclusive evidence from a 2- study that smoking bans can be introduced without significant problems.

6. EVIDENCE TABLE

Evidence table						
First author **Year** **Country** **Study design** **Quality**	**Study population (Analytic Sample)** Inclusion/exclusion criteria. Number of participants (randomised to each group or otherwise). Age; Sex; S/E status; Ethnicity; Pregnant; Other, e.g. inpatient	**Research question** Power calculation Funding	**Intervention** Comparisons Length of follow-up, follow-up rate Exposure measures described	**Main results** Effect size CI P value Outcome measures described	**Applicability to UK populations and settings** Relevance to focus of Rapid Review, NHS Stop Smoking Services	Confounders Comments
1. Abrams (1992) USA Cross sectional survey 2+	799 smokers from five New England worksites that were participating in a larger study of worksite smoking control interventions. Blue collar workers: 52% of sample, 59% male, 41% female, 30% less than high school education, 45% high school graduates, 22% post secondary education, mean age: 39 years White collar workers: 48% of sample, 47% male, 53% female, 3% less than high school education, 34% high school graduates, 62% post secondary education, mean age: 39 years.	This study examined the relationship between demographic and selected psychosocial factors and motivation and intention to quit smoking among employed smokers at five worksites who did not volunteer for smoking cessation. Funding source: National Cancer Institute Grant	Analysis was based on survey responses of workers to self-report questionnaire delivered in 1987/88 measuring readiness to quit smoking (primary measure of readiness was the Contemplation Ladder). Behavioural measures included smoking history, current smoking rate, and a measure of self-reported nicotine dependence.	6.1% of white collar workers and 14.7% of blue collar workers surveyed had no thought of quitting; 17.7% of white collar workers and 18.2% of blue collar workers indicate that they need to consider quitting someday; 39.6% of white collar workers and 36.7% of blue collar workers indicate that they are not quite reading to quit; 29.6% of white collar workers and 22.4% of blue collar workers are currently thinking about how to change their smoking patterns; and only 7.1% of white collar workers and 8% of blue collar workers were currently taking action to quit. Predictors of higher levels of motivation to quit smoking included higher socio-economic status, maleness, lower levels of self-reported nicotine dependence and stronger perceptions that smoking was against the social norms of the workplace.	This is an American study and it is not clear how applicable its findings are to a UK setting. However, given the similar class disparities in smoking patterns in the USA the conclusions of the study appear broadly relevant to a UK setting.	Overall, a reasonably good quality study. However, there was no discussion of how missing data was dealt with and blue collar workers had a significantly lower response rate (57%) than white collar workers (86%).

2. Albertsen (2004) Denmark Cohort Study 2+	3,606 observations of smokers received from the Central Population Register of Denmark in 1990, 1995 and 2000. Open cohort study, with a random sample between the ages of 18-59. However in 1995 and 2000, new participants aged 18-22 and immigrants were added to the cohort. Some 57% of the observations are from 1990-95, 56% male, 22% between 18-29 years old, 31% between 30 and 39, 30% between 40-49, and 17% older than 50 years.	Examine to what extent factors in the work environment affect the probability of smoking cessation among employed Danish smokers over a five year period. Hypotheses: 1) Medium psychological demands at work will increase the likelihood of cessation. 2) High decision latitude and skill discretion will increase the likelihood of cessation. 3) Noise, cold, chemical and physical load will decrease the likelihood of cessation.	Analysis was based on survey responses of smokers in 1990 who were interviewed again in 1995, and all smokers in 1995 who were interviewed in 2000.	Multiple logistic regression analysis was performed to estimate the probability of smoking cessation. The estimated cessation probability was greatest in the period 1995-2000, in youngest and oldest age groups, with medium and high levels of psychological demands and with medium and high levels of responsibility at work. The cessation probability decreases with heavy smoking, with exposure to noise for a quarter to half of the working day and with high physical load. The probability of smoking cessation differs between people with different exposures to certain work environments.	This is a Danish study and its applicability to the UK setting is unclear. However, the link between smoking and workplace demands has been posited in a number of studies and the conclusions of this study therefore seem broadly relevant to a UK setting.	The study was well conducted and had a large sample size. However, the study relied on self-report data which could result in bias. As well, no account was made for missing data.

3. Anderson 1999 England Qualitative 2-	N=7 Nurses from one surgical directorate, surgical nurses only were selected 4 non smokers, 2 x-smokers, 1 smoker 6 females, 1 male, all between 26 and 59 years	To explore nurses' views, awareness and perceptions of their hospital Trust's smoking policy, and its effects on staff and patients. Funder not clearly stated.	Hospital smoking policy: staff and patients were not permitted to smoke within the hospital except in a designated area, visitors were not permitted to smoke in the hospital	Interviews revealed that nurses thought policy could help in limiting post-op. complications but could also have negative effects on the mental well being of those dependent on nicotine for stress relief and on the safety of individuals, e.g. those who choose to go outside in bad weather to smoke. They felt that greater provisions for patients who smoked needed to be made (e.g. designated areas, NRT); that all other staff working in the Trust had to share the responsibility for enforcing the policy; that more training should be provided (eg. Smoking cessation techniques); that future policy development could benefit from patient input.	Conducted at an English hospital and relevant to study population. However, the study deals only with a hospital smoking ban, rather than national smoke-free legislation.	Small sample size due to staffing shortage and homogenous sample (all from the same specialty). Only 1 smoker included which may have affected results. Methodological approach to analysis not clear; contexts and variation in responses not explored.
4. Ashley (1997) Canada Cross Sectional 2-	N= 1429 respondents completed a phone interview. Response rate of 62.5% Although the study attempted to reflect census data for the Metropolitan Toronto area, the sample underrepresented single individuals (by 4% points) and overrepresented married/separated individuals (by 5% points). Respondents were also better educated, high school graduates being overrepresented (by 17% points) and university graduates (by 9% points).	Examines the relationship of worksite and company size to workplace smoking restrictions and programmes, using data from a population-based telephone survey.	Surveys sent out to three worker groups differentiated by worksite and company design. Surveys compared attitudes, perceptions, knowledge, and behaviours concerning restrictions on smoking and smoking related programmes in the workplace to both the size of the particular worksite and the size of the company/organization.	"Small" worksites were significantly less likely than other groups to report that their workplaces provided quit smoking programmes, either free or not (15.1% in large worksites vs. 2% in small). This group was also significantly less likely to provide pamphlets or lectures about smoking and health (32.5% large vs. 11% small). Finally, small worksites were less likely to offer incentives to quit smoking (12.4% in large worksites vs. 2.6% in small).	Although this is a Canadian study, a relationship between worksite size and the existence of workplace policies and smoking cessation programme has been found in a number of international studies. It therefore seems likely that the findings of this study are broadly applicable to a UK setting.	Study sample was not representative and no power calculation was provided. Lack of information on validity and reliability, no mention of missing data or eligibility criteria.

5. Biener (1994) USA Cross Sectional Survey 2+	Using the Dun & Bradstreet data base, all manufacturing companies employing 200 or more workers located within a 50-mile radius of Rhode-Island (27 companies took part). In order to be eligible, a company had to 1) employ at least 200 workers on a regular basis 2) gave a primarily blue-collar work force engaged in manufacturing or warehouse/distribution work 3) Have employees working in one building or in several buildings no further than 2 miles apart from each other 4) Have a work force that included no more than 20% non-English speaking people. 5) Have some smoking taking place at the work site.	Assess the extent to which companies that agreed to participant in a randomized trial of a multi-risk factor health promotion research project differed to those that declined.	Comparisons made to assess differences between participating and non participating companies, bivariate relationships between the predictors and the outcome variable (signing the agreement to participate) were examined. Measures: Work force characteristics (i.e. number of employees) were based on interviews and data collected from the Dun & Bradstreet data base. Orientation toward worker health was determined by interviews. Information on financial outlook was obtained from the Dun & Bradstreet data base.	151 companies were identified from the Dun & Bradstreet database. Of this group, 77 were determined to be ineligible, 64 were eligible, and 10 refused to provide information about eligibility. In total 26 companies agreed to participate. Overall, analysis indicated that there were very few significant differences between companies that accepted and companies that refused.	Although this is an American study, it is likely that similar structural factors may inhibit the desire and ability of UK worksites in taking part in smoking cessation interventions. Therefore, the findings of this study seem broadly applicable to a UK setting.	Although this study was conducted well, findings were based on self-report data. As well, there was little information outlining the validity and reliability of the measures. Positive bias could be a result.
6. Borland (2006a) Australia, Canada, UK, US Cross sectional survey 2+	N=9,046 smokers surveyed. Similar sized samples from the U.S. Canada, the UK and Australia. Australia had a greater number of respondents under 24 and the UK over 55. Females were over-represented.	Studied variation in support and compliance for smoke-free policies by country. Also explored whether age, sex, and cigarette consumption affected support for bans.	Smoke free home policies. Cooperation rates were: USA 77%, Canada 78.5%, UK 78.7% and Australia 78.8%.	Reported presence of a total ban and documented extensive restrictions were most strongly related to support. Support of ban was higher among those who believed second-hand smoke is harmful to non-smokers (more in UK and Canadians). Female smokers and those whose consumption was greater were less supportive. Support for bans was related to not smoking in situations where there were no reported bans. Compliance to bans was highest in Australia and lowest in the UK.	Directly applicable to UK as England is going smoke-free in summer 2007. Examples from Australia, Canada could be predictors.	Self reported attitudinal outcome measure is somewhat unreliable and could bias results in a positive direction. However, a well conducted study overall.

7. Campbell (2000), Campbell (2002) USA RCT 1+	Women workers participating in the HWW (Health Works for Women) project. Women had to be 18 years or older and speak either English or Spanish. Study (N=856) included 40% European American women, 57% African American women, and 2% women of other ethnicities. 11% of women had less than a high school education, 57% had a high school education and 6% had more than a high school education.	This study examined the relationship between health risks, health behaviours, stages-of-change, and behaviour change priorities among blue-collar women participating in a worksite health promotion study and the impact of the intervention. Funding source: grant from Centers for Disease Control and Prevention	Intervention sites: 1) computer tailored messages 2) social support activities using worksite natural helpers Control sites: 1) one tailored magazine Follow up at 6 and 18 months	At the 18-month follow-up, the intervention group had increased fruit and vegetable consumption by 0.7 daily servings compared to no change in the delayed group ($P < 0.05$). Significant differences in fat intake were observed at 6 months ($P < 0.05$) but not at 18 months. The intervention group also demonstrated improvements in strengthening and flexibility exercise compared to the delayed group. The rates of smoking cessation and cancer screening did not differ between study groups.	Although this is an American study, it is likely that an intervention tailored to female blue-collar workers in the UK would have a similar effect, based on the similar financial and social pressures that female blue collar workers in each country face. The results of this study therefore seem broadly applicable to a UK setting.	This is a well conducted study although it is unclear how the researchers treated missing data. Also, the surveys were completed at different rates for each worksites - with a response range of between 37-88%.
8. Chan (1997) USA Cross Sectional Survey 2+	N= 220 male smokers working in an automobile manufacturing plant in a medium sized urban are in Michigan. Participants ranged in age from 27-69. Mean numbers of years of education was 12.39 with 45% of employees having some post-high school education. 76% of employees were married. 89% were blue-collar. 17% were African American.	Examine the nature and extent of the relationship between stress levels and intentions to participate in a worksite smoking cessation programme among male current smokers. Hypotheses: 1) Among current smokers, those who experience high levels of stress will be less likely to intend to participate in a worksite smoking cessation program. 2) Current smokers who report high levels of stress will be more likely to participate in a worksite smoking cessation programme.	A plant wide survey was conducted to measure job stress, non-job stress, smoking behaviour and intent to participate.	Intent to participate in a worksite smoking cessation programme was almost equally distributed across the three response categories, with “not at all likely” (31.5%) and “very likely” (32.4%) reported slightly less frequently than “somewhat likely” (36.1%). Comparing employees who reported “very likely” to those who reported “not at all likely” perceived job stress was significantly positively associated with intentions to participate in a smoking cessation programme. Non job stress enhanced the likelihood of intending to participate in a worksite smoking cessation programme.	Although this is an American study, the link between smoking and workplace stress has been posited in a number of international studies and the conclusions of this study therefore seem broadly relevant to a UK setting.	This study was well conducted but relied on self report data, which could result in bias. Furthermore, eligibility criteria were not outlined. However, the study established the validity and reliability of the measurement methods.

9. Clarke (1997) Australia Cross sectional 2-	44% men (38.6 average age) and 56% women (31.1 average age), range from 20 to 74. Males were older than females (p<.0001). Most respondents were clerks, salespeople, or personal service workers (67%). 38% had a university degree or diploma.	Examines the perceptions and beliefs about exiled smoking in non-smoking workers: the extent non-smokers view smokers as a distinct group from themselves; claims that non-smokers see smokers as having a work benefit or not and weather this is a source of antagonism; are there factors that lead non-smokers to join exiled smokers and then to smoke?	Entire sample was subject to workplace smoking restrictions	No relationship between position on exiled smoking and gender, occupation or education. Most non-smokers thought smokers took more time (32%) or a little more time (46%) away from work than non-smokers. Non-smokers who would never join had more negative attitudes toward smoke break scores than other positions (F=2.9, P<.05); however, non- smokers did see smokers as getting something desirable. Social smokers were more likely to have gone out and smoked than x-smokers or non smokers (chi2=-29, p<.01) 52% of those who went out with different groups smoked as compared with 28% of those who went out with the same group (chi2=4.9, p<.05). Those who had smoked were more tempted to smoke (chi2= 30.6, p<.05).	This is an Australian study and it is unclear how readily its results translate to an English setting. However, the potential tensions it discusses are likely to be relevant to England once the smoke-free legislation is implemented.	Non-representative sample possibly contributing to the positive view that non-smokers had of smokers. Non-smokers who do not interact with smokers have been under represented and the true number of non-smokers smoking with exiled smokers is likely lower. Good discussion of potential bias.
10. Conrad (1996) USA Cross Sectional Survey 2-	N=310 smokers: 68% white, 69% female, 72.4% with one or more years of college education and with a modal age category of 25.34 years (46.8%).	Study explores the idea that exposure to a worksite health-promoting environment acts as a cue to smoking reduction. Hypotheses: b) pre-test health beliefs, smoking behaviour, and exposure to a health-promoting environment will have direct effects on posttest smoking reduction and indirect effects on posttest smoking reduction via posttest health beliefs b) posttest health beliefs will have direct effects on posttest smoking behaviour. Funding source: not stated	Intervention included a host of company strategies and initiatives to create a health-promoting environment supportive of smoking reduction or cessation. Specific strategies included: invitation to participate in risk reduction programmes, health risk counselling and received health education materials Pre-test survey and posttest survey at 1 year follow up.	Exposure to the health-promoting environment had statistically significant direct and indirect effects on posttest smoking. Direct effects: reduction in daily cigarette consumption and reduction in the amount inhaled Indirect effects: reduction in the perceived barriers to quitting. The LISREL (path analysis) model explained 74% of the variance in smoking reduction and fit the data satisfactorily.	Although this is an American study, it is likely that smokers who are not actively seeking to change their health behaviours have broadly similar characteristics – whatever their geographic location. It therefore appears that the findings of this study are broadly applicable to a UK setting.	This is a poorly laid out and confusing study where many key details on study design are either missing or obscure. The study does not report how much of a reduction occurred in any of the key outcomes of interest and indicates only that the difference was 'statistically significant'.

11. Daza (2006) USA Cohort Study 2+	N= 1,398 Baseline participants who were current smokers and had smoked a cigarette in the past seven days N= 709 after 4 year follow up Follow up was conducted using a multivariate survey. 88% of the participants were white, 78% were male, 82% were married, 88% had a high school diploma or some college education. Mean age was 39. Eligibility for participants: Permanent employees who worked at least 50% of the full-time work week were eligible for the baseline survey. Employees had to have worked with the company for at least 6 months to be eligible for the final survey.	Examine racial/ethnic differences in smoking cessation, prospective predictors of cessation, and whether the predictive ability of these factors differed by race/ethnicity.	Participants in the treatment group received self help material and direct education on topics including smoking cessation and nutrition. Participants also received feedback based on their self-assessments and received instruction on goal setting for their target behaviour change. Participants in the comparison group received newsletters and self-help material on the same topics as participants in the treatment group. Compared smoking status of participants between 1990-1994. 1,398 participants identified being current smokers in 1990. 709 participants engaged in the 4 year follow up.	Abstinence rates at follow up were 24% for Hispanics, 23% for African Americans, and 17% for Whites. Bother African Americans and Hispanics smoked fewer cigarettes per day than did Whites (p=.002 and p=.001, respectively). Hispanics waited longer than Whites (p=.003) or African Americans (p=. 03) to smoke their first cigarette of the day. African Americans reported more confidence related to quitting smoking than did Whites (p= .008). African Americans used more behavioural processes of change than Whites (p=.01) or Hispanics (p= .0005) and reported more cons of smoking on Decisional Balance Scale than did Whites (p= .0005). Finally, African Americans were less likely to smoke cigars than Whites (p= .04). (Smoking related measures included the Contemplation Ladder, Process of Change Inventory, and the Decisional Balance Scale)	Given the different ethnic composition of the USA and the UK, the findings of this study are not directly applicable to a UK setting. However, there are ethnic differences between the smoking behaviours and patterns of UK ethnic groups and this study's discussion of the importance of tailoring smoking cessation interventions based on distinct ethnic smoking patterns and broader health behaviours therefore seems broadly relevant to a UK setting.	A well conducted study, however it relies on self-reported changes in smoking and no attempts are made to outline what is done with missing data. As well, 88% of participants were white when the main purpose of the study was to examine race/ethnicity.

12. Docherty (1999) Scotland Cross Sectional Survey 2+	N=1041 Data from Market Location obtained in 1996	Assess the current state of health promotion activity in the workplace and to establish a context for evaluation of Scotland's Health at Work (SHAW) scheme.	This study outlines the initial phase of a study that will examine changes in workplace health promotion activity over a two year period. Study was based on a mail out survey examining the extent and nature of health promotion activities in the workplace. As well, the perception of benefits/constraints of workplace health promotion were also examined.	Three sets of results were presented based on sector size and health promotion activity. Results found that public sector workplaces were most active (80%) with health promotion activities while the least active were in the manufacturing and private service sectors. Large workplaces showed higher levels than small or mediumto ones. In relation to smoking, smoking was restricted in all public sector workplaces, while this was the case with 63% of manufacturing and 74% of private service workplaces. Large workplaces were more likely to restrict smoking than smaller ones (89 compared with 62%) and more likely to provide smoking cessation support (31 and 7%, respectively).	As this is a Scottish study its findings are directly applicable to a UK setting. However, this study took place before the implementation of smoke-free legislation in Scotland and its findings are somewhat dated as a result – and may be less relevant to Scotland today.	A well conducted study but it relies on self-report data. Missing data is also not discussed increasing the opportunity for bias. However, objectives were outlined well and the study had a good participation rate.

13. Emmons (2005) Hunt (2003) USA RCT 1+	Ten health centres were paired on membership size and randomized within pairs to the intervention condition or usual care. N= 1088 intervention condition N=1131 control condition Eligibility: between 18-75 years old, have a well-care follow up visit planned with a participating provider, be able to speak and read English or Spanish, not have cancer at the time of enrollment, not be employed by the participating health centres and not be employed at a work site in a companion study. Participants also had to come from a neighbourhood that was predominantly working class or impoverished or low levels of education.	This study examines social-contextual factors in cancer prevention interventions for working class, multiethnic populations.	Intervention consisted of study endorsement from the participants clinician at a scheduled routine care visit, an initial in-person counselling session with a health advisor, 4 month follow up telephone counselling session, 6 sets of tailored materials written for low literacy audiences and links to relevant local activities. Intervention targeted fruit and vegetable consumption, red meat consumption, multivitamin intake, and physical activity. 8 month follow up. Control condition received usual care.	Significant change was found among participants in the intervention health centres. Fruit and vegetable consumption increased by 3.3% (p= .005), red meat consumption increased by 11.8 % (p=. 001), and multivitamin intake increased by 29.4 % (p= .001). No significant differences were found in relation to physical activity.	Although this is an American study, its discussion of how health promotion interventions can be tailored to consider social and contextual factors seem applicable to a UK setting, which also has a large working class, multiethnic population.	Study was well conducted but it was not clear how subjects were randomly selected for treatment. As well, the concealment method was not discussed.

14. Emmons (2000) USA Cross Sectional Survey 2++	N=114; all worksites enrolled in the Working Well Trial (WTT) at baseline responded to the key informant survey. However 17 worksites had missing data. 97 worksites were included in the analysis.	Examines the association between key organisational characteristics hypothesised to be related to the adoption of innovations in organizations and baseline level of smoking policy restrictions and prevalence of smoking control activities at the 114 worksites that participated in the WTT, a national trial of worksite health promotion.	Compares the key organisational characteristics that are hypothesized to be related to smoking cessation activities in 114 worksites after a baseline survey.	Of the 114 worksites at baseline, 24% had a smoking ban, 54% allowed smoking only in designated smoking areas, 18% allowed smoking anywhere, except designated nonsmoking areas, and 4% did not have any smoking related policies. Among worksite characteristics, size was strongly related to cessation activities, with larger worksites more likely to offer smoking control activities. Worksites with a high percentage of blue-collar workers were more likely to have smoking control activities, while those with more white collar workers were slightly less likely to have activities to stop tobacco use. Worksites with high percentages of women were also more likely to offer smoking control activities. Among organisational structure constructs, companies that were highly centralized were more likely to offer smoking cessation assistance for their employees. Companies that scored high in interconnectedness were more likely to provide cessation activities. Companies in which leaders were favourable toward employee health were much more likely to provide tobacco control activities.	Although this is an American study, it is likely that similar organisational characteristics facilitate or inhibit the introduction of smoking cessation programmes in UK worksites. The findings of this study therefore appear to be broadly applicable to a UK setting.	This study was conducted well, missing data was accounted for and there was a high response rate.

15. Fisher (1990) International Meta-analysis 1+	Inclusion criteria: 1) study of worksite smoking cessation 2) reported long-term follow-up quit rates 3) included a control or comparison condition 20 studies met the inclusion criteria	To determine the effectiveness of worksite interventions for smoking cessation	Types of interventions covered: 1) bibliography (self-help written materials) 2) physician advice 3) multi-component behavioural methods 4) incentives 5) catch-all category 12 months follow up (minimum) Quit Rate was the key outcome measure and was determined by the number of successful quitters/quitters plus non-quitters who started the programme.	An overall weighted mean effect size of .21 ± 0.7 was found, indicating a modest but significant overall effect (P <.01). The weighted average follow-up quit rate from all interventions was 13%. Interventions conducted in smaller worksite (ES = .45 ± .17), which lasted 2 to 6 hours (ES = .42 ± .13), and which contained heavy smokers (ES = .28 ± .07) were associated with the largest effect sizes.	This is a meta-analysis of international studies and its findings that incentives do not increase cessation rates, although they do increase participation rates are likely to be directly applicable to a UK setting.	The authors are clearly aware of some of the potential pitfalls of meta-analyses and have included only controlled studies with at least a year of follow up. However, it is not clear whether quit rates are based on self-reported success or biochemical validation (it appears both) and the authors do not explicitly discuss how 'successful quitting' was measured.
16. Gritz (1998) USA RCT 1+	N=4663 female; n=10919 males sampled from 90 blue collar worksites, randomized matched pair design for Working Well Trial. Non-random sample of worksites. 12313 men: 65.2% blue collar; 34.8% white collar; 48.5% high school or less; 51.5% more than high school; 89.9% white, 4.5% Hispanic, 4.0% Black, 1.6% other. 5523 women: 76.4% blue collar, 23.6% white collar; 56.9% high school or less, 43.1% more than high school; 89.4% White, 4.2% Hispanic, 2.8% Black, 3.5% other.	1. To compare characteristics of male and female quitters who were enrolled in Working Well trial (regardless of randomisation) and 2. effects of intervention on cessation rate among men and women. 80% power to detect 6 % difference in smoking prevalence in cross-sectional study. Funded by the US National Cancer Institute	Intervention activities geared towards individuals, such as posters, interactive events, self-assessments, and to the organization, such as: smoking restrictions or prohibitions. Control sites documented any health promotion actives that took place during the trial; some cites distributed posters and brochures as a minimal intervention. Cross sectional baseline and follow-up data collected from all those present in the workplace at 2 year interval. Attrition not reported.	Outcome: self-reported abstinence from smoking for 6 months Adjusted for occupation and education: Women in intervention vs. women in control group: AOR=1.47, p=0.047, 95%CI: 1.01-2.15. Men in intervention vs. men control: AOR=0.98, 95%CI: 0.77-1.35. Men vs. women in intervention: AOR=1.14, 95%CI: 0.83-1.56. Men vs. women in control: AOR=0.76, 95%CI: 0.54-1.08.	Although this is a US study, similar gender differences exist in men's and women's attitudes and behaviours in the UK. Therefore, the findings of this study are likely to be broadly applicable to a UK setting.	Trial methodology, but analysed data from entire workplace staff at baseline and follow-up, thus those who left work between those time points were not included. New employees might smoke less, or heavy smokers more likely to leave work if policy very restrictive—less likely to take job. Could over or underestimate intervention effects depending on movement of smokers in and out of workplace. However, results CO-validated & solid study overall.

17. Gomel et al. (1993) Australia RCT 1++	28 ambulance service stations N=431 Inclusion criteria: 12 or more employees at ambulance station Exclusion criteria: anticipated absence from work of up to 4 weeks during the three month following recruitment, imminent work transfer, severe health problems, and previous involvement with a health risk assessment.	Conduct an efficacy trial of four work site-based cardiovascular disease risk factor interventions: Health risk assessment, risk factor education, behavioural counselling and behavioural counselling plus incentives.	Intervention conditions consisted of: Health Risk Assessment- cholesterol and blood pressure were taken; Risk Factor Education- participants received health risk assessment as well as advice on lifestyle changes to reduce heart disease risk factors; Behavioural Counselling- participants had health risk assessment and risk factor ed. If risk factors were identified they were offered 6 life-style counselling sessions over 10 weeks; Behavioural Counselling Plus Incentives- participants received same intervention as risk factor education but also received a lifestyle change manual, and were offered follow up goal setting and counselling sessions. Participants were assessed at baseline and 3, 6, 12, months following baseline.	Compared with the average of the health risk assessment and risk factor education, there were significantly higher validated continuous smoking cessation rates (18% compared with 3%) and smaller increases in BMI (4% lower) and estimated percentage of body fat in the 2 behavioural counselling conditions. Behavioural counselling conditions were associated with a greater reduction in mean blood pressure than was the behavioural counselling plus incentives. Among all groups there was a small increase in aerobic capacity. Findings show that behavioural approaches in the work place can produce lasting changes in some cardiovascular risk factors.	This is an Australian study. However, it's findings are likely to be broadly applicable to a UK setting.	Study was very thorough and used biochemical markers to measure outcomes. Participation rate was also high. However, concealment was not addressed. Overall, the study was well conducted.

18. Hanlon (1995) Scotland RCT 1+	N=1632 employees (89% male) aged 20 to 65 years at two worksites in Glasgow.	To determine the effectiveness of a health check and assess any particular benefits resulting from feedback of plasma cholesterol concentration or coronary risk score, or both. Funding: Scottish Chief Scientist Office	Group 1: health education without feedback on cholesterol concentration or risk score. Group 2: health education with feedback on cholesterol concentration but without feedback on risk score. Group 3: health education with feedback on risk score but not on cholesterol concentration Group 4: health education with feedback on cholesterol concentration and on risk score Group 5: acted as internal control group, their intervention being delayed Group 6: external control group	Comparisons between the full health check and internal control groups showed a small difference (0.3 mmo1/1) in the change in mean cholesterol concentration (95% CI 0.02-0.22, P=O.02) but no significant differences for changes in Dundee risk score (P=0.21), diastolic blood pressure (P=0.71), BMI (P=0.16), smoking (P=1.00), or exercise (P=0.41). Significant differences between the two groups were detected for changes in self reported consumption of alcohol (41% in group with full health check vs. 17% in internal control group, P=0.001), fruit and vegetables (24% v 12%, P<0.001), and fat (30% v 9%, P<0.001).	This is a Scottish study and directly relevant to a UK setting.	Reasonable quality study but internal control group may have been influenced by the health assessment activities their workmates were engaged in. Also, changes in self-reported behaviour were not confirmed by external measurements and should be treated with caution.

19. Hutter (2006) Austria Cross sectional survey	308 smokers who attended an Allen Carr Easyway seminar from a variety of Austrian workplaces. Median age was 40 year (range 33-46 years), 238 (77%) were males. 63% of participants had finished vocational school.	To find an effective but less time-consuming method of smoking cessation, Allen Carr' seminars were performed at Austrian workplaces and evaluated. The authors indicate no financial or other competing interests, but acknowledge that Easyway Austria agreed to distribute the questionnaires, to obtain written consent and to cover the costs of the interviews performed by an independent company.	Intervention consists of one six hour long seminar where a trainer provides structured talk and open group discussion to help participants discover why they smoke and in order to remove their fears about quitting. During this process, participants are encouraged to smoke so that they can consciously analyse why they engage in this activity amidst the act of smoking itself. At the end of the coaching period, participants are called upon to extinguish their last cigarette in a ritualistic act. Follow up: 3 months (87% gave computer-aided telephone interview); one year (72% gave computer-aided telephone interview).	The one-year self-reported quit rate was 40%. Assuming among participants with unknown smoking status, the same proportion of abstinent subjects as in those that were successfully contacted, the quit rate would be 55%.	This is an Austrian study and it is unclear whether its results are directly applicable to a UK setting.	There are some problems with this study. First, the study relies on self-reported cessation outcomes, which are subject to desirability bias. The fact that the telephone surveys were conducted by a marketing company whose costs were paid by Easyway Austria also raises questions about the independence of the results. It would have been preferable for the interviews to be conducted by the researchers.

20. Hey (2005) International Structured review 1++	Adult smokers, either gender, in any setting. The authors did not include trials aimed exclusively at adolescent smokers or trials aimed at pregnant smokers.	To assess the effects of competitions and incentives as aids to smoking cessation. The following questions were addressed: 1. Do competitions, contests and incentives reduce the prevalence of smoking and relapse? 2. Does the amount and type of incentive affect cessation and relapse prevention? 3. Do incentives improve recruitment to smoking cessation programmes, both within the community and within the workplace? 4. Does the amount and type of incentive affect recruitment? 5. Are incentives and competitions more or less effective in combination with other aids to recruitment, cessation and relapse prevention? 6. How great is the risk of disbenefits arising from the use of competitions and incentives, e.g. false claims, ineligible participants?	Contests, competitions, incentive schemes, lotteries, raffles, and contingent payments, to reward cessation and continuous abstinence in smoking cessation programmes.	None of the studies demonstrated significantly higher quit rates for the incentives group than for the control group beyond the six-month assessment. There is no clear evidence that participants who committed their own money to the programme did better than those who did not, or that different types of incentives were more or less effective. There is some evidence that although cessation rates have not been shown to differ significantly, recruitment rates can be improved by rewarding participation, which may be expected to deliver higher absolute numbers of successful quitters.	This is an international review of the literature and its findings are likely to be directly applicable to a UK setting.	Although the Cochrane review fails to consider the differential effectiveness of workplace interventions based on factors such as sex, gender, ethnicity, age, etc, aside from this there are no methodological concerns regarding the review.

21. Jochelson (2006) England Cross-sectional survey 2-	151 psychiatric units (85 NHS and 66 independent sector).	To obtain an idea of wanted to what kind of tobacco policies were already in place in English psychiatric units, how staff viewed the existing policies and how they viewed the prospect of new smoke-free policies to tie up to forthcoming English legislation.	One off survey, consisting mainly of qualitative questions addressing kinds of tobacco policies in unit, whether they planned to introduce changes and why, what the obstacles and benefits of smoke free policies would be.	Many respondents rejected a smoking ban for the following reasons: 1) supervising outside smokers wasted valuable staff time 2) patients might abscond from the unit or refuse to be admitted 3) patients would refuse to comply or be unable to do so 4) a ban would increase stress and anxiety among patients and provoke aggressive behaviour 5) patients had a human right to smoke 6) smoking was so prevalent it was pointless to change it 10.6% of psychiatric units reported that they had introduced smoke-free policies and a further 12.6% reported that they were planning to introduce an indoor smoking ban. Those units with bans in place reported that the restrictions had been introduced with relatively few problems. Although there were some initial complaints, patients conformed to the ban once they understood the reasons for it and the policy was made clear. These units rejected the idea that banning smoking sparked off patient aggression and many respondents believed it had led to therapeutic benefits.	This study is directly applicable to a UK setting and one of the only available sources of evidence on attitudes towards smoking bans in English psychiatric units.	Overall, this was a small-scale, well conducted study which provides very important information about attitudes towards smoking bans in English psychiatric units. However, as the authors acknowledge, the low response rate (35.4%) mean that it is not representative of attitudes in all psychiatric settings. Indeed, it is likely that there was considerable selection bias in responses as those units with very strong opinions about smoking bans in mental health settings would have been most likely to respond.

22. Moher (2005) International Structured Review 1++	Adults over the age of 18, in employment, who smoked.	1. To categorize workplace interventions. 2. To assess the extent to which different kinds of workplace smoking programmes help smokers to reduce or stop cigarette consumption. The authors also wished to determine whether workplace smoking programmes reduce the exposure of non-smoking employees to ETS. 3. To compare the effectiveness of different kinds of workplace smoking programmes in helping employees to stop or reduce smoking.	1. Smoking cessation interventions aimed at individuals in the workforce. 2. Interventions aimed at the workforce as a population.	Group programmes, individual counselling and NRT increased cessation rates in comparison to no treatment or minimal intervention controls. Self-help materials were less effective. Tobacco bans decreased cigarette consumption during the working day but their effect on total consumption was less certain. There was a lack of evidence that comprehensive programmes reduced the prevalence of smoking. Competitions and incentives increased attempts to stop smoking, though there was less evidence that they increased the rate of actual quitting.	This is an international review of the literature and its findings are likely to be directly applicable to a UK setting.	Although the Cochrane review fails to consider the differential effectiveness of workplace interventions based on factors such as sex, gender, ethnicity, age, etc, aside from this there are no methodological concerns regarding the review.

23. Moshammer (2006) Austria Longitudinal study 2-	515 employees of a steel plant: 28% female, 72% male aged 18-67 years (mean age 42.23) 42% blue collar workers Average years smoking: 20.35 Age at initiation: 21.91 Daily # cigarettes: 26.21	To determine predictors of long-term abstinence (3 years) in employees at a steel plant after participation in Allen Carr seminars. The authors are employed by a medical university and declare that their institution will not gain or lose financially from the results of the study. They acknowledge financial support from a grant given by the Austrian Society for Occupational Medicine.	Intervention consists of one six hour long seminar where a trainer provides structured talk and open group discussion to help participants discover why they smoke and in order to remove their fears about quitting. During this process, participants are encouraged to smoke so that they can consciously analyse why they engage in this activity amidst the act of smoking itself. At the end of the coaching period, participants are called upon to extinguish their last cigarette in a ritualistic act. 3 year follow up. Follow up rate: 75%. Smoking status ascertained in computer aided phone interviews based on standardised form. Urinary cotinine samples were taken from a random sample of 30 smokers and 31 non-smokers to verify smoking status.	51.4% of respondents (N=262) reported continuing abstinence at 2-4.5 years (mean 3 years) and 48.4% reported relapse to smoking.	This is an Austrian study and it is unclear whether its results are directly applicable to a UK setting.	There are substantial problems with this study. First, the study relies primarily on self-reported cessation outcomes, which are subject to desirability bias. The attempt to biochemically validate a random selection of smokers and non-smokers is problematic – especially given the extremely high cut offs used to distinguish them (the authors justify this cut off by indicating that they have taken into account exposure to ETS but the cut off of 600 ng/ml is still more than ten-fold higher than the cut off used in a number of studies. The only source of bias the authors address is possible selection bias into the study.

24. Mulcahy (2005) Republic of Ireland Cohort study 2+	Hospitality workers (N=35) in 15 venues in Galway city. 53% female, 13% male; 43% between 22-30 and 40% between 31-40. Eligibility criteria: non-smokers from non-smoking or restricted smoking households.	To investigate whether the Irish smoking ban has had an impact on second-hand smoke exposures for hospitality workers. Funding source: Health Service Executive, Western Area, Irish Cancer Society, Irish Heart Foundation.	Saliva cotinine concentrations were taken from a cohort of workers and they also completed questionnaires 2-3 weeks before the ban and 4-6 weeks after the ban was implemented.	Cotinine concentrations reduced by 69%, from 1.6 ng/ml to 0.5 ng/ml median (SD 1.29p $p < 0.005$). Overall 74% of subjects experienced decreases (rang 16-99%), with 60% showing a halving of exposure levels at follow up. Self reported exposure to SHS at work showed a significant reduction from a median 30 hours a week to zero ($p < 0.001$). However, although passive smoking was reduced it was not completely eliminated as it is still possible for those working to be exposed to smoke migrating from outdoor areas.	This study discusses the effects of the Irish smoking ban and its results are therefore directly applicable to the UK setting and the effectiveness of the upcoming legislation in England.	This is a good study with very solid outcome measures. However, it relies on a small sample of hospitality workers and a convenience sampling approach was used. It is therefore unclear how representative the results of the study are.

25. Olsen (1991) Texas, USA Cohort study 2++	N=1,097 participants of Smoking Cessation Incentive Program (SCIP) N=1,174 non participants SCIP participants were more often females, whites, mangers, professionals, smokers of one or less than one pack per day, and smokers who had tried to quit at least 2 times or more. Eligibility for participants: a) smokers who responded to the 1984 questionnaire, b) smokers who were misclassified of did non respond to the 1984 questionnaire, c) smokers who were either newly hired or transferred employees during the 1-year-long SCIP programme. Non participants represented those employees who identified themselves as smokers in the 1984 questionnaire but did not participate in SCIP. Non-participants were used a controls.	To compare the long-term smoking cessation rates over a 5-year time period between SCIP participants and non-participants. Demographic, tobacco habits before SCIP and SCIP methods were also evaluated.	Intervention: Smoking Cessation Incentive Programme (SCIP). Included a buddy programme, nicotine-containing chewing gum, American Lung Association self-help material and group clinics, and incentive prizes. Compared smoking cessation rates between 1984 and 1989 of SCIP participants and non-participants. 7,516 employees in total were surveyed in 1984; 28.3% identified as smokers. 1,204 SCIP non-participants were identified in the 1984 questionnaire, 1,174 were re-evaluated in 1989. 1,113 SCIP participants were identified in 1984, 1,097 were re-evaluated in 1989. Follow up: a total of 79% of the participants and 76% of the non-participants were remained employed with the company.	SCIP participants who had quit the longest were more likely to be manager ($p<0.01$), older ($p<0.01$), have quit smoking for at least 30 days sometime prior to the worksite programme ($p<0.05$), have used the buddy system ($p<0.05$). The interaction highlighted that 66% of managers who quit smoking >5 years had quite for >30 days prior to SCIP compared to with 23% of those managers who did not quit. Cotinine analysis was used to verify ex-smokers of a year or more: Participants were 2.3 times more likely to be long-term nonusers of tobacco than non-participants. However, cessation rates for those who had been smoke free for under 4 years were similar for participants who remained smokers at the end of SCIP and non-participants.	Smoking cessation interventions at the workplace have some effect on smoking cessation. Results demonstrate heterogeneity of employee participation and success.	No methodological concerns. There is a very high response rate and they used reliable outcome measures (salivary cotinine testing).

26. Parry (2000) Scotland Cross-sectional 2+	N=3592 46.9% (1675) were male and 53.1% (1898) were female. Males smoked significantly less than the females (P=0.005). Manual staff contained the highest percentage of smokers (44% vs. 17.3% among all staff) (p<0.001)	To investigate if and how smoking bans may have the unintended consequence of relocating smoking elsewhere and consider implications for smoker and non-smokers. Funded by the Research Unit in Health and Behavioural Change in Scotland.	Total ban on smoking in University buildings and in University vehicles except on University grounds (avoiding obstruction of entrances to buildings. 61% of total sample returned completed questionnaires. Response rates among staff varied: 62.8% among academic staff; 74.4% among clerical staff; 60.6% among technical staff; and 46.5% among manual staff.	Changes in smoking behaviour differ according to whether the focus is upon daytime consumption or smoking outside work. Day time smokers were more likely to cut down or stop while at work while outside of work smokers claiming an increase in consumption is greater than the combined percentage of those claiming a reduction or quitting. This suggests compensatory smoking. 76.8% reported an increase of smoking on University property and 80.2% indicated an increase in entrances and steps. The main objection by non-smokers is the increase in passive smoking at entrances.	Although dealing with a localized smoking ban, this is a Scottish study and its findings appear to be directly applicable to an English setting in the context of national smoke-free legislation.	Results from only the surveys were presented. While findings seem valid, people who were disgruntled with the ban may have been more likely to fill out surveys in order to express their dissatisfaction.

27. Prior et al. (2005) Switzerland Cohort 2+	N= 4, 198 (27% women) Participants came from 74 companies with company size ranging from 5-880 employees. 47% were blue collar and 53% were white collar.	Assess the long term impact of a multi-component worksite health promotion programme consisting of a cardiovascular screening with counselling and physician referral, where no control group was possible to design.	Intervention: one time 15 minute screening (BMI, blood pressure and cholesterol) and counselling session (personal and cardiovascular history). Screening ended by summarizing the risk category of each major risk factor. Counselling was provided if participant had mildly increased, or elevated risk factors. Health educator gave recommendations and educational booklets on cholesterol, blood pressure and smoking. Follow up after baseline ranged from 1-6 years.	At follow up, an overall improvement in mean diastolic blood pressure was noted in men and women, while BMI, body weight, and physical score worsened. Mean cholesterol also worsened in women, but stayed the same in men. In terms of cigarette use, 36% of smokers had reduced their cigarette smoking from baseline and 20.3% had stopped smoking. This corresponds to a quit rate of 5.5% per year. Overall, short term intervention programmer participants in high risk groups for diastolic blood pressure, total cholesterol, and smoking improved their cardiovascular risk factors. Meanwhile, low total cholesterol and BMI groups deteriorated.	Although this is a Swiss study, its results are likely to be broadly applicable to a UK setting.	This is a retrospective cohort study. However, it was not clear how the study population (24, 041) was reduced to a sample of 4,198. Also, measures were based on self report data.

28. Sorensen (1997) USA Cross Sectional Survey 2++	N=351 worksites reporting to both the baseline and final surveys Results based on two variables: N=290; adoption of a smoking ban between baseline and follow up among sites that did not have a ban at baseline N= 214; offering smoking cessation services among those worksites that did not offer any smoking cessation services	To assess worksite characteristics predictive of tobacco-control policy adoption and cessation resource provision between baseline and final surveys.	Comparison between baseline and final surveys to determine characteristics of worksites that adopted a smoking cessation programme.	Of the 351 worksites that answered both the baseline and final surveys, 290 (89%) did not have a smoking ban at baseline. In addition, 61% (n=214) of worksites at baseline offered no cessation aid, assistance or support. Of the 290 worksites that not have a smoking ban at baseline, 34% had adopted a smoke free policy by the time of the final survey. Characteristics of worksites more likely to adopt programmes included: having more females, and offering health promotion activities. Manufacturing businesses were significantly less likely than businesses other than service and wholesale/retail businesses to adopt policies. Of the 214 worksites that did not offer cessation aid or resources at baseline, 36% had offered cessation services by the time of the final survey. Adoption of cessation programmes was significantly more likely among worksites employing 100-249 workers than 20-99, those employing men, those offering other types of health promotion activities, and those with high rates of turnover.	Although this is an American study, it is likely that similar worksite characteristics facilitate or inhibit the introduction of smoking cessation programmes in UK worksites. The findings of this study therefore appear to be broadly applicable to a UK setting.	This study was well conducted, had a high response rate and was conducted using telephone surveys (therefore, lack of information on missing data not as relevant).

29. Stockton (2000) USA Interrupted time series 2++	N=844 individuals from 63 companies (out of 400 contacted by letter). 532 female participants and 312 male participants. Male and female participants were about the same age at baseline (38), higher percentage of men were married and had college degrees than the women.	To identify gender-specific patterns in smoking behaviour and examine gender differences in order to facilitate our understanding of how men and women quit smoking. Funded by the National Institute of Heart, Lung, and Blood	3 tobacco cessation interventions: a) self-help manuals, b) self-help manuals and incentives, c) self help manuals, incentives and support groups Smoking status was collected before the intervention, 3-weeks posttest the intervention, 6 months, 12 months, 18 months and 24 months following the intervention. Missing data rates across conditions were significantly different at all assessments except 6 months: posttest $p<0.024$, 12 months $p<0.002$, 18 months $p<0.001$, and 24 months $p<0.001$.	At 2 year assessment 14.3% (532) of females and 13.5% (312) of males reported abstinence. Male participants smoked cigarettes with a higher nicotine content and smoked a greater number of cigarettes per day. Females reported having made more previous attempts to quit, less confidence about quitting, greater effort to quit, greater worry about smoking-related illness, and that they would be less likely to quit on their own if this programme were not offered. Females did tend to report receiving higher levels of general social support, as well as partner support for quitting smoking; however, greater support did not lead to higher quit rates.	Although this is a US study, similar gender differences exist in men's and women's attitudes and behaviours in the UK. Therefore, the findings of this study are likely to be broadly applicable to a UK setting.	No methodological concerns. Well conducted study, uses CO validation to confirm self-reported smoking status.
30. Strobl (1998) Britain Cross-sectional 2-	31 smoking and ex-smoking nurses in a British teaching hospital; convenience sample	To examine changes in smoking behaviour 9 months after the introduction of a workplace restriction	Workplace ban on all indoor smoking at the hospital, except for the 'social club' where nurses could smoke indoors. Wilcoxon test.	Reduction in number of cigarettes consumed per day while at work as a result of the restriction was not significant ($p=0.07$). 52% reported not being fully compliant with ban. 20% would challenge someone breaching ban.	Conducted at an English hospital and relevant to study population. However, the study deals only with a hospital smoking ban, rather than national smoke-free legislation.	Extremely small convenience sample, seemingly high amount of missing data, measures not well described.

31. Waranch (1993) Johns Hopkins Hospital, USA Cohort study 2+	262 participants in hospital-sponsored smoking cessation programmes. Self selected into programmes. Those in the multi-component and *Life Signs* groups smoked sig. more than those in the *Freedom…* group at baseline. Those in the multi-component group had sig. fewer quit attempts than those in the *Freedom…* or *Life Signs* groups.	To assess the influence of the smoking ban on the participation of employees in different types of worksite-sponsored stop-smoking programmes. Funding not mentioned.	5 smoking cessation programmes: groups, 2 types of manuals (*Freedom from smoking for you and your family* - American Lung Association and *Life Signs* - Health Innovations Inc.), one-hour clinics, brief individual counselling 1 year follow-up; 71% follow up rate for all participants (186/263). Follow up rates by intervention: groups = 65/88, manuals = 33/59 for *Freedom…* and 34/59 for *Life Signs.* One hour clinics=22/23, brief counselling 32/33. Brief counselling had best follow up at 96%.	One year CO validated cessation rate of 8.4% in total across all cessation programmes. No sig. decrease in the number of cigarettes smoked from baseline to final follow-up (P=<0.001). Attendance at a group programme quadrupled during the 12 months following the announcement of the impeding ban and returned to near per-ban levels in the subsequent 12 months.	Although this is a U.S. study there could be similar effect on England's Stop Smoking Services after the implementation of the bar and restaurant bans.	Of the estimated 2000 smokers in the hospital only 13.1% chose to participate in smoking cessation programmes. No analysis was done to compare those who chose to participate and those who did not.

32. Willemsen (1999) Netherlands Case Control 2+	N=885 in 4 “enriched environment worksites” (Intervention) N=595 in 4 control worksites Smoking prevalence in enriched environments was 32% and 38% in the control worksite Respondents in the enriched environment were less often white-collar workers, worked in shifts more often, and less often had subordinates. Worksites with more than 250 employees were considered for inclusion.	Examine the effects of a health education campaign and attention to smoking policy that accompanied a worksite smoking cessation programme on smoking employees who did not take part in the cessation programme. Hypotheses: “enriched environment” (intervention) would result in more favourable cognitions towards quitting smoking, more attempts to quit smoking and higher quit rates.	Intervention: worksites received smoking cessation methods (i.e. self help manuals and group courses) plus educational anti-smoking campaign and smoking policy changes. Control: worksites received minimal cessation programme and no anti-smoking health education activities and no policy changes. 18 months between follow up Compare changes in attempts to quit smoking between “enriched environment” and control	Point prevalence quit rates were 8% (18/239) in the “enriched environment” condition and 11% (22/199) in the control worksites (not significant). Non-responders were counted as smokers. Logistic regression analysis revealed no effect of treatment on quit attempts, nor on the posttest smoking status, controlling for baseline differences. Regression analyses revealed no significant effects of specific exposure variables either. The effect of health education on smoking policy on cognitive variables was examined with a series of linear regression analysis. No overall effect was found from treatment on any of the cognitive variables, using p<as the cut off point. No significant associated were found between exposure variables and cognitive variables, using the same criteria.	Although this is an American study, it is likely that workers who do not choose to participate in worksite smoking cessation programmes have broadly similar characteristics – whatever their geographic location. It therefore appears that the findings of this study are broadly applicable to a UK setting.	This was a good quality study overall and although it relies on self-reported data, the authors convincingly argue that incorporating the bogus pipeline procedure heightened the validity of the self-reported data. However, the authors argue that the measures used to assess programme exposure were rather crude and may not have been able to detect an effect if one existed.

7. APPENDIX A

Help 2 Quit Workplace seminar

Held on 27/6/06 at Sweetlake

Section	Title
Prologue	Agenda
1	Introduction
2	Workplace Programme 2003-6
Table 1	Results
Table 2	Cost effectiveness
3	Setting up a workplace clinic
3.1	What has worked well in the workplace programme?
4	Discussion – workplace programme from scratch
5	The Health Bill
Box 1	Lessons from Scotland
6	Options for further discussion
7	Actions

Present:

Allison Ball	Communities Help 2 Quit coordinator
Julie Rudge	Help 2 Quit liaison sister
Kevin Lewis	Associate Specialist in Public Health
Claire Sweeney	Help 2 Quit project worker
Marian Baskerville	Help 2 Quit liaison sister
Alexis James	Help 2 Quit administrator
Pat Thomas	Help 2 Quit nurse coordinator
David Whiting	Help 2 Quit Programme Manager
Linda Offord	Smoke free Alliance coordinator
Mandy Brettel	Help 2 Quit @ Work co-ordinator
Sandra Shutt	Help 2 Quit nurse
Jennie Marr	Help 2 Quit nurse

AGENDA

Date & time – Tuesday 27th June 9.15-1
Location – Sweetlake

09.30 – Aims and introductions

09.35 – Why we need a workplace programme **Kevin**
- Accessibility (including targeting inequalities)
- Evidence for effectiveness
- Health Bill opportunity

09.50 – Where are we now?
- What has the workplace programme achieved over the last 3 years? What were the successes? What were the particular problems? **Mandy**
- What is involved in running a workplace clinic? (criteria for taking businesses on, finding businesses, smoke free policy, persuading management, booking nurses, following up quitters, evaluating success) **Mandy, Pat, Linda**

10.30 Discussion led by **Kevin**
- What workplace services should H2Q offer?
- What coordination is required?
- What support can we expect from partners?

11.15 - coffee break

11.30 – Future of the workplace programme (brainstorm)
e.g.
- How should the programme be coordinated?
- Should we only focus on NHS and local authority settings?
- Can the programme be delivered by occupational health staff?
- Should we charge businesses for the service?
- What impact will the Health Bill have on the programme?

12.30 – finish

1. Introduction

The purpose of the seminar is to consider how successful the workplace programme has been and how it could be taken forward in the future.

The Department of Health has set a specific target in the Cancer Plan to reduce the rate of smoking amongst manual workers from 32% to 26% by 2010, but this target will not be met nationally if current trends are followed. Workplaces provide an opportunity to target manual workers.

A Cochrane review (summary of evidence) has found that the workplace setting is an effective way to reach smokers and support their quit attempts. A recent paper in the Tobacco Control journal stated that long-term quit rates were not very good in workplaces - this is probably the result of poor follow-up.

Smoke-free policies encourage smoking cessation in the workplace. The Health Bill gives us a huge opportunity to reach people wanting to quit because of the smoking ban. The local authority environmental health departments will be key partners as they have a responsibility to enforce the Health Bill. The workplace programme has enhanced partnership working with local authorities and the local business community.

Workplaces are an accessible and convenient setting for quitting smokers. Quit rates and rates of attendance are very good at H2Q workplace clinics. A lot of people who access the service at work would not otherwise be able to access H2Q. Businesses have also generally found the service to be successful and from the limited responses that H2Q have received, 26 out of 28 businesses would use the service again. However, the service is not as cost effective as the GP practice based service.

2. Workplace Programme 2003-6

Table 1 - Workplace Results (over 3 years - 2003-6)

Workplaces accessing service	Setting a quit date	Quit at 4 weeks	Not quit	Not known	% quit rate
workplace programme	1033	736	195	102	**71.2%**
occupational health	66	49	9	8	**74.2%**
Totals	1099	785	204	110	**71.4%**

130 workplaces have accessed the workplace service at 100 different locations. 4 of these have been recurring clinics. These were held in the following locations; 66 Telford, 20 Shrewsbury, 5 Oswestry, 3 Bridgnorth, 2 Market Drayton, 2 Whitchurch, 1 Ellesmere, 1Newport. One in fifteen H2Q clients have come through the workplace programme over the last 3 years.

Table 2 - Cost Effectiveness

(Note – the average H2Q Cost per 4 week quitter is £133)

Over 2003 – 2006

Full time coordinator (+ maternity cover costs)	Full time nurse	Mobile clinic lease	Petrol	Eqpt.	Marketing	Total	Cost per 4 week quitter

73,894	90,600	36,000	6,350	2,216	7,189	216,599	276

Projected costs for 2006 – 2007 (operating the same service)

Part time coordinator (0.6 w.t.e.)	Full time nurse	Mobile clinic lease	Petrol	Eqpt.	Marketing	Total	Cost per 4 week quitter
24,000	30,200	-	2,000	500	2,000	58,700	150*

* projection is based on delivering the 2005/6 number of 4 week quitters (391) and does not include admin support or nurse training costs.

3. Setting up a Workplace Clinic

- **Use the existing databases to identify businesses** – unfortunately none are complete and up-to-date.
- **Market Programme to Workplaces** – methods used are as follows; mail shot of business packs (300 sent out), door to door canvassing, cold calling, H2Q@W web page on 'Shropshire Online', publicity – press and radio, promotional events, business network events, word of mouth. This is how the businesses which accessed the service were recruited; cold calling 89%, business pack 1%, door to door 2%, word of mouth 8%.
- **On Site Visit** – the contacts were with; management 53%, human resources 15%, health & safety 4%, occupational health 1%, environmental health 1%. Management and human resources were by far the best contacts as they were aware of work policies regarding letting staff have time off to go to appointments, etc. The visits were used to assess requirements. The minimum requirements for a clinic were;
    - on site coordinator – promotion & organisation
    - appointment room
    - time out for staff
    - minimum of 10 staff interested
    - parking
    - signing in procedures and security

  H2Q also assess the smoking policy and advise on policy change. The clinic is offered alongside a policy change. Workplaces that offered support at the same time as implementing a policy were most successful. The options of buying prescriptions for staff are also discussed.
- **Promote clinic to employees** – staff surveys are sent out by attaching to wage slips or are distributed by hand/email. They have a 1-2 week return deadline and return contact. Also, posters and leaflets are left at notice boards, reception, canteen, smoking rooms and huts.
- **Assessment of employee interest** – if there are 10+ ready to quit, all organisational details are completed ready for hand over to nurse. If there are 1–9, then look at mapping workplace with other nearby companies using the GIS mapping database. These workplaces can be resurveyed at a later date and kept on file for future interest. The highest number interested were 62 at Muller (average number 12).
- **Introduction of new Smoking Policy** - advise on new policy if necessary; meet with staff and union representatives to facilitate change; promote new policy alongside introduction of workplace clinic; promote enforcement of policy following completion of 12 week clinic.
- **Arrangement of Pharmaceutical Agreement** - agree number of prescriptions to be bought by employer; set up agreement with a local pharmacist to dispense

prescriptions free of charge to employees; arrange for pharmacy to bill company at end of clinic or at monthly intervals; organise for both parties to sign the H2Q pharmacy agreement. The result was that 20 companies (one fifth) paid for prescriptions (average 3 prescriptions per client).

- **Diary Management** - a diary of all workplace clinics is held on the internet for all to access and is managed by the programme coordinator. Through liaison with the nurses and management of the diary the programme coordinator allocates a nurse and time slot for each clinic.
- **Handover** - all company information and number interested in clinic are handed over to the nurse running the clinic. The time from initial contact to handover can take between 1–12 months (average 2.5 months). Contact is then made by nurse with the workplace contact to set up dates and times for the information sessions and should be made within 5 working days of being handed over.
- **Information Session** - group sessions for 10 people are held for 20-30 minutes. A presentation is given on how the clinic works, what is expected and what to expect and usually the time and date of the 1st clinic. Carbon monoxide readings are also taken.
- **Nurses** – the nature of the work means that nurses will be asked to work flexible hours. A lot of time can be taken up travelling between venues.
- **Clinic** - clinics start 1 to 2 weeks following information session. 12–16 clinics are held depending on when the last patients joined and if there is a waiting list of other companies. New starters are only taken on in first 4–6 weeks.
- **Follow Ups** – these are at 6, 9 and 12 months, by visit or telephone. Clients are asked to complete a nurse feedback sheet.

3.1 What has worked well in the workplace programme?

Successes	Barriers
• Cold calling	• Mail shots
• Onsite coordinator	• Commitment of coordinator on site
• Surveys & promotional material	• Communication between PCT, Council and Workplaces
• Information sessions	• Rural locations
• Large companies	• Small and medium workplaces
• Introduction of policy alongside clinic	• Production lines
• Links with other H2Q team members	• Industrial estates & cluster clinics • Language
	• Recruiting time • Waiting list & loss of momentum
	• Business hours & shift patterns

4. Discussion - If we started today how would we set up a workplace programme?

Idea	Comments
Input from environmental health departments to identify companies to approach	They primarily know about companies dealing with food – the rates departments of borough councils should have the best information
Lots of flexibility in times that clinics can be offered as we often miss shift workers	Difficult within a limited resource, but desirable

Idea	Comments
Could we reach these people through community clinics? At least link in with community clinics so that out-of-hours can be offered.	Details of community clinics and pharmacies should be available to workplaces. Quitters may choose to swap between different venues to suit themselves.
Need a plan in place for the 'big push' expected to be generated by the Health Bill	We need to define what we can offer in good time. This includes number of people ready to quit – there will be a minimum it is worth running a clinic for.
We need to decide on a balance between the needs of throughput and reaching manual workers.	We are under no obligation to offer a workplace programme at all. We need to decide on how much resource to put in to reach workers.
Develop the Princess House venue in the centre of Shrewsbury to reach workplaces in the town centre	This is new ground and could be very successful on the back of the Health Bill
We need to reduce the cost of travel and time taken for nurses getting between venues in different parts of Shropshire	Needs a lot of forward planning and possibly focusing workplace work on clusters in Shrewsbury and Telford
Should we ask businesses to do a lot of the preparation and administration for clinics so that we concentrate on supplying the H2Q quit service?	An attractive option to cut back on H2Q coordination work
Could we commission time from occupational health staff who go in to companies?	Typically they do not go in often enough and are not motivated to deliver H2Q. So, only if they can provide dedicated time for the service.
Could we use sessional workers (self-employed, working to a SLA) to work in areas around Shropshire?	Possibly, if we can find suitable people who are willing. They may also be able to cover Youth and Community work for us.
Can we charge businesses for the H2Q service and would they be willing to pay?	We are allowed to charge private businesses although we do not know if they would be willing to pay. It would be difficult to charge some but not others. We could present the costs to companies and ask for a donation.

5. The Health Bill

It is the responsibility of environmental health departments to implement the Bill. We are unsure how they will approach this and what resources they will have available. H2Q will have an opportunity to promote its service when the local environmental health departments approach businesses – we can have an information pack ready to be distributed. We have excellent links with environmental health departments so should know the timescale.

We do not know what extra demand there will be but there is sure to be a lot of people wanting to quit just before and after the Health Bill finally comes into effect. We could learn lessons from the Scotland and Republic of Ireland experience (see box 1).

Lessons from Scotland (Smoking, Health and Social Care (Scotland) Act - 26 March 2006)
(Taken from: Public Health News 19 June 2006; ASH Scotland briefing papers www.ashscotland.org.uk/: Smoke-free legislation in Scotland: features of the legislation, Smoke-free legislation in Scotland: the legislative process)

- Scottish Executive worked with Environmental Health Officers, Royal Environmental Health Institute for Scotland and the police to develop guidance on the enforcement approach to be adopted to ensure consistency
- Local Authorities (LAs) held sessions for business owners and managers in Feb / March 06
- All households in Scotland received fliers raising awareness of the legislation
- Businesses received guidance 'Helping to get your business or organisation ready for the new law on smoking: a guide for employers, managers and those in control of premises'
- Scottish Executive set up website www.clearingtheairscotland.com to provide information on the legislation and help people prepare
- Scottish Executive published updated guidance on smoking policies for the NHS and LAs
- Scottish Executive provided short-term additional resources for LAs; remains to be seen if these additional posts will be absorbed permanently
- City of Edinburgh regulatory services - to visit 11,000 premises in first 12 months; 3,000 considered higher risk visited, with time in hand, in first 3 weeks
    - Inspected premises to ensure they understood what was required and had appropriate messages up
    - Enlisted almost entire environmental health workforce, had people out on virtually 24:7 basis
    - Recruited 4 officers (all from enforcement background) dedicated full time to the smoking ban. Over time, will be absorbed into the council's health and safety team after completing training
    - Officers wear high profile jackets, especially at night
    - Not, as yet, utilised undercover techniques
    - Called on to give a lot of advice on shelters (Scottish legislation uses 50% rule to define extent of enclosure of the perimeter of such structures)
    - Potential problem area for the future concerns nuisance to people living in apartments above licensed premises from groups of people talking and smoking below
    - Most breaches in first month concerned an absence of the required signage on doors and in toilet areas
    - 15 warnings issued in April; by the end of May, not had to issue any fixed penalty notices
- Important to have a high profile on the streets at the beginning
- LAs aware of potential litter problems. Licensees are warned that the area outside their building has to be cigarette butt-free and advised it is in their interests to clean areas regularly
- Record funding made available to set up smoking cessation clinics by 2008
- Upsurge in the number of people accessing all kinds of health services to enquire about help to stop smoking
- NHS Borders region had a 3-fold increase in demand for smoking cessation services in first 3 months of 2006.
- National telephone Smokeline has had 4-fold increase since February
- Glascow NHS region: demand for services up 50% in April 2006 over April 2005
- Scottish Executive has increased the level of resources to the services annually since 2000
- Weather will influence more smokers to attempt to stop during the colder, wetter months

(Smoke-Free Workplaces in Ireland: A One-Year Review see www.otc.ie)

6. Options for further discussion

Do we want to maintain a workplace programme? If so,

- How many quitters do we want it to deliver?
- Should we ask workplaces to do some of the administration?
- Should we target certain types of workplaces only (e.g. with manual workers, in easily accessible locations)? **Or**
- If there is a great demand for the service in the wake of the Health Bill, should we simply wait for businesses to come to us and offer the service on a first come, first served basis?
- Should we look to put extra resources into the programme to pick up more workplace work?
- Should we target NHS and local authority staff?
- Can we charge workplaces for the service and if so, how much?
- Could we ask for a voluntary donation from workplaces?
- How should we deal with the potential clients identified who do not speak English?

Do we need a co-ordinator dedicated to working on the workplace programme?

7. Actions

MB	Contact the companies that have said they would have H2Q back to see if they would pay for the service if necessary
LO	Organise a working group from Alliance members with EHOs to look at how we can best inform employers of their responsibilities and support available
KL	Think over the options for maintaining the service and meet with team leads to dicsuss
DW	Find out how other PCTs employ sessional workers
LO	Post Globalink enquiry regarding workplace programmes in other parts of the UK

8. APPENDIX B – Excluded Studies

Paper	*Reason for exclusion*
Brenner, H. and Mielck, A. (1992) Smoking prohibition in the workplace and smoking cessation in the Federal Republic of Germany. *Preventive Medicine*, 21(2): 252-61.	Included in the Cochrane Review on workplace interventions. No other outcomes of interest are reported.
Cruse, S.M., Forster, N.J.D., Thurgood, G. and Sys, L. (2001) Smoking cessation in the workplace: results of an intervention programme using nicotine patches. *Occupational Medicine,* 51(8): 501-506.	No relevant outcomes.
Daughton, D.M., DeWolf Roberts, M.A., Patil, K.D. and Rennard, S.I. (1990) Smoking cessation in the workplace: evaluation of relapse factors, *Preventive Medicine*, 19: 227-230.	Not directly relevant to any of the research questions
Dawley, H.H., Jr. (1991) A comprehensive worksite smoking control, discouragement, and cessation program. *International Journal of the Addictions,* 26(6): 685-96.	A more recent publication (1993) of this study was included.
Heirich, M.A., Foote, A., Erfurt, J.C. and Konopka, B, (1993) Work-site physical fitness programs: Comparing the impact of different program designs on cardiovascular risks, *Journal of Occupational Medicine,* 35(5): 510-517.	Excluded due to lack of time. Had not arrived from UBC library when review was submitted
Hibbard, J. (1993) Social roles as predictors of cessation in a cohort of women smokers, *Women and Health*, 20(4): 71-80.	Too far outside scope of review. Does not deal specifically with employed female smokers.
Koffman, D.M., Lee, J.W., Hopp, J.W. and Emont, S.L. (1998) The impact of including incentives and competition in a workplace smoking cessation program on quit rates, *American Journal of Health Promotion*, 13(2): 105-111.	Included in the Cochrane Review on workplace interventions. No other outcomes of interest are reported.
Ringen, K., Anderson, N., McAfee, T., Zbiowski, S.M. and Fales, D. (2002) Smoking cessation in a blue-collar population: Results from an evidence-based pilot program, *American Journal of Industrial Medicine*, 42: 367-377.	Very poor quality study. Intervention provided unclear, study population unclear. No usable outcomes discussed.
Salina, D., Jason, L.A., Hedeker, D., Daufman, J., Lesondak, L., McMahon, S.D., Taylor, S. and Kimball, P. (1994) A follow-up of a media-based, worksite smoking cessation program. *American Journal of Community Psychology,* 22(2): p. 257-271.	Included in the Cochrane Review on workplace interventions. No other outcomes of interest are reported.
Swartz, S.H. and Hays, J.T. (2004) Office-based intervention for tobacco dependence, *Medical Clinics of North America*, 88: 1623-1641.	Study deals with a medical clinic, not a workplace intervention
Voit, S. (2001) Work-site health and fitness programs: impact on the employee and employer, *Work,* 16: 273-286.	Not relevant enough to review – programme did not include smoking cessation.

9. APPENDIX C – Level 3 and 4 Evidence

Paper	*Rating*	*Rationale for incorporation as level 3 or 4 evidence and reason for rating*
Griffiths, J. (2005). *Smoke-free Scotland: Guidance on smoking policies for the NHS, local authorities, and care service providers.* Scottish Executive.	4+	Report provides information on the development of an approach to tobacco which will maximize the benefits of being smoke-free and on how to comply with smoke free policy. Findings are of good quality but are based on second-hand data.
NHS. (2005). *Smokefree policy pack.* London, NHS.	4+	Report outlines tips on how to implement smokefree policy in the workplace. Findings are based on expert opinion and second hand date.
Office of Tobacco Control (2005) *Smoke-free workplaces in Ireland: one year review.* Ireland: Office of Tobacco Control.	3+	Summary of the reception of the Republic of Ireland's smoking ban and levels of compliance with it. Evidence quality seems high – particularly compliance data which reports on inspections rather than calls to national complaint lines.
Pisano M (2006) The smoking ban: what lessons from Italy? Scottish Council Foundation [On-line]. Available: http://www.scottishcouncilfoundation.org/story_more.php?id=93&print=1	3+	Summary of the reception of Italy's smoking ban and levels of compliance with it. No way to evaluate the quality of this report but it seems of a reasonable standard.
Quit. (2001). *Going smokefree a policy kit for sports club and associations: Creating healthy sporting environments.* Carlton, Quit.	4+	Report provides information on smoking policy within sporting environments in Australia. No formal research was conducted and findings are based on expert opinion.
Quit. (2001). *Going smokefree...it works for me: A guide for workplaces.* Carlton, Quit.	4+	Report provides information on workplace smoking policy in Australia. Findings are based on second hand date. No

		formal research was conducted.
Scottish Executive. (2006). Latest situation. Retrieved October 30, 2006 from http://www.clearingtheairscotland.com/latest/index.html.	3+	Website offers the latest statistics on smokefree legislation and national compliance data in Scotland. Evidence quality seems high.
PACT. (2002). Employers' smoking cessation guide: Practical approaches to a costly workplace problem. New Jersey, PACT.	4+	Report provides information for employers about implementing workplace smoking cessation programmes. Findings are of good quality but are based on expert opinion.
Worldbank. (2002). *Smoke-free workplaces: At a glance.* Washington DC, Worldbank.	4+	Report provides a brief outline of factors associated with workplace smoking policy. Findings are based on expert opinion and formal consensus. No formal research was conducted.

10. APPENDIX D

Workplace policies: search process

Julie Glanville/Kate Light
Vers. 1, 18 May 2006
Vers. 2, 11 May 2006
Vers. 3, 26 May 2006
Vers. 4, 31 May 2006

Part 1.A

Search for reviews in reviews/guidelines and project databases.

Database	Dates covered/ date searched	Records retrieved	Records retained after deduplication	Custom 4 code
Cochrane Database of Systematic Reviews	Issue 2006/2	3	3	cdsr 11/5/06 review
DARE	May 2006	57	57	Dare 11/5/06 review
National Research Register (including CRD ongoing reviews database)	Issue 2006/2	133	126	Nrr 15/5/06 project
Health Technology Assessment Database	May 2006	14	14	Hta 11/5/06 review
SIGN Guidelines	11/5/06	0	0	n/a
National Guideline Clearinghouse	15/5/06	5	5	Ngc 11/5/06 review
HSTAT	11/5/06	6	5	Hstat 11/5/06 review
TRIP	15/5/06	0	0	n/a

CDSR (Cochrane Library 2006/2)

#1 **smoking or smoker or smokefree or smoke** in **Title, Abstract or Keywords** or **tobacco or nicotine or cigar* or bidi* or kretek or paan** in **Title, Abstract or Keywords** or **gutkha or snuff or snus or betel** in **Title, Abstract or Keywords** in **Cochrane Reviews**
#2 MeSH descriptor **Smoking**, this term only in **MeSH products**
#3 MeSH descriptor **Tobacco** explode all trees in **MeSH products**
#4 MeSH descriptor **Tobacco Smoke Pollution** explode all trees in **MeSH products**
#5 MeSH descriptor **Tobacco Use Disorder** explode all trees in **MeSH products**
#6 MeSH descriptor **Tobacco Use Cessation** explode all trees in **MeSH products**
#7 MeSH descriptor **Nicotine** explode all trees in **MeSH products**
#8 (**#1** OR **#2** OR **#3** OR **#4** OR **#5** OR **#6** OR **#7**)

#9 MeSH descriptor **Occupational Health** explode all trees in **MeSH products**
#10 MeSH descriptor **Workplace** explode all trees in **MeSH products**
#11 MeSH descriptor **Work**, this term only in **MeSH products**
#12 MeSH descriptor **Occupational Health Services** explode all trees in **MeSH products**
#13 MeSH descriptor **Occupational Health Nursing** explode all trees in **MeSH products**
#14 **work or worker or workplace or office or factory** in **Title, Abstract or Keywords** or **employee or business** in **Record Title** in **all products**
#15 (**#9** OR **#10** OR **#11** OR **#12** OR **#13** OR **#14**)
#16 (**#8** AND **#15**)

13 records were identified and 3 relevant reviews were downloaded.

DARE (CRD admin database May 11 2006)

S smok$ or tobacco$ or cigarette$ or nicotine or bidi$ or kretek or paan or gutkha or snuff or snus or betel or hand(w)roll$
S occupational or workplace$ or work(w)place$ or work or worker$ or office or offices or factory or factories
S employee$ or business$
S s1 and (s2 or s3)

57 records were identified and downloaded. Coded in Custom 4 as 'dare 11/5/06 review'

HTA (CRD admin database May 11 2006)

S smok$ or tobacco$ or cigarette$ or nicotine or bidi$ or kretek or paan or gutkha or snuff or snus or betel or hand(w)roll$
S occupational or workplace$ or work(w)place$ or work or worker$ or office or offices or factory or factories
S employee$ or business$
S s1 and (s2 or s3)

14 records were identified and downloaded. Coded in Custom 4 as 'hta 11/5/06 review'

SIGN (http://www.sign.ac.uk/) Searched May 11 2006

The list of guidelines was scanned and no relevant guidelines was noted. The work programme was scanned (http://www.sign.ac.uk/guidelines/development/index.html) and no relevant guidelines are planned.

National Guideline Clearinghouse (http://www.guideline.gov/) Searched 11 May 2006

Workplace and (smok* or tobacco* or cigarette* or nicotine or bidi* or kretek or paan or gutkha or snuff or snus or betel)

Found 3 potentially relevant guidelines

occupational and (smok* or tobacco* or cigarette* or nicotine or bidi* or kretek or paan or gutkha or snuff or snus or betel)

Found 1 potentially relevant guideline

work and (smok* or tobacco* or cigarette* or nicotine or bidi* or kretek or paan or gutkha or snuff or snus or betel)

Found 1 potentially relevant guideline

Worker and (smok* or tobacco* or cigarette* or nicotine or bidi* or kretek or paan or gutkha or snuff or snus or betel)

No additional relevant guidelines identifed.

Workers and (smok* or tobacco* or cigarette* or nicotine or bidi* or kretek or paan or gutkha or snuff or snus or betel)

No additional relevant guidelines were identified.

(office or offices or factories or factory or “business*” or “employee*”) and (“smok*” or “tobacco*” or “cigarette*” or nicotine or “bidi*” or kretek or paan or gutkha or snuff or snus or betel)

No additional relevant guidelines were identified.

HSTAT (http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat) searched 11/5/06

(occupational or work* or office or offices or factory or factories or employee* or business*) AND (smok* OR tobacco* OR cigarette* OR nicotine OR bidi* OR kretek OR paan OR gutkha OR snuff OR snus OR betel) AND hstat[book]

Workplace and AND (smok* OR tobacco* OR cigarette* OR nicotine OR bidi* OR kretek OR paan OR gutkha OR snuff OR snus OR betel) AND hstat[book]

6 references were identified and added to the library.

National Research Register (http://www.nrr.nhs.uk/search.htm). 2006 issue 2.

#1. smoking
#2. (smoker or smokers or smokefree or tobacco)
#3. (nicotine or cigarette*)
#4. (bidi* or kretek or paan or gutkha or snuff or snus or betel or roll or rolled)
#5. SMOKING single term (MeSH)
#6. TOBACCO SMOKE POLLUTION single term (MeSH)
#7. TOBACCO SMOKELESS single term (MeSH)
#8. TOBACCO USE CESSATION explode all trees (MeSH)
#9. TOBACCO USE DISORDER single term (MeSH)
#10. NICOTINE single term (MeSH)
#11. (#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10)
#12. OCCUPATIONAL HEALTH single term (MeSH)
#13. OCCUPATIONAL HEALTH NURSING single term (MeSH)
#14. OCCUPATIONAL HEALTH SERVICES single term (MeSH)
#15. WORKPLACE single term (MeSH)
#16. WORK single term (MeSH)
#17. work

#18. workers
#19. worker
#20. workplace
#21. office
#22. offices
#23. factory
#24. factories
#25. employee*
#26. business
#27. businesses
#28. office:ti
#29. office:mr
#30. (#17 or #18 or #19 or #20 or #22 or #23 or #24 or #25 or #26 or #27 or #28 or #29) 7655
#31. (#12 or #13 or #14 or #15 or #16)
#32. (#30 or #31)
#33. (#11 and #32)

133 records retrieved.

TRIP (http://www.update-software.com/trip/athens/) 15/5/06

occupational or workplace* or work or worker* or office or offices or factory or factories or business or businesses

This strategy identified 53 evidence-based synopses, 30 clinical questions and 39 US and European guidelines. None of these produced additional relevant records.

Part 1.B

Search for reviews in the following databases:

Database	Dates covered /date searched	Records retrieved	Records retained after deduplication	Custom 4 code
MEDLINE (Ovid)	1966-May week 3 2006	159	139	Medline reviews
EMBASE (Datastar 1974 to date)	25/5/06	160	128	Embase reviews
British Nursing Index (Datastar 1994 to date)	25/5/06	13	10	Bni reviews
CINAHL (Datastar 1982 to date)	25/5/06	35	29	Cinahl reviews
PsycINFO (Datastar 1806 to date)	25/5/06	18	13	Psycinfo reviews
DH-Data (Datastar 1983 to date)	26/5/06	9	4	Dh reviews
King's Fund (Datastar 1979 to	26/5/06	0	0	n/a

date)				

NOTES:

A. CENTRAL is a database of controlled trials and was not searched for reviews, but will be searched in Part 2 if required, for non-review publications.
B. AMED is a database of complementary medicine and it was agreed with NICE that it was not necessary to search this database for this topic.

Medline strategy

1 smoking.ti,ab. (78962)
2 smoking/ (77953)
3 (smoker or smokers or smokefree or smoke free).ti,ab. (31868)
4 tobacco, smokeless/ or tobacco smoke pollution/ (7515)
5 tobacco.ti,ab. (35410)
6 tobacco/ (14900)
7 "Tobacco Use Disorder"/ or "tobacco use cessation"/ or smoking cessation/ (11863)
8 nicotine.ti,ab. (16320)
9 nicotine/ (14317)
10 cigar$.ti,ab. (30288)
11 (bidi$ or kretek or paan or gutkha or snuff or snus or betel or hand roll$ or betel nut$).ti,ab. (10062)
12 or/1-11 (163545)
13 occupational health/ (11980)
14 workplace/ (5690)
15 work/ (6583)
16 occupational health services/ (8368)
17 occupational health nursing/ (3623)
18 (work or workers or worker or workplace$ or work place$ or office or offices or factory or factories or employee$ or business or businesses).ti. (96311)
19 or/13-18 (118116)
20 12 and 19 (5396)
21 limit 20 to english language (4571)
22 review.ab. (293091)
23 review.pt. (1216463)
24 meta-analysis.ab,ti. (12699)
25 meta-analysis.pt. (13283)
26 (letter or editorial or comment).pt. (796061)
27 (22 or 23 or 24 or 25) not 26 (1326551)
28 21 and 27 (253)
29 limit 28 to yr="1995 - 2006" (159)

Embase strategy

1. (SMOKING OR SMOKER OR SMOKERS OR SMOKEFREE OR SMOKE ADJ FREE).TI,AB.
2. SMOKING-AND-SMOKING-RELATED-PHENOMENA#.DE.
3. SMOKING-CESSATION.DE.
4. TOBACCO-DEPENDENCE.DE.

5. TOBACCO.TI,AB.
6. NICOTINE.DE.
7. NICOTINE.TI,AB.
8. TOBACCO-SMOKE.DE.
9. SMOKELESS-TOBACCO.DE.
10. TOBACCO.DE.
11. CIGARETTE-SMOKE.DE.
12. BETEL-NUT.DE.
13. CIGAR$.TI,AB.
14. (BIDI$ OR KRETEK OR PAAN OR GUTKHA OR SNUFF OR SNUS OR BETEL OR HAND ADJ ROLL$).TI,AB.
15. 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14
16. YEAR=2006 OR YEAR=2005 OR YEAR=2004 OR YEAR=1995 OR YEAR=2003 OR YEAR=2002 OR YEAR=2001 OR YEAR=2000 OR YEAR=1999 OR YEAR=1998 OR YEAR=1997 OR YEAR=1996
17. 15 AND 16
18. OCCUPATIONAL-HEALTH.DE.
19. OCCUPATIONAL-EXPOSURE.DE.
20. OCCUPATIONAL-CARCINOGENESIS.DE.
21. OCCUPATIONAL-HAZARD.DE.
22. OCCUPATIONAL-HEALTH-NURSING.DE.
23. OCCUPATIONAL-HEALTH-SERVICE.DE.
24. OCCUPATIONAL-SAFETY.DE.
25. QUALITY-OF-WORKING-LIFE.DE.
26. WORKROOM-AIR.DE.
27. WORK.DE.
28. WORK-ENVIRONMENT.DE.
29. WORKPLACE.DE.
30. (WORK OR WORKERS OR WORKER OR WORKPLACE$ OR WORK ADJ PLACE$ OR OFFICE OR OFFICES OR FACTORY OR FACTORIES OR EMPLOYEE$ OR BUSINESS OR BUSINESSES).TI.
31. 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29 OR 30
32. 17 AND 31
33. LG=EN
34. 32 AND 33
35. META-ANALYSIS#.DE.
36. (REVIEW$ OR OVERVIEW$).TI.
37. (META-ANALYSIS OR META-ANALYSES OR METAANALYSIS OR METAANALYSES OR META ADJ ANALYSIS OR META ADJ ANALYSES).TI.
38. ((SYNTHESIS OR SYNTHESES OR SYNTHESIS$ OR SYNTHESIZ$) NEXT (LITERATURE OR LITERATURES OR RESEARCH$ OR STUDIES OR DATA)).TI,AB.
39. (POOLED ADJ ANALYSIS OR POOLED ADJ ANALYSES).TI,AN.
40. (POOLED ADJ ANALYSIS OR POOLED ADJ ANALYSES).TI,AB.
41. (DATA NEXT POOL$).TI,AB. AND STUDIES.TI,AB.
42. (MEDLINE OR MEDLARS OR EMBASE OR CINAHL OR SCISEARCH OR PSYCHINFO OR PSYCINFO OR PSYCHLIT OR PSYCLIT).TI,AB.

43. ((HAND OR MANUAL OR DATABASE OR DATABASES OR COMPUTER OR COMPUTERS) NEXT SEARCH$).TI,AB.
44. ((ELECTRONIC OR BIBLIOGRAPHIC$) NEXT (DATABASE OR DATABASES OR DATA ADJ BASE OR DATABASES)).TI,AB.
45. ((REVIEW OR REVIEWS OR OVERVIEW OR OVERVIEWS) NEXT (SYSTEMATIC$ OR METHODOLOGIC$ OR QUANTITATIV$ OR RESEARCH OR LITERATURE$ OR STUDIES OR TRIAL OR TRIALS OR EFFECTIVE$)).AB.

BNI strategy

1. SMOKING.DE.
2. (SMOKING OR SMOKER OR SMOKERS OR SMOKEFREE OR SMOKE ADJ FREE).TI,AB.
3. (TOBACCO OR NICOTINE).TI,AB.
4. (cigar OR cigars OR cigarette OR cigarettes).TI,AB.
5. (BIDI$ OR KRETEK OR PAAN OR GUTKHA OR SNUFF OR SNUS OR BETEL OR HAND ADJ ROLLED).TI,AB.
6. 1 OR 2 OR 3 OR 4 OR 5
7. OCCUPATIONAL-HEALTH-AND-SAFETY.DE.
8. STUDENT-HEALTH.DE.
9. ENVIRONMENTAL-HEALTH.DE.
10. AIR-QUALITY.DE.
11. STAFF-WELFARE.DE.
12. OCCUPATIONAL-HEALTH-SERVICES.DE.
13. OCCUPATIONAL-DISEASES.DE.
14. OCCUPATIONAL-HEALTH-NURSING.DE.
15. LAW.DE.
16. STAFF-ATTITUDES.DE.
17. (WORK OR WORKERS OR WORKER OR WORKPLACE$ OR WORK ADJ PLACE$ OR OFFICE OR OFFICES OR FACTORY OR FACTORIES OR EMPLOYEE$ OR BUSINESS OR BUSINESSES).TI.
18. 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17
19. 6 AND 18
20. YEAR=2006 OR YEAR=2005 OR YEAR=2004 OR YEAR=1995 OR YEAR=2003 OR YEAR=2002 OR YEAR=2001 OR YEAR=2000 OR YEAR=1999 OR YEAR=1998 OR YEAR=1997 OR YEAR=1996
21. 19 AND 20
22. REVIEW
23. (REVIEW OR OVERVIEW OR META-ANALYSIS OR META-ANALYSES OR META ADJ ANALYS$ OR METAANALYS$).TI,AB.
24. ((SYNTHESIS OR SYNTHESES OR SYNTHESISING OR SYNTHESIZING) NEXT (LITERATURE OR LITERATURES OR RESEARCH OR STUDIES OR DATA)).TI,AB.
25. (POOLED ADJ ANALYSIS OR POOLED ADJ ANALYSES).TI,AB.
26. (DATA NEXT POOL$).TI,AB. AND STUDIES.TI,AB.
27. ((HAND OR MANUAL OR DATABASE OR DATABASES OR COMPUTER OR COMPUTERS) NEXT (SEARCH OR SEARCHES OR SEARCHING)).TI,AB.
28. (MEDLINE OR MEDLARS OR EMBASE OR CINAHL OR SCISEARCH OR PSYCHINFO OR PSYCINFO OR PSYCHLIT OR PSYCLIT).TI,AB.

29. ((ELECTRONIC OR BIBLIOGRAPHIC$) NEXT (DATABASE OR DATABASES OR DATA ADJ BASE OR DATABASES)).TI,AB.
30. (RETROSPECTIVE OR CASE OR CASES OR RECORD OR RECORDS OR PATIENT OR PATIENTS) NEXT (REVIEW OR REVIEWS)
31. (PEER OR CHART OR CHARTS) NEXT (REVIEW OR REVIEWS)
32. (CASE ADJ CONTROL ADJ STUDIES).TI,AB.
33. (PROSPECTIVE ADJ STUDIES).TI,AB.
34. 22 OR 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29
35. 30 OR 31 OR 32 OR 33
36. 34 NOT 35
37. 21 AND 36

CINAHL strategy

1. YEAR=2006 OR YEAR=2005 OR YEAR=2004 OR YEAR=1995 OR YEAR=2003 OR YEAR=2002 OR YEAR=2001 OR YEAR=2000 OR YEAR=1999 OR YEAR=1998 OR YEAR=1997 OR YEAR=1996
2. (SMOKING OR SMOKER OR SMOKERS OR SMOKEFREE OR SMOKE ADJ FREE).TI,AB.
3. SMOKING#.DE.
4. SMOKING-CESSATION-PROGRAMMES.DE.
5. NICOTINE.DE.
6. TOBACCO-SMOKELESS.DE.
7. TOBACCO.DE.
8. PASSIVE-SMOKING.DE.
9. BETEL-PALM.DE.
10. (TOBACCO OR NICOTINE).TI,AB.
11. CIGAR$.TI,AB.
12. (BIDI$ OR KRETEK OR PAAN OR GUTKHA OR SNUFF OR SNUS OR BETEL OR HAND ADJ ROLL$).TI,AB.
13. 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12
14. 1 AND 13
15. OCCUPATIONAL-EXPOSURE.DE.
16. OCCUPATIONAL-HEALTH.DE.
17. OCCUPATIONAL-HAZARDS.DE.
18. OCCUPATIONAL-SAFETY.DE.
19. OCCUPATIONAL-HEALTH-SERVICES.DE.
20. EMPLOYEE-ASSISTANCE-PROGRAMMES.DE.
21. WORK-ENVIRONMENT#.DE.
22. OCCUPATIONAL-HEALTH-NURSING.DE.
23. WORK.DE.
24. (WORK OR WORKERS OR WORKER OR WORKPLACE$ OR WORK ADJ PLACE$ OR OFFICE OR OFFICES OR FACTORY OR FACTORIES OR EMPLOYEE$ OR BUSINESS OR BUSINESSES).TI.
25. 15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24
26. 14 AND 25 AND LG=EN
27. META-ANALYSIS.DE.
28. COCHRANE$.TI,AB.
29. NURSING-INTERVENTIONS.DT.
30. SYSTEMATIC-REVIEW.DT.

31. (REVIEW$ OR OVERVIEW$).TI.
32. (META-ANALYS$ OR METAANALYS$ OR META ADJ ANALYS$).TI,AB.
33. LITERATURE-REVIEW#.DE.
34. LITERATURE-SEARCHING#.DE.
35. COMPUTERIZED-LITERATURE-SEARCHING#.DE.
36. ((SYNTHESIS OR SYNTHESES OR SYNTHESIS$ OR SYNTHESIZ$) NEXT (LITERATURE OR LITERATURES OR RESEARCH OR STUDIES OR DATA)).TI,AB.
37. (MEDLINE OR MEDLARS OR EMBASE OR CINAHL OR SCISEARCH OR PSYCHINFO OR PSYCINFO OR PSYCHLIT OR PSYCLIT).TI,AB.
38. (POOLED ADJ ANALYSIS OR POOLED ADJ ANALYSES).TI,AB.
39. (DATA NEXT POOL$).TI,AB. AND STUDIES.TI,AB.
40. ((HAND OR MANUAL OR DATABASE OR DATABASES OR COMPUTER OR COMPUTERS) NEXT SEARCH$).TI,AB.
41. REFERENCE-DATABASES#.DE.
42. ((ELECTRONIC OR BIBLIOGRAPHIC$) NEXT (DATABASE OR DATABASES OR DATA ADJ BASE OR DATABASES)).TI,AB.
43. REVIEW.DT. AND (SYSTEMATIC$ OR METHODOLOGIC$ OR QUANTITATIV$ OR RESEARCH OR LITERATURE$ OR STUDIES OR TRIAL OR TRIALS OR EFFECTIVE$).AB.
44. ((REVIEW OR REVIEWS OR OVERVIEW OR OVERVIEWS) NEXT (SYSTEMATIC$ OR METHODOLOGIC$ OR QUANTITATIV$ OR RESEARCH OR LITERATURE$ OR STUDIES OR TRIAL OR TRIALS OR EFFECTIVE$)).AB.
45. 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR 33 OR 34 OR 35 OR 36 OR 37 OR 38 OR 39 OR 40 OR 41 OR 42 OR 43 OR 44
46. EDITORIAL.DT. OR LETTER.DT. OR CASE-STUDY.DT.
47. PEER-REVIEW#.DE.
48. RECORD-REVIEW#.DE.
49. ((RETROSPECTIVE OR CASE OR CASES OR RECORD OR RECORDS OR PATIENT OR PATIENTS) NEXT (REVIEW OR REVIEWS)).TI,AB.
50. ((PATIENT OR PATIENTS) NEXT (CHART OR CHARTS)).TI,AB.
51. ((PEER OR CHART OR CHARTS) NEXT (REVIEW OR REVIEWS)).TI,AB.
52. CASE NEXT REPORT$.TI,AB.
53. CASE-CONTROL-STUDIES#.DE.
54. PROSPECTIVE-STUDIES#.DE.
55. CASE-STUDIES.DE.
56. ANIMAL-STUDIES.DE.
57. 46 OR 47 OR 48 OR 49 OR 50 OR 51 OR 52 OR 53 OR 54 OR 55 OR 56
58. 45 NOT 57
59. 26 AND 58

PsycINFO strategy

SEARCH: nicotine.DE. OR tobacco-smoking.DE.
2. smoking-cessation.DE.
3. smokeless-tobacco.DE.
4. (SMOKING OR SMOKER OR SMOKERS OR SMOKEFREE OR SMOKE ADJ FREE).TI,AB.
5. TOBACCO.TI,AB.

6. NICOTINE.TI,AB.
7. (cigar OR cigars OR cigarette OR cigarettes).TI,AB.
8. (BIDI$ OR KRETEK OR PAAN OR GUTKHA OR SNUFF OR SNUS OR BETEL OR HAND ADJ ROLLED).TI,AB.
9. 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8
10. WORKING-CONDITIONS.DE.
11. WORKING-SPACE.DE.
12. OCCUPATIONAL-SAFETY.DE.
13. EMPLOYEE-ATTITUDES.DE.
14. ORGANIZATIONAL-BEHAVIOR.DE.
15. BUSINESS.DE.
16. EMPLOYEE-ASSISTANCE-PROGRAMMES.DE.
17. BUSINESS-ORGANIZATIONS.DE.
18. (WORK OR WORKERS OR WORKER OR WORKPLACE$ OR WORK ADJ PLACE$ OR OFFICE OR OFFICES OR FACTORY OR FACTORIES OR EMPLOYEE$ OR BUSINESS OR BUSINESSES).TI.
19. 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18
20. 9 AND 19 AND LG=EN
21. YEAR=2006 OR YEAR=2005 OR YEAR=2004 OR YEAR=1995 OR YEAR=2003 OR YEAR=2002 OR YEAR=2001 OR YEAR=2000 OR YEAR=1999 OR YEAR=1998 OR YEAR=1997 OR YEAR=1996
22. 20 AND 21
23. (META-ANALYSIS OR META-ANALYSES OR METAANALYSIS OR METAANALYSES OR META ADJ ANALYSIS OR META ADJ ANALYSES).TI.
24. COCHRANE$.TI.
25. (REVIEW OR REVIEWS OR OVERVIEW OR OVERVIEWS).TI.
26. META-ANALYSIS.MD.
27. LITERATURE-REVIEW.MD.
28. ((SYNTHESIS OR SYNTHESES OR SYNTHESISING OR SYNTHESIZING) NEXT (LITERATURE OR LITERATURES OR RESEARCH OR STUDIES OR DATA)).TI.
29. (POOLED ADJ ANALYSIS OR POOLED ADJ ANALYSES).TI,AB.
30. (DATA NEXT POOL$).TI,AB. AND STUDIES.TI,AB.
31. (MEDLINE OR MEDLARS OR EMBASE OR CINAHL OR SCISEARCH OR PSYCHINFO OR PSYCINFO OR PSYCHLIT OR PSYCLIT).TI,DE.
32. ((HAND OR MANUAL OR DATABASE OR DATABASES OR COMPUTER OR COMPUTERS) NEXT (SEARCH OR SEARCHES OR SEARCHING)).TI,DE.
33. ((ELECTRONIC OR BIBLIOGRAPHIC$) NEXT (DATABASE OR DATABASES OR DATA ADJ BASE OR DATABASES)).TI,DE.
34. ((REVIEW OR REVIEWS OR OVERVIEW OR OVERVIEWS) NEXT (SYSTEMATIC OR METHODOLOGIC OR METHODOLOGICAL OR QUANTITATIVE OR RESEARCH OR LITERATURE OR STUDIES OR TRIAL OR TRIALS OR EFFECTIVE OR EFFECTIVENESS)).TI.
35. (RETROSPECTIVE OR CASE OR CASES OR RECORD OR RECORDS OR PATIENT OR PATIENTS) NEXT (REVIEW OR REVIEWS)
36. (PEER OR CHART OR CHARTS) NEXT (REVIEW OR REVIEWS)
37. (CASE ADJ CONTROL ADJ STUDIES).TI,AB.
38. (PROSPECTIVE ADJ STUDIES).TI,AB.
39. 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR 33 OR 34
40. 35 OR 36 OR 37 OR 38

41. 39 NOT 40
42. 22 AND 41

DH-Data and King's Fund strategy (both use same thesaurus)

1. smoking#.DE.
2. smoking-cessation.DE.
3. smoking-policy.DE.
4. cigarettes#.DE.
5. tobacco#.DE.
6. smoking-control.DE.
7. tobacco-consumption.DE.
8. smokers.DE.
9. nicotine.DE.
10. betel.DE.
11. tobacco-chewing.DE.
12. tobacco-products.DE.
13. cigars.DE.
14. skoal-bandits.DE.
15. (SMOKING OR SMOKER OR SMOKERS OR SMOKEFREE OR SMOKE ADJ FREE).TI,AB.
16. (TOBACCO OR NICOTINE).TI,AB.
17. (cigar OR cigars OR cigarette OR cigarettes).TI,AB.
18. (BIDI$ OR KRETEK OR PAAN OR GUTKHA OR SNUFF OR SNUS OR BETEL OR HAND ADJ ROLLED).TI,AB.
19. 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18
20. occupational-health-and-safety.DE.
21. healthy-workplace.DE.
22. staff-health-and-safety.DE.
23. employees#.DE.
24. working-environment.DE.
25. working-conditions.DE.
26. social-environment-in-industry.DE.
27. staff-support-systems.DE.
28. (WORK OR WORKERS OR WORKER OR WORKPLACE$ OR WORK ADJ PLACE$ OR OFFICE OR OFFICES OR FACTORY OR FACTORIES OR EMPLOYEE$ OR BUSINESS OR BUSINESSES).TI.
29. environmental-exposure.DE. OR legislation.DE.
30. 20 OR 21 OR 22 OR 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29
31. 19 AND 30
32. YEAR=2006 OR YEAR=2005 OR YEAR=2004 OR YEAR=1995 OR YEAR=2003 OR YEAR=2002 OR YEAR=2001 OR YEAR=2000 OR YEAR=1999 OR YEAR=1998 OR YEAR=1997 OR YEAR=1996
33. 31 AND 32
34. SYSTEMATIC-REVIEWS#.DE.
35. (REVIEW OR OVERVIEW OR META-ANALYSIS OR META-ANALYSES OR META ADJ ANALYS$ OR METAANALYS$).TI,AB.

36. ((SYNTHESIS OR SYNTHESES OR SYNTHESISING OR SYNTHESIZING) NEXT (LITERATURE OR LITERATURES OR RESEARCH OR STUDIES OR DATA)).TI,AB.
37. (POOLED ADJ ANALYSIS OR POOLED ADJ ANALYSES).TI,AB.
38. (DATA NEXT POOL$).TI,AB. AND STUDIES.TI,AB.
39. ((HAND OR MANUAL OR DATABASE OR DATABASES OR COMPUTER OR COMPUTERS) NEXT (SEARCH OR SEARCHES OR SEARCHING)).TI,AB.
40. (MEDLINE OR MEDLARS OR EMBASE OR CINAHL OR SCISEARCH OR PSYCHINFO OR PSYCINFO OR PSYCHLIT OR PSYCLIT).TI,AB.
41. ((ELECTRONIC OR BIBLIOGRAPHIC$) NEXT (DATABASE OR DATABASES OR DATA ADJ BASE OR DATABASES)).TI,AB.
42. 34 OR 35 OR 36 OR 37 OR 38 OR 39 OR 40 OR 41
43. 33 AND 42

Part 2

Search for publications, other than reviews, in the following databases:

Database	Dates covered /date searched	Records retrieved	Records retained after deduplication	Custom 4 code
MEDLINE (Ovid)	1966-May 26 2006	2975	2574	Medline other
EMBASE (Datastar 1974 to date)	30/5/06	5728	3679	Embase other
British Nursing Index (Datastar 1994 to date)	30/5/06	98	68	Bni other
CINAHL (Datastar 1982 to date)	30/5/06	805	167	Cinahl other
PsycINFO (Datastar 1806 to date)	30/5/06	452	218	Psycinfo other
DH-Data (Datastar 1983 to date)	30/5/06	259	117	Dh other
King's Fund (Datastar 1979 to date)	30/5/06	39	25	Kings fund other
CENTRAL	Cochrane Library 2006/2	146	30	Central other

NOTES:

A. AMED is a database of complementary medicine and it was agreed with NICE that it was not necessary to search this database for this topic.

Medline strategy

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1     smoking.ti,ab. (81243)
2     smoking/ (77953)
3     (smoker or smokers or smokefree or smoke free).ti,ab. (32794)
4     tobacco, smokeless/ or tobacco smoke pollution/ (7515)
5     tobacco.ti,ab. (36456)
6     tobacco/ (14900)
7     "Tobacco Use Disorder"/ or "tobacco use cessation"/ or smoking
cessation/ (11863)
8     nicotine.ti,ab. (16715)
9     nicotine/ (14317)
10     cigar$.ti,ab. (30959)
11     (bidi$ or kretek or paan or gutkha or snuff or snus or betel
or hand roll$ or betel nut$).ti,ab. (10460)
12     or/1-11 (167389)
13     occupational health/ (11980)
14     workplace/ (5690)
15     work/ (6583)
16     occupational health services/ (8368)
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17     occupational health nursing/ (3623)
18     (work or workers or worker or workplace$ or work place$ or
office or offices or factory or factories or employee$ or business or
businesses).ti. (97833)
19     or/13-18 (119638)
20     12 and 19 (5483)
21     limit 20 to english language (4645)
22     review.ab. (307450)
23     review.pt. (1217392)
24     meta-analysis.ab,ti. (13336)
25     meta-analysis.pt. (13296)
26     (letter or editorial or comment).pt. (816993)
27     (22 or 23 or 24 or 25) not 26 (1341796)
28     21 and 27 (254)
29     limit 28 to yr="1995 - 2006" (160)
30     limit 28 to yr="1990-2006" (200)
31     21 not 27 (4391)
32     limit 31 to yr="1990=2006" (0)
33     limit 31 to yr="1990-2006" (3069)
34     33 not 26 (2975)
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EMBASE strategy

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1. (SMOKING OR SMOKER OR SMOKERS OR SMOKEFREE OR SMOKE ADJ
FREE).TI,AB.
2. SMOKING-AND-SMOKING-RELATED-PHENOMENA#.DE.
3. SMOKING-CESSATION.DE.
4. TOBACCO-DEPENDENCE.DE.
5. TOBACCO.TI,AB.
6. NICOTINE.DE.
7. NICOTINE.TI,AB.
8. TOBACCO-SMOKE.DE.
9. SMOKELESS-TOBACCO.DE.
10. TOBACCO.DE.
11. CIGARETTE-SMOKE.DE.
12. BETEL-NUT.DE.
13. CIGAR$.TI,AB.
14. (BIDI$ OR KRETEK OR PAAN OR GUTKHA OR SNUFF OR SNUS OR BETEL OR
HAND ADJ ROLL$).TI,AB.
15. 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13
OR 14
16. YEAR=2006 OR YEAR=2005 OR YEAR=2004 OR YEAR=1995 OR YEAR=2003 OR
YEAR=2002 OR YEAR=2001 OR YEAR=2000 OR YEAR=1999 OR YEAR=1998 OR
YEAR=1997 OR YEAR=1996
17. 15 AND 16
18. OCCUPATIONAL-HEALTH.DE.
19. OCCUPATIONAL-EXPOSURE.DE.
20. OCCUPATIONAL-CARCINOGENESIS.DE.
21. OCCUPATIONAL-HAZARD.DE.
22. OCCUPATIONAL-HEALTH-NURSING.DE.
23. OCCUPATIONAL-HEALTH-SERVICE.DE.
24. OCCUPATIONAL-SAFETY.DE.
25. QUALITY-OF-WORKING-LIFE.DE.
26. WORKROOM-AIR.DE.
27. WORK.DE.
28. WORK-ENVIRONMENT.DE.
29. WORKPLACE.DE.
30. (WORK OR WORKERS OR WORKER OR WORKPLACE$ OR WORK ADJ PLACE$ OR
OFFICE OR OFFICES OR FACTORY OR FACTORIES OR EMPLOYEE$ OR BUSINESS OR
BUSINESSES).TI.
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31. 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29 OR 30
32. 17 AND 31
33. LG=EN
34. 32 AND 33
35. META-ANALYSIS#.DE.
36. (REVIEW$ OR OVERVIEW$).TI.
37. (META-ANALYSIS OR META-ANALYSES OR METAANALYSIS OR METAANALYSES OR META ADJ ANALYSIS OR META ADJ ANALYSES).TI.
38. ((SYNTHESIS OR SYNTHESES OR SYNTHESIS$ OR SYNTHESIZ$) NEXT (LITERATURE OR LITERATURES OR RESEARCH$ OR STUDIES OR DATA)).TI,AB.
39. (POOLED ADJ ANALYSIS OR POOLED ADJ ANALYSES).TI,AN.
40. (POOLED ADJ ANALYSIS OR POOLED ADJ ANALYSES).TI,AB.
41. (DATA NEXT POOL$).TI,AB. AND STUDIES.TI,AB.
42. (MEDLINE OR MEDLARS OR EMBASE OR CINAHL OR SCISEARCH OR PSYCHINFO OR PSYCINFO OR PSYCHLIT OR PSYCLIT).TI,AB.
43. ((HAND OR MANUAL OR DATABASE OR DATABASES OR COMPUTER OR COMPUTERS) NEXT SEARCH$).TI,AB.
44. ((ELECTRONIC OR BIBLIOGRAPHIC$) NEXT (DATABASE OR DATABASES OR DATA ADJ BASE OR DATABASES)).TI,AB.
45. ((REVIEW OR REVIEWS OR OVERVIEW OR OVERVIEWS) NEXT (SYSTEMATIC$ OR METHODOLOGIC$ OR QUANTITATIV$ OR RESEARCH OR LITERATURE$ OR STUDIES OR TRIAL OR TRIALS OR EFFECTIVE$)).AB.
46. 35 OR 36 OR 37 OR 38 OR 39 OR 40 OR 41 OR 42 OR 43 OR 44 OR 45
47. ((RETROSPECTIVE OR CASE OR CASES OR RECORD OR RECORDS OR PATIENT OR PATIENTS) NEXT (REVIEW OR REVIEWS)).TI,AB.
48. ((PATIENT OR PATIENTS) NEXT (CHART OR CHARTS)).TI,AB.
49. ((PEER OR CHART OR CHARTS) NEXT (REVIEW OR REVIEWS)).TI,AB.
50. CASE NEXT REPORT$.TI,AB.
51. 47 OR 48 OR 49 OR 50
52. 46 NOT 51
53. 34 AND 52
54. yr=1990 OR yr=1991 OR yr=1992 OR yr=1993 OR yr=1994
55. 16 OR 54
56. 15 AND 31
57. 56 AND (16 OR 54) AND LG=EN
58. 52 AND 56 AND (16 OR 54) AND lg=en
59. 57 NOT 58

CENTRAL strategy

#1 smoking in Title, Abstract or Keywords in all products 7808 edit delete
#2 smoker or smokefree or "smoke free" in Title, Abstract or Keywords in all products 3175 edit delete
#3 tobacco in Keywords in all products 654 edit delete
#4 nicotine in Title, Abstract or Keywords in all products 1746 edit delete
#5 cigar in Title, Abstract or Keywords in all products 15 edit delete
#6 cigarette in Title, Abstract or Keywords in all products 2145 edit delete
#7 bidi or kretek or paan or gutkha or snuff or snus or betel or "hand roll*" in Title, Abstract or Keywords in all products 47 edit delete
#8 (#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7) 8770 edit delete
#9 MeSH descriptor Occupational Health, this term only in MeSH products 206 edit delete
#10 MeSH descriptor Workplace, this term only in MeSH products 206 edit delete

#11 MeSH descriptor Work, this term only in MeSH products 128 edit delete
#12 MeSH descriptor Occupational Health Services, this term only in MeSH products 205 edit delete
#13 MeSH descriptor Occupational Health Nursing, this term only in MeSH products 10 edit delete
#14 work or worker or workplace or "work place*" or office or factory or employee or business in Record Title in all products 2620 edit delete
#15 (#9 OR #10 OR #11 OR #12 OR #13 OR #14) 3025 edit delete
#16 (#8 AND #15), from 1990 to 2006 171 edit delete

BNI search strategy

1. SMOKING.DE.
2. (SMOKING OR SMOKER OR SMOKERS OR SMOKEFREE OR SMOKE ADJ FREE).TI,AB.
3. (TOBACCO OR NICOTINE).TI,AB.
4. (cigar OR cigars OR cigarette OR cigarettes).TI,AB.
5. (BIDI$ OR KRETEK OR PAAN OR GUTKHA OR SNUFF OR SNUS OR BETEL OR HAND ADJ ROLLED).TI,AB.
6. 1 OR 2 OR 3 OR 4 OR 5
7. OCCUPATIONAL-HEALTH-AND-SAFETY.DE.
8. STUDENT-HEALTH.DE.
9. ENVIRONMENTAL-HEALTH.DE.
10. AIR-QUALITY.DE.
11. STAFF-WELFARE.DE.
12. OCCUPATIONAL-HEALTH-SERVICES.DE.
13. OCCUPATIONAL-DISEASES.DE.
14. OCCUPATIONAL-HEALTH-NURSING.DE.
15. LAW.DE.
16. STAFF-ATTITUDES.DE.
17. (WORK OR WORKERS OR WORKER OR WORKPLACE$ OR WORK ADJ PLACE$ OR OFFICE OR OFFICES OR FACTORY OR FACTORIES OR EMPLOYEE$ OR BUSINESS OR BUSINESSES).TI.
18. 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17
19. 6 AND 18
20. YEAR=2006 OR YEAR=2005 OR YEAR=2004 OR YEAR=1995 OR YEAR=2003 OR YEAR=2002 OR YEAR=2001 OR YEAR=2000 OR YEAR=1999 OR YEAR=1998 OR YEAR=1997 OR YEAR=1996
21. 19 AND 20
22. REVIEW
23. (REVIEW OR OVERVIEW OR META-ANALYSIS OR META-ANALYSES OR META ADJ ANALYS$ OR METAANALYS$).TI,AB.
24. ((SYNTHESIS OR SYNTHESES OR SYNTHESISING OR SYNTHESIZING) NEXT (LITERATURE OR LITERATURES OR RESEARCH OR STUDIES OR DATA)).TI,AB.
25. (POOLED ADJ ANALYSIS OR POOLED ADJ ANALYSES).TI,AB.
26. (DATA NEXT POOL$).TI,AB. AND STUDIES.TI,AB.
27. ((HAND OR MANUAL OR DATABASE OR DATABASES OR COMPUTER OR COMPUTERS) NEXT (SEARCH OR SEARCHES OR SEARCHING)).TI,AB.
28. (MEDLINE OR MEDLARS OR EMBASE OR CINAHL OR SCISEARCH OR PSYCHINFO OR PSYCINFO OR PSYCHLIT OR PSYCLIT).TI,AB.
29. ((ELECTRONIC OR BIBLIOGRAPHIC$) NEXT (DATABASE OR DATABASES OR DATA ADJ BASE OR DATABASES)).TI,AB.
30. (RETROSPECTIVE OR CASE OR CASES OR RECORD OR RECORDS OR PATIENT OR PATIENTS) NEXT (REVIEW OR REVIEWS)
31. (PEER OR CHART OR CHARTS) NEXT (REVIEW OR REVIEWS)
32. (CASE ADJ CONTROL ADJ STUDIES).TI,AB.
33. (PROSPECTIVE ADJ STUDIES).TI,AB.
34. 22 OR 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29

35. 30 OR 31 OR 32 OR 33
36. 34 NOT 35
37. 21 AND 36
38. (6 AND 18) NOT 36

CINAHL search strategy

1. YEAR=2006 OR YEAR=2005 OR YEAR=2004 OR YEAR=1995 OR YEAR=2003 OR YEAR=2002 OR YEAR=2001 OR YEAR=2000 OR YEAR=1999 OR YEAR=1998 OR YEAR=1997 OR YEAR=1996
2. (SMOKING OR SMOKER OR SMOKERS OR SMOKEFREE OR SMOKE ADJ FREE).TI,AB.
3. SMOKING#.DE.
4. SMOKING-CESSATION-PROGRAMMES.DE.
5. NICOTINE.DE.
6. TOBACCO-SMOKELESS.DE.
7. TOBACCO.DE.
8. PASSIVE-SMOKING.DE.
9. BETEL-PALM.DE.
10. (TOBACCO OR NICOTINE).TI,AB.
11. CIGAR$.TI,AB.
12. (BIDI$ OR KRETEK OR PAAN OR GUTKHA OR SNUFF OR SNUS OR BETEL OR HAND ADJ ROLL$).TI,AB.
13. 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12
14. 1 AND 13
15. OCCUPATIONAL-EXPOSURE.DE.
16. OCCUPATIONAL-HEALTH.DE.
17. OCCUPATIONAL-HAZARDS.DE.
18. OCCUPATIONAL-SAFETY.DE.
19. OCCUPATIONAL-HEALTH-SERVICES.DE.
20. EMPLOYEE-ASSISTANCE-PROGRAMMES.DE.
21. WORK-ENVIRONMENT#.DE.
22. OCCUPATIONAL-HEALTH-NURSING.DE.
23. WORK.DE.
24. (WORK OR WORKERS OR WORKER OR WORKPLACE$ OR WORK ADJ PLACE$ OR OFFICE OR OFFICES OR FACTORY OR FACTORIES OR EMPLOYEE$ OR BUSINESS OR BUSINESSES).TI.
25. 15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24
26. 14 AND 25 AND LG=EN
27. META-ANALYSIS.DE.
28. COCHRANE$.TI,AB.
29. NURSING-INTERVENTIONS.DT.
30. SYSTEMATIC-REVIEW.DT.
31. (REVIEW$ OR OVERVIEW$).TI.
32. (META-ANALYS$ OR METAANALYS$ OR META ADJ ANALYS$).TI,AB.
33. LITERATURE-REVIEW#.DE.
34. LITERATURE-SEARCHING#.DE.
35. COMPUTERIZED-LITERATURE-SEARCHING#.DE.
36. ((SYNTHESIS OR SYNTHESES OR SYNTHESIS$ OR SYNTHESIZ$) NEXT (LITERATURE OR LITERATURES OR RESEARCH OR STUDIES OR DATA)).TI,AB.
37. (MEDLINE OR MEDLARS OR EMBASE OR CINAHL OR SCISEARCH OR PSYCHINFO OR PSYCINFO OR PSYCHLIT OR PSYCLIT).TI,AB.
38. (POOLED ADJ ANALYSIS OR POOLED ADJ ANALYSES).TI,AB.
39. (DATA NEXT POOL$).TI,AB. AND STUDIES.TI,AB.
40. ((HAND OR MANUAL OR DATABASE OR DATABASES OR COMPUTER OR COMPUTERS) NEXT SEARCH$).TI,AB.
41. REFERENCE-DATABASES#.DE.
42. ((ELECTRONIC OR BIBLIOGRAPHIC$) NEXT (DATABASE OR DATABASES OR DATA ADJ BASE OR DATABASES)).TI,AB.

43. REVIEW.DT. AND (SYSTEMATIC$ OR METHODOLOGIC$ OR QUANTITATIV$ OR RESEARCH OR LITERATURE$ OR STUDIES OR TRIAL OR TRIALS OR EFFECTIVE$).AB.
44. ((REVIEW OR REVIEWS OR OVERVIEW OR OVERVIEWS) NEXT (SYSTEMATIC$ OR METHODOLOGIC$ OR QUANTITATIV$ OR RESEARCH OR LITERATURE$ OR STUDIES OR TRIAL OR TRIALS OR EFFECTIVE$)).AB.
45. 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR 33 OR 34 OR 35 OR 36 OR 37 OR 38 OR 39 OR 40 OR 41 OR 42 OR 43 OR 44
46. EDITORIAL.DT. OR LETTER.DT. OR CASE-STUDY.DT.
47. PEER-REVIEW#.DE.
48. RECORD-REVIEW#.DE.
49. ((RETROSPECTIVE OR CASE OR CASES OR RECORD OR RECORDS OR PATIENT OR PATIENTS) NEXT (REVIEW OR REVIEWS)).TI,AB.
50. ((PATIENT OR PATIENTS) NEXT (CHART OR CHARTS)).TI,AB.
51. ((PEER OR CHART OR CHARTS) NEXT (REVIEW OR REVIEWS)).TI,AB.
52. CASE NEXT REPORT$.TI,AB.
53. CASE-CONTROL-STUDIES#.DE.
54. PROSPECTIVE-STUDIES#.DE.
55. CASE-STUDIES.DE.
56. ANIMAL-STUDIES.DE.
57. 46 OR 47 OR 48 OR 49 OR 50 OR 51 OR 52 OR 53 OR 54 OR 55 OR 56
58. 45 NOT 57
59. 26 AND 58
60. year=1990 OR year=1991 OR year=1992 OR year=1993 OR year=1994
61. 13 AND 25 AND (1 OR 60)
62. 13 AND 25 AND (1 OR 60) AND 58
63. 61 NOT 62
64. 63 AND LG=EN

PsycINFO search strategy

1. NICOTINE.DE. OR TOBACCO-SMOKING.DE.
2. SMOKING-CESSATION.DE.
3. SMOKELESS-TOBACCO.DE.
4. (SMOKING OR SMOKER OR SMOKERS OR SMOKEFREE OR SMOKE ADJ FREE).TI,AB.
5. TOBACCO.TI,AB.
6. NICOTINE.TI,AB.
7. (CIGAR OR CIGARS OR CIGARETTE OR CIGARETTES).TI,AB.
8. (BIDI$ OR KRETEK OR PAAN OR GUTKHA OR SNUFF OR SNUS OR BETEL OR HAND ADJ ROLLED).TI,AB.
9. 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8
10. WORKING-CONDITIONS.DE.
11. WORKING-SPACE.DE.
12. OCCUPATIONAL-SAFETY.DE.
13. EMPLOYEE-ATTITUDES.DE.
14. ORGANIZATIONAL-BEHAVIOR.DE.
15. BUSINESS.DE.
16. EMPLOYEE-ASSISTANCE-PROGRAMMES.DE.
17. BUSINESS-ORGANIZATIONS.DE.
18. (WORK OR WORKERS OR WORKER OR WORKPLACE$ OR WORK ADJ PLACE$ OR OFFICE OR OFFICES OR FACTORY OR FACTORIES OR EMPLOYEE$ OR BUSINESS OR BUSINESSES).TI.
19. 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18
20. 9 AND 19 AND LG=EN
21. YEAR=2006 OR YEAR=2005 OR YEAR=2004 OR YEAR=1995 OR YEAR=2003 OR YEAR=2002 OR YEAR=2001 OR YEAR=2000 OR YEAR=1999 OR YEAR=1998 OR YEAR=1997 OR YEAR=1996
22. 20 AND 21

23. (META-ANALYSIS OR META-ANALYSES OR METAANALYSIS OR METAANALYSES OR META ADJ ANALYSIS OR META ADJ ANALYSES).TI.
24. COCHRANE$.TI.
25. (REVIEW OR REVIEWS OR OVERVIEW OR OVERVIEWS).TI.
26. META-ANALYSIS.MD.
27. LITERATURE-REVIEW.MD.
28. ((SYNTHESIS OR SYNTHESES OR SYNTHESISING OR SYNTHESIZING) NEXT (LITERATURE OR LITERATURES OR RESEARCH OR STUDIES OR DATA)).TI.
29. (POOLED ADJ ANALYSIS OR POOLED ADJ ANALYSES).TI,AB.
30. (DATA NEXT POOL$).TI,AB. AND STUDIES.TI,AB.
31. (MEDLINE OR MEDLARS OR EMBASE OR CINAHL OR SCISEARCH OR PSYCHINFO OR PSYCINFO OR PSYCHLIT OR PSYCLIT).TI,DE.
32. ((HAND OR MANUAL OR DATABASE OR DATABASES OR COMPUTER OR COMPUTERS) NEXT (SEARCH OR SEARCHES OR SEARCHING)).TI,DE.
33. ((ELECTRONIC OR BIBLIOGRAPHIC$) NEXT (DATABASE OR DATABASES OR DATA ADJ BASE OR DATABASES)).TI,DE.
34. ((REVIEW OR REVIEWS OR OVERVIEW OR OVERVIEWS) NEXT (SYSTEMATIC OR METHODOLOGIC OR METHODOLOGICAL OR QUANTITATIVE OR RESEARCH OR LITERATURE OR STUDIES OR TRIAL OR TRIALS OR EFFECTIVE OR EFFECTIVENESS)).TI.
35. (RETROSPECTIVE OR CASE OR CASES OR RECORD OR RECORDS OR PATIENT OR PATIENTS) NEXT (REVIEW OR REVIEWS)
36. (PEER OR CHART OR CHARTS) NEXT (REVIEW OR REVIEWS)
37. (CASE ADJ CONTROL ADJ STUDIES).TI,AB.
38. (PROSPECTIVE ADJ STUDIES).TI,AB.
39. 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR 33 OR 34
40. 35 OR 36 OR 37 OR 38
41. 39 NOT 40
42. 22 AND 41
43. year=1990 OR year=1991 OR year=1992 OR year=1993 OR year=1994
44. 9 AND 19 AND (21 OR 43)
45. 9 AND 19 AND (21 OR 43) AND 41
46. 44 NOT 45 AND LG=EN

King's Fund and DH data search strategy

1. SMOKING#.DE.
2. SMOKING-CESSATION.DE.
3. SMOKING-POLICY.DE.
4. CIGARETTES#.DE.
5. TOBACCO#.DE.
6. SMOKING-CONTROL.DE.
7. TOBACCO-CONSUMPTION.DE.
8. SMOKERS.DE.
9. NICOTINE.DE.
10. BETEL.DE.
11. TOBACCO-CHEWING.DE.
12. TOBACCO-PRODUCTS.DE.
13. CIGARS.DE.
14. SKOAL-BANDITS.DE.
15. (SMOKING OR SMOKER OR SMOKERS OR SMOKEFREE OR SMOKE ADJ FREE).TI,AB.
16. (TOBACCO OR NICOTINE).TI,AB.
17. (CIGAR OR CIGARS OR CIGARETTE OR CIGARETTES).TI,AB.
18. (BIDI$ OR KRETEK OR PAAN OR GUTKHA OR SNUFF OR SNUS OR BETEL OR HAND ADJ ROLLED).TI,AB.
19. 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18
20. OCCUPATIONAL-HEALTH-AND-SAFETY.DE.
21. HEALTHY-WORKPLACE.DE.

22. STAFF-HEALTH-AND-SAFETY.DE.
23. EMPLOYEES#.DE.

24. WORKING-ENVIRONMENT.DE.
25. WORKING-CONDITIONS.DE.
26. SOCIAL-ENVIRONMENT-IN-INDUSTRY.DE.
27. STAFF-SUPPORT-SYSTEMS.DE.
28. (WORK OR WORKERS OR WORKER OR WORKPLACE$ OR WORK ADJ PLACE$ OR OFFICE OR OFFICES OR FACTORY OR FACTORIES OR EMPLOYEE$ OR BUSINESS OR BUSINESSES).TI.
29. ENVIRONMENTAL-EXPOSURE.DE. OR LEGISLATION.DE.
30. 20 OR 21 OR 22 OR 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29
31. 19 AND 30
32. YEAR=2006 OR YEAR=2005 OR YEAR=2004 OR YEAR=1995 OR YEAR=2003 OR YEAR=2002 OR YEAR=2001 OR YEAR=2000 OR YEAR=1999 OR YEAR=1998 OR YEAR=1997 OR YEAR=1996
33. 31 AND 32
34. SYSTEMATIC-REVIEWS#.DE.
35. (REVIEW OR OVERVIEW OR META-ANALYSIS OR META-ANALYSES OR META ADJ ANALYS$ OR METAANALYS$).TI,AB.
36. ((SYNTHESIS OR SYNTHESES OR SYNTHESISING OR SYNTHESIZING) NEXT (LITERATURE OR LITERATURES OR RESEARCH OR STUDIES OR DATA)).TI,AB.
37. (POOLED ADJ ANALYSIS OR POOLED ADJ ANALYSES).TI,AB.
38. (DATA NEXT POOL$).TI,AB. AND STUDIES.TI,AB.
39. ((HAND OR MANUAL OR DATABASE OR DATABASES OR COMPUTER OR COMPUTERS) NEXT (SEARCH OR SEARCHES OR SEARCHING)).TI,AB.
40. (MEDLINE OR MEDLARS OR EMBASE OR CINAHL OR SCISEARCH OR PSYCHINFO OR PSYCINFO OR PSYCHLIT OR PSYCLIT).TI,AB.
41. ((ELECTRONIC OR BIBLIOGRAPHIC$) NEXT (DATABASE OR DATABASES OR DATA ADJ BASE OR DATABASES)).TI,AB.
42. 34 OR 35 OR 36 OR 37 OR 38 OR 39 OR 40 OR 41
43. 33 AND 42
44. yr=1990 OR yr=1991 OR yr=1992 OR yr=1993 OR yr=1994
45. 31 AND (32 OR 44)
46. 31 AND 42 AND (32 OR 44)
47. 45 NOT 46

Part 3.

Medline search for reviews and non-reviews, changing line 18 to abstract field as opposed to title field.

14 workplace/ (5690)
15 work/ (6583)
16 occupational health services/ (8368)
17 occupational health nursing/ (3623)
18 (work or workers or worker or workplace$ or work place$ or office or offices or factory or factories or employee$ or business or businesses).ab (96311)
19 or/13-18 (118116)
20 12 and 19 (5396)
21 limit 20 to english language (4571)
22 review.ab. (293091)
23 review.pt. (1216463)
24 meta-analysis.ab,ti. (12699)
25 meta-analysis.pt. (13283)
26 (letter or editorial or comment).pt. (796061)
27 (22 or 23 or 24 or 25) not 26 (1326551)
28 21 and 27 (253)
29 limit 28 to yr="1995 - 2006" (159)

Final results:
740 reviews
4872 other studies

Part 4. Key website search

WEBSITES	KEYWORDS
UK National Smoking Cessation Conference http://www.uknscc.org/index.html (presentations will be searched) Department of Health* http://www.dh.gov.uk National Health Service* http://www.nhs.uk Action on Smoking and Health* http://www.ash.org.uk Action on Smoking and Health Scotland http://www.ashscotland.org.uk ASH Scotland* http://www.ashscotland.org.uk Scottish Executive* http://www.scotland.gov.uk Government of Ireland* http://www.irlgov.ie/ Quit http://www.quit.org.uk	*keyword search: smokefree legislation smoke-free legislation workplace smoking bans work smoking bans workplace smoking legislation workplace smoking cessation interventions/initiatives/schemes/programmes workplace support/help/assist smoker work support smoker work help smoker work assist smoker Other words for workplace are: factories, business/businesses, office$

11. APPENDIX E

Methodology checklist: Cross-sectional studies

Adapted from CPHE Methods Manual Cohort Analysis Methodology Checklist and Thomson, B; Diamond, K.E.; McWilliam, R; Snyder, S.W. (2005) Evaluating the Quality of Evidence from Correlational Research for Evidence-Based Practice, *Exceptional Children*, 71(2): 181-194.

Study identification *Include author, title, reference, year of publication*	
Guideline topic:	**Key question no:**
Checklist completed by:	

1a. Are the objectives of the study stated?	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1b. Are the hypotheses of the study stated?	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
2. Is the sampling frame defined?	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
3. Is the analytic sample defined?	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
4. Are the dates between which the study was conducted stated or implicit?	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
5. Are eligibility criteria stated?	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable

6. Is the sampling method mentioned?	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
7. Is the numbers of participants justified? (what is the power calculation?)	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
8. Are the numbers meeting and not meeting the eligibility criteria stated?	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
9. For those not eligible, are the reasons why stated?	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
10a. Was the number of the analytic sample at the beginning of the study stated? Actual N:	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
10b. What is the participation rate? (above 60% is well covered)	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
11a. Was the reliability (repeatability) of the measurement methods mentioned for the exposure?	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
11b. Was the reliability (repeatability) of the measurement methods mentioned for the outcomes? (e.g. has the measure been used before?, if observational was there inter-rated reliability?)	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
12a. Was the validity of the measurement methods mentioned for the exposure?	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable

12b. Was the validity of the measurement method mentioned for the outcome?	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
13. Was the type of analyses conducted stated?	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
14. Were confounders accounted for in analyses? (multivariate analysis)	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
15. Were missing data accounted for in the analyses? (Did they deal with people who were not eligible or had incomplete surveys, etc).	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
16. How reliable are the results? (If neither the exact p value not the confidence intervals were reported than poor).		
17. **Overall Assessment of Study.** How well was the study done to minimise the risk of bias or confounding, and to establish a relationship between the variables under consideration? Code ++, + or -		

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