EXECUTIVE SUMMARY

Workplace health promotion with reference to smoking and what works in motivating and changing employees' health behaviour

Background

Cigarette smoking is the leading cause of preventable death in the United Kingdom today. The harm caused by cigarette smoking is well established and there is a growing body of evidence that environmental tobacco smoke (ETS), otherwise known as second-hand smoke, also causes harm to those exposed to it. Passive smoking in the workplace is likely to be responsible for the death of more than two employed people per working day.

The Government has created national legislation to make all indoor public places and workplaces completely smoke-free (with minimal exemptions). This legislation is due to come into force in summer 2007. Integrating smoking cessation support into workplaces following the implementation of smoke-free legislation in 2007 will not only support those employed smokers who are interested in quitting, but will also maximise the opportunity this legislation provides to transform smokers' behaviours.

The National Institute for Health and Clinical Excellence (NICE) has been asked to produce public health intervention guidance on workplace health promotion with reference to smoking, and what works in motivating and changing employees' health behaviour.'

Objectives

- To review the evidence of the effectiveness and cost effectiveness of interventions for motivating and supporting smoking cessation in the workplace and among different sections of the workforce.

Methods

Selection Criteria

Literature included systematic reviews, randomised controlled trials, controlled non-randomised trials, controlled before and after studies and before and after studies of selective or indicated interventions that evaluated the effectiveness of workplace interventions for smoking cessation among smokers aged 16 and over who are engaged in paid or voluntary employment outside of the home.
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.

Primary outcomes extracted from studies were changes in smoking-related knowledge, attitudes and behaviours following the intervention (with biochemical validation where recorded).

Data sources

The following databases were searched: MEDLINE (Ovid), EMBASE, British Nursing Index , CINAHL , PsycINFO, DH-Data, King's Fund, Cochrane Database of Systematic Reviews, National Research Register (including CRD ongoing reviews database), DARE, Health Technology Assessment Database, National Guideline Clearinghouse, SIGN guidelines, HSTAT, TRIP. Studies published for inclusion had to be published between 1990 and April 2006 Editorials, non-systematic reviews and letters were excluded.

Data extraction and quality assessment

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 by NICE . Each study was categorised by study type and graded using a rating of ++ (best quality), + or – (poorest quality)[1]. Those studies that received discrepant ratings from the two reviewers were given to a third reviewer for final evaluation.

Data synthesis

Due to heterogeneity of design among the studies, a narrative synthesis was conducted. Full data for each study is presented in detailed evidence tables (see appendix A).

Research questions

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. Which interventions are cost effective?
9. What are the adverse or unintended outcomes in the workplace of smoke-free legislation?

Results

Abstracts of 200 records for possible inclusion and 37 records were determined to be addressing the key outcomes and populations of interest. Full copies of these studies were obtained and were independently assessed for inclusion by two reviewers. Of these

[1] See NICE (2006). Methods for development of NICE public health guidance. Version 1.

studies, 27 met the inclusion criteria for the review. They included 2 Cochrane systematic reviews and 3 randomised controlled trials (RCT).

Interventions in workplaces where comprehensive smoke-free legislation has been introduced.

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 evidence from one cohort study on the effectiveness of workplace interventions in the context of localised smoking bans.

A recent Cochrane Review (1++) provides the most up-to-date source of international evidence on which smoking cessation interventions in the workplace are most effective. This Cochrane Review on workplace interventions and an earlier meta-analysis (1+) failed to find significant differences in effect size based on intervention type, though both reviews found that interventions of greater intensity were more effective than those of less intensity.

Evidence Statement 1

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. (Waranch et al 1993)

Evidence statement 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.
(Moher et al 2005; Fisher et al 1990),

Interventions for different sectors of the workforce such as men and women, younger and older workers, minority ethnic groups and temporary/casual workers.

Three studies, including 2 RCTs, compared the differences between males and females in their approach to smoking cessation. Three primary studies highlighted the importance of age in workplace interventions and three other studies. Four more studies, including 1 RCT, looked at racial, ethnic and class differences.
No studies were identified in the literature search that specifically addressed effective workplace interventions for temporary or casual workers.

Evidence Statement 3

A 1+ study and a 2++ study indicate that men and women are equally successful in achieving abstinence in workplace smoking cessation programmes; however, important gender differences are apparent in smoking attitudes and behaviours. Women have less confidence in their ability to quit, are less ready to quit than men and may require extra stimuli in order to quit smoking. A 2+ study indicates that a multi-behavioural approach to behaviour change may be more effective for female smokers than a single-component intervention as it allows women to prioritize 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. (Gritz et al 1998; Campbell et al 2000/2002; Stockton et al 2000)

The findings of these studies seem broadly applicable to a UK setting.

Evidence Statement 4

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 findings were not supported in the other 2+ study. Younger employees who smoke may require more intensive support for smoking cessation than older smokers and that specifically tailoring interventions based on age may be beneficial. (Olsen et al 1991; Albertsen et al 2004; Chan & Heaney 1997)

The findings of these studies seem broadly applicable to a UK setting.

Evidence Statement 5

A 2+ study found racial and ethnic differences in predictors of smoking cessation amongst participants in a workplace intervention. White males tended to be heavier smokers than minority ethnic males and the authors suggest that interventions focusing on alleviating withdrawal symptoms, enhancing motivation, and teaching coping skills to increase self-efficacy would also be relevant for this sub-population. Minority ethnic males did not achieve higher cessation rates, despite smoking profiles that were more conducive to cessation; the authors conclude that incorporating a stress reduction component into interventions aimed at minority populations may be beneficial. Another 1+ study found that inclusive intervention approaches, developing materials in the appropriate languages, and combining health promotion with occupational health and other health promotion activities helped to improve the success of an intervention tailored to working class multiethnic populations. (Daza et al 2006; Emmons et al 2005;)

Although all the above studies are from the USA, which has a different ethnic composition to the UK, the findings seem broadly applicable to a UK setting.

Evidence Statement 6

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.

Interventions to encourage employee compliance with a smoke-free policy

Evidence from countries which have gone smoke-free indicates that there have been high levels of compliance with smoke-free legislation. One study examined support for and compliance with smoke-free legislation by smokers in four countries. Various sources support implementing a non compliance strategy.

Evidence statement 7

Monitoring data (3+) 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 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. (Pisano 2006 ; Ministry of Health 2005 ; Office of Tobacco Control - Ireland 2005 ; Scottish Executive 2006 Borland et al. 2006 2+)

Evidence Statement 8

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 policy and notifying staff that action will be taken if someone is in breach of the policy. (World Bank 2005; Griffiths 2005; Quit 2001a; Quit 2001b)

Interventions to support and encourage smokers to quit

One systematic review and 1 primary study considered smoking cessation support options and 2 systematic reviews discussed incentives to attend smoking cessation programmes.

Evidence Statement 9

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. (Moher et al 2005; Waranch et al 1993)
These findings are broadly applicable to a UK setting.

Evidence Statement 10

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. (Moher et al 2005; Hay & Perera 2005)

Interventions for smokers who are not ready to quit

Several studies were identified that focus on smokers who are not currently ready to quit.

Evidence Statement 11

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. (Abrams & Biener 1992)

Evidence Statement 12

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. (Waranch et al 1993; Willemsen et al 1999; Conrad et al 1996)

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

Interventions to encourage employers to provide smoking cessation support

Two studies looked at employer attitudes and ways of encouraging employers to invest in smoking cessation.

Evidence Statement 13

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. (Sorensen et al. 1997 ; Emmons et al. 2000)

The needs of large, medium and small enterprises in implementing smoke-free legislation and supporting smokers to quit

Several studies have looked at workplace size and smoking control activities in relation to employers' desire and ability to implement smoke-free legislation and smoking cessation programmes.

Evidence Statement 14

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. (Sorensen et al 1997; Emmons et al 2000; Docherty et al 1999)

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.

Cost effective interventions

One systematic review and one economic evaluation of a simulated workplace smoking cessation programme estimated cost effectiveness.

Evidence Statement 15

A 1++ systematic review indicates that further research is needed on the cost effectiveness of workplace interventions. A 2+ American study examined the health and economic implications of a workplace smoking-cessation programme using a simulation model and found that worksite smoking cessation programmes appear to be a sound economic investment. Long term benefits revealed an eventual benefit-cost ratio of 8.75 (after 50 years). (Moher et al 2005; Warner et al 1996)

The findings of this US study are not directly applicable to a UK setting.

Adverse or unintended outcomes in the workplace of smoke-free legislation

One study and one report considered the effects on the divisions between smokers and non-smokers in the workplace. Two studies examined attitudes to increased exposure to smoke and drifting smoke. Three studies reported on the potential for unsafe smoking: dangerous smoking practices and smoking in unsafe environments. Three studies reported on smoking-related debris and the costs to local authorities in cleaning up/providing disposal for cigarette butts in outdoor public places.

Evidence Statement 16

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. (Clarke et al 2-; Greaves & Jategaonkar 2006)

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

Evidence Statement 17

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. (Parry et al 2000; Mulcahy et al 2005)t

These findings are directly applicable to a UK setting.

Evidence Statement 18

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. (Anderson et al 1999; Strobl & Latter 1998; Parry et al 2000)

These findings are directly applicable to a UK setting.

Evidence Statement 19

According to one 2+ study and two 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. (Parry et al 2000; MacDonald 2006; Vallely 2006)

These findings are directly applicable to a UK setting.

Conclusions

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.

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, are less ready to quit than men 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. Combining health promotion with occupational health and other health promotion activities may also help to improve the relevance of smoking cessation interventions for multiethnic populations. 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; indeed, although further research needs to be conducted before the cost effectiveness of workplace interventions can be conclusively determined, the available evidence does indicate that they are extremely cost effective – especially in the long term. 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.

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