Evidence briefing summary

NHS

Health Development Agency

Smoking and public health: a review of reviews of interventions to increase smoking cessation, reduce smoking initiation and prevent further uptake of smoking

Evidence briefing summary

Introduction

This briefing (a review of reviews) aims to:

- Identify all relevant systematic reviews and meta-analyses
- Review these papers and highlight 'what works' to reduce smoking initiation and/or the further uptake of smoking, and to increase smoking cessation for all population groups, but with particular reference to disadvantaged and vulnerable groups
- Highlight conflicting evidence, gaps in the evidence and provide a steer for future policy and research commissioning.

This briefing also draws out any findings in relation to inequalities in health and the cost effectiveness of interventions.

The Health Development Agency has been commissioned by the Department of Health to develop the evidence base for the reduction of smoking. This briefing is intended to inform policy and decision makers, NHS providers, public health physicians and other public health practitioners in the widest sense. The evidence presented here should be considered alongside other sources of evidence that may be helpful to inform policy and practice.

Smoking

Smoking has been identified as the principal reason for the inequalities in death rates between rich and poor in the UK (HDA and ASH, 2001). In addition, the importance of smoking as a public health issue has been highlighted in a number of key policy and strategy papers (Department of Health 1998a, 1999a, 2000a, 2000b; Acheson, 1998).

In 2001, 27% of adults aged 16 and over in England were cigarette smokers, with 28% of men and 25% of women reporting smoking cigarettes (Department of Health and Office for National Statistics, 2003). Cigarette smoking prevalence was highest among both men and women aged 20-24 years (38% and 35% respectively), and declined with increasing age (16% among men and 17% among women aged 60 and over). There was also a very marked social class gradient in cigarette smoking, with overall prevalence of 21% of non-manual workers and 32% of manual workers. It is also recognised that other disadvantaged and vulnerable groups at risk from smoking included pregnant women, young people, black and minority ethnic groups, people living in poverty and people with mental health problems.

The estimated number of deaths attributable to (in part) smoking in the

This summary presents an overview of the findings and recommendations from a review of selected systematic and other reviews and meta-analyses published from 1996 to 2001. The full evidence briefing – *Smoking and public health: a review of reviews of interventions to increase smoking cessation, reduce smoking initiation and prevent further uptake of smoking* (London: HDA) – can be accessed via www.hda.nhs.uk/evidence

Introduction (continued)

UK was 121,700 for the year 1995 (80,400 for men and 41,300 for women). This included 46,500 deaths due to cancer (including 30,600 from lung cancer), 34,300 from respiratory disease and 40,300 due to heart and circulation disease. It is estimated that 66% of smokers in England want to give up smoking (Department of Health and Office for National Statistics, 2003).

Government commitment to smoking cessation services is demonstrated in the *Priorities and Planning Framework 2003-2006* (Department of Health, 2002), which includes performance targets for primary care trusts:

- Reduce the rate of smoking among groups of smokers
- Update primary care practice-based registers in order that patients with coronary heart disease (CHD) and diabetes continue to receive appropriate advice and treatment, and ensure practice-based registers and systematic treatment regimes cover the majority of patients at high risk of CHD, particularly those with hypertension, diabetes and a body mass index (BMI) greater than 30
- Deliver 1% reduction per year in the proportion of women continuing to smoke throughout pregnancy.

Review methodology

The following process was applied:

- Systematic searching of all English language literature from January 1996 to November 2001
- Selection of relevant reviews
- Critical appraisal of the reviews by HDA criteria of transparency, systematicity, quality and relevance
- Analysis and synthesis of the evidence for different topic areas and populations groups.

The critical appraisal identified 29 papers, which were compared and top-level findings collated and presented in four core themes:

A Strategies to reduce initiation and/or further uptake of smoking among children and adolescents
B Strategies to increase cessation among all smokers
C Interventions targeted at pregnant women
D Inequalities.

Evidence statements were produced for the first three core themes based on the following categories:

- **Evidence of effectiveness:** derived from systematic reviews and meta-analyses where the results were all in agreement
- **Currently, there is a lack of evidence of effectiveness:** applied to interventions in systematic reviews and meta-analyses which showed no current impact on outcomes
- **Conflicting evidence of effectiveness:** derived from systematic reviews and meta-analyses where the interpretation and conclusions of the papers were not in agreement.

Evidence on the effect on inequalities in health and on the cost effectiveness of the interventions are also presented where the data are available.

Findings

Listed below are all the review-level evidence statements for the various types of interventions and settings for the first three core themes. An overview of the findings for the fourth inequalities theme is also presented. For full details, please refer to the main evidence briefing.

A *Strategies to reduce initiation and/or further uptake of smoking among children and adolescents*

SETTINGS

Community wide interventions

- There is review-level evidence to support the effectiveness of community wide interventions based on social learning theory/social influences approaches in preventing the uptake of smoking in young people.

School-based interventions

- There is review-level evidence that supports the continued use of school-based 'peer' or 'social-type' interventions in preventing smoking in children.

TYPES

Increasing the unit price of cigarettes

- There is review-level evidence demonstrating the effectiveness of increasing the price of cigarettes for reducing tobacco use prevalence and consumption among both adolescents and young adults.

Mass media campaigns

- There is review-level evidence that mass media campaigns are effective in reducing cigarette use prevalence in adolescents when combined with other interventions; however, the contribution of individual components to the overall effectiveness of these interventions cannot be attributed.
- There is review-level evidence that mass media campaigns either on their own or when combined with a school-based programme are effective in preventing the uptake of smoking in young people.

Retail interventions

- There is review-level evidence to suggest that interventions with retailers can lead to decreases in the number of outlets selling cigarettes to young people.
- There is review-level evidence to suggest that active enforcement and/or multi-component educational strategies with retailers can lead to decreases in the number of outlets selling cigarettes to young people and are more effective in reducing illegal sales than simply providing retailers with information.
- There is review-level evidence to suggest that legislation alone is not sufficient to prevent tobacco sales to minors.
- There is review-level evidence that limiting sales of tobacco may have an effect on young people's perceptions of ease of access to cigarettes and on smoking behaviour.

B *Strategies to increase cessation of smoking among all smokers*

SETTINGS

Clinical (clinician)

- There is review-level evidence that minimal contact (<3 minutes in a session) with a clinician (both physician and non-physicians) is effective at increasing abstinence rates. Increasing contact time (3-10 minutes) further increases effectiveness. The highest level of effectiveness of increasing abstinence rates occurs with high intensity contact (>10 minutes).
- There is review-level evidence that any contact time with a clinician (both physician and non-physicians) is effective at increasing abstinence rates in smokers. Effectiveness increases as total contact time increases, peaking at a total contact time of 31-90 minutes. Beyond 90 minutes total contact time there is no further increase in effectiveness in abstinence rates.
- There is review-level evidence that multiple sessions by a clinician (both physician and non-physicians) are effective at increasing abstinence rates in smokers. Effectiveness increases as the number of sessions increases, with more than eight sessions with a clinician producing the highest level of effectiveness.
- There is review-level evidence that interventions delivered by physicians and non-physicians (psychologist, nurse, dentist or counsellor) are equally effective at increasing abstinence rates in smokers.
- There is review-level evidence that interventions delivered by one or more clinician types (physicians, nurses, dentists, dental hygienists, psychologists, pharmacists or health educators) are effective for increasing abstinence rates.
- There is review-level evidence that interventions composed of one format type or more are effective at increasing abstinence rates in smokers. Interventions using three or four format types were the most effective at increasing abstinence rates. Formats include self-help, proactive telephone counselling, group or individual counselling.
- There is review-level evidence that types of counselling and behavioural therapies are effective at increasing abstinence rates in smokers. The effective therapies are:
  - Providing support during a smoker's direct contact with a clinician (intra-treatment social support)
  - Intervening to increase social support in the smoker's environment (extra-treatment social support)
  - Providing practical counselling such as problem solving, skills training, relapse prevention or stress management.

Clinical (other)

- There is review-level evidence to suggest that the same smoking cessation interventions are effective for both men and women.
- There is review-level evidence that smoking cessation treatments can be effective across different black and minority ethnic groups.
- There is review-level evidence that a variety of smoking cessation treatments can be effective for older adults. These include counselling interventions, physician advice, buddy support programmes, age-tailored self-help materials, and proactive telephone counselling.

Healthcare professionals

- There is review-level evidence that brief advice from physicians is effective in promoting smoking cessation.
- There is review-level evidence to suggest that more intensive advice over minimal physician advice is effective in promoting smoking cessation.
- There is review-level evidence that interventions with follow-up visits increase cessation rates.
- There is review-level evidence that smoking cessation advice and counselling given by nurses to their patients can be effective. Advice is a verbal instruction from the nurse to 'stop smoking' whether or not information is provided about the harmful effects of smoking.
- There is review-level evidence that both high-intensity and low-intensity nurse interventions are effective at increasing abstinence rates in smokers.
- There is review-level evidence that nurse-led interventions delivered as part of hospitalised cardiac rehabilitation are effective at increasing smoking cessation rates.
- There is review-level evidence to support nurse-led interventions in non-hospitalised non-cardiac smokers.
- There is review-level evidence to support the use of nurse-led interventions with repeated telephone contact to increase smoking cessation.
- Currently, there is a lack of review-level evidence to support the use of motivational counselling compared to brief interventions to increase cessation rates.
- Currently, there is a lack of review-level evidence to support the use of aids such as spirometry and carbon

monoxide tests, as an additional component of physician-led advice to increase cessation rates.
- Currently, there is a lack of review-level evidence to support the use of high-intensity interventions over low-intensity interventions, as both are currently equally effective.
- Currently, there is a lack of review-level evidence to support the use of nurse-led interventions aimed at:
  – Non-hospitalised adults with cardiovascular disease
  – Hospitalised non-cardiac smokers
  – Physiological feedback (spirometry and carbon monoxide data) as a method to increase smoking cessation.

General practice

- There is review-level evidence that the provision of either brief advice or intensive advice in general practice significantly increases the odds of stopping smoking compared to providing no advice.
- There is review-level evidence that patient education and counselling on smoking/alcohol contribute to behaviour change for disease prevention. However, we are unable to disaggregate the different components of the intervention.
- Currently, there is a lack of review-level evidence to support the use of high-intensity GP-led interventions over low-intensity GP-led interventions as they are equally effective.

TYPES

Increasing the unit price of cigarettes

- There is review-level evidence that increasing the unit price of cigarettes is effective at stopping tobacco use, and this remains true for vulnerable groups, women and men, low-income groups and people with lower educational achievement. The interventions are legislation at the state or national level to raise tobacco excise tax.

Mass media

- There is review-level evidence that mass media campaigns combined with other interventions are effective at increasing tobacco use cessation.
- Currently, there is a lack of review-level evidence to support the use of mass media cessation series in reducing cigarette use. Cessation series are mass media interventions that use recurring instructional segments, such as nightly or weekly segments on news or informational broadcasts, which recruit, inform and motivate cigarette smokers to initiate and maintain cessation efforts. These series can vary in time span from several weeks to several months.
- Currently, there is a lack of review-level evidence to support the use of mass media cessation contests to increase tobacco use cessation. Cessation contests are short duration community wide events that use mass media, and usually include additional incentives for participation and successful cessation.

Buddy systems

- There is review-level evidence that social support interventions ('buddy systems') delivered in smokers' clinics are effective at increasing smoking cessation.
- Currently, there is a lack of review-level evidence supporting the effectiveness of social support interventions ('buddy systems') in community interventions to increase smoking cessation.

Telephone counselling

- There is review-level evidence that proactive telephone counselling (where a counsellor initiates one or more calls to provide support in making an attempt to stop smoking or avoid relapse) helps smokers to quit.
- There is review-level evidence to suggest that reactive telephone counselling (where counselling is provided via helplines of varying nature including information, recorded messages or personal counselling plus self-help materials) increases the chances of smokers quitting.
- There is review-level evidence to suggest that telephone counselling as a follow-up to face-to-face counselling may lead to a small increase in success rates compared to face-to-face interventions alone.
- There is review-level evidence that telephone cessation support is effective in increasing smoking cessation when implemented with other interventions (eg other educational approaches, clinical therapies, or a combination) in both clinical and community settings. The minimum intervention with evidence of effectiveness identified is proactive telephone support combined with patient cessation materials.

Exercise

- Currently, there is a lack of review-level evidence to recommend exercise as an aid to smoking cessation.

Rapid aversive smoking

- Currently, there is a lack of review-level evidence to determine the efficacy of rapid smoking, or whether there is a dose-response to aversive stimulation.
- Currently, there is a lack of evidence on the specific efficacy for milder versions of aversive smoking.

Behavioural counselling

- There is review-level evidence that individual behavioural counselling interventions given outside routine clinical care by smoking cessation counsellors, including health educators and psychologists, assist smokers to quit.
- There is review-level evidence that group behaviour therapy programmes are better than self-help and other less intensive interventions in assisting smokers to quit.
- Currently, there is a lack of review-level evidence on the effectiveness of group behaviour therapy programmes

Findings (continued)

compared to intensive individual counselling in assisting smokers to quit.

Self-help

- There is review-level evidence that self-help material on its own may provide a small increase in quitting compared to no intervention.
- There is review-level evidence that self-help materials tailored for individual smokers are more effective in assisting smokers to quit than those that are not tailored.
- There is review-level evidence to suggest that providing telephone counselling as a means of increasing the intensity of the intervention and providing a smokers' helpline in addition to written materials appear to increase quit rates.
- Currently, there is a lack of review-level evidence to demonstrate that targeting self-help materials to the perceived needs of a broadly defined group is more effective.
- Currently, there is no review-level evidence that self-help materials produce incremental benefits over other minimal interventions such as advice from a healthcare professional, or nicotine replacement therapy.

Acupuncture

- Currently, there is a lack of review-level evidence to demonstrate that acupuncture is effective for smoking cessation.

Hypnotherapy

- Currently, there is a lack of review-level evidence to demonstrate that hypnotherapy is effective for smoking cessation.

Incentives

- There is review-level evidence to demonstrate that reducing out-of-pocket costs for effective cessation therapies increases both use of the effective therapy and patient cigarette use cessation.

C *Interventions targeted at pregnant women*

- There is review-level evidence that smoking cessation programmes in pregnancy appear to reduce smoking, low birth weight and pre-term birth.
- There is review-level evidence to demonstrate a positive effect for leaflet-based prenatal smoking cessation interventions, and these are likely to be cost effective if incorporated into routine service delivery.
- There is review-level evidence that tailoring intervention methods and addressing barriers to behavioural change and the concerns of pregnant women lead to a greater acceptance of interventions.
- There is review-level evidence that some population groups of pregnant women (namely white, married, young and educated pregnant smokers) are more likely to quit smoking without the aid of further interventions.

D *Inequalities*

Many of the review-level papers describe studies targeting low socio-economic, low education, high risk, vulnerable and ethnic minority groups. However, they did not address the differential effectiveness of interventions among these groups, or how much the different components of interventions affected them.

Gaps in the evidence base

Based on the findings reported in the HDA Evidence Base papers there are significant gaps in the review-level evidence for the prevention and cessation of smoking. The most urgent gaps and recommendations for research are set out as follows.

Inequalities and cost effectiveness

There is little review-level evidence on interventions to reduce smoking initiation and increase smoking cessation in relation to reducing health inequalities or assessing their cost effectiveness. What little data there is on interventions targeting specific socio-economic, ethnic or vulnerable groups is typically from the US.

Intervention design

Researchers must endeavour to use rigorous methods to ensure that outcomes reported are robust. To do this, they should only measure sustained rates of cessation, rather than point prevalence; follow-up should occur for at least six months and preferably for one year or more; and biochemical markers must be used to confirm smoking outcome.

Other research recommendations

This briefing does not set a research agenda – other documents such as the report of the Scientific Committee on Tobacco and Health (Department of Health, 1998a), the white paper on tobacco (Department of Health, 1998b) and the NICE Technology Appraisal Guidance (NICE, 2002) have identified research topics. However, a number of research recommendations are discussed in the included reviews, as follows:

Strategies to reduce initiation and/or further uptake of smoking among children and adolescents

- Evaluate mass media prevention campaigns and their components (eg required intensity) to demonstrate their effectiveness on children's and adolescents' initiation.
- Investigate what interventions are most effective in combination with mass media campaigns and the

Gaps in the evidence base (continued)

most effective ways to maintain reductions in tobacco use into young adulthood.
- Assess the effectiveness of interventions to prevent cigarette sales to minors that includes linking changes in retailer behaviour to changes in young people's perceptions of cigarette availability and their smoking behaviour.
- Demonstrate the effectiveness of community and school-based prevention campaigns and their components, particularly in terms of being analysed at the correct level and with the measurement of appropriate outcomes.

Strategies to increase cessation of smoking among all smokers

- Identify which components of multi-component interventions that include mass media campaigns are most effective in increasing smoking cessation.
- Develop effective strategies to increase the frequency of identifying smokers and offering them advice and support by clinicians.
- Further investigate the effectiveness of advice to quit smoking given by non-physician clinicians, such as nurses, psychologists, pharmacists, dentists and dental hygienists.
- Further investigate the effectiveness of different peer and social support interventions in different contexts of smoking cessations, such as community interventions, smokers' clinics and primary care/healthcare settings, and the differential impacts across population groups.
- Further develop effective methods of combining face-to-face counselling or other interventions with telephone follow-up to support quit attempts and reduce relapse.
- Further investigate the effectiveness of helpline telephone services (both proactive and reactive) that use different counselling protocols and call-back schedules, and what combination with other counselling formats is effective.
- Further evaluate the effectiveness of exercise interventions for smoking cessation by using large sample sizes in the trials.
- Further describe the relationship between different levels and timing of exercise interventions, and the effect on smoking abstinence, craving and mood.
- Further develop more effective individualised self-help materials for smoking cessation.
- Further investigate the effectiveness of acupuncture for smoking cessation that concentrates on intensity and length of exposure of the stimulation.
- Further investigate the effectiveness of hypnotherapy for smoking cessation, with the type of hypnotherapy being clearly defined and using larger trials.
- Further assess the efficacy of targeted versus generic interventions for different population groups.

Interventions targeted at pregnant women

- Further investigate effective interventions to prevent smoking relapse among pregnant women and women who have just given birth.
- Further develop effective intervention strategies among pregnant women who smoke in terms of contact time, number of sessions and duration of the smoking intervention.

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