RAPID REVIEW OF BRIEF INTERVENTIONS AND REFERRAL FOR SMOKING CESSATION

NICE guideline PH1 (March 2006) has been updated and replaced by NG92.

Updated or new recommendations have been made about very brief advice, behavioural support and pharmacotherapies.

Parts of this evidence review are relevant to the updated guideline. The evidence in chapters 3.1 to 3.8 has been stood down and replaced.

See www.nice.org.uk/guidance/ng92 for more details.

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EXECUTIVE SUMMARY

OVERALL SUMMARY

This summary reports on the findings of a review to assess the effectiveness of brief interventions and referral to NHS specialist smoking treatment services to encourage and help smokers to stop smoking. It considers who delivers the interventions, where the interventions are delivered and the content of the interventions. Other factors that might influence effectiveness are also considered including characteristics of the smokers and the intensity of the intervention.

Several types of brief interventions show some efficacy. Evidence supports the efficacy of physician advice giving routine brief intervention for smoking cessation and nurse advice as a brief structured intervention only (but there is insufficient evidence for the efficacy of nurse advice as an opportunistic intervention during routine care). The estimated effect size for physician advice is in the region of 2%. There is insufficient evidence to determine the efficacy of brief interventions from other health professions.

There is insufficient evidence to determine the efficacy of brief interventions offered through the workplace, accident and emergency departments, or to adolescents/students or smokeless tobacco users. There is no evidence for efficacy of brief behavioural interventions to hospital inpatients, or delivered as part of routine care for pregnant smokers, or for brief family and carer interventions to decrease children’s exposure to environmental tobacco smoke.

With respect to the type of brief interventions, evidence supports the efficacy of NRT as part of a brief intervention for smokers wishing to make a quit attempt. Evidence also supports the limited efficacy of standard self-help materials as a brief intervention, and the efficacy of individually (but not population) tailored materials. There is some evidence to support the efficacy of telephone helplines. There is mixed evidence to support using a Stages of Change based approach and insufficient evidence to determine the efficacy of
brief multicomponent interventions or the use of biological measures of risk or exposure. There is evidence that extending the time spent in providing a brief intervention may slightly augment the effect on quitting.

Concerning the smoker’s characteristics, there is insufficient evidence to determine the influence of having had a previous brief intervention, or to determine whether the number of previous quit attempts affects a smoker’s response to a brief intervention. There is evidence indicating that brief interventions, especially if they do not include pharmacotherapy, are probably less effective for more dependent smokers. Many smokers in disadvantaged groups will be more dependent and have other characteristics predicting difficulty in stopping smoking.

There is some evidence to suggest that the main barriers to brief interventions being delivered are lack of time, believing that the intervention is not effective, lack of reimbursement, lack of skills, training or confidence and a fear that it might alienate patients. Combinations of provider training and reminder systems can increase the provision of advice and patient cessation rates but there is insufficient evidence to determine the effect of incentive payments to health care providers on either intervention delivery or smoking behaviour.

However, all the evidence identified in this review largely preceded the development of specialist smoking treatment services. These services were set up to provide intensive support for those smokers needing help to stop. Referral to these services is another key component of brief advice. This review indicates that PCTs may influence referrals to the services and that as services get established, word-of-mouth and removal of barriers (such as allowing drop-in self-referral) will increase referrals. In addition, some evidence is emerging that brief training in referral can be effective.

**BACKGROUND**

The National Institute for Health and Clinical Excellence (NICE) has been asked by the Department of Health to develop guidance on ‘brief interventions’ and referral to specialist services to encourage and help smokers to stop smoking. This guidance should assess these interventions in
primary care and other settings with particular reference to pregnant smokers and disadvantaged groups and provide recommendations for good practice.

The importance of brief interventions in reducing smoking is discussed in the background section to the report, together with the history of smoking cessation treatment in England and the development of NHS specialist smoking treatment services.

A working definition of a brief intervention was developed as ‘A brief intervention is defined pragmatically as a single episode (of less than 30 minutes duration) in which a healthcare or other professional provides advice and possibly other support (such as bio-feedback, self-help manuals, pharmacotherapy, and a discussion of referral to smoking cessation services) to generate and possibly aid a smoking cessation attempt as part of his or her routine activities. The 30 minutes cut-off relates to the first session. Follow-ups are not included in this definition. Interventions can either be delivered opportunistically (ie during consultation for reasons unrelated to smoking behavior) or after self-referral by the smoker. Likewise, use of a telephone helpline or seeking out and consulting self-help material is also included in the definition.’

Within this definition it was felt important to distinguish brief interventions given routinely by staff in the normal course of their work and interventions given by specially trained staff with dedicated time for smoking interventions. Many of the studies and reviews included in this review used slightly different definitions of brief interventions (for example, some studies used a much a shorter initial session but offered or provided follow up appointments, and reviews categorised these as brief). These studies are included as they throw light on whether or not a shorter, less intensive intervention may be effective, but it is made clear in the text how the interventions differed from the pragmatic definition of a brief intervention outlined above. In addition, other studies classified some interventions which would fall within the definition outlined here as ‘intensive interventions’. These studies are included here.
METHODOLOGY

The evidence for the rapid review was based on electronic searches for recent systematic reviews (2000 – August 2005) and for trials (1985 – August 2005). Additional searches were conducted for information on barriers to implementation and for the question on referrals to NHS smoking services. In addition, a call for information on referrals was put out on Globalink UK, an international network of over one thousand tobacco control activists, cessation workers and researchers including the vast majority of the smoking cessation coordinators in England, and a request for information from Regional Stop Smoking Service Managers asking for relevant data on referrals. The main search strategy combined terms for brief interventions and smoking cessation with study design limits where appropriate. Titles and abstracts were screened by two people (reviews) or one person (other searches). The searches retrieved 236 records for reviews, a further 865 for possible trials, 383 for barriers and 56 for referrals. Sixty records from the reviews search, 308 from the trials search, 39 from barriers and 6 from referrals were identified as potentially relevant. A total of 38 reviews, 31 papers from the trials search not already covered by trials included in reviews and 11 papers from the barriers search contributed to the evidence on brief interventions. The referrals search identified a limited amount of information but some unpublished data were identified.

Data from included trials and reviews were extracted into evidence tables in accordance with NICE guidance. Studies that were covered by included reviews were not separately assessed for quality since they had met review inclusion criteria. They were not included separately within the evidence tables, unless they contributed evidence to questions separately where the parent review was not directly relevant (for example if containing information about barriers). Papers cited in the text but not appearing in the evidence table for a section are indicated with an asterisk in the text.

The quality of the studies was classified according to NICE criteria and evidence statements were produced for each question or sub-question posed by NICE following the format requested in the SCOPE document. Levels of
evidence were classified according to NICE guidelines. Papers informing the barriers and referrals questions were not given a quality score.

For questions on efficacy, various types of evidence statements were used. At the two extremes, where sufficient evidence if found of an effect, the evidence statement concludes that ‘A body of level [ ] evidence …supports…’; where evidence is found that does not support an effect of the intervention considered, the evidence statement concludes that ‘There is no evidence (based on level [ ] evidence) of an effect…’. For questions where little or no relevant research is identified, this is made clear in the evidence statement. For questions where the studies identified are mainly qualitative, the evidence statements give more detail about the type of study involved.

It should be noted that most of the research presented in the brief interventions section preceded the development of the NHS smoking treatment services. Referral is now a key component of brief interventions delivered across the NHS.

**SUMMARY OF FINDINGS – BRIEF INTERVENTIONS**

**Question 1a. Which methods of brief intervention are effective?**

No single review was identified that covered all types of brief interventions as defined by the scope of the rapid review. Reviews were identified that included trials of brief interventions, but the interventions differed according to the provider type and setting, the cessation approach used, and the populations to whom the interventions were being addressed. The evidence for question 1 is therefore organised under these headings.

**Brief interventions by provider type and setting**

**Brief interventions from doctors**

Evidence for the efficacy of brief interventions from doctors was identified primarily from one systematic review (Lancaster & Stead 2004) with additional supporting evidence from two further reviews of a similar body of research.
(Fiore et al. 2000 West et al. 2000). The systematic review was updated in 2004 and no further recent trial evidence was identified.

The review provided evidence from a meta-analysis of controlled studies that sought to assess whether brief physician advice delivered in routine care could increase quit rates compared with control. Studies in which patients were randomized to receive advice versus advice plus some form of nicotine replacement therapy (NRT) were excluded. Trials had a minimum of six months follow-up.

Pooling 17 studies that the review categorised as minimal intervention using a fixed effect model resulted in a significant increase in the odds of quitting attributable to advice (OR 1.74, 95% CI 1.48 – 2.05). Excluding four studies where the intervention used did not fall within the working definition used here (either because the intervention was not a single visit or another provider in addition to a doctor was involved), marginally reduced the estimated effect, although intervention remained significantly more effective than control (OR 1.55, 95% CI 1.29 – 1.86). Including a further four studies (classified by the review authors as ‘intensive’) as brief interventions (according to our definition) in a fixed effect meta-analysis with the aforementioned 17 brief intervention studies had little effect, with interventions remaining significantly more effective than control on smoking cessation rates (OR 1.69, 95% CI 1.46 – 1.96, P=.05). Five of the trials in the minimal intervention group were conducted in England. The most recent was published in 1990 (Vetter and Ford 1990*). Only two trials reported that all self reports of cessation were biochemically validated so results should be interpreted with caution.

The results suggested that brief physician advice delivered in the context of routine care could increase quit rates. More intensive interventions involving follow-up appointments or limited additional support from other healthcare providers may have a small additional benefit. Physicians providing brief opportunistic advice to smokers who are not selected for motivation increases quit rates by about 2%.
**Evidence statement**

A body of level 1+ evidence directly applicable to UK health care settings supports the efficacy of physician advice as a brief intervention for smoking cessation but this evidence preceded the introduction of NHS specialist smoking treatment services in the UK.

**Brief interventions from nurses**

Evidence for the efficacy of brief interventions from nurses was based on one systematic review (Rice & Stead 2004). This section focuses primarily on trials which concerned interventions from nurses delivered outside hospitals (see separate section for brief interventions delivered in hospitals.

In the review, a meta-analysis of six trials of brief intervention compared to usual care found that brief intervention could increase quit rates. Combining the six studies of brief interventions demonstrated an effect of nurse intervention compared to usual care (OR 1.76, 95% CI 1.23 – 1.53). All of these studies were conducted in primary care or community settings and in several countries, two from the UK. Five of the six studies included biochemical validation. Five additional studies based in the UK were included in the review but not in the meta-analysis, because their designs did not allow for data extraction in a comparable format. All tested brief interventions for smoking cessation which formed part of a nurse run health check or multifactorial intervention and could include follow-up visits. These studies did not detect a consistent effect of nurse intervention. Since these five studies suggest that the use of these types of interventions, which included follow-up sessions, did not alter cessation rates, it is unlikely that similar interventions without follow-up would show an effect either.

Three studies in primary care or outpatient settings found no effect of physiological feedback in the form of spirometry or carbon monoxide levels as an adjunct to a nursing intervention (Sanders et al. 1989*; Risser and Belcher 1990*; Hollis et al. 1993*).
None of the studies above used brief, opportunistic advice delivered only by nurses and so there is insufficient evidence to provide an effect size for this type of intervention.

**Evidence statement**

A body of level 1+ evidence directly applicable to the UK supports the efficacy of nurse structured advice as a brief intervention for smoking cessation in primary care and community settings. However, the primary focus of the contact in these studies was smoking, so these interventions are not brief opportunistic interventions made during routine care. In addition, poor uptake of invitations to contact nurses for assistance with smoking cessation was noted in some UK studies. There is insufficient evidence to say whether opportunistic advice increases quit rates. A moderately sized body of evidence failed to detect any effect of advice and interventions delivered by nurses as part of a health check. This evidence preceded the development of specialist smoking treatment services within the UK.

**Brief interventions from pharmacists**

No reviews specifically addressed brief interventions from pharmacists. One systematic review (Sinclair et al. 2004) addressed interventions by community pharmacy staff and identified two trials meeting their selection criteria, although the interventions involved would not be classified as brief because of the use of repeated follow-up sessions (Sinclair et al. 1998*, Maguire et al. 2001*). In the absence of other evidence, no effect size could be estimated although the two trials were briefly discussed in the report.

**Evidence statement**

There has been no research on brief interventions delivered by pharmacists.

**Brief interventions in dental care settings**

There are no reviews specifically addressing brief interventions in dental care. Two reviews, drawing on a similar body of research, examined whether dental care providers are effective in tobacco counselling (Brothwell 2001, Warnakulasuriya 2002). Only smoking cessation interventions were reviewed here (see section on review of smokeless tobacco interventions). Of the
studies included in the Brothwell and Warnakulasuriya reviews, only two are randomised controlled trials of smoking cessation interventions by dental health care professionals, with a follow up of at least six months (Cohen et al. 1989*, Severson et al. 1998*). The Severson trial included an arm which would fall within the definition of a brief intervention in this report. The Cohen trial included a minimal intervention arm but this involved scheduled follow up visits. Two arms included the offer of nicotine gum. Evidence from these trials was mixed.

**Evidence statement**

There has been little research on brief interventions for smoking cessation by dentists and as such there is insufficient evidence to judge the efficacy of advice alone. In one study the use of nicotine gum in addition to advice significantly increased quit rates over advice alone.

**Brief interventions in A&E departments**

One review (Bernstein & Becker 2002) was identified that assessed the evidence for efficacy of limited screening and counseling for tobacco use cessation among adults in primary care and emergency department settings in order to develop recommendations for emergency physicians. Most of the included studies were of physician interventions in other settings and are covered elsewhere. One randomised trial in an emergency department was identified (Richman et al. 2000*).

The Richman trial found no significant effect of standardized, scripted counselling by emergency physicians, self-help materials and referral to a smoking cessation programme, compared with control (leaflet only) on quit rates at three months.

**Evidence statement**

There is insufficient evidence to determine the efficacy of a brief intervention from a physician for smoking cessation offered through accident & emergency departments. There is insufficient evidence to determine whether such interventions could be implemented in this setting.
**Brief interventions in workplaces**

Evidence for the efficacy of brief interventions in the workplace was identified from one review (Moher et al. 2005). Six randomized controlled trials met the criteria for brief interventions (Burling and Burling 2000*; Campbell et al. 2002*; Sutton 1988* (paper reporting multiple studies) but there was no meta-analysis performed for this group of studies as they were relatively heterogeneous. The Burling and Sutton studies validated their quit rates using expired CO. The Sutton studies were conducted in the UK, the others in the US.

None of the studies detected a significant benefit of brief interventions over minimal or no support.

**Evidence statement**

There is insufficient evidence to determine the efficacy of brief interventions for smoking cessation offered through the workplace. Amongst the trials included in a review of workplace interventions there was no detectable effect. The trials included did not test interventions found to be effective in other settings.

**Brief interventions by intervention type**

**Pharmacotherapy as an adjunct to brief intervention**

One review of nicotine replacement therapy for smoking cessation includes evidence on the effect of NRT delivered with minimal additional support from physicians or purchased over the counter (Silagy et al. 2004).

This review identified 34 randomised trials of NRT prescribed with ‘low intensity’ support. Pooling both gum and patch trials resulted in an OR of 1.81 (95% CI 1.61 – 2.02) for the odds of smoking cessation compared to low intensity support and placebo or no nicotine gum. This relative effect was comparable with that obtained with more intensive support. Included amongst the trials of low intensity support were three comparing nicotine patch to placebo in an over the counter setting. This subgroup showed an effect of
NRT (OR 2.07; 95% CI 1.44 – 2.98). Of the 34 trials involving low intensity support, 25 included biochemical validation.

Use of NRT increases the odds of quitting by approximately 80%.

Evidence statement
A body of level 1+ evidence directly applicable to the UK supports the efficacy of NRT as part of a brief intervention for smokers wishing to make a quit attempt.

Brief interventions based on self-help
Evidence for the efficacy of self-help interventions was identified primarily from one systematic review (Lancaster & Stead 2005).

This review included 60 trials, of which 33 compared an intervention including provision of self-help materials to an intervention without materials and the remainder compared different types of materials. In a subgroup of 11 studies which used mailed materials with neither intervention or control groups receiving any face to face support or contact, there was a small but significant pooled effect (OR 1.24, 95% CI 1.07 – 1.45). When all participants received brief advice a significant benefit from additional materials for the intervention group was not detected (11 trials, OR 0.97, 95% CI 0.78 – 1.21). Although there was possibly a lack of power to detect a small relative additional benefit, standard self-help materials have at best a small effect on their own. The largest effect that might be expected from the use of self-help materials amongst smokers seeking treatment would be in the order of 1%. There is evidence for a slightly larger effect if materials can be tailored for the characteristics of individuals. The review included 17 trials of materials that were tailored to individual characteristics, based on data gathered from baseline questionnaires or telephone calls, and sometimes from additional contact. These types of materials were significantly more effective than no materials or non-tailored materials (OR 1.42, 95% CI 1.26 to 1.61). Three of these trials were in the UK. There is no evidence to support the use of population tailored manuals over standard ones. Only about one third of the studies used biochemical validation of self-reported cessation.
**Evidence statement**

A body of level 1+ evidence directly applicable to UK settings marginally supports the efficacy of providing standard self-help materials as a brief intervention (without any face to face contact) for smoking cessation. A body of level 1+ evidence supports the efficacy of materials that are tailored for individuals. There is a moderately sized body of evidence that has failed to detect any benefit for materials tailored for specific populations compared to standard materials. A body of level 1+ evidence directly applicable to UK settings does not support any additional benefit of providing self-help materials as an adjunct to advice.

**Brief telephone based interventions**

One systematic review of telephone counselling intervention provides the main body of evidence (Stead et al. 2003). No new trials that would contribute to the evidence have been identified.

The review included 27 studies but most of these evaluated proactive counselling as follow-up to face to face interventions or compared different schedules of counselling. Only two trials directly evaluated the effect of a reactive service for smokers seeking treatment. One study evaluated telephone counselling as an adjunct to self help materials, the second as an adjunct to a television cessation programme, alongside newsletter mailing.

Based on one trial in which one third of participants accessed the available service, the additional benefit from making telephone support available to smokers seeking treatment might be of the order of 2-3%. The second trial in which there was very low use of the telephone component did not show an effect.

**Evidence statement**

There is insufficient evidence to draw conclusions about the effectiveness of brief interventions delivered by telephone helpines.
**Brief interventions based on stages of change**

One systematic review evaluated the effectiveness of interventions to promote smoking cessation based on the Stages of Change (SOC) approach (Riemsma et al. 2003). Twenty three randomised trials were included, four from the UK. These included a variety of types of intervention including stage based advice or counselling and stage based self-help materials. No meta-analysis was conducted given heterogeneity between the included studies in setting, provider and intervention intensity.

There is mixed evidence that stage based interventions are more effective than non stage based interventions, or usual care. In comparison to non stage based interventions one reported significant differences, two mixed outcomes and eight trials found no significant differences in quit rates. In comparison to no intervention, seven trials reported effects in favour of SOC based interventions; two reported mixed outcomes and six no significant differences.

**Evidence statement**

A moderately sized body of evidence has not found a benefit of stage-matched over unmatched brief interventions. A moderately sized body of evidence has yielded conflicting results on the efficacy of stage-matched interventions compared with no intervention.

**Brief multicomponent interventions**

Only one US study was identified here that combined components related to clinic reminder systems and training with treatment components including pharmacotherapy (Katz et al. 2004b). It also included the option of two proactive telephone calls for patients prepared to make a quit attempt.

This intervention, using guideline based interventions to identify smokers and support those wishing to make a quit attempt, significantly increased self-reported quitting but not validated rates.
Evidence Statement

There is insufficient evidence to determine the efficacy of brief multi component interventions involving assessment of smoking status, advice to quit, and assisting a quit attempt and offering NRT and counselling.

Other adjuncts to brief interventions

Three systematic reviews (Smith-Sivertsen and Rortveit 2004, Bize et al. 2005 and McClure 2004), a consensus report (Ferguson et al. 2000) and a recent RCT (Cope et al. 2003) specifically evaluated the use of a biological adjunct to brief interventions.

The Norwegian review (Smith-Sivertsen and Rortveit 2004) examined whether screening for early chronic obstructive lung disease (COPD) was justifiable. This concluded that there was little evidence because studies using spirometry did not differentiate the effect of that component from the effect of advice, or did not evaluate the effect on smokers told that their screening results were normal. A report of a US consensus conference on the use of spirometry for assessing lung function also concluded that there was no conclusive evidence that spirometry increased the efficacy of cessation advice (Ferguson et al. 2000).

The authors of the Cochrane review (Bize et al. 2005) concluded that there was insufficient evidence to support the use of any type of biomedical feedback to enhance smoking cessation.

The third review addressed the use of biomarker feedback for motivating smoking cessation in prepartum women (McClure 2004). Based on three studies no effect was detected, although the recent trial by Cope and co-workers (2003) found some evidence in support of a point of care nicotine test (see section on pregnant smokers).

Based on this limited evidence, there is insufficient RCT evidence to support the routine use of adjuncts to advice such as feedback on CO levels, lung function or other markers.
Evidence Statement

There is insufficient evidence to draw conclusions about the efficacy of adjuncts to advice such as feedback on CO levels, lung function or other objective markers of smoking and its effect.

Brief interventions for special populations

Brief interventions for hospital inpatients

Evidence for the efficacy of brief interventions for inpatients was identified primarily from one systematic review (Rigotti et al. 2003) and four RCTs published since the review (Bolman et al. 2002* (included in Rice & Stead 2004), Hennrikus et al. 2005, Molyneux et al. 2003, Nagle et al. 2005), with corroborative evidence from two reviews covering a similar body of research (France et al. 2001, Wolfenden et al. 2003).

Based on two relevant trials from the first review and a further four more recent RCTs there is no evidence for an effect of brief bedside interventions for hospital inpatients on long term quit rates. The evidence cannot exclude the possibility that there is a small benefit. The evidence supports a benefit of inpatient intervention only when further support extends for more than a month after discharge. In the absence of evidence for efficacy no effect size can be estimated. Based on one trial there is weak evidence for an additional benefit of NRT compared to usual care or brief counselling alone.

Evidence statement

A moderately sized body of level 1+ evidence has not detected any effect of brief interventions from health care providers with hospital inpatients. One level 1++ trial, providing NRT combined with brief counselling, did not significantly increase continuous quit rates at one year but did significantly increase validated point prevalence quit rates at one year over counselling or usual care alone.

Brief interventions for pregnant women

Evidence for the efficacy of brief interventions in pregnancy was identified primarily from one systematic review (Lumley et al, 2004). In addition to trials
covered by included reviews, three more recent trials were identified (Cope et al. 2003, McLeod et al. 2004, Pbert et al. 2004).

Based on a reanalysis of review level data (including six studies included in a meta-analysis and three additional cluster randomised trials, all from the Lumley review) the evidence suggests that brief interventions, delivered as part of usual care, do not significantly affect cessation during pregnancy (relative risk of continued smoking 0.99, 95% CI 0.97 – 1.01). The additional studies do not alter this conclusion. Five of the studies were from the UK. In the absence of clear evidence of an effect of brief interventions, no effect size is calculated

**Evidence statement**

A moderately sized body of level 1+ evidence has not detected any effect of brief interventions delivered as part of routine care for pregnant smokers. There is insufficient evidence to determine the efficacy of brief interventions that are not delivered as part of routine care.

**Brief interventions for adolescents/students**

No reviews specifically addressed brief interventions in this age group. One systematic review has addressed interventions for adolescents (McDonald et al. 2003) in which limited high quality data was found and only two studies classifiable as brief interventions one of which was not limited to adolescents.

There has been very little research on brief interventions specifically targeted at adolescents. One randomised trial in an outpatient setting with three month follow-up showed a non significant trend favouring a short motivational interviewing intervention over brief advice.

**Evidence statement**

There is insufficient evidence to determine the efficacy of brief interventions for adolescents/students.
Brief interventions to reduce environmental tobacco exposure in children, for families and carers

Evidence of efficacy was based on data identified in the Cochrane review (Roseby et al. 2003).

The Cochrane review does not provide a pooled estimate for the effect of brief interventions, because of heterogeneity in the interventions and populations studied. Six randomised or non-randomised, controlled trials of brief interventions directed to family and carers with the aim of decreasing environmental tobacco exposure in children, were identified. There was considerable variation in the nature of the intervention and the outcomes measured. Common elements of the interventions were information on the effects of environmental tobacco smoke, advice on quitting and provision of written materials. None of these six studies detected a statistically significant effect of the intervention studied. Because of the heterogeneity and size of the included studies, an effect of brief intervention cannot be excluded.

Evidence statement

A moderately sized body of level 1+ evidence has not detected any effect of brief family and carer interventions to decrease children’s exposure to environmental tobacco smoke.

Brief interventions for smokeless tobacco users

No systematic reviews specifically focusing on brief interventions for smokeless tobacco use cessation were identified. Evidence for the efficacy of brief interventions in smokeless tobacco was therefore identified primarily from one systematic review of all interventions for smokeless tobacco use (Ebbert et al. 2004) with supportive evidence from three further reviews of a similar body of research (Gansky et al. 2002, Severson et al. 2003, West et al. 2004).

Taken overall the studies provide some support for interventions with smokeless tobacco users but it remains questionable whether any could be defined as brief. In a post hoc analysis, trials of interventions (including intensive ones) which included an oral examination and feedback about
smokeless tobacco induced mucosal changes had homogeneous results and when pooled showed a significant benefit suggesting that these components of intervention are important with this population group. In the absence of evidence of an effect of brief interventions, no effect size is calculated.

**Evidence statement**

There is insufficient evidence to determine the efficacy of brief interventions for smokeless tobacco users.

Questions 1b and 1c: Which brief interventions for smoking cessation are most and least effective?

Brief interventions can take a number of forms and be conducted in a range of settings with different groups of smokers, and this is reflected in the classification of the studies in previous sections. Some brief interventions have been evaluated under conditions where smokers have been enrolled irrespective of their interest in quitting. Others, especially trials of pharmacotherapy, have been tested primarily with smokers who want to stop. Comparing outcomes between trials or reviews of different interventions is not a reliable method of establishing differences in effectiveness. The possible effect of different settings or providers, or tailoring of interventions is addressed in later sections. In this section we consider a limited body of evidence about small differences in the components of a provider delivered intervention.

Two studies included in the Cochrane review of physician advice (Lancaster & Stead 2004) compared interventions that differed primarily in their advice and counselling style. These studies suggest that small differences in consulting style are unlikely to change cessation outcomes, when overall quit rates are low.

**Evidence statement**

There is insufficient evidence to determine the efficacy of different components of a provider delivered intervention.
Questions 3, 5 and 6. Factors that affect the effectiveness of brief interventions. Do they differ for different interventions?

This section addresses a range of factors that might differentially predict the effect of brief interventions. It covers the following key questions specified in the Scope:

Question 3. What factors affect the effectiveness of brief interventions. Do they differ for different interventions?

Question 5. To what extent is the effectiveness of a brief intervention influenced by previously received brief intervention?

Question 6. To what extent is the effectiveness of a brief intervention influenced by previous quit attempts?

Other factors potentially moderating effectiveness including level of addiction, age and sex.

There are problems in common for answering all these questions. Smoking cessation trials typically lack power to detect interactions between baseline characteristics and a main treatment effect. In many of the trials of brief interventions, individual trials failed to detect significant main effects, even where point estimates were suggestive of benefit. Predictors of outcome, if reported, are generally based on participants from all groups, especially in the absence of significant intervention effects. It is therefore difficult to judge whether brief interventions might help some subgroups of smokers relatively more than others. We found limited evidence relevant to these questions.

We identified three relatively large trials where linked publications specifically addressed predictors of outcome addressed in the following sections. A US randomised controlled trial by Ockene and co-workers compared brief advice to a counselling intervention designed to last 5-10 minutes, or to similar counselling with the offer of free nicotine gum (Ockene et al. 1991* included in review by Lancaster & Stead 2004, Hebert et al. 1992). An Italian study by Segnan and co-workers compared four different interventions: a single counselling session, repeated counselling involving 4 additional follow-up
reinforcing sessions, repeated counselling and nicotine gum, or repeated counselling and spirometry (Segnan et al. 1991* included in review by Lancaster & Stead 2004, Senore et al. 1998). The third study by Orleans and co-workers in the USA compared a control listing available resources, a self-help manual, a manual and a guide to enlisting social support, and a manual and telephone counselling (not a brief intervention) in a volunteer population (Orleans et al. 1991* included in Lancaster and Stead 2005, Schoenbach et al. 1992, Hill et al. 1994 (both under Hill in evidence table)).

**The influence of previously received brief interventions**

Although one trial (Hill et al 1994) identified that past use of two or more quitting programmes predicted failure, other evidence was mixed.

**Evidence statement**

There is insufficient evidence to determine whether previous receipt of brief intervention influences the effect of another brief intervention, whether of the same or different type.

**The influence of previous quit attempts**

The three trials mentioned at the beginning of this section provide little evidence about the prognostic impact of number of prior quit attempts on success at stopping smoking. Any relationship between number of quit attempts and likelihood of success might well not be linear. Multiple prior quit attempts might be associated with dependence and difficulty quitting, but might also be associated with a high motivation to quit. There is likely to be confounding with multiple other characteristics of a smoker’s history including their level of addiction and length of any prior successful quit attempts.

**Evidence statement**

There is insufficient evidence to determine whether the number of previous quit attempts affects a smoker’s response to a brief intervention.

**The influence of level of dependence**

Ockene and co-workers reported that brief counselling was more effective than advice only for less addicted smokers, as measured by time to first
cigarette and smoking when ill. Both more and less addicted smokers were helped by nicotine gum, with the highest absolute quit rates amongst less addicted smokers. Segnan and co-workers noted that heavier smokers were less likely to quit overall, without reporting any interaction with treatment. Orleans and co-workers suggested that highly dependent smokers would benefit from more intensive interventions. The multiple contact intervention was relatively unsuccessful for heavily addicted smokers suggesting that a brief intervention would be even less helpful.

**Evidence statement**

A moderately sized body of evidence suggests that brief interventions that do not include pharmacotherapy are less effective for more dependent smokers.

**Social and other factors**

Although the three studies identified at the beginning of this section found some differences in successful quitting in relation to social factors such as close associate or family smoking, the results were inconsistent.

**Evidence statement**

There is insufficient evidence to identify differential evidence of interventions between groups defined by broad social and other factors.

**Question 4. Increasing the intensity, duration and/or frequency of a brief intervention can increase effectiveness. Is this increase additive or multiplicative?**

There is broad evidence of a dose response relationship between intensity of intervention and cessation rates. The meta-analyses for the US clinical practice guidelines (Fiore et al. 2000) compared different lengths of intervention and different numbers of providers. Two meta-analyses found that increasing the amount of contact time increased the odds of quitting. The involvement of multiple clinician types also increased quitting.

Within individual studies of brief interventions, small differences in intervention components may not lead to significantly different quit rates. As noted above the difference in outcomes between ‘intensive’ and ‘minimal’ interventions
based on physician advice in unselected populations was small and of marginal significance, even though some of the trials increased the intensity by providing follow-up visits.

**Evidence statement**

A body of level 1+ evidence based on one set of meta-analyses directly applicable to UK health care settings suggests that increasing the length of a brief intervention from <3 to 30 minutes will increase the effect on quitting, but for interventions lasting less than 10 minutes small changes in the time spent will have limited effect on outcome.

**Question 7. Are some interventions more effective than others both a) within and b) between population groups**

**a) within population groups**

No evidence was identified that clearly addressed this question. As noted in previous sections the evidence on differential effect of brief interventions even at the broadest population level is scarce.

**b) between population groups**

One trial of a brief intervention in hospital patients (Hennrikus et al. 2005) was identified that reported that quit rates were higher overall amongst participants with a smoking related diagnosis. There is too little evidence to draw conclusions about the reliability or generalisability of this observation. No further evidence relevant to differences between population groups was identified.

**Evidence statement**

There is insufficient evidence to identify whether some interventions are more effective than others both within and between population groups.
Question 8. Are interventions tailored to sub-sets of the smoking population more effective with them than generic interventions

No reviews were identified that directly addressed this question. The Cochrane review of self-help interventions (Lancaster & Stead 2005) included three trials that compared materials individually tailored for smokers characteristics with equivalent nontailored materials. None of the studies showed significant differences between tailored and untailored materials.

Evidence statement

There is insufficient evidence to state whether interventions tailored to subgroups of the smoking population are more effective than generic interventions.

Question 9. Does the setting/site of delivery of the intervention influence effectiveness?

We did not identify any trials that compared the same intervention in different settings. The setting for the delivery often determines the nature of the intervention and the person who provides it, as well as some of the characteristics of the recipients. It is therefore difficult to make comparisons of effectiveness across settings. The evidence provided in the section on brief interventions for hospital inpatients suggests that these are not effective. People may be more likely to give up smoking after a hospital admission, but receiving a brief intervention does not further increase abstinence rates.

Evidence statement

There is insufficient evidence from direct comparisons to determine whether the setting influences effectiveness of brief interventions although there is evidence (see section on brief interventions for hospital inpatients) to suggest that brief interventions provided in inpatient settings are not effective.

Question 10. Does the profession of the practitioner influence effectiveness? What are the significant features?

Three meta-analyses indirectly estimated the influence that the profession of a practitioner has on intervention effectiveness by pooling study results of brief smoking cessation interventions delivered by the same group of health
professionals and then comparing differences in effects across provider type (Fiore et al. 2000, Gorin and Heck, 2004, West et al. 2000). One meta-analysis (Mojica et al. 2004) also attempted to answer the question directly and found just one study (McDowell et al. 1985*) which directly compared several provider types providing a smoking cessation intervention. One review (Gorin and Heck 2004) and three trials (Stevens et al. 1993* (included in Rigotti et al 2003) and Stevens et al. 2000* (included in Rigotti et al. 2003), Katz et al. 2004a and b (reporting the same trial)) provided some information about possible characteristics of providers of brief interventions that may explain differential outcomes by provider type.

Evidence from the meta-analyses providing indirect analysis of this question, confirmed that GPs and physicians in general are effective in providing brief interventions. One review (Mojica et al. 2004) based on 23 relevant studies reported that interventions provided by physicians nearly doubled chances of smoking abstinence at 5 months (relative risk (RR) 1.87, CI 1.42-2.45) compared to a control condition. These results mirror those described in Fiore et al. (2000, see Question 1). The latter meta-analysis also found that the effectiveness of interventions delivered by non-physicians was roughly comparable to that of physician-delivered interventions (OR 1.7, 95% CI 1.3-2.1) but this was based on less direct evidence and the studies included interventions of varying degrees of intensity. Mojica and co-workers (2004) found some differences between non-physician professions but power may have been insufficient to detect small effects and interventions of varying degrees of intensity were also included in this review.

The single trial with a direct comparison (McDowell et al. 1985) did not find significant differences in the effectiveness of smoking cessation interventions delivered by different health professionals (family physician, nurse or psychologist) but the interventions delivered varied slightly between health professionals and were not necessarily brief in the case of nurses and psychologists.

A meta-analysis of thirty-seven North-American studies (Gorin and Heck 2004) focused mostly on brief interventions. Contrary to the other meta-
analyses, only physicians and teams of providers produced a significant effect. Comparison of pooled estimates shows physicians to be significantly more effective than nurses ($\beta=5.19$, $p=0.005$) but not dentists ($\beta=4.91$, $p=0.73$) in providing counselling; dentists were also more effective than nurses ($\beta=0.94$, $p=0.002$) but only a small number of dental studies were included. A review in the UK corroborated the findings of Gorin’s work in concluding that there is currently insufficient evidence to determine whether brief advice from health professionals, other than physicians, is effective (West et al. 2000).

Regarding provider characteristics, comparison between two trials conducted by the same research team using different providers suggested that effective interventions delivered by researchers may not have the same benefit when delivered by health professionals (Stevens et al. 1993 and Stevens et al. 2000, (both included in Rigotti et al. 2003)). Katz and co-workers suggested job-related characteristics such as perceived self-efficacy and role-satisfaction could influence effectiveness and postulated training might be important. Factors relating to training were also found to be important in the delivery of smoking cessation advice in nurses.

**Evidence statement**

There is insufficient evidence from direct comparisons to draw firm conclusions about the influence of the profession of a provider delivering a brief smoking cessation intervention, or the influence of features of the profession, on intervention effectiveness.

**Question 11 How applicable is what we know about the most effective brief interventions to the most disadvantaged smokers and pregnant smokers?**

**Disadvantaged smokers**

We found limited evidence addressing the applicability of brief interventions to disadvantaged smokers. One review addressed interventions for smoking cessation among US ethnic minorities (Lawrence et al. 2003) but most trials
included African-Americans and the evidence was mixed. Four trials were also identified (Jamrozik et al. 1984, Thompson et al. 1993, Lipkus et al. 1999, Glasgow et al. 2000) that either focused interventions on low income populations or attempted to analyse effectiveness by socioeconomic group. The findings of these studies were also mixed.

**Evidence statement**

There is insufficient evidence to determine whether brief interventions are more or less effective in disadvantaged smokers.

**Pregnant smokers**

As discussed in section 3.1.14 brief interventions for pregnant smokers a large body of research has been conducted amongst pregnant women, and is therefore directly applicable. Whilst interventions can help pregnant women to stop, we did not find evidence that brief interventions were effective. It appears to be difficult to change the behaviour of women who continue to smoke during pregnancy.

**Evidence statement**

See under brief interventions for pregnant smokers.

**Question 12. What are the barriers to delivering smoking cessation interventions?**

Barriers to delivering smoking cessation interventions were reported by type of health professional. For GPs, a number of different types of study mostly from the UK with relevant information on barriers were identified: one systematic review (Vogt et al. 2005), a number of other studies (Coleman & Wilson 1996, Coleman & Wilson 1999, Coleman et al. 2000, Wynn et al. 2002, Walters & Coleman 2002, Coleman et al. 2002, Coleman et al. 2003, Pilnick & Coleman 2003, McIntyre and Scott 2003, Coleman et al. 2004, McEwen et al. 2005 a and b, Pilnick and Coleman in press), and the UK smoking cessation guidelines (West et al. 2000). This body of work suggested that GPs are more likely to deliver brief interventions in their routine consultations in the context of smoking-related problems. GPs also do not accept that they should provide opportunistic advice at every opportunity, although the existence of the
services had made it easier for them to raise the topic of smoking with patients.

Three UK studies of practice nurses were identified as having relevant information: one survey (Hall et al. 2005) and two trials (Jamrozik et al. 1984, Lancaster et al. 1999). For hospital nurses a trial with hospitalised patients (Hennrikus et al. 2005), a pilot study with cardiac inpatients (McDaniel 1999), a survey of oncology nurses (Sarna et al. 2000) and a trial by cardiac nurses (Hajek et al. 2002) considered barriers. For dentists, a UK survey (Watt et al. 2004), and a review of tobacco counselling in the dental setting (Warnakulasuriya 2002) were considered and one trial was relevant for pharmacists (Maguire et al. 2001). For pregnant women, two recent reviews (Melvin et al. 2000, Melvin & Gaffney 2004) discussed barriers. Relevant information was also examined in the three UK trials of brief interventions with pregnant women (Hajek et al. 2001, Moore et al. 2002, Lawrence et al. 2003), a survey of pregnant women in England (Owen & McNeill, 2001), and a study in New Zealand (Pullon et al. 2003). Two further reviews (Hovell et al. 2000, Roseby et al. 2003) and one trial (Zapka et al. 2004) identified barriers from paediatric settings. These studies identified a number of barriers to intervening, in particularly a lack of time, appropriate skills and remuneration, and fear of alienating customers or patients. Studies noted that pregnant women can be unwilling to reveal their smoking status and using a structured question to determine smoking reduced with pregnant women reduced non-disclosure.

**Evidence statement**

A body of largely qualitative research with a variety of health professionals suggests that from the health professional perspective the main barriers are lack of time, believing that the intervention is not effective, lack of reimbursement, lack of skills, training or confidence and an unwillingness to alienate patients.
Question 13. What strategies are effective in encouraging primary care professionals and others to undertake smoking cessation interventions?

One US review which included trials of reminders for providers, provider education and combinations of components (Hopkins et al. 2001) and a Cochrane review of interventions for training health professionals in smoking cessation (Lancaster et al. 2000) were considered here. In addition to review level evidence 13 additional studies of strategies to increase cessation interventions were identified. Two of these were from the UK (McEwen et al. 2002 and McEwen et al. 2005a, Coleman et al. 2001 and Coleman et al. 2004) and of the non-UK trials, five addressed training or skills (Cornuz et al. 2002, Wisborg et al. 1998, Goldstein et al. 2003, Young et al. 2002, Ockene et al. 1994) and six tested prompts of system level interventions to influence practice (Piper et al. 2003, Joseph et al. 2004, Milch et al. 2004, Etter et al. 2000, Ahluwalia et al. 1999, Roski et al. 2003). Most of this research was conducted amongst primary care physicians.

The reviews provided inconsistent evidence. One identified that provider reminder systems combined with provider training could increase quit rates among patients. The other found that training, with or without prompts, increased provider activity but that there was no strong evidence for an effect on smoking outcomes. One trial did find evidence of an effect of training, without prompts, on quit rates. One of the two UK studies detected a benefit of a desktop resource on GPs’ reported advice giving, the other study found no effect of paying GPs for patients who had quit smoking. The remaining trials did not support a clear effect of any training or reminder interventions.

**Evidence statement**

A moderately sized body of evidence yields conflicting results on the efficacy of training interventions with or without reminder systems for clinicians on smoking cessation in patients. There is insufficient evidence to determine the effect of incentive payments to health care providers on either intervention delivery or smoking behaviour. This evidence preceded the development of specialist smoking treatment services in the UK.
Question 14. What, if any, negative consequences arise from brief interventions?

Two qualitative studies examined the patients’ perspective on brief interventions (Butler et al. 1998, McIntyre and Scott 2003). Two reviews of interventions aimed at families and carers of children (Roseby et al. 2003) and pregnant smokers (Lumley et al. 2004) also identified possible negative consequences of interventions. These studies suggested that there could be negative consequences for a subset of patients, but results were not consistent.

Evidence statement

A limited body of qualitative data suggests that some smokers may resent advice from doctors about smoking, some may be deterred from seeking care and some might even smoke more as a response to advice. Evidence that this can occur is derived from qualitative data, so the prevalence is unknown.

Question 15. What is the impact on inequalities and health?

Four US studies were identified that addressed whether smokers who reported receiving brief interventions differed from those who had not received advice (Ockene et al. 1994, Ossip-Klein et al. 2000, Nicholson et al. 2000, Pollak et al. 2002). Only one of these reported differential receipt of advice that could have been related to socioeconomic status. Two additional studies noted that having more friends and family who smoked was a predictor of difficulty in quitting (Hebert et al. 1992, Senore et al. 1998). Brief interventions may also be less likely to help poorer smokers in general given their higher dependence (Jarvis et al. 2003).

Evidence statement

There is insufficient evidence to determine whether brief interventions are more or less likely to be delivered to disadvantaged smokers or are more or less effective in this group, and therefore the impact on health inequalities is unknown.
SUMMARY OF FINDINGS - REFERRAL

Three studies have examined the relationship between source of referral to smoking treatment services in different areas in England and Scotland with short term outcomes (Judge et al. 2005, Owens et al. unpublished data, Bauld et al. unpublished data). In these studies, self-referral was more common than GP referral for these services, but quit rates were significantly higher among GP referred smokers than among self-referred smokers (only one study, Judge et al 2005 used validated quit rates and controlled for confounding variables). Two studies have examined GPs’ attitudes and practice regarding referrals (McEwen et al. 2001, McEwen et al. 2005b) and the majority of GPs agreed that they should refer to specialist services and reported doing so. Only one other study was identified that looked at referral behaviour by dentists (Watt et al. 2004). Only a quarter of dentists reported referring patients to the smoking treatment services. One response to a request to regional stop smoking service managers for relevant data on referrals indicated that stop smoking services in the Blackpool area noticed an increase in referrals after the introduction of new NRT products.

**Question 1. What factors – training, incentives – influence the number of referrals?**

Two UK studies provided limited evidence that training influenced referrals. McR Robbie and coworkers (2005) found that a 40 minute interactive powerpoint presentation increased referrals until the end of a three month follow up. Anderson (1995, a study identified from a review of pharmacy-based interventions, Blenkinsopp et al. 2003) found that training pharmacists increased referrals to GPs (this was before smoking treatment services were introduced).

**Evidence statement**

One randomised controlled study (level 1+ evidence) directly relevant to the UK setting found that a short training session increased referrals to smoking cessation services by GPs.
**Question 2. What impact, if any, does the PCT have on referrals from primary care to the services?**

A study in one PCT indicated that overzealous referring by some health professionals can increase the number of inappropriate referrals where the patients do not attend the service (Quinn et al. 2001). A survey suggested that GPs working in areas with more established services were more likely to refer smokers than those where the services were less well established (McEwen et al. 2005b).

**Evidence statement**

There is insufficient evidence to determine how far PCT characteristics influence referrals to smoking cessation services.

**Question 3. What factors – mechanisms, role of referrer, type and/or location of service – influence the likelihood of a ‘patient’ following up the referral?**

Two qualitative studies suggest that the doctor-patient relationship, respect for the health professional and more patient centred communication may influence whether the patient will follow the advice (Cable et al. 1999, Butler et al. 1998).

**Evidence statement**

There is insufficient evidence to determine how far patient, clinician and structural factors affect uptake of referrals by patients.

**Question 4. Does the method of promoting the specialist service (e.g. national advertising, referral from GPs and other health professionals, word of mouth) influence the number of referrals?**

One unpublished study concerning smoking cessation services in Liverpool found that over a four year period, the proportion of GP referrals decreased whilst the proportion of self-referrals increased, with an increase in referrals overall (Owens unpublished data). Ability to self-refer without waiting lists is thought to increase flexibility and accessibility to smoking cessation services.
and thereby reach (Miller et al. 2005). Word-of-mouth promotion of the services was also felt to be important.

**Evidence statement**

There is insufficient evidence to determine the effectiveness of different methods of promoting the stop smoking services.

**REFERENCES**


1. BACKGROUND
The National Institute for Health and Clinical Excellence (NICE) has been asked by the Department of Health to develop guidance on ‘brief interventions’ and referral to specialist services to encourage and help smokers to stop smoking. This guidance should assess these interventions in primary care and other settings with particular reference to pregnant smokers and disadvantaged groups and provide recommendations for good practice. The context for the guidance is given below.

The development of smoking cessation treatment in the NHS
In December 1998 the government published a comprehensive strategy to reduce smoking in England, Smoking Kills (DH 1999). This was aimed at reducing smoking among children and young people, encouraging and helping adult smokers, especially the most disadvantaged, to give up, and offering particular help to pregnant smokers. The strategy involved a tobacco advertising ban, further increases in the price of tobacco, measures to reduce smoking at work and in public places, measures to reduce smoking uptake in children, and the development of smoking cessation treatment services in the NHS.

At the same time, the then Health Education Authority (HEA) published national smoking cessation guidelines (Raw et al. 1998) and cost effectiveness guidance (Parrott et al. 1998), which were evidence based and endorsed by a range of professional, voluntary and public bodies. The guidelines recommended that GPs and other primary health care professionals should routinely provide brief advice to smokers to stop. Those smokers that could not stop with brief advice should be offered specialist treatment and the guidelines made recommendations about how such specialist treatment should be structured and made available.

The national guidelines informed the development of the stop smoking services described in the White Paper. Subsequent government guidance (DH 1999a) emphasised the importance of offering the two forms of smoking cessation intervention from health care professionals – opportunistic
interventions by health care professionals given to all smokers (also called brief advice) and treatment clinics for those smokers needing help to stop – in order to achieve the greatest population health benefit. Brief advice by health care professionals has low effectiveness but wide population reach, whereas smoking cessation clinics help fewer smokers but have much higher success rates.

The national guidelines stated that one of the main effects of brief advice was to motivate attempts to stop rather than increase cessation rates. It was believed that many smokers could not stop without more intensive help, and that these would usually be heavier smokers, more at risk of smoking related disease. The guidelines estimated that approximately 40% of smokers would make some form of attempt to quit in response to advice from a GP and that 2% more smokers could be helped to stop compared with usual care controls. At a national level it was estimated that this could lead to an additional 75,000 extra ex-smokers a year. In addition to offering brief opportunistic advice, GPs and other health professionals were to refer smokers to the new specialist smoking treatment services. Brief advice could not be reimbursed, but money could be allocated by the services to support smoking cessation in primary care such as training, working with practices to optimise smoking cessation interventions and referrals to services. Smokers could also self-refer to services.

Improvements were also made in the accessibility of medications for smoking cessation. Bupropion and nicotine replacement therapies (NRT) were made available on prescription and some NRTs were made available on general sale, i.e. could be sold in retail outlets other than pharmacies (McNeill et al, 2005).

Since 1998 other key documents have been published by the government which, inter alia, emphasise the importance of the treatment services in prioritising support for disadvantaged smokers. Because the social class gradient in smoking accounts for over half of the difference in risk of premature death between social classes (Jarvis and Wardle 1999), a target was set to reduce smoking prevalence in manual groups from about 31% in
2002 to 26% or less by 2010 (DH 2000). The Wanless report ‘Securing Good Health for the Whole Population (Wanless 2002) indicated that a substantial reduction in smoking prevalence was necessary if a ‘fully engaged’ scenario of health care was to be achieved. Targets were set for the number of ‘4-week self-reported quitters’ achieved by the treatment services nationally. These rose from 40,000 in 2000 / 2001 to 800,000 in the three years from 2003 to 2006, set in the Priorities and Planning Framework (DH 2002).

The national guidelines were updated in 2000 (West et al. 2000). Some changes were made in response to evidence from the early implementation of the services. In particular, GPs were asked to: give smokers brief advice at least once a year (rather than at every visit); offer a prescription for a smoking cessation medication; and offer further support by referring to a specialist treatment clinic in the first instance. Further recommendations were published in 2003 (West et al. 2003) where the importance of GPs referring to the smoking cessation services was again emphasised, particularly if services were to meet the new government targets. Smoking cessation guidelines for Scotland (West et al. 2004), published in 2004, further strengthened the recommendation for healthcare professionals to refer to stop smoking services:

‘All smokers making an attempt to stop should have ready access to, and be strongly encouraged to use, dedicated smoking cessation services involving structured behavioural support and nicotine replacement therapy or bupropion’.

As part of the new General Medical Services (GMS) contract which has been in place since April 2004, GPs can receive payments for delivering quality standards. These include points for monitoring the percentage of all patients who smoke. For smokers with specific clinical indicators for CHD, stroke/TIAs, hypertension, COPD and asthma there are also additional points for having given smoking cessation advice or referral to a specialist service. The Quality Outcomes Framework (QOF) currently contains 85 points for the management of smoking with 52 of these awarded merely for recording smoking status and
33 points for giving advice or referral only for patients in specific disease categories.

The QOF framework is currently being reviewed by the NHS Employers and the BMA and this will result in recommendations as to what could be included in the new QOF from April 2006. The RCP Tobacco Advisory Group has recommended that the disease specific smoking-related QOF be removed and replaced with targets for all smokers, as there is no evidence that differentially targeting those with pre-existing conditions is more effective than targeting all smokers (West et al. 2000). It has also recommended that separate points are given for advice and referral to ensure that GPs are motivated to do both. If this is accepted it should ensure a considerable increase in the provision of brief advice and referral to the services by general practitioners as there is good research evidence that GPs respond to financial incentives in general (Giuffrida et al. 2000, Gosden et al. 1998).

**Impact of smoking cessation treatment in the NHS**

NHS stop smoking services offering evidence-based treatment are now available throughout the country. The latest results for April 2004 to March 2005 (DH 2005) show that in England, 529,520 people in contact with the services set a quit date, of whom 297,828 reported quitting at 4 weeks. There is also evidence that the services are targeting and reaching disadvantaged smokers although they have a lower success rate (Chesterman et al. 2005).

The impact of brief advice to smokers through the NHS has not been systematically evaluated although some services do keep data on referrals by GPs and other health professionals. These data are described later in this report.

**Why do we need guidance on brief interventions in smoking cessation?**

Although smoking prevalence in the UK has dropped sharply from the 1970s, this decline has been much less pronounced in the last decade. Figure 1 shows that the decline in smoking prevalence is now about 0.4% per year (West 2005, Sporston & Primatesta 2004).
Figure 1 Trends in numbers of smokers and smoking-related deaths in the UK 1950-2020

Source (West 2005). Note Mortality data to 2000 are drawn from Peto and Lopez (2003). Figures on numbers of smokers are drawn from ONS and Tobacco Advisory Council estimates of smoking prevalence combined with population trends (www.oheschools.org/ohech6pg2.html and www.optimumpopulation.org/opt.more.ukpoptable.html to calculate the number of adults aged 16 and over)

Figure 2 illustrates how different stop smoking approaches are contributing to the decline in prevalence. About a third of UK smokers try to stop each year, and overall just 2-3% stop for at least a year. Approximately 12% of smokers stop without receiving treatment (defined here as structured support or medications; ‘cold turkey’ in the figure), 7% use the stop smoking treatment services, and 14% use medications, either on prescription from pharmacies (4%) or purchased from other retail outlet (10%).

Figure 2 Estimated pathways to smoking cessation in the UK in 2004
Brief advice can be envisaged as contributing to all elements in this model. Following brief advice, some smokers might be motivated to make a quit attempt and some of these might choose to stop cold turkey, whilst others might use a medication or seek more intensive support from the treatment services.

If more smokers tried to stop smoking and used the NHS smoking treatment services, or pharmacotherapies, rather than trying cold turkey, there could be a significant population impact. Although the figure of 7% for smoking treatment services could be increased slightly (perhaps up to 10%), such services will not be suitable for, or desired by all smokers. Brief advice could play a key role in persuading more smokers to try to stop and in optimising their chances of success, alongside other tobacco control measures such as mass media advertising and workplace smoking bans.

To give a specific example, if brief advice increased the number of smokers making an attempt to quit over the course of one year from 33% to 50% and 40% could be successfully persuaded to use treatment (10% using a smokers’ clinic, 15% using NRT or bupropion on prescription and 15% buying NRT over the counter), the total number of smokers stopping smoking could be calculated as follows:

\[
0.8\% + 0.32\% + 1.05\% + 0.48\% = 2.65\% \text{ stop smoking}
\]
the counter) this would result in 4.3 % stopping smoking for at least one year, an increase of 1.65% (amounting to about 165,000 smokers). This would make a significant contribution to public health.

Given the development of smoking treatment services, more guidance is needed for health professionals delivering brief interventions. Which health professionals should deliver brief advice? How should this advice be structured? Which smokers should be advised to use pharmacotherapy and should all these smokers be offered it on prescription? Should all smokers be referred to the stop smoking services or only some categories of smoker?

What do we mean by brief interventions and referral?

The scope for this guidance (NICE 2005) indicated that a brief intervention should be taken to include any form of intervention for smoking cessation resulting either from a consultation (eg primary care, pharmacy, hospital, Sure Start centre) or from self-referral (eg helplines or self-help material). NICE indicated that the following interventions were to be excluded:

- Intensive one-to-one support (also known as level 2 in England)
- Group support (also known as level 3 in England)
- Alternative therapies such as hypnosis or acupuncture are not included as they are considered as intensive interventions.

The scope used the definition of brief advice from the national guidelines (Raw et al. 1998). It consists of the following questions and actions, and any intervention involving one or more of these elements should be included:

- Ask if the person smokes
- Advise them to quit
- Assess their willingness to make a quit attempt
- Assist them by providing treatment (eg behavioural support, NRT or bupropion) and arranging follow-up or
- Refer to NHS specialist smoking cessation services
The final element of this definition is used to define referral. Referral to services other than NHS-funded specialist smoking cessation services was not included in the scope.

Given the broad definition above, we developed a working definition of brief intervention as: ‘A brief intervention is defined pragmatically as a single episode (of less than 30 minutes duration) in which a healthcare or other professional provides advice and possibly other support (such as bio-feedback, self-help manuals, pharmacotherapy, and a discussion of referral to smoking cessation services) to generate and possibly aid a smoking cessation attempt as part of his or her routine activities. The 30 minutes cut-off relates to the first session. Follow-ups are not included in this definition. Interventions can either be delivered opportunistically (ie during consultation for reasons unrelated to smoking behavior) or after self-referral by the smoker. Likewise, use of a telephone helpline or seeking out and consulting self-help material is also included in the definition.’

Within this definition it was felt important to distinguish brief interventions given routinely by staff in the normal course of their work and interventions given by specially trained staff with dedicated time for smoking interventions. Many of the studies and reviews included in this review used slightly different definitions of brief interventions (for example, some studies used a much a shorter initial session but offered or provided follow up appointments, and reviews categorised these as brief). These studies are included as they throw light on whether or not a shorter, less intensive intervention may be effective, but it is made clear in the text how the interventions differed from the pragmatic definition of a brief intervention outlined above. In addition, other studies classified some interventions which would fall within the definition outlined here as ‘intensive interventions’. These studies are included here.

While cigarette smoking is the most hazardous and prevalent form of tobacco use, brief interventions with smokeless tobacco users are also included in this report. Smokeless tobacco is used in many forms, some of which are
associated with serious adverse health effects. The scope also required that any evidence be included concerning whether some forms of smokeless tobacco would be effective brief interventions.

**Which populations are included?**

This guidance covers smokers of all ages. Particular focus is given to manual working groups, other disadvantaged groups where smoking rates are very high, and pregnant women.

**Outcomes (see also Methodology Chapter)**

As the guideline is concerned with the effectiveness of brief interventions for smoking cessation, the primary outcome measure is a successful quit attempt. This is abstinence from smoking, following receipt of the brief intervention, for at least six months. Where shorter abstinence periods are used this is made clear in the report. Biochemically validated quit attempts are used (usually expired air carbon monoxide and cotinine) wherever possible. When self-reported quitting is used this is made clear in the report.

Outcome data for referrals are defined as the number of smokers being referred and then quitting.

**What is a rapid review?**

A *Rapid Review* is an overview or syntheses of multiple primary-level evidence sources drawn from different research traditions and taking a variety of forms and formats. The full methodology used in this review is detailed in the next section.

**References**

Chesterman J, Judge K, Bauld L et al. (2005) How effective are the English smoking treatment services in reaching disadvantaged smokers? Addiction, 100: S36-45.


2 METHODOLOGY

BRIEF INTERVENTIONS

Literature search

The rapid review was based on a systematic search for high quality reviews and primary studies. Reviews published since 2000 were the primary source of evidence of efficacy. It was expected that the topic would be covered by a variety of reviews covering brief interventions from different providers within and potentially outside the healthcare system, as well as reviews of self-help and telephone counselling approaches.

A similar search strategy was used to identify reviews and trials, with appropriate design related limits to identify these types of report. The main search strategy combined terms relevant to smoking cessation and terms to capture brief interventions. The terms used for MEDLINE are given here. Full search strategies for all databases are provided in Appendix 5.

Smoking specific terms:

Smoking cessation or ("Smoking-Cessation" / all) or ("Tobacco-Use-Cessation" / all)

Or

((chewing tobacco) or (pipe adj smok*) or cigar* or bidi* or kretek or paan or gutka or snuff or snus or betel) or ("Tobacco-Use-Disorder" / all) or ("Tobacco-Smokeless" / all) or ("Smoking-" / prevention-and-control, therapy in MIME, MJME)) and (quit* or stop* or giv* or ceas* or cessation or withdrawal))

Intervention specific terms

(brief near intervention) or (counsel?ing) or (minimal or minimum or low) near (intervention* or intensity)) or (low-intensity) or (advice) or motivational or opportunistic or self-help or self-help

Medline searches were limited to English language.
Databases searched for reviews covering brief interventions

Primary set:
MEDLINE
Cochrane Database of Systematic Reviews
DARE
Secondary set:
ASSIA
British Nursing Index
Embase
Cinahl
PsycINFO
Sociological Abstracts

Searches were limited to 2000-2005, and English language.

Reviews identified in the primary set were covered in the draft review.

Databases searched for trials covering brief interventions

Primary set:
MEDLINE
Cochrane Controlled Trials Register (CENTRAL)
Cochrane Tobacco Addiction group Specialised Register (Reference Manager Database)

Secondary set:
ASSIA
British Nursing Index
Embase
Cinahl
PsycINFO
Sociological Abstracts

Searches were limited to 1985-2005, and to English language where this was possible. The purpose of the trials search was to identify evidence from randomised trials of interventions not covered by reviews and to identify any other information relevant to questions in the scope, in particular about implementing brief interventions in different settings.

Trials identified in the primary set were covered in the draft review.
Databases and search strategy for barriers

An additional search was conducted for papers on implementation and potential barriers. This combined smoking related and brief intervention related terms as specified in 2.1.1 combined with the following set:

(“Prenatal-Care” / all SUBHEADINGS  
or "Health-Plan-Implementation" / all SUBHEADINGS  
or "Patient-Acceptance-of-Health-Care" / all SUBHEADINGS  
or "Delivery-of-Health-Care" / all SUBHEADINGS  
or (barrier* or implement*)

This search was limited to English language and 1985-2005 publication date. No design terms were used and therefore it identified some papers from the reviews and trials searches. These were rechecked for any information relevant to barriers to delivering interventions.

MEDLINE  
Secondary set:  
ASSIA  
British Nursing Index  
Embase  
Cinahl  
PsycINFO  
Sociological Abstracts

Searches were limited to 1985-2005, and to English language where this was possible. Relevant papers from the primary search set were included in the draft review.

Selection of Studies for inclusion

Selection of reviews for inclusion

Reviews were judged to be potentially relevant if they were reviews of the efficacy of interventions that might be brief, or concerned providers or settings where brief interventions might be used. Since the search terms included advice and counselling a broad category of interventions were retrieved. Reviews were excluded on the basis of title or abstract if they did not primarily address smoking cessation. Reviews were also excluded at this stage if they were clearly not conducted systematically, and did not address any of the
scope questions where lower level evidence might be used. Two reviewers agreed exclusion at this stage. Disagreements were resolved by discussion and obtaining full papers if necessary.

Full text papers were obtained for all remaining reviews. Reviews that were not systematic were excluded unless they provided information relevant to questions other than efficacy. A critical appraisal form was completed for each included review.

A number of journal articles were based on the US clinical practice guidelines (Fiore et al. 2000). We used this guideline as our primary source of data rather than the secondary articles. In addition to reviews retrieved from primary electronic searches we added to the set a small number of other reviews retrieved by subsequent searches or known to the review team from other sources. This included the UK cessation guidelines on smoking cessation and smokeless tobacco cessation, and a review on adolescent smoking cessation.

The searches of primary sources retrieved 236 unique records, and 29 contributed to the evidence base for the review, with a further 9 reviews from other sources (including the trials, barriers and referral searches). A flow chart of the evaluation process is given in Appendix 7.

References to all included and excluded reviews, trials and other papers are available in a Reference Manager database.

Selection of trials for inclusion

Papers identified from the search were excluded from the potential efficacy evidence base on the basis of the title or abstract for the following reasons:

- not primarily concerned with smoking cessation
- not a report of the results of a randomised trial

One reviewer made judgement of potential relevance at this stage. Consistency of coding was assessed in a subset of 80 papers and a kappa of
>0.6 obtained for inclusion versus exclusion. Papers where there was uncertainty about the classification of the intervention were retained.

A high proportion of the papers retrieved were primary or secondary reports of trials included in relevant reviews. These were retained in the relevant trial set but were not considered in more detail unless they addressed additional key questions.

The search for trials on the primary sources retrieved 865 unique records. A flow chart for the initial inclusion/exclusion process is given in appendix 6. Thirty one contributed data to the review. A flow chart for the process is given in appendix 7.

**Selection of other evidence for inclusion**

The references retrieved were screened on the basis of title and abstract. Papers that did not address smoking cessation were excluded. All papers reporting data on interventions to increase the delivery of smoking interventions were considered. Papers with potentially relevant qualitative data about barriers were broadly categorised according to the group amongst whom a focus group or survey was conducted, the setting, where relevant, and the country. Since large numbers of surveys were identified, the following priorities were used to select representative examples with maximum applicability to the UK health care setting.

1. Nationally representative focus groups or surveys in England or the UK
2. National surveys in US, Australasian or European countries
3. Local surveys in the UK
4. Local surveys in other countries

The focus was on barriers to healthcare delivery so studies on smokers’ barriers to quitting were retained, but not examined in detail unless the abstract noted barriers related to smokers’ relationships with health care providers, or barriers specific to disadvantaged groups or pregnant women.

The barrier specific search identified 255 additional records of which 11 contributed additional data to the review. A flow chart of the inclusion process is given in appendix 7.
Quality Appraisal

Potentially relevant reviews and trials were assessed using the appropriate SIGN checklists for reviews and meta-analyses (NICE Guideline Development Methods Appendix B – see below) or randomised controlled trials (NICE Guideline Development Methods Appendix C).

Studies covered by included reviews were not separately assessed for quality since they had met review inclusion criteria. They were not included separately within the evidence tables, unless they contributed evidence to questions separately where the parent review was not directly relevant (for example if containing information about barriers). Papers cited in the text but not appearing in the evidence table for a section are indicated with an asterisk in the text.

Papers providing information about barriers and implementation issues were not formally appraised for quality.

REFERRALS

Literature search

A search for any research on referral to specialist smoking cessation services in the UK used the smoking related terms as above combined with terms relevant to referral and research conducted in the UK. Full strategies are given in Appendix 5.

Databases searched:
MEDLINE
ASSIA
British Nursing Index
Cinahl
Embase
PsycINFO
Sociological Abstracts

In addition a request was made on the Globalink UK service for any information on UK referrals, and efforts made via other contacts to identify relevant data. Globalink is an international network of 1124 tobacco control activists, cessation workers and researchers. The Globalink UK listserve
includes the vast majority of the smoking cessation coordinators in England. A request for information was also put to Regional Stop Smoking Service Managers asking for relevant data on referrals.

**Selection of evidence for inclusion**

One person screened titles and abstracts retrieved by searches for potential relevance.

**Quality appraisal**

Given the small amount of relevant information no formal method of appraisal for information on referrals was used.

**DATA EXTRACTION**

Data were extracted from the papers and reviews by one of four people, to the standard NICE template, for inclusion in the evidence tables and reviewed by a second person for inclusion or exclusion in the report.

The quality of the studies was classified according to NICE criteria (NICE Guideline Development Methods, Appendix B). The relevant table is copied here for clarity.

<table>
<thead>
<tr>
<th>++</th>
<th>All or most of the criteria have been fulfilled. Where they have not been fulfilled the conclusions of the study or review are thought very unlikely to alter.</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>Some of the criteria have been fulfilled. Those criteria that have not been fulfilled or not adequately described are thought unlikely to alter the conclusions.</td>
</tr>
<tr>
<td>-</td>
<td>Few or no criteria fulfilled. The conclusions of the study are thought likely or very likely to alter.</td>
</tr>
</tbody>
</table>

NICE Guideline Development Methods, Appendix B
(www.nice.org.uk/pdf/GDM_AppendixB.pdf)
EVIDENCE STATEMENTS

Evidence statements were produced for each question or sub-question posed by NICE following the format requested in the SCOPE document. Levels of evidence were classified according to NICE guidelines (see Chapter 7 Reviewing and grading the evidence NICE, 2005). The relevant table is copied here for clarity.

<table>
<thead>
<tr>
<th>Level of evidence</th>
<th>Type of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+++</td>
<td>High-quality meta-analyses, systematic reviews of RCTs, or RCTs (including cluster RCTs) with a very low risk of bias</td>
</tr>
<tr>
<td>1+</td>
<td>Well-conducted meta-analyses, systematic reviews of RCTs, or RCTs (including cluster RCTs) with a low risk of bias</td>
</tr>
<tr>
<td>1–</td>
<td>Meta-analyses, systematic reviews of RCTs, or RCTs (including cluster RCTs) with a high risk of bias*</td>
</tr>
<tr>
<td>2++</td>
<td>High-quality systematic reviews of, or individual, non-randomised controlled trials, case–control studies, cohort studies, controlled before-and-after (CBA), interrupted time series (ITS), correlation studies with a very low risk of confounding, bias or chance and a high probability that the relationship is causal</td>
</tr>
<tr>
<td>2+</td>
<td>Well-conducted non-randomised controlled trials, case–control studies, cohort studies, controlled before-and-after (CBA), interrupted time series (ITS), correlation studies with a low risk of confounding, bias or chance and a moderate probability that the relationship is causal</td>
</tr>
<tr>
<td>2–</td>
<td>Non-randomised controlled trials, case–control studies, cohort studies, controlled before-and-after (CBA), interrupted time series (ITS), correlation studies with a high risk of confounding bias, or chance and a significant risk that the relationship is not causal*</td>
</tr>
<tr>
<td>3</td>
<td>Non-analytic studies (for example, case reports, case series)</td>
</tr>
<tr>
<td>4</td>
<td>Expert opinion, formal consensus</td>
</tr>
</tbody>
</table>

*Studies with a level of evidence ‘–’ should not be used as a basis for making a recommendation (see section 7.4)

NICE Guideline Development Methods: Chapter 7 Reviewing and grading the evidence (www.nice.org.uk/pdf/GDM_Chapter7_0305.pdf)

It should be noted that the above classification can be viewed as a hierarchy when considering questions of efficacy with a 1 being better than a 2 which is better than a 3. However, the hierarchy is less appropriate for some of the questions posed by NICE, for example on questions concerning barriers or
acceptability of interventions. In these cases, qualitative research (categorised as level 3 above) may be more appropriate.

Evidence statements were drawn up based on the level of evidence and the quality as well as the applicability of the research question to the UK.

For most of the questions on efficacy, three categories of evidence statements were used. Where sufficient evidence if found of an effect, the evidence statement concludes that ‘A body of level [ ] evidence …supports…’. Where evidence is found that does not support an effect of the intervention considered, the evidence statement concludes that ‘There is no evidence (based on level [ ] evidence) of an effect…’. For questions, where no relevant trials or reviews were identified, the Evidence Statement concludes that ‘there is insufficient evidence to determine the efficacy…’. For questions where the studies identified are mainly qualitative, the evidence statements give more detail about the type of study involved.

**EFFECT SIZE**

As requested in the NICE scope, effect sizes were also given where appropriate. These effect sizes are reported from those given in the reviews or trials considered and are not calculated separately.

**GREY LITERATURE**

Given the time frame within which this report was written, it was not possible to do a systematic search of the grey literature. Grey literature was therefore identified using the following methods:

- A request for relevant information was sent to Regional Tobacco Policy Manager Leads
- A message was put out on Globalink UK (see above for details)
- The authors’ own contacts and knowledge gleaned from attendance relevant UK and international smoking cessation conferences
• The authors’ own papers and research studies

It is acknowledged that the lack of a systematic search of the grey literature may have introduced an element of subjectivity into this part of the review.

**SMOKING CESSATION VALIDATION**

For questions in which smoking cessation was the outcome of interest, biochemically validation of self-reported cessation was preferred. Studies that did not use biochemically validated outcomes were not excluded or downgraded since the US guidelines (Fiore et al 2000) note that analyses show that studies with and without biochemical confirmation yield similar meta-analysis results. The only exception to this was in pregnancy where self-reported abstinence rates are likely to be less reliable. Self reported cessation can fall into two broad categories; sustained abstinence from a quit date or for an extended period, or point prevalence, for example abstinence during the previous 7 or 30 days. Trials may report more than one outcome, and all outcomes were extracted. Cochrane reviews typically prefer a sustained measure, whereas the US guidelines (Fiore et al 2000) prefer point prevalence outcomes. Biochemically validated rates would take precedence over either type of self-report in both cases.

**REFERENCES**

Included in the evidence tables are data extracted from systematic reviews and primary papers contributing to the question which were not included in the systematic reviews. References for studies included in the evidence tables are given in Appendix 1.

The context for the findings and their applicability is also discussed in the report. References describing context are not included in the evidence tables. These references, alongside the included references are given in Appendix 2.

References retrieved by the searches but already covered by included reviews are listed in Appendix 3. References retrieved and excluded are listed in Appendix 4.
3 SUMMARY OF FINDINGS – BRIEF INTERVENTIONS

3.1 Research question 1a Which methods of brief intervention are effective?

<table>
<thead>
<tr>
<th>Brief interventions categorised by provider type and setting</th>
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</thead>
<tbody>
<tr>
<td>3.1.1 Brief interventions from doctors</td>
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<tr>
<td>3.1.2 Brief interventions from nurses</td>
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<tr>
<td>3.1.3 Brief interventions from pharmacists</td>
</tr>
<tr>
<td>3.1.4 Brief interventions in dental care settings</td>
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<tr>
<td>3.1.5 Brief interventions in A&amp;E departments</td>
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<tr>
<td>3.1.6 Brief interventions in workplaces</td>
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</table>

<table>
<thead>
<tr>
<th>Brief interventions by intervention type</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.7 Pharmacotherapy as an adjunct to brief intervention</td>
</tr>
<tr>
<td>3.1.8 Brief interventions based on self-help</td>
</tr>
<tr>
<td>3.1.9 Brief telephone based interventions</td>
</tr>
<tr>
<td>3.1.10 Brief interventions based on the stages of change approach</td>
</tr>
<tr>
<td>3.1.11 Brief multicomponent interventions</td>
</tr>
</tbody>
</table>

NICE guideline PH1 (March 2006) has been updated and replaced by NG92.

Updated or new recommendations have been made about very brief advice, behavioural support and pharmacotherapies.

Parts of this evidence review are relevant to the updated guideline. The evidence in chapters 3.1 to 3.8 has been stood down and replaced.

See www.nice.org.uk/guidance/ng92 for more details.
3.1.12 Other adjuncts to brief interventions

Brief interventions for special populations

3.1.13 Brief interventions for hospital inpatients
3.1.14 Brief interventions for pregnant smokers
3.1.15 Brief interventions for adolescents/students
3.1.16 Brief interventions for families and carers
3.1.17 Brief interventions for smokeless tobacco users

**Brief interventions by provider type and setting**

3.1.1 **Brief interventions from doctors**

**Evidence of efficacy**
Evidence for the efficacy of brief interventions from doctors was identified primarily from one systematic review with additional supporting evidence from two further reviews of a similar body of research. The systematic review was updated in 2004 and no further recent trial evidence was identified.

A review of physician advice for smoking cessation (Lancaster and Stead 2004) provides evidence on interventions from physicians and includes 39 controlled studies, including some comparing brief interventions to a no intervention or usual care control and some where the control group received a brief intervention.

The review included randomised or pseudo-randomised studies, including randomisation by clinic or day of attendance. Studies had to report smoking cessation at least six months after intervention, but outcomes could be based on self reported abstinence. Biochemically validated outcomes were preferred, and sustained abstinence preferred over point prevalence abstinence. Quit rates and odds ratios were calculated, based where possible
on an intention to treat basis with participants lost to follow-up assumed to be smoking.

Participants could be smokers of either gender recruited in any setting, excluding trials exclusively in pregnant smokers. Most studies recruited participants in primary care settings who were not selected on the basis of motivation to quit. Some studies recruited participants with smoking related diseases.

Trials were included if they compared physician advice to stop smoking versus no advice (or usual care), or compared differing levels of physician advice to stop smoking. Advice was defined as verbal instructions from the physician with a 'stop smoking' message irrespective of whether or not information was provided about the harmful effects of smoking. Studies in which patients were randomized to receive advice versus advice plus some form of nicotine replacement therapy (NRT) were excluded, since these were primarily comparisons of the effectiveness of NRT rather than advice. Studies where advice to stop smoking was included as part of multi-factorial lifestyle counselling (e.g. including dietary and exercise advice) were excluded.

 Therapists were physicians, or physicians supported by another healthcare worker. Trials which randomized therapists rather than smokers were included unless the therapists were randomized to receive an educational intervention in smoking cessation advice.

 The Lancaster and Stead review distinguished between ‘minimal’ and ‘intensive’ interventions, but neither category was consistent with the working definition of a brief intervention used here. The results of meta-analyses reported in the review are given, and additional analyses assess the effect of recategorising studies. The review defined a ‘minimal intervention’ as an initial visit lasting up to 20 minutes and no more than one follow-up appointment. It should be noted that in most of the interventions described below, the time spent was much shorter than 20 minutes, ranging from 1 to 15 minutes, and generally lasting less than 5 minutes. An intervention was categorised as ‘intensive’ when the intervention involved a greater time commitment at the
initial consultation, the use of additional materials other than a leaflet, or more than one follow-up visit. Some ‘intensive’ interventions therefore fell within the working definition of a brief intervention. Adjunctive aids to advice other than simple leaflets were considered to be additional strategies (for example, demonstration of expired carbon monoxide or pulmonary function tests, providing self-help manuals).

**Results**

Seventeen trials were classified as ‘minimal’ intensity; one included warning of follow-up (Russell et al. 1979*) and another included an invitation to attend follow-up visits over an extended period (Haug et al. 1994*). The others did not include a follow-up visit. In two trials a nurse was involved (Janz et al. 1987*) or available (Vetter and Ford 1990*). Studies were homogeneous (P=0.10). Pooling the studies using a fixed effect model resulted in a significant increase in the odds of quitting attributable to advice (OR 1.74, 95% CI 1.48 – 2.05, Figure 1).

Figure 1. Effect of minimal advice on smoking cessation

Excluding the four studies noted above where the intervention was not a single visit with one provider (Haug et al. 1994*; Janz et al. 1987*; Russell et al. 1979*; Vetter and Ford 1990*) marginally reduced the estimated effect, although intervention remained significantly more effective than control (OR 1.55, 95% CI 1.29 – 1.86). A limitation of this set of 17 trials is that only two
reported that all self reported cessation was biochemically validated (Slama et al. 1990; Vetter and Ford 1990*).

Of the eight trials using interventions that were classified as ‘intensive’ in the review, four were brief, or on the borderline of brief, using the working definition for this rapid review. One provided demonstration of CO levels and the offer of support from a health visitor, (Jamrozik et al. 1984*), one offered follow-up (Pietersee et al. 2001*) and one provided a self-help manual (Schnoll et al. 2003*). The fourth (Slama et al 1990*) had a control group and two interventions both of which were brief using our definition, but one was classified as ‘minimal’ and the other ‘intensive’ in the review. Of the other trials in this subgroup, three offered multiple visits, and one provided a single telephone call from a counsellor as well as brief advice. We tested whether including the first four studies (categorised in the review as ‘intensive’) as brief interventions (according to the definition in this review) in a fixed effect meta-analysis with the first set of 17 ‘minimal’ intervention studies changed the conclusions. The odds ratio for the pooled effect with this set of studies showed little change, with interventions remaining significantly more effective than control (OR 1.69, 95% CI 1.46 – 1.96, P = 0.05 for heterogeneity). Five of the trials in the minimal intervention group were conducted in England or Wales. The most recent was published in 1990 (Vetter and Ford 1990*).

**Increasing the frequency or intensity of a brief intervention from a doctor**

Comparing the pooled effect size for the subgroups of trials that used interventions with and without follow-up visits suggested the possibility of larger effects when there was more than one intervention session. Five studies directly compared an intervention with and without additional follow-up, and pooling these suggested a small benefit (OR 1.61, 95% CI 1.10 – 2.37, P = 0.78 for heterogeneity).

There were limitations in the quality of the individual trials. Few studies reported the method of allocation concealment in sufficient detail to exclude the possibility of bias. Some studies cluster randomised general practices or
clinic sessions to offer either treatment or control conditions. Few studies used biochemical verification of self-reported cessation.

A second systematic review and US clinical practice guideline (Fiore et al. 2000) provided supporting evidence. Physician advice to quit was estimated to significantly increase the odds of self-reported or biochemically verified abstinence (7 studies, OR 1.3, 95% CI 1.1-1.6 compared to reference group not receiving advice) and estimated abstinence rate (from 7.9% in reference group to 10.2%, 95% CI 8.5-12.0). The most common length of clinician intervention in the included studies was 3 minutes or less, so although the studies contributing to the analysis were not identified it seems probable that most were brief.

The UK practice guidelines (West et al. 2000) drew on an earlier version of the Cochrane review used above, Lancaster & Stead (2004) review. This review supported the efficacy of physician advice and estimated that brief advice increases quit rates by 2%.

**Effect size**

This section summarises the evidence above with an emphasis on the effect size. Providing brief opportunistic advice to smokers who are not selected for motivation increases the odds of quitting. Estimating absolute increases in quit rates resulting from brief advice from a physician is difficult. Different definitions of quitting and lengths of follow-up have been used and full biochemical validation is uncommon. The use of different measures of quitting potentially introduces more heterogeneity into pooled estimates based on absolute risk differences than on estimates based on relative effects (such as the odds ratio). The Cochrane review (Lancaster & Stead 2004) does not give any measure of absolute effect and only reports odds ratios. However the UK guidelines (West et al 2000) did derive an absolute effect of 2% from the Cochrane data. There is no evidence of heterogeneity between studies based on risk difference, and the 2% (95% CI 1-3%) is consistent across low and high intensity intervention subgroups. However it is based largely on self reported abstinence.
Evidence summary

There is evidence from a meta-analysis of multiple studies, with a minimum of 6 months follow-up predominantly using self reported cessation, that brief physician advice delivered in the context of routine care can increase quit rates. More intensive interventions involving follow-up appointments or limited additional support from other healthcare providers may have a small additional benefit.

Applicability and Implementability

Barriers to the implementation of brief interventions are addressed in Question 12. All the research on efficacy pre-dates the introduction of UK smoking cessation services and its relevance for the current situation is now limited.

Evidence statement

A body of level 1+ evidence directly applicable to UK health care settings supports the efficacy of physician advice as a brief intervention for smoking cessation but this evidence preceded the introduction of NHS specialist smoking treatment services in the UK.

3.1.2 Brief interventions from nurses

Evidence of efficacy

Evidence of the efficacy of brief interventions from nurses was based on one review (Rice and Stead. 2004). Both this review and another Cochrane review of interventions for hospitalised smokers covered trials in inpatients, so this section focuses primarily on those trials in the Rice review which concern interventions delivered by nurses outside of hospitals.

Participants were adult smokers. The review excluded studies that only recruited pregnant women. Most trials in primary care did not select patients with a particular health problem. The principal outcome was smoking cessation assessed at least six months after the intervention. Outcomes could be based on self reported abstinence. Biochemically validated outcomes were preferred, and sustained abstinence preferred over short term abstinence at the time of follow-up.
In the Rice review, low intensity interventions were defined as trials where advice was provided (with or without a leaflet) during a single consultation lasting 10 minutes or less with up to one follow-up visit. High intensity was defined as trials where the initial contact lasted more than 10 minutes, there were additional materials (e.g. manuals) and/or strategies other than simple leaflets, and usually participants had more than one follow-up contact. Trials where a smoking cessation component formed part of a multifactorial health risk intervention were eligible. This review considered the ‘low intensity’ interventions and any ‘high intensity’ interventions which also fell within the working definition of brief intervention.

Six trials were classified as low intensity interventions and contributed to the meta-analysis (Janz et al. 1987*; Vetter et al. 1990*; Davies et al. 1992*; Nebot and Cabezas 1992*; Tonnesen et al. 1996*; Aveyard et al. 2003*). All of these trials were conducted in outpatient, primary care or community settings. One further study (Hajek et al. 2002*) may be considered as a comparison between a low intensity intervention and usual care but was conducted in hospital inpatients and contributes to the evidence on hospital interventions in section 3.1.13. Combining the six studies of brief interventions demonstrated an effect of nurse intervention compared to usual care (OR 1.76, 95% CI 1.23 – 1.53, I = 1282, C = 1340, P for heterogeneity = 0.66).

The review included five further trials in UK primary care settings that were not included in a meta-analysis because their designs did not allow for data extraction in a comparable format. All tested interventions that could include follow-up visits. One addressed smoking only (Sanders et al. 1989). The other four studies addressed multiple cardiovascular risk factors (Campbell et al. [Page Number] 74
1998*; Family Heart Study Group 1994*; Muir et al. 1994 OXCHECK*; Steptoe et al.1999). Since multiple risk factors were addressed it is not possible to determine how much time was spent on smoking cessation, but within the length of the total intervention it is likely that fewer than 30 minutes were devoted to smoking cessation. All interventions targeted healthy patients except Campbell et al. 1998*, which recruited patients with coronary heart disease. Sanders et al. 1989, in which smokers visiting their family doctor were asked to make an appointment for a health check, reported that only 25.9% of the patients made and kept such an appointment. The percentage that had quit at one month and at one year and reported last smoking before the one-month follow-up was higher both in the attenders (4.7%) and the non-attenders (3.3%) than in the usual care controls (0.9%). This suggests that the invitation to make an appointment for health screening could have been an anti-smoking intervention in itself, and that the additional effect of the structured nursing intervention was small. In the OXCHECK study (Muir et al. 1994), which used similar nurse-delivered health checks, households were randomized to be offered the health check in different years. The authors compared the proportions of smokers in the intervention group who claimed to have stopped smoking in the previous year to patients attending for their one-year follow-up, and to controls attending for their first health check. They found no significant difference in the proportion of peoples that reported stopping smoking in the previous year across groups, suggesting that the health checks alone were ineffective at encouraging people to stop smoking. The Family Heart Study Group (1994) trial offered nurse-led cardiovascular screening for men aged 40 to 59 and for their partners, with smoking cessation as one of the recommended lifestyle changes. Cigarette smokers were invited to attend up to three further visits. Smoking prevalence was lower amongst those who returned for the one-year follow-up than amongst the control group screened at one year. This difference was reduced if non-returners were assumed to have continued to smoke (ie using intention-to-treat analysis), and if CO-validated quitting was used. In that case there was a reduction of only about one percentage point and the authors concluded that the evidence for a true reduction was weak. Campbell and co-workers invited patients with a diagnosis of coronary heart disease to nurse-
run clinics promoting medical and lifestyle aspects of secondary prevention. There was no significant effect of intervention on smoking cessation. At one year the decline in smoking prevalence was greater in the usual care control group than in the intervention group. There was no significant effect of intervention on smoking cessation at four years follow-up. Steptoe and co-workers recruited patients at increased risk of coronary heart disease for a multi-component intervention of behavioural counselling. The quit rate amongst smokers followed up after one year was not significantly higher in the intervention group compared with usual care (difference in change in prevalence from baseline at twelve months 9.4%, 95% CI -9.6 to 28.3), and there was significantly greater loss to follow-up of baseline smokers in the intervention group.

Since these five studies suggest that the use of these types of interventions, which included follow-up sessions, did not increase cessation rates, it is unlikely that similar interventions without follow-up would show an effect either.

Although the review by Rice and Stead. (2004) provides evidence that brief interventions for smoking cessation delivered by nurses in primary care, community and outpatient settings can increase quit rates, it is important to note that no studies were found of brief opportunistic advice directly analagous to the low intensity interventions used in trials of physician advice (see section 3.1.1). The main purpose for initiating contacts with patients in the trial identified was to address smoking behaviour.

In two low intensity studies (Janz et al. 1987*; Vetter and Ford 1990*), advice from a physician was also part of the intervention and since as indicated above this is an effective intervention the separate effect of the nurse component is unclear.

Providing additional physiological feedback in the form of spirometry to assess lung function and carbon monoxide levels as an adjunct to a nursing intervention did not appear to have an effect. Three studies in primary care or
outpatient settings used this approach (Sanders et al. 1989*; Risser and Belcher 1990*; Hollis et al. 1993*).

**Effect size**
No studies have examined the impact of brief opportunistic advice delivered by nurses alone, so there is insufficient evidence to provide an effect size for this type of intervention.

**Evidence summary**
Most studies of interventions by nurses test multisession interventions. Brief interventions include advice and provision of written materials. In one review of nurse interventions, meta-analysis of six trials of brief intervention for smoking cessation (described as ‘low intensity’ in the review ) compared to usual care gave an odds ratio in favour of brief intervention of 1.76 (95% CI 1.23 - 1.53, I = 1282, C = 1340). All of these studies were conducted in primary care or community settings, in several countries including two in the UK. In five additional UK studies where brief intervention for smoking cessation formed part of a nurse run health check or multifactorial intervention, a consistent effect of nurse intervention was not detected. None of the studies used brief, opportunistic advice delivered only by nurses.

**Applicability**
The evidence for brief interventions delivered by nurses to smokers is based on trials in primary care, outpatient and community settings including two UK studies in primary care (Aveyard et al 2003; Vetter 1990).

**Implementability**
UK studies in primary care settings have recorded poor uptake of invitations in unselected populations, to contact practice nurses for discussions and assistance on smoking cessation. Aveyard and co workers (Aveyard et al. 2003) reported that among smokers sent tailored self-help materials, only 20% attended a first visit with a practice nurse. Lancaster and co-workers (Lancaster et al. 1999) intended to test an intensive intervention with up to 5 follow-up visits but reported that only 30% took up the offer of extended counselling with a practice nurse, following advice from a GP.
Evidence statement

A body of level 1+ evidence directly applicable to the UK supports the efficacy of nurse structured advice as a brief intervention for smoking cessation in primary care and community settings. However, the primary focus of the contact in these studies was smoking, so these interventions are not brief opportunistic interventions made during routine care. In addition, poor uptake of invitations to contact nurses for assistance with smoking cessation was noted in some UK studies. There is insufficient evidence to say whether opportunistic advice increases quit rates. A moderately sized body of evidence failed to detect any effect of advice and interventions delivered by nurses as part of a health check. This evidence preceded the development of specialist smoking treatment services within the UK.

3.1.3 Brief interventions from pharmacists

Evidence of efficacy

No reviews specifically addressed brief interventions for smoking cessation from pharmacists. One systematic review addressed interventions by community pharmacy staff, and identified two trials meeting their selection criteria. Although neither of these interventions would be classified as brief, because of the use of repeated follow-up sessions in the absence of other evidence they are discussed briefly below. The review of community pharmacy staff interventions for smoking cessation (Sinclair et al. 2004) included randomized controlled trials involving community pharmacy clients who smoked and wished to stop. Any intervention by community pharmacy staff to promote smoking cessation amongst their clients was included. The intervention may have been delivered by one or more pharmacists and/or members of their staff. They may have included advice or more intensive behavioural therapy, with or without the use of any form of NRT or other pharmacotherapy. The principal outcome measure was abstinence six months or more after the start of the intervention.
Two randomized controlled trials were included, both conducted in the UK (Sinclair et al. 1998*; Maguire et al. 2001*). Both trials involved a training intervention which included the Stages of Change Model, and then compared a support programme involving counselling and record keeping with a control receiving usual pharmacy support. The Maguire study involved raising the issue of smoking with customers purchasing a range of non-medical and medical items and inviting those interested to participate in a research programme. Participants (n = 484) were then randomised to control or intervention groups. The intervention comprised an initial interview of 10 to 30 minutes, during which a contract to stop was drawn up and NRT offered (at full retail price) if appropriate, a self-help leaflet was given, and smokers were asked to return to the pharmacy for follow-up advice at weekly intervals for 4 weeks, then monthly for 3 months. Over half in the intervention arm were followed up at 1 week and around a third at 2 weeks. This study found a significant increase in cotinine validated continuous abstinence at 12 months compared to control (OR 5.94, 95% CI 2.46 - 4.34).

The Sinclair et al. (1998) study recruited 492 pharmacy customers seeking advice on stopping smoking or buying over the counter anti-smoking products at the start of a new attempt to stop smoking. The initial consultation lasted 2 to 30 minutes and follow up support was offered. This study found no significant difference in self reported continuous abstinence at nine months (OR= 1.71, 95% CI 0.92 - 3.17) or at earlier follow up points.

In both studies, normal pharmaceutical service was provided by the pharmacist in the control groups and a high proportion of intervention and control participants began using NRT.

**Effect size**

No evidence identified.

**Evidence summary**

There has been no research on brief interventions delivered by pharmacists. The evidence for more intensive interventions in pharmacy settings is mixed.
Applicability
UK based, therefore likely to be applicable.

Implementability
Two trials from the UK have demonstrated the feasibility of delivering intensive smoking cessation interventions in community pharmacies in the UK. Implementability in the UK remains to be determined but given that the new pharmacy contract encourages pharmacists to deliver health promotion interventions including smoking cessation advice this might influence the implementability of such intervention.

Evidence statement
There has been no research on brief interventions delivered by pharmacists.

3.1.4 Brief interventions in dental care settings

Evidence of efficacy
There are no reviews specifically addressing brief interventions for smoking cessation in dental care. Two reviews, drawing on a similar body of research, have examined whether dental care providers are effective in tobacco counselling. One additional trial was also identified in the literature search.

One review included randomized controlled trials or meta-analyses for smoking cessation in dentistry settings (Brothwell 2001). The other review summarised a selection of smoking cessation programmes in dental settings, however this review was methodologically weak (eg search criteria were not specified) (Warnakulasuriya 2002). Some of the trials in these reviews involved interventions with smokeless tobacco users, but this section focuses only on trials of smoking cessation interventions.

Of the studies included in the Brothwell and Warnakulasuriya reviews, only two are randomised controlled trials of interventions for smoking cessation by dental health care professionals, with a follow up of at least 6 months (Cohen et al. 1989*; Severson et al. 1998*).
The Severson trial (only included in the Warnakulasuriya review) involved dental hygienists based in the US giving behavioural interventions. There were three conditions. Patients either received usual care, a minimal intervention (determining tobacco use, oral examination and feedback relating to patient’s tobacco use, direct advice to quit related to oral health, self help materials including pamphlets and a quit kit including various items such as flavoured toothpicks to help cessation programme) or an extended intervention (which included the minimal plus asking the patient to set a quit date within 2 weeks of the visit, giving a motivational video and calling the patient within 2 weeks to follow up progress). The minimal intervention was consistent with the working definition of a brief intervention. The study used cluster randomisation by practice. No significant difference was found between the usual care, minimal and extended interventions at 3 or 12 months (12 month follow up data: both interventions combined versus usual care; OR 1.11, 95% CI 0.72-1.71; minimal versus extended intervention OR 0.90 95% CI 0.68-1.80).

The second trial (Cohen et al. 1989*) also based in the US, involved private dental practices, and dentists were the unit of randomisation. This trial involved 4 conditions, brief advice (which included advice on quitting, agreeing a date and checking on patient’s progress at regular scheduled visits), a reminder (in which two fluorescent stickers were to be used to remind the dentist to talk to the patient about smoking and remind them of the agreed quit date), a gum condition (in which up to a ten-box supply of nicotine chewing gum could be given to the patient) and a condition in which all the interventions were given. Patients did not have to be motivated to quit. Although the control condition was brief advice alone, this involved a number of scheduled visits. At one year, there was a significant effect on smoking cessation for the gum condition and advice only (quit rates at 12 month follow up 3.1%, 2.8%, 7.7% and 4.7% in control, reminder, gum and combined intervention groups respectively, p<0.05).

**Effect size**

In the absence of evidence for efficacy no effect size can be estimated.
Evidence summary

There has been little research on brief interventions for smoking cessation by dentists and as such there is insufficient evidence to judge the efficacy of advice alone. In one study the use of nicotine gum in addition to advice significantly increased quit rates over advice alone.

Applicability/Implementability

No UK-based evidence for delivery of brief interventions for smoking cessation by dental practitioners was identified. However, evidence from the USA suggests that applicability and implementability is likely to be high for the kind of interventions researched.

Evidence statement

There has been little research on brief interventions for smoking cessation by dentists and as such there is insufficient evidence to judge the efficacy of advice alone. In one study the use of nicotine gum in addition to advice significantly increased quit rates over advice alone.

3.1.5 Brief interventions in A&E departments

Evidence of efficacy

One review (Bernstein and Becker 2002) assessed the evidence for efficacy of limited screening and counseling for tobacco use cessation among adults in primary care and emergency department settings in order to develop recommendations for emergency physicians. Most of the included studies were of physician interventions in other settings and are covered in the reviews of physician advice and training by Lancaster and co-workers (see section 3.1.1 on interventions from doctors and 3.11 on training).

One randomised trial in a US emergency department was identified (Richman et al. 2000*). This provided standardized, scripted counselling by emergency physicians including written and oral referral to a smoking cessation program, a leaflet on smoking cessation and a pack about pharmacologic therapies. The control received a leaflet only. There was no significant difference in quit rates between intervention and control at 3 months (10.4% vs 10.9%; P = 1).
Any effect of the leaflet control alone is likely to have been small (see section 3.1.8). This trial failed to detect an additional benefit of the advice. It is unclear that evidence from physician advice in other settings can be generalised to this setting.

Evidence statement
There is insufficient evidence to determine the efficacy of a brief intervention from a physician for smoking cessation offered through accident & emergency departments. There is insufficient evidence to determine whether such interventions could be implemented in this setting.

3.1.6 Brief interventions in workplaces

Evidence of efficacy
Evidence for the efficacy of brief interventions in the workplace was identified primarily from one recent systematic review (Moher et al. 2005).

Studies in the review had to report smoking cessation at least six months from the start of the intervention. Continuous abstinence was preferred to point prevalence, and biochemically verified abstinence to self-report. Among the 61 studies included in the review, six randomized controlled trials (Burling and Burling 2000*; Campbell et al. 2002*; Sutton 1988 (paper reporting multiple studies) met the criteria for brief interventions. The Burling and Sutton studies validated their quit rates using expired CO. The Sutton studies were conducted in the UK, the others in the US.

Results
Of the six RCTs of brief interventions, two studies used computerised tailoring to individually tailor their intervention. Burling found no effect at six months of an internet-based computer programme to gradually reduce nicotine intake then quit, compared with advice manuals and relaxation audiotapes (OR 1.14, 95% CI 0.32 - 4.05).

The Health Works for Women trial (Campbell et al. 2002*), targeting low-paid ethnic minority female workers tested tailored and personalised ‘magazines’
compared to a delayed intervention control group. At baseline significantly more women in the intervention group smoked compared to the delayed group. Both groups decreased their rate of smoking by approximately 3% over the course of the study with no difference between intervention conditions. This trial, targeting several health behaviours, had been designed to include supportive ‘lay helpers’ from among the intervention co-workers, but had found no-one willing to be trained to assist the smokers, so the tobacco component defaulted to a comparison between minimal and no self-help materials.

The remaining four studies published in a single paper (Sutton et al. 1988*) all used motivational videos, each around 25 minutes duration, compared with general information videos, or with no support (non-participant smokers). Employees who watched any of the smoking videos also received written advice on quitting. None of the studies detected a significant difference in abstinence rates at one year between the motivational and information video groups, or between the video groups and the non-participant smokers (ORs comparing main video group to non intervention control: Trial A: 1.12, 95% CI 0.18 - 7.07; Trial B: 2.92, 95% CI 1.01 - 8.45; Trial C: 1.64, 95% CI 0.31 - 8.67; Trial D: 1.06, 95% CI 0.23 - 4.89). A marginally significant difference between the video subjects and the non-video controls in the second study is compromised by the fact that the control group comprised younger smokers, who smoked more heavily at baseline. The first trial also differed from the other three in using a non-tobacco-related comparison video (on seat belt use), and in making the videos available to all employees, rather than just to the smokers.

None of the six studies detected a significant benefit of brief interventions over minimal or no support. There was no meta-analysis performed for this group of studies as they were relatively heterogeneous.

The Sutton trials were conducted in work time with the collaboration of the department of occupational health in each worksite. The Campbell trial had managerial co-operation in all nine worksites for the baseline survey, which was conducted in work time, but one site refused to give participants
protected time to complete the first follow up at six months, and four withdrew co-operation at the 18-month follow up. The Burling trial used worksites opportunistically as a recruiting ground, but did not conduct the study in work time or premises. The Campbell and Burling trials were run by research project staff and the Sutton trials by a collaboration between occupational health and project staff.

**Effect size**

In the absence of evidence for efficacy, no effect size can be presented.

**Evidence summary**

Based on one systematic review including a small number of relevant trials of brief interventions in workplaces there is insufficient evidence to judge efficacy in this setting. None of the existing studies considered in this review detected a benefit of brief interventions.

**Applicability**

These results are relevant here as the four Sutton trials were UK based (in London and the South-East), while the Burling trial, although set in the USA, used an internet-based intervention that could be made available anywhere.

**Implementability**

The workplace might provide a setting to disseminate some brief interventions for smoking cessation.

**Evidence statement**

There is insufficient evidence to determine the efficacy of brief interventions for smoking cessation offered through the workplace. Amongst the trials included in a review of workplace interventions there was no detectable effect. The trials included did not test interventions found to be effective in other settings.
Brief interventions by intervention type

3.1.7 Adjuvant Pharmacotherapy

Evidence of efficacy

One review was identified of nicotine replacement therapy for smoking cessation that included evidence on the effect of NRT delivered with minimal additional support from physicians or purchased over the counter (Silagy et al. 2004).

The review included smokers recruited from any setting with any level of nicotine dependence. Studies which randomized therapists, rather than smokers, to offer NRT or a control were included provided that the specific aim of the study was to examine the effect of NRT on smoking cessation. Trials that randomized physicians or other therapists to receive an educational intervention, which included encouraging their patients to use NRT, were not included. Trials in which follow up was less than six months were excluded. The strictest available criteria to define abstinence were used. In studies where biochemical validation of cessation was available, only those participants who met the criteria for biochemically confirmed abstinence were regarded as being abstinent. Wherever possible sustained cessation, rather than point prevalence, was used. In trials where patients were lost to follow up they were assumed to be smoking (intention-to-treat analysis).

The review included comparisons of NRT (including chewing gum, transdermal patches, nasal spray, inhalators, tablets, and lozenges) versus placebo or no NRT control. The review categorized trials into two groups depending on the level of additional support provided (low or high). Low-intensity additional support was defined as part of the provision of routine care. If the time spent with the smoker (including assessment for the trial) exceeded 30 minutes at the initial consultation or the number of further assessment and reinforcement visits exceeded two, the level of additional support was categorized as high. For the purposes of this review, we consider ‘low intensity’ as a brief intervention. However, we additionally consider the effect of very brief intervention in the form of over the counter purchase.
The review included 123 studies. One hundred and three used NRT to aid cessation and included a placebo or non-NRT control arm. In this group there were 52 trials of nicotine gum, 37 of transdermal nicotine patch, four of nicotine nasal spray, four of the nicotine inhalator, four of the oral tablet or lozenge, one offering a choice of products and one providing patch and inhaler with a no placebo control. Of these, 34 were classified as ‘low intensity’ and are most relevant to this review. Three of these 34 trials considered use of NRT obtained ‘over the counter’ rather than from a medical care provider (Davidson et al. 1998*; Hays et al. 1999*; Sonderskov et al. 1997*). One of these three trials also allowed a comparison between purchased and free patches with minimal support (Hays et al. 1999*). Two additional trials compared purchased NRT without behavioural support to purchased NRT with brief physician support (Leischow et al. 1999 using patch, Leischow et al. 2003 using inhaler).

There were 21 trials of nicotine gum with low intensity support. The use of nicotine gum significantly increased the odds of smoking cessation compared to low intensity support and placebo or no nicotine gum (OR 1.76, 95% CI 1.52 – 2.05, I = 3547, C = 5058). There were 13 trials of nicotine patch with low intensity support. The use of nicotine patch significantly increased the odds of smoking cessation compared to low intensity support and placebo or no nicotine patch (OR 1.86, 95% CI 1.56 – 2.21, I = 5122, C = 2624). Included in the group of 13 placebo controlled nicotine patch trials were three conducted in OTC settings (Davidson et al. 1998*; Hays et al. 1999*; Sonderskov et al. 1997*). This subset of three trials also showed a significant increase in the odds of quitting with nicotine patch compared to placebo was 2.07 (95% CI 1.44 – 2.98, I = 1288, C = 990). Pooling all 34 trials of gum and patch resulted in an OR of 1.81 (95% CI 1.61 – 2.02).

The odds ratios for quitting with NRT and high intensity support compared to placebo and high intensity support were 1.61 (95% CI 1.43 – 1.82, I = 3687, C = 3591, P = 0.30) for nicotine gum and 1.79 (95% CI 1.56 – 2.05, I = 5094, C = 3850, P = 0.19) for nicotine patch. The similarity between the odds ratios
with low and high intensity support suggests that the relative effect of NRT is stable with different levels of behavioural support.

The review also presented the results of subgroup analyses based on the site of recruitment and treatment, but not distinguishing between high and low intensity support. An additional analysis for this review pooled the subset of trials in primary care, outpatient clinic or occupational health settings which used low intensity support. There were a total of 14 studies (12 of nicotine gum, 2 of nicotine patch) and the OR was 1.86 (95% CI 1.52 – 2.28, I = 2667, C = 3196), consistent with the relative effect in other settings and with other levels of support.

Two small studies without placebo controls, both in primary care, directly compared the effect of providing high versus low intensity follow up to participants receiving nicotine gum (Fagerstrom et al. 1984*; Marshall and Raw 1985*). The pooled results favour intensive follow up but the result was not statistically significant (OR for intensive versus minimal follow up: 1.30, 95% CI: 0.75 to 2.28).

Two US trials compared patch (Leischow et al. 1999*) or inhaler (Leischow et al. 2003*) purchased with brief support from a health care provider support or purchased with no support (intended to simulate an OTC setting). Validated cessation rates at 12 months were low (<3%) in both conditions in both trials. When the two trials were pooled there was a marginal advantage of the physician support compared to no support (OR 0.21, 95% CI: 0.05 to 0.84, I = 409, C = 411).

No trials of bupropion were identified that used a brief intervention as the only behavioural support.

**Effect size**

Based on the pooled results of nicotine gum or patch trials with low intensity support, the use of NRT increases the odds of quitting by approximately 80% (OR 1.81, 95% CI 1.61 – 2.02) compared with placebo.
Evidence summary
A recent review found that in 34 randomised trials of NRT prescribed with ‘low intensity’ support, NRT increased the chances of quitting compared with placebo or no NRT (OR 1.81, 95% CI 1.61 – 2.02). These effects were comparable to those obtained with more intensive support compared with control.

Applicability and Implementability
Several NRT studies have been carried out in the UK so the results of this review are directly relevant here. OTC studies are likely to be relevant but none have yet been carried out in the UK.

Evidence statement
A body of level 1+ evidence directly applicable to the UK supports the efficacy of NRT as part of a brief intervention for smokers wishing to make a quit attempt.

3.1.8 Brief interventions based on self-help materials

Evidence of efficacy
Evidence for the efficacy of self-help interventions was identified primarily from one systematic review (Lancaster and Stead 2005).

The review included randomized or quasi-randomised controlled trials with a minimum follow up of six months, where at least one arm consisted of a self-help intervention not confounded by repeated face-to-face therapist contact. (That is, studies that compared therapist contact and materials to nothing were excluded because the effect of the materials could not be separated from the therapist effect.) Studies had to report smoking cessation at least 6 months after intervention, but outcomes could be based on self reported abstinence. Biochemically validated outcomes were preferred, as was sustained over point prevalence abstinence.

Participants could be any adult smokers, excluding trials exclusively amongst pregnant women.
Self-help interventions were defined as any manual or programme to be used by individuals to assist a quit attempt not aided by health professionals, counsellors or group support. They could include written materials, audio- or videotape or computer programmes. Brief leaflets on the health effects of smoking without any information on how to quit were not included and in some studies were used as a control condition when a more substantial manual was being evaluated.

The review included 60 trials of self-help methods. Thirty-three of these compared standard self-help materials to no intervention or provided standard materials as an adjunct to advice. The other trials compared targeted or tailored self-help methods or compared other variations of programmes. Trials of self-help materials were carried out in a range of settings. In some the materials were provided without face-to-face contact or any additional motivating strategy. Some studies tested the use of materials for people who had called quitlines; self-help materials were the main form of support offered, or were evaluated as an adjunct to counselling. In healthcare settings, self-help materials were more frequently used as an adjunct to brief advice to quit. Some studies described as being tests of self-help materials included relatively high levels of face-to-face support, though less than in formal counselling programmes. The meta-analysis used subgroups to investigate whether the effect of the self-help component was altered by the support common to both intervention and control groups. The smokers recruited to trials ranged from those who have already succeeded in quitting for 48 hours to those with no interest in quitting, but in most cases an interest in quitting was not a selection criterion.

Two of the 33 trials with a no-self help control had considerably larger effect sizes and introduced heterogeneity to the pooled analysis. Both were conducted by the same research group and both used a waiting list control. These clinical differences were considered to justify their exclusion from the meta-analysis. The remaining studies were subgrouped according the characteristics of the control group. There were 11 studies in which mailed materials were provided and the control group received no intervention, in this
subgroup the pooled effect was significant (OR 1.24, 95% CI 1.07 – 1.45, I = 7383, C = 6390, P for heterogeneity = 0.59). In a separate group of four studies with no contact but a mailed leaflet for the control no effect of the additional structured materials was detected (OR 0.87, 95% CI 0.68 – 1.12, I = 3246, C = 1561 P for heterogeneity = 0.12). In the group of five studies where materials were given as part of face to face contact, but not with advice, there was no significant effect of self-help materials versus no materials (4) or control (1) (OR 1.20, 95% CI 0.96 – 1.40, I = 1917, C = 1949, P for heterogeneity = 0.43). In the remaining 11 trials, where self help materials were being tested as an adjunct to face to face advice a significant benefit from additional materials was not detected compared to advice and no materials (8 trials) or advice and a leaflet (3 trials) (OR 0.97, 95% CI 0.78 – 1.21, I = 2617, C = 2692, P for heterogeneity = 0.12). (In the last two subgroups, excluding studies in which the control group received a leaflet had little effect but tended to decrease rather than increase the estimated effect).

There was no evidence of significant heterogeneity over the 31 studies so a pooled estimate for whole group was also presented. This supported a small and borderline nonsignificant benefit of such materials (OR 1.11, 95% CI 1.00 - 1.22, I = 15163, C = 12592, P for heterogeneity = 0.09).

Consideration of absolute differences in quit rates, based on pooling the same set of 31 trials using the risk difference (RD 0.01, 95% CI 0.0 – 2.0, P for heterogeneity = 0.09) suggests that using self help materials may increase quit rates by about 1% compared no self help materials.

The review also included 17 trials comparing materials that were tailored to individual characteristics, based on data gathered from baseline questionnaires or telephone calls, and sometimes from additional contact. These types of materials were significantly more effective than no materials or untailored materials (OR 1.42, 95% CI 1.26 to 1.61, I = 9787, C = 10627). There was no evidence of a difference between subgroups with different types of control. This group of studies included 3 conducted in the UK, including one showing no evidence of benefit from a tailored GP letter compared with an untailored letter (Lennox et al. 2001*) and two others with non significant
trends towards a benefit compared with untailored materials (Aveyard et al. 2003*, Ledwith 1984*).

Three studies examined self-help materials as an adjunct to NRT, and did not detect individually or when pooled any significant additional benefit from the use of the materials, over the NRT alone group quit rate which was above 20% in all studies (OR 1.00, 95% CI 0.7 – 1.29, I = 632, C = 628). None of these used individually tailored materials.

Four trials compared materials tailored for a particular population group to generic materials. One compared a programme intended for mothers with young children with American Lung Association or National Cancer Institute (NCI) materials (Davis et al. 1992*). One compared a guide addressing the quitting needs and barriers of African-American smokers with a standard guide, mailed to smokers calling the NCI Cancer Information Service (Orleans et al. 1998*). One compared culturally sensitive to standard materials for African-American smokers who also received nicotine patches and two phone calls (Ahluwalia et al.1999*). Prochaska and colleagues provided manuals tailored to the smoker's stage of change compared to standard materials (Prochaska et al. 1993*). None of the trials showed significant differences.

Ten trials compared different types of standard materials and none detected significant differences at longest follow-up.

Supporting evidence for a marginal benefit of self-help materials is drawn from the US clinical practice guidelines (Fiore et al. 2000). A meta-analysis evaluating the effect of different formats of intervention estimated the increased odds of success when an intervention contained self-help materials compared to controls without materials at 1.2 with marginal significance (95% CI 1.02 - 1.3).

Limitations

Only about one third of the studies used biochemical validation of self-reported cessation. Many different types of self-help materials were tested in trials. Some may have been unsuitable for the population targeted because of
their reading age or other features. Although individually tailored materials have been shown to be more helpful, the way in which they need to be tailored is still unclear.

Effect size
The largest effect that might be expected from the use of self-help materials amongst smokers seeking treatment would be in the order of 1% based on the pooled risk difference presented above. Based on studies comparing individually tailored materials to either no materials or untailored materials the effect size might be larger if materials were individually tailored.

Evidence summary
Based on one review including a meta-analysis of 31 trials with control groups not receiving materials, standard self-help materials have at best a small effect on their own. They have not been shown to offer significant incremental benefit over a brief intervention involving face to face contact, possibly due to the lack of power to detect a small relative additional benefit. There is evidence for a slightly larger effect if materials can be tailored for the characteristics of individuals. There is no evidence to support the use of materials tailored for specific populations over standard ones.

Applicability
Results are likely to be broadly applicable to the UK population. The review notes that other sources have suggested that low readability of materials may be a factor contributing to the limited effect of self help materials.

Implementability
A wide range of standard, mainly print self-help materials is available, so barriers to implementation are low. There would be barriers to providing individually tailored materials in health care settings, but implementation would be more practical in the context of national services, such as quitlines, for treatment seeking smokers.

Evidence statement
A body of level 1+ evidence directly applicable to UK settings marginally
supports the efficacy of providing standard self-help materials as a brief intervention (without any face to face contact) for smoking cessation. A body of level 1+ evidence supports the efficacy of materials that are tailored for individuals. There is a moderately sized body of evidence that has failed to detect any benefit for materials tailored for specific populations compared to standard materials. A body of level 1+ evidence directly applicable to UK settings does not support any additional benefit of providing self-help materials as an adjunct to advice.

3.1.9 Brief telephone based interventions

Evidence of efficacy
One systematic review of telephone counselling interventions provides the main body of evidence (Stead et al. 2003). The review included randomised or quasi-randomised controlled trials. The unit of allocation could be individual participants, group, intervention site or geographical area. Studies had to report smoking cessation at least 6 months after intervention, but outcomes could be based on self reported quitting, using the strictest definition of abstinence. Biochemically validated outcomes were preferred when reported, and sustained rather than point prevalence quitting. The review included trials enrolling smokers or recent quitters.

The review included trials of the provision of proactive or reactive telephone counselling to assist smoking cessation. Studies were excluded if the contribution of the telephone component could not be evaluated independently of face to face counselling. Studies which combined telephone counselling with self-help materials were included since the effect of self-help materials alone is limited, as discussed above (3.1.8).

Results
The review included 27 studies but only a limited number evaluated brief interventions for self-referred smokers. We did not include the group of studies that evaluated the effect of proactive calls for people who had already received a brief or more intensive face to face intervention. A second group of studies recruited smokers who had called a quitline or similar telephone
service and compared the effect of extended counselling with proactive calls from a counsellor to a single contact at the time of the initial call. Since in these trials only the control group received a brief intervention, they were not judged to be directly relevant. The studies relevant to the current review either compared alternative brief interventions for smokers who called a quitline, or compared outcomes between populations or groups that had or did not have access to a quitline.

One cluster randomised controlled trial (Ossip-Klein et al. 1991*) assessed the effect of access to a hotline as an adjunct to self-help materials compared with self-help materials without access to a hotline. Hotline services included taped messages and access to counsellors. Ten US counties were randomised to the hotline condition or no hotline provision, and 1800 smokers who were planning to stop and had registered for a smokers' self-help project were followed up. The hotline was associated with a significant increase in cotinine validated sustained quit rates at 18 months from 4.0% amongst smokers sent self-help materials only, to 6.6% amongst smokers in areas where in addition to materials an advertised hotline was provided. This difference was statistically significant using the appropriate unit of allocation, the county, as the unit of analysis. There was reasonable use of the hotline, with 36% of registered smokers calling at least once and 8.7% speaking to a counsellor.

One other study combined 10 newsletter mailings and hotline access compared to no follow-up support for 1745 smokers who had registered for a self-help televised cessation programme (McFall et al. 1993). After 24 months self-reported quit rates were high overall, attributable to the shared components, but lower in the intervention (20.6%) than in the control (24.0%) condition. There was no additional benefit with the newsletter mailings and hotline access. Rates of use of the hotline were low among those offered it, with only 7% of participants calling.

**Effect size**

The additional benefit from making telephone support available to smokers seeking treatment might be of the order of 2-3%, based on one trial in which
one third of participants accessed the available service. A trial in which there was very low use of the telephone component (in conjunction with other support materials) did not show an effect on increasing smoking cessation.

**Evidence summary**

There is evidence from one cluster randomised trial that making telephone support services available to smokers who were motivated to quit and who had received self-help materials, was effective at increasing validated quit rates at 18 months. A second study fails to provide supportive evidence.

**Implementability**

Telephone quitlines are already established in the UK.

**Evidence statement**

There is insufficient evidence to draw conclusions about the effectiveness of brief interventions delivered by telephone helpines.

### 3.1.10 Brief interventions based on stages of change

**Evidence of Efficacy**

One systematic review evaluated the effectiveness of interventions to promote smoking cessation based on the Stages of Change (SOC) approach (Riemsma et al. 2003). Most stage based interventions use the transtheoretical model, which separates individuals into five different stages; precontemplation, contemplation, preparation, action and maintenance. Smokers move sequentially through the stages although relapse to an earlier stage can occur. A stage based intervention requires that an individual’s stage of change is identified so that an intervention addresses stage specific processes of change. Twenty three randomised trials were included. No meta-analysis was conducted because there was heterogeneity between the included studies in the setting, care provider and intervention used. Trials were categorised based on findings of significant effect. In comparison to no intervention, seven trials reported effects in favour of SOC based interventions; two reported mixed outcomes and six no significant differences. In comparison to non stage based interventions one reported significant
differences, two mixed outcomes and eight trials found no significant differences in quit rates in comparison to non-stage based interventions.

Limitations noted by the authors are that it was unclear in some studies whether or not interventions were tailored to individuals based on stage of change (which reflects their motivation to stop). A possible limitation of the review is that there is insufficient evidence to judge whether subgroups of studies were sufficiently similar to be pooled.

**Effect Size**
No effect size could be estimated.

**Evidence summary**
There is mixed evidence that stage based interventions are more effective than non stage based interventions, or usual care. In comparison to non stage based interventions one reported significant differences, two mixed outcomes and eight trials found no significant differences in quit rates. In comparison to no intervention, seven trials reported effects in favour of SOC based interventions; two reported mixed outcomes and six no significant differences.

**Applicability/Implementability**
The review included four studies conducted in the UK, and the results are likely to be applicable here. Brief interventions that target unselected populations need to provide appropriate support to people who are not ready to change their behaviour as well as to those willing to make a quit attempt. The Stage of Change model has been criticised on both conceptual and empirical grounds (West 2005).

**Evidence statement**
A moderately sized body of evidence has not found a benefit of stage-matched over unmatched brief interventions. A moderately sized body of evidence has yielded conflicting results on the efficacy of stage-matched interventions compared with no intervention.
3.1.11 Brief multicomponent interventions

Evidence of efficacy

This section includes one cluster RCT (Katz et al. 2004b) that tested the use of an intervention based on the US clinical practice guideline recommended 5As approach (Fiore et al. 2000). Intake clinicians in primary care clinics, who were nurses or medical assistants, were trained to identify smokers, assess willingness to quit, and assist those setting a quit date by offering encouragement and providing self-help materials, a voucher for free nicotine patches, and a contact for telephone counselling. Those setting a quit date could also receive two (attempted) calls from a nurse counsellor around the quit date. To support provision of this intervention, intake clinicians received a tutorial. A vital signs stamp was used in the chart which prompted recommended actions, and clinicians received feedback on their performance. Smokers attending primary care clinics in the control group received usual care.

Based on self-report, sustained abstinence (reported at 2 and 6 months follow-up) was significantly increased with intervention compared with control, (11% with intervention versus 4% with control; adjusted OR 3.4, 95% CI 1.8-6.3). In this low contact trial, response to attempts to obtain saliva samples for validation of smoking cessation was poor; only 53% of intervention site patients and 52% of control site patients who were sent saliva collection kits returned a sample for analysis. For validated cessation the adjusted OR was not significant (1.4, 95% CI 0.8 - 2.5). The effect of the intervention on both making a quit attempt and on cessation was greater for those smoking at least 10 cigarettes per day and was not significant for lighter smokers compared with control.

Evidence Summary

An intervention to use guideline based interventions to identify smokers and support those wishing to make a quit attempt significantly increased self-reported quitting but not validated rates compared with control.
Effect size

There was a non significant increase in the odds of validated quitting (1.4, 95% CI 0.8 - 2.5).

Applicability and Implementability

The results of this intervention may not be generalisable to the UK where there is no equivalent to the intake clinician who sees patients before they see a physician or other health care provider. The provision of two telephone calls for participants who attempt to quit also increases the intensity. Of 27% of intervention patients willing to set a quit date, 81% completed at least one session of telephone counselling, 58% had two sessions and 90% received NRT.

Evidence statement

There is insufficient evidence to determine the efficacy of brief multi component interventions involving assessment of smoking status, advice to quit, and assisting a quit attempt and offering NRT and counselling.

3.1.12 Other adjuncts to brief interventions

Feedback on biological risk factors

Evidence of efficacy

It has been suggested that using biological feedback to illustrate the consequence of smoking on lung function or health may help smokers to quit. Methods used as part of interventions include demonstrations of the amount of carbon monoxide in exhaled air, urine cotinine level and the use of spirometry to demonstrate lung function.

Three systematic reviews, a consensus report and a recent RCT specifically evaluated the use of this type of intervention component.

A Norwegian review (Smith-Sivertsen and Rortveit 2004) discussed whether screening for early chronic obstructive lung disease (COPD) was justifiable. This review concluded that there was little evidence for an effect of feedback of risk alone because studies using spirometry did not differentiate the effect
of that component from the effect of advice, or did not evaluate the effect on smokers who were told that their screening results were normal. The authors concluded that there was no evidence to support routine screening for pre-clinical COPD, and that cessation counselling should be offered to all smokers, whilst patients with symptoms should be offered spirometry.

A recent review (Bize et al. 2005) evaluated trials using any form of biomedical risk assessment where the effect of the assessment could be separately distinguished. Eight trials were identified, with one using both CO and genetic susceptibility feedback in separate arms. Limited pooling was possible due to heterogeneity. Three trials using CO measurement and a single trial of spirometry each detected no effect of the intervention on smoking cessation compared with controls who did not receive risk feedback. In another trial no effect was detected from feedback on genetic susceptibility or ultrasonography of carotid arteries. The authors concluded that there was insufficient evidence to support the use of any type of biomedical feedback to enhance the impact of smoking cessation advice.

A report of a US consensus conference on the use of spirometry for assessing lung function also concluded that there was no conclusive evidence that spirometry increased the efficacy of cessation advice (Ferguson et al. 2000). This report recommended the use of spirometry for smokers over the age of 45, and stressed that the risk that normal spirometry results might reinforce smoking should be counteracted by additional information.

One review addressed the use of biomarker feedback for motivating smoking cessation in prepartum women (McClure 2004). Based on three studies, no effect on smoking cessation was detected compared with advice alone.

As noted in section 3.1.14 below, one trial tested a point of care nicotine test for motivating pregnant women to stop smoking and reported a significant effect on cessation compared with no feedback (Cope et al. 2003).

Two other Cochrane reviews included trials evaluated in the reviews above and did not add any further evidence for the additional benefit of biological measurement (Lancaster et al. 2004, Rice and Stead 2004)
Adverse effects

As noted below there is a potential risk that ‘normal’ measures may reduce the motivation to quit. McClure noted that there were potential adverse effects specific to pregnant women. Biomarkers that are not distressing among nonpregnant population may be upsetting for pregnant women and might have longer term impacts such as distress and guilt after birth if smoking related complications occur.

Evidence summary

Based on limited evidence from systematic reviews there is no evidence to support the routine use of adjuncts to advice such as feedback on CO levels, lung function or other markers. They have not been shown to increase quit rates over advice alone.

Implementability/Applicability

In the event that new evidence supported the routine use of feedback the barriers to implementation would be lack of time and the requirement for suitable equipment for measurement.

In one trial from the UK of physician advice that added CO feedback in one intervention arm (Jamrozik et al. 1984*) there was no significant difference in smoking cessation rates between intervention and advice without CO demonstration. However it was noted that whilst those in social class groups IV-V had the lowest quit rates overall and no significant benefit of intervention, they had the highest quit rates (15.0%) when CO levels were demonstrated, compared with other social class groups.

Evidence statement

There is insufficient evidence to draw conclusions about the efficacy of adjuncts to advice such as feedback on CO levels, lung function or other objective markers of smoking and its effects.
Brief interventions for special populations

3.1.13 Brief interventions for hospital inpatients

Evidence of efficacy

Evidence for the efficacy of brief interventions for inpatients was identified primarily from one systematic review (Rigotti et al. 2003) and four RCTs published since that review (Bolman et al. 2002; Hennrikus et al. 2005; Molyneux et al. 2003; Nagle et al. 2005), with supporting evidence from two reviews covering a similar body of research (France 2001; Wolfenden 2003). Some studies included in the Rigotti review are also included within the review of interventions delivered by nurses (Rice and Stead 2004).

The review included randomised or pseudo-randomised studies. Studies had to report smoking cessation at least 6 months after intervention, but outcomes could be based on self reported abstinence. Biochemically validated outcomes were preferred, as was sustained over point prevalence abstinence.

Participants were patients who were hospitalised, or about to be hospitalised and who were currently smoking or had recently quit.

The Rigotti review included trials of any intervention to increase motivation to quit, to assist a quit attempt or to help recent quitters avoid relapse. The intervention could be delivered by physicians, nursing staff, psychologists, smoking cessation counsellors or other hospital staff. The intervention could include advice or more intensive behavioural therapy with or without the use of pharmacotherapy or post-discharge follow-up. The control intervention could be usual care or any less intensive programme, such as brief advice. Interventions could include provision of or encouragement to use NRT or other pharmacotherapy. Interventions were categorised into 4 groups: 1. a single contact in hospital lasting <= 15 mins, no follow-up support. 2. One or more contacts in hospital lasting in total > 15 mins, no follow-up support. 3. Any hospital contact plus follow-up <=1 month. 4. Any hospital contact plus follow-up > 1 month. This review focuses on trials meeting the definition for
Results

None of the studies used a brief intervention consisting of a single contact lasting 15 minutes or less. Two studies used a more intensive intervention (>15 mins) in hospital but without follow-up contact after discharge, but one of these (Pederson et al. 1991*) involved multiple sessions and is not considering here. Of the two other studies, Hajek et al. 2002* tested support from a cardiac rehabilitation nurse lasting about 20 minutes compared to brief advice and a leaflet alone. The authors regarded this advice as being part of usual care. Participants had been admitted after myocardial infarction (MI) of for cardiac bypass surgery. This trial failed to detect a significant benefit on validated smoking cessation at 12 months (OR 0.86, 95% CI 0.60 - 1.23, I = 254, C = 251). Pelletier et al. 1998* compared physician and nurse advice and self-help materials to usual care for patients with acute MI and also had a non significant effect on self reported cessation at twelve months (OR 2.19, 95% CI 0.97 – 4.96, I = 412, C = 92)). This was a methodologically weak trial, using a quasi experimental design.

The review included six studies with a hospital inpatient component and supportive follow-up within the first month after discharge. Pooling this set also failed to detect a statistically significant effect on smoking cessation, compared with usual care (4 studies) or brief advice (2 studies), (OR 1.09, 95% CI 0.91-1.31, I = 1843, C = 2633). Excluding the two studies with a brief advice did not change the result materially. In this group of 6 studies, only one had a significant effect of intervention (OR 1.54, 95% CI 1.06 – 2.25, I = 453, C = 666) (Stevens et al. 1993*). The intervention in this study was delivered by cessation counsellors employed for the project. In a second study in the group of six (Stevens et al. 2000*), the same intervention was delivered by respiratory therapists as part of routine care and no effect of intervention was seen, with similar quit rates in each group (OR 0.96, 95% CI 0.69 – 1.33, I =
Implementation was poor in this study, with only 68% offered the intervention.

Only when interventions include post discharge support lasting more than a month is there evidence that interventions for inpatients have a long term effect on smoking cessation. The pooled effect from seven studies showed a significant benefit compared with advice only controls (OR 1.82, 95% CI 1.49 – 2.21).

Four more recent trials contribute additional data. Bolman et al. 2002* (included in Rice and Stead 2004) developed an intervention for use on cardiac wards, consisting of advice from the cardiologist followed by 15-30 minutes of counselling from a cardiac ward nurse in addition to self-help materials. The cardiologist was prompted to reinforce advice at the post-discharge check up. The control group received usual care. Although there was a significant short term effect of intervention on self-reported quit rates, there was no significant effect after 1 year.

A randomised trial in the USA compared three interventions for inpatients (Hennrikus et al. 2005). In the modified usual care condition participants were given two smoking cessation manuals tailored for hospital inpatients and a directory of smoking cessation programs and resources in the community. As noted previously any effect of these self-help materials is likely to have been limited. The brief advice condition added advice from physicians and nurses during provision of care. They were asked to include mention of the health benefits of quitting, the hospital stay as an opportunity to quit and a reminder of the cessation manuals. Provider advice was prompted by labels in patient charts and other places. The research team made active efforts to remind providers to implement this, but only 65% assigned to this condition were recorded on prompt labels as receiving advice. There was no significant effect on validated quit rates of the additional advice over usual care (10.0% for advice, 8.8% for usual care). A third condition involving more intensive in hospital and telephone counselling also failed to significantly increase validated quit rates although there was a significant difference based on self-report. In this trial, patients with a smoking related diagnosis had higher self-
reported quit rates and there was an interaction with treatment condition such that provider advice had a larger effect for those with such a diagnosis.

A randomised trial in UK hospitals (Molyneux et al. 2003) used a brief counselling intervention in which a research doctor or nurse, trained in smoking cessation, gave 20 minutes bedside counselling and provided a leaflet. Patients were advised on the effectiveness and availability of NRT. When compared to a usual care condition, validated continuous quit rates at 12 months were lower in the counselling condition (4% Intervention vs 8% Usual care, NS). A third arm of this trial comprised a six week course of a choice of NRT products in addition to the counselling described above. This arm had non significantly higher continuous abstinence at 12 months than the minimal intervention and usual care arms combined (relative risk (RR) 1.83, 95% CI 0.76 – 4.12, p = 0.15), but for validated point prevalence abstinence the effect was significant (RR 2.51, 95% CI 1.25 to 5.03 p = 0.009). This trial therefore provides only weak evidence for an effect of NRT as an adjunct to brief intervention for hospital inpatients. Other trials using NRT either used more intensive behavioural support or were not restricted to inpatients.

A randomised trial in Australian hospitals (Nagle et al. 2005) used a brief intervention based on assessment and identification of smokers, self-help materials tailored for hospitalised patients and two brief bedside counselling sessions (median 10 minutes each) from a clinical nurse specialist and a discharge letter. NRT was also offered but used by only 3% of intervention group. Ward nurses were also trained to offer opportunistic advice but there was no evidence they did so. Usual care control involved no systematic identification of or intervention for smokers. At 12 months there was no difference between intervention and control in cotinine validated abstinence (6.8% vs 7.7% UC, NS) or in self-reported rates.

Two further reviews addressed interventions for smoking cessation in hospital inpatients. One is a review based on multiple Cochrane reviews (Wolfenden 2003) and concludes that there is insufficient research to establish the effectiveness of smoking cessation interventions confined to the period of hospitalisation. The number of interventions that would be considered brief
was not specified. The other (France 2001) also identified a lack of evidence about low-intensity interventions, but did not include Hajek et al. 2002 or more recent trials.

**Effect size**

In the absence of evidence for efficacy no effect size can be estimated.

**Evidence summary**

Based on a meta-analysis including two relevant trials and a further four more recent RCTs there is no evidence for an effect of brief interventions for hospital inpatients on long term quit rates. The evidence cannot exclude the possibility that there is a small benefit. The evidence supports a benefit of inpatient intervention only when further support extends for more than a month after discharge. Based on one trial there is weak evidence for an additional benefit of NRT.

**Applicability**

Whilst the evidence is based on a small number of studies it does includes two trials directly applicable to the UK. One of these studies asked nurses to intervene as part of usual care (Hajek 2002), the other used dedicated counselling providers (Molyneux et al. 2003), suggesting that the results are applicable to both categories of provider. Whilst it is not possible to be certain that there is no effect of brief interventions, it is likely that the relative effect is small. However because the quit rates amongst control groups in hospital trials (Rigotti et al 2003) tend to be higher than that amongst control groups in unselected healthy populations outside hospital settings (eg Lancaster & Stead 2004) a small relative effect might still be important in terms of the absolute number that could benefit.

France et al. 2001 included an analysis of participation rates in a number of hospital based trials. They concluded that participation rates tended to be highest amongst patients with serious acute illness, and amongst older patients who were more motivated to quit.
It seems likely that patients consenting to interventions with follow ups of more than a month after discharge will be those more motivated to quit.

**Implementability**

There is insufficient evidence in this area to consider implementability issues.

**Evidence statement**

A moderately sized body of level 1+ evidence has not detected any effect of brief interventions from health care providers with hospital inpatients. One level 1++ trial, providing NRT combined with brief counselling, did not significantly increase continuous quit rates at one year but did significantly increase validated point prevalence quit rates at one year over counselling or usual care alone.

**3.1.14 Brief interventions for pregnant women**

**Evidence of efficacy**

Evidence for the efficacy of brief interventions in pregnancy was identified primarily from one systematic review (Lumley et al. 2004). Although two other reviews addressed interventions in pregnancy they did not provide enough detail to distinguish results for brief and intensive interventions (Fiore et al. 2000; Kelley et al. 2001). Two other reviews (Melvin et al. 2000; Melvin and Gaffney 2004) were also excluded from the evidence base for efficacy because they were based on expert opinion and consensus rather than rigorous reviews of the evidence or were focused on evidence relating to the implementation of the guidelines emanating from the Fiore review. In addition to trials covered by included reviews, three more recent trials were identified.

A Cochrane review of interventions for smoking cessation with pregnant women (Lumley et al. 2004) included randomized or quasi-randomised trials implemented in pregnancy with a minimum follow up of four weeks. The principal outcome measure was continued smoking in late pregnancy but some trials provided information on foetal outcomes such as birthweight and perinatal mortality. Outcomes could be based on self reported abstinence but biochemically validated outcomes were preferred.
Interventions commonly included were: the provision of information on the risks of smoking to the foetus and infant and the benefits of quitting; recommendations to quit and setting a quit date; feedback about harmful levels of cotinine or carbon monoxide; teaching cognitive-behavioural strategies for quitting; advice tailored to stages of change; provisions of rewards, social or peer support and NRT.

There was substantial variation in the intensity of the intervention used, and most of the studies used more than a brief intervention. Interventions were categorised as low intensity if the intervention was undefined except as ‘usual care, or limited to advice not to smoke, provision of written information on smoking (posters/pamphlets) or personal advice to quit coupled with written information. Medium intensity interventions were defined as those involving strategies for quitting (written or personal), personal advice and written information, and/or written follow up. High intensity interventions were those that involved personal follow up (telephone calls, counselling, peer support) in addition to those elements included in the medium intensity interventions.

Since this categorisation did not match the definition of a brief intervention for this review, the study details provided were used to recategorise studies and to conduct an additional analysis for a brief intervention subgroup. This analysis also distinguished between interventions provided as part of usual care and those provided by someone who did not appear to be part of the normal prenatal care team.

**Results**

The Lumley et al (2004) review included 64 trials. Six trials used cluster randomisation and were not included in a meta-analysis. The summary estimate used in the meta-analysis was the relative risk of continued smoking in the intervention compared to the control group and a random effects model was used for pooling. The pooled data for 48 trials of varying degrees of intensity of intervention and providing data on smoking cessation revealed a significant reduction in continued smoking in late pregnancy in the intervention groups (pooled relative risk (RR) 0.94, 95% CI 0.93 - 0.95). Smoking cessation interventions during pregnancy were therefore effective but this
finding includes high intensity (i.e. non-brief) interventions; the effectiveness of brief interventions alone is explored below.

The review classified three trials as low intensity. One of these trials (Bauman et al. 1983*) involved feedback of the results of a CO breath specimen in addition to a 135 word text on the relationship between CO, cigarette smoking and harmful effects in pregnancy by a health educator (so classified as not part of routine care). The second (MacArthur and Knox 1987*) involved pregnant smokers being given advice to stop smoking and information or discussion of the effects of smoking on the foetus offered by the obstetrician at the first antenatal booking visit, supported by a leaflet. The third (Reading et al 1982*) included verbal and visual feedback to the mother during an ultrasound examination which included discussion around the impact of smoking on the foetus. The two latter trials were carried out in England in the eighties. Only the first of these three studies included biochemical validation. When their results were pooled there was no evidence of significant benefit. The relative risk of continuing to smoke in these trials was 0.95 (95% CI 0.83-1.09, I = 571, C = 564).

A further three trials in the medium intensity subgroup of the meta-analysis could be classified as brief interventions; Lowe et al. 1998* involved a 15 minute session with a midwife, Dunkley 1997*, also a midwife intervention, and Windsor et al. 1985* which used 10 minutes of health educator counselling and manuals (although the employment of an additional person to do this intervention means it is classified as a non-routine intervention below). With the inclusion of these there were 6 eligible studies of which four were classified as brief interventions delivered as part of routine care. Pooling these four showed a non significant difference in combined relative risk for continued smoking compared with usual care (random effects model RR = 0.96, 95% CI 0.90 – 1.01, I=693, C=681) with significant evidence of heterogeneity (P = 0.03). Including the two studies classified as non routine interventions (Bauman et al. 1983, Windsor et al. 1985) brought the pooled result to borderline significance (RR 0.95, 95% CI 0.90 – 1.00). However this did not include three cluster randomised trials of brief or borderline brief
interventions (Hajek et al. 2001*; Lawrence et al. 2003*; Moore et al. 2002*). They were not included in the meta-analysis because effect estimates and confidence intervals based on individual patients may not be valid when groups of patients were treated by the same midwives. Using patient level outcomes uncorrected for any effect of clustering is most likely to result in confidence intervals that are too narrow. Since two showed non significant effects and one reported small effects of borderline statistical significance (Lawrence et al. 2003*), it was explored whether their inclusion in the meta-analysis changed the conclusions. All these trials were implemented more recently in the UK, and randomised midwives in community or hospital settings. Two of them involved very brief intervention, although Lawrence et al. 2003* involved required midwives to assess participants’ stage of change at later visits None showed clinically significant effects on smoking cessation outcomes. Using data likely to give conservative estimates of intervention effect it was found that including these studies still suggested that there was no significant effect of a brief intervention in routine care on continued smoking (RR 0.99, 95% CI 0.97 – 1.01, I=2192, C=2001). Since there were only two trials of brief interventions that were not part of routine care, and their results were heterogeneous, no conclusion about this subgroup is possible.

The quality of the individual trials in the review was limited. Few studies reported the method of allocation concealment in sufficient detail to exclude the possibility of bias. Process evaluation of the intervention occurred in only some trials and in some of these implementation was not ideal. Assessing and interpreting results is difficult given an increase in the median intensity of both ‘usual care’ and interventions over time such that current usual care may be a more substantial intervention than defined interventions in some earlier trials.

Three additional recent trials, not included in these reviews were also identified.

A randomised controlled trial in the UK used a point of care test to measure nicotine and metabolites, to demonstrate to pregnant women the effect of their smoking (Cope et al. 2003). The protocol planned for the test to be conducted at each visit, although no information was given on the number of times it was
done. Women in the intervention group were given their test result and those with a positive result for nicotine were encouraged to set a quit date. An intent to treat analysis was not done and drop out was higher in the intervention than control group. The self reported quit rate at 36 weeks was 16% in the intervention group compared to none in the control who were asked about smoking and tested but did not have the results explained to them. The number of quitters was higher when based on the cotinine test results at 36 weeks. People who quit included women with both high and low baseline cotinine levels. Only 11% of women in the feedback group had higher levels at 36 weeks than at baseline, compared to 46% in the control. The differential dropout and lack of intention to treat analysis limits the strength of the evidence from this study.

A cluster randomised trial amongst New Zealand midwives tested a cessation intervention which was provided by usual care midwives but delivered as an additional, study funded visit with continued support at other prenatal care visits (McLeod at al. 2004). The smoking programme was provided alone, or combined with a breast feeding intervention. Women in the intervention groups were more likely than usual care controls to report cessation at 36 weeks but no significance levels were reported for this outcome. We calculated that the difference in quit rates for the two intervention groups (24%) and the two control groups (13%) was significant, but this does not allow for any correction for clustering and demographic variables. Significant results were only reported for the combined outcome of reducing or stopping or maintaining reduction of smoking at 36 weeks gestation. A strength of this study was that the intervention was developed with the help of midwives and included resources including a video. A limitation was that some of the randomised midwives did not recruit any patients, so it is unclear if selection bias was avoided and that the intervention is generalisable. This study is considered even though it is borderline to be classified as a brief intervention because the intervention was designed to be delivered by usual care midwives in a setting similar to the UK, and might illustrate the minimum intensity of intervention that could alter behaviour.
A cluster randomised trial in community health centres in the US used a multi-component intervention using usual heath care providers to deliver a smoking cessation intervention based on the 4As approach (Pbert et al. 2004). They were trained and supported by office systems which included prompts for intervention. Participants were low-income pregnant women, with intervention planned to continue into their postpartum period. Since by the end of pregnancy they had only received a brief intervention, consistent with our definition, the trial is included here.

The percentage of nonsmokers was no different in the intervention and usual care groups. On an intent to treat basis there was no significant effect on cessation at one month postpartum (OR 2.02, p=.09). Since the intervention included follow-up it does not fully meet review criteria for a brief intervention, but was described as such and was intended as an intervention that could be delivered opportunistically by usual clinicians. Process measures indicate that most intervention occurred at the baseline visits, and only 26% of women reported receipt of any advice or materials 3m and 6m postpartum. The authors noted that it appeared to be even more difficult to get paediatric providers to intervene, A detailed process analysis outlined a number of problems that are described in section 3.10.

**Summary of evidence of efficacy**

Based on additional analysis of review level data the evidence suggests that brief interventions, delivered as part of usual care, do not significantly affect cessation during pregnancy. The additional studies do not alter this conclusion.

**Effect size**

In the absence of clear evidence of an effect of brief interventions, no effect size is calculated. It is worth noting that even with an ‘effective’ intervention, most pregnant women who have not stopped before contact with the prenatal care services will continue to smoke during pregnancy. Based on an average across all trials in the Lumley et al (2004) meta-analysis, over 85% of women in the intervention group continued to smoke, although there was substantial variation between trials.
Applicability and Implementability

Most trials were set in industrialised western states (US and UK predominantly) and therefore are likely to be applicable to UK settings. Four recent trials were conducted in the UK. In three large trials in the UK the interventions tested were not shown to be effective at increasing smoking cessation compared with usual care. All used discussion of smoking by the midwife, and the provision of self-help materials targeting pregnant women. The trial by Hajek and co-workers probably represents the best test of a brief intervention involving midwife support that might be implementable. In the trial by Moore and co-workers there may have been little difference between the support provided by intervention and control midwives, the main component of the intervention as implemented was probably self-help materials that were delivered only to the intervention group. Since self-help materials generally show little evidence of effect, as discussed in section 3.1.8 the failure to detect an effect in this trial may be less surprising. The trial by Lawrence and co-workers falls outside our strict definition of a brief intervention because midwives were intended to provide reinforcement on three occasions. It has been considered here because the clinically small and statistically borderline effects would suggest that an intervention without the additional support would have had even less effect. None of the trials involved initial contact lasting as long as 30 minutes, but as described in section 3.10 below, the barriers noted by study authors suggest that the intervention delivered in the Hajek trial would represent the maximum intensity that could be practically delivered during normal midwife care.

Evidence statement

A moderately sized body of level 1+ evidence has not detected any effect of brief interventions delivered as part of routine care for pregnant smokers. There is insufficient evidence to determine the efficacy of brief interventions that are not delivered as part of routine care.
3.1.15 Brief interventions for adolescents/students

Evidence of efficacy

No reviews specifically addressed brief interventions in this age group. One systematic review has addressed interventions for adolescents (McDonald et al. 2003). The authors found limited high quality data and did not conduct a meta-analysis. Study validity was scored based on theoretical fidelity, implementation compliance, design, sample size, length of follow-up, outcome measure, method of confirmation, participant retention and use of ‘intent to treat’ analysis. Twenty studies scoring ≥14 from a maximum possible of 24 were used to inform conclusions. There were only sufficient data to provide preliminary support for interventions based on cognitive behavioural approaches. Intensity of intervention was not specifically recorded. Only two might have been classifiable as brief interventions - Colby et al. 1998, which was targeted at adolescents, and Glasgow et al. 1999, which was for women attending planned parenthood clinics and included girls aged 15 and over. This study is described in Section 3.9 in the context of interventions for disadvantaged smokers. There were no details about relative efficacy by age group.

Colby et al. 1998 tested the feasibility of conducting a brief motivational intervention for teenage patients identified as smokers at the time of hospital visits. Participants (n=40) received 20 minutes assessment then either 30 minutes motivational interviewing (MI) or 5 minutes brief advice (BA). Since the assessment was taken to be part of the trial procedures the motivational interviewing was regarded as a brief intervention. All parents were given a handout. The MI intervention used an empathetic style (which avoids confrontation), developed a sense of discrepancy between teenagers’ goals and behaviour and supported teenagers’ self-efficacy. Individualised feedback on effects of smoking emphasised teenagers’ choice and personal responsibility. The BA control consisted of advice to stop smoking, a handout and encouragement to stop smoking and get assistance if necessary. Cotinine verified quit rates at three months were 20% for MI and 10% for BA but the difference was non significant.
Evidence summary
There has been very little research on brief interventions specifically targeted at adolescents. One randomised trial in an outpatient setting with 3 month follow-up showed a non significant trend favouring a short motivational interviewing intervention over brief advice.

Evidence statement
There is insufficient evidence to determine the efficacy of brief interventions for adolescents/students.

3.1.16 Brief interventions to reduce environmental tobacco exposure in children, for families and carers

Evidence of efficacy
Evidence of efficacy was based on data identified in the Cochrane review (Roseby et al. 2003). An earlier literature review was also identified but it contained no additional data (Emmons 2001).

The review considered controlled trials with or without random allocation, with interventions targeted at parents, family members, child care workers and teachers involved with care and education of infants and young children (aged 0-12 years). The scope of the review included smoke free policies and legislation, health promotion, social-behavioural therapy, technology, and education and clinical interventions. It included studies where the primary aim was to reduce children's exposure to environmental tobacco smoke (ETS) (thereby preventing adverse health outcomes), although studies were also included if outcomes included reduction or cessation of familial/parental/carer smoking, resulting in reduced children's exposure or changes in infant and child health measures. The review considered interventions delivered by researchers, GPs, midwives, paediatricians, community and hospital nurses, health promotion agencies, tobacco control and anti-cancer organisations, and health departments. The primary outcome measures were children's exposure to tobacco smoke, child health problems and the changes from
baseline in smoking behaviour of those who care for them (for example, quitting smoking).

**Interventions and Results**

Because of heterogeneity in interventions, populations and outcome measures, the review did not attempt meta-analysis. The results of the individual studies using brief, or borderline brief interventions are described here.

Davis et al. 1992* was a randomised trial including women who called a telephone smoking cessation assistance counselling service in the USA. Participants were recruited by an advertising campaign inviting them to call a telephone smoking cessation assistance counselling service run by the National Cancer Institute in the USA. The participants were 630 smoking mothers with children under 6 years. Callers were randomised to receive one of three self help guides. One was specifically written for the target audience, one was from the American Lung Association, and one was developed by the National Cancer Institute. They received individual stage based counselling and were sent the guide by mail. There were no significant differences for self-reported maternal smoking cessation between the three groups after 6 months.

Groner et al. 2000* was a randomised trial in a hospital setting targetting intervention at 479 smoking mothers accompanying children under 12 years to the hospital. There were two intervention groups ("Child Health Group", CHG; "Mother's Health Group, MHG) and a control group. Each intervention group received a brief (10-15 min) counselling session given by a trained nurse while waiting to see a doctor. Subjects in the CHG were informed of the hazards of ETS on their child, but not themselves; subjects in the MHG were informed of the effects of smoking on their own health but not their child. They were given standard self help manuals and materials specific to their group allocation. They received reminder postcards at 2 weeks and 4 months post intervention encouraging them to quit. The control group received usual care with no additional advice about smoking. There was no significant difference
between the groups in self-reported maternal smoking status at six month follow up.

Irvine et al. 1999* was a randomised trial conducted in home settings in Scotland, among 501 smoking parents of children with asthma. The intervention was brief advice from a nurse visiting the family home including information about passive smoking and asthma, financial and health benefits of quitting; information on how to stop smoking; advice to move to a different room or outside the home if they weren't able to quit; advice to not allow visitors to the home to smoke. Participants were given two leaflets at baseline and further leaflets were distributed by mail at 4 and 8 months after baseline with a letter encouraging them to stop smoking. The control participants received only the commercial leaflet at baseline. At 12 month follow up, there was no significant difference between the two groups in self-reported maternal quit attempts (97/222 in the control group, 101/213 in the intervention group.

Vineis et al. 1993* was a controlled, non-randomised trial set in an immunisation clinic in Italy. Participants were 1015 parents of newborn babies (all mothers including nonsmokers were recruited) attending for 3 month vaccinations of babies. The intervention group were counselled for 15 minutes by a nurse on the health effects of active smoking and ETS and provided with three booklets. The control group received usual care. There was trend towards increased self-reported smoking cessation at two years for mothers classified as white collar workers in the intervention arm (5/33) versus the control arm (2/36), although the difference was not significant (OR 3.0; 95% CI 0.6 to 16.0). No significant difference was detected for the other participants, comprising 80 blue collar mothers and a total of 411 men defined as white or blue collar workers.

Wakefield et al. 2002* was a controlled, non-randomised, trial conducted in paediatric outpatient clinics in Australia among 292 smoking parents of children aged 1-11 with asthma. After measurement of children’s urinary cotinine-to-creatinine ratio parents in the intervention group were sent a letter signed by the study coordinator explaining this measurement, and encouraging banning smoking at home. There were two booklets explaining the effects of
ETS on children and giving advice on quitting. The index parent was contacted by telephone one week and one month later for advice and encouragement. The control group received usual advice about smoking from doctors and nurses. The main outcome measures were presence of parentally regulated home smoking and children’s exposure assessed by urinary cotinine analysis. 16/75 (21%) in the intervention group, compared with 10/82 (12%) in the control group implemented bans. This difference was not statistically significant ($p = 0.40$), and the difference in effect on reducing children's exposure was not confirmed by children's urinary cotinine analysis.

Woodward et al. 1987 was a controlled, non-randomised trial conducted in a maternity hospital in Australia. The participants were 184 parents of newborn babies whose mothers smoked during pregnancy. Mothers in the intervention group were given an information kit about the effects of ETS on children, on ways to quit smoking, and a letter from the director of the neonatal Intensive Care Unit urging parents to avoid exposing children to ETS. Women were telephoned at 1 month and asked about their progress, use of the kit, and given further information if required. The control group received usual care. At three months, there was no significant difference between the two groups in biochemically validated maternal smoking cessation.

**Effect size**

The review does not provide a pooled estimate for the effect of brief interventions, because of heterogeneity in the interventions and populations studied. In six studies of brief interventions, no statistically significant effects were detected on a range of outcomes including self-reported and biochemically validated maternal smoking behaviour, markers of childhood exposure and implementation of parental smoking bans.

**Evidence summary**

Six randomised or non-randomised, controlled trials of brief interventions directed to family and carers with the aim of decreasing environmental tobacco exposure in children were identified. There was considerable variation in the nature of the intervention and the outcomes measured. Common elements of the interventions were information on the effects of
environmental tobacco smoke, advice on quitting and provision of written materials. None of these six studies detected a statistically significant effect of the intervention studied. Because of the heterogeneity and size of the included studies, an effect of brief intervention cannot be excluded.

**Applicability and Implementability**

A number of the interventions described would be applicable and potentially implementable in UK settings so the lack of efficacy is likely to be relevant here.

**Evidence statement**

A moderately sized body of level 1+ evidence has not detected any effect of brief family and carer interventions to decrease children's exposure to environmental tobacco smoke.

### 3.1.17 Brief interventions for smokeless tobacco users

**Evidence of efficacy**

No systematic reviews specifically focusing on brief interventions for smokeless tobacco use cessation were identified. Evidence for the efficacy of brief interventions in smokeless tobacco was therefore identified primarily from one systematic review of all interventions for smokeless tobacco use cessation (Ebbert et al. 2004) with supporting evidence from 3 further reviews of a similar body of research (Gansky et al. 2002; Severson et al. 2003; West et al. 2004).

The Cochrane review of interventions for smokeless tobacco use cessation (Ebbert et al. 2004) included randomized or quasi-randomised trials with a minimum follow up of six months. The principal outcome measure was tobacco abstinence. Outcomes could be based on self reported abstinence but biochemically validated outcomes were preferred.

Participants were users of any tobacco product that is placed in the mouth and not burned, including moist snuff, chewing tobacco and betel quid.
Interventions could be pharmacological or behavioural and could be directed at individual smokeless tobacco users or at groups of users such as sports teams.

Six placebo controlled randomised trials used pharmacotherapy but none of these qualified as brief interventions according to our definition, as all required several study sessions. Of the 10 behavioural interventions studies included, none could clearly be categorised as brief.

Three studies described interventions that were close to the review definition of a brief intervention: Severson et al. 1998* included an oral examination, advice to quit, setting a quit date, self-help materials and one follow up call. Stevens and coworkers 1995* examined an intervention delivered in routine dental care which included the above interventions, plus a video, and 6 newsletters. Walsh et al. 1999* included the above, plus photographs of smokeless tobacco effects, optional brief counselling (15-20 mins) and optional telephone counselling (2 calls, 5-10 mins).

Severson et al (1998) showed a significant effect of intervention compared with control (OR 3.26, 95% CI 1.50 - 7.10). Walsh et al (1999) also found a significant effect of the intervention compared with an oral examination only (OR 2.86, 95% CI 1.74-4.73). Stevens et al (1995) failed to detect an effect of intervention (OR 1.52, 95% CI 0.81 – 2.83).

Overall these studies provide mixed support for interventions with smokeless tobacco users but it remains questionable whether any could be defined as brief. In a post hoc analysis in the Ebbert et al (2004) review, trials of interventions (including intensive ones) which included an oral examination and feedback about smokeless tobacco induced mucosal changes had homogeneous results and when pooled and showed a significant benefit (OR 2.41 95% CI 1.79-3.24) suggesting that these components of intervention are important with users of smokeless tobacco.

Three reviews Gansky (2002), Severson (2003) and West (2004) provide some supporting evidence for the efficacy of brief interventions. These reviews included studies excluded from the Cochrane reviews because of
shorter follow ups or randomisation problems. In general, there was supportive evidence for interventions delivered in the context of visits to the dental team or in sports teams. Efficacious interventions appear to include an oral examination, advice to stop, self-help materials and counselling/behavioural support for stopping.

The quality of the individual trials included in these reviews was subject to some limitations. Few studies reported the method of allocation concealment in sufficient detail to exclude the possibility of bias. In addition, there was minimal biochemical verification and most studies focussed on point-prevalence (as distinct from continuous abstinence). These findings must therefore be viewed with caution.

**Effect size**

In the absence of evidence of an effect of brief interventions for users of smokeless tobacco, no effect size is calculated.

**Evidence summary**

There has been little research on brief interventions for smokeless tobacco use cessation. There is some suggestive evidence that oral examination and feedback may be important but as such there is a lack of evidence to judge efficacy of brief interventions.

**Applicability**

The quantity and quality of data on effectiveness of interventions smokeless tobacco use cessation are lower than for cigarette smoking. Much of the research has been carried out in the US where the tobacco products used and populations using the smokeless tobacco are very different from those in the UK. In the UK smokeless tobacco use is mainly confined to minority ethnic groups, particularly South Asians. As a result interventions in sporting facilities would be not applicable in the UK unless catering specifically for these ethnic groups and indeed would probably not be suitable for some sub-populations such as Bangaladeshi women with known high use of betel quid use (Croucher et al. 2002). However, dental screening interventions would be
applicable if directed particularly at those people most likely to be using smokeless tobacco products.

**Implementability**

Barriers to the implementation of interventions with smokeless tobacco users are addressed in Question 12.

**Evidence statement**

There is insufficient evidence to determine the efficacy of brief interventions for smokeless tobacco users.

### 3.2 Research questions 1b and 1c: Which smoking cessation methods are most and least effective?

NICE guideline PH1 (March 2006) has been updated and replaced by NG92.

Updated or new recommendations have been made about very brief advice, behavioural support and pharmacotherapies.

Parts of this evidence review are relevant to the updated guideline. The evidence in chapters 3.1 to 3.8 has been stood down and replaced.

See [www.nice.org.uk/guidance/ng92](http://www.nice.org.uk/guidance/ng92) for more details.

stop. Indirect comparison of outcomes between different trials, or reviews of different interventions is not a reliable method of establishing differences in effectiveness. The possible effect of different settings or providers, or tailoring of interventions is addressed in other sections. This section considers a limited body of evidence about small differences in the components of a provider delivered intervention.

Two studies included in the Cochrane review of physician advice (Lancaster and Stead 2004) compared interventions that differed primarily in their advice and counselling style. A UK study compared interventions with different theoretical bases (Butler et al. 1999). GP registrars were trained to provide motivational consulting. Using this approach doctors invited patients to numerically rate their motivation and confidence to quit smoking, then responded to these scores with specific questions or strategies. The aim was
to encourage the patient to identify arguments for change, or practical, attainable steps to quitting, and to set targets. The control condition was brief standardised advice to quit. The intervention took an average of almost 10 minutes, while the advice was estimated at 2 minutes. Although self reported abstinence lasting at least a month was higher (3.0%) in the intervention than the control (1.5%) the difference was not significant (P=0.25). There were significant differences in some secondary outcomes, and also interactions between stage of change and secondary outcomes, with more evidence of change amongst smokers in pre-contemplation at baseline, a group that doctors may be less likely to advise opportunistically. In the absence of an effect on quitting no strong conclusions can be drawn from this study, but the approach used may be worth further research. This study was designed to be powered to detect a 10% difference (15% versus 5%) at a two tailed significance level of 5%. This required 600 participants but only 536 were recruited so the actual power was smaller.

A US study (Williams and Deci 2001) compared different approaches to brief advice giving for patients willing to discuss smoking and attending a consultation specifically for advice. A style described as ‘autonomy supportive’ provided information relevant to the patients’ health but left the decision to the patient. This was hypothesised to be more effective than use of a controlling style which involved directing patients to set a quit date and to use NRT where appropriate. Patients who were more autonomously motivated were more likely to quit overall, but the physician counselling style did not have the predicted effect. Patients were followed for 30 months, and validated quit rates were nonsignificantly higher amongst the controlling (9.4%) than the autonomy supportive style (5.0%). No power calculation was reported.

These two studies suggest that small differences in consulting style are unlikely to change cessation outcomes, when overall quit rates are low.

As described in section 3.1.10, there is also no strong evidence to support the use of interventions based on the stage of change approach over other supportive interventions (Riemsma et al. 2003).
Evidence statement

There is insufficient evidence to determine the efficacy of different components of a provider delivered intervention.

3.3 Research questions 3, 5 and 6. Factors that affect the effectiveness of brief interventions. Do they differ for different interventions?

NICE guideline PH1 (March 2006) has been updated and replaced by NG92.

Updated or new recommendations have been made about very brief advice, behavioural support and pharmacotherapies.

Parts of this evidence review are relevant to the updated guideline. The evidence in chapters 3.1 to 3.8 has been stood down and replaced.

See www.nice.org.uk/guidance/ng92 for more details.

Question 5. To what extent is the effectiveness of a brief intervention influenced by previously received brief intervention?

Question 6. To what extent is the effectiveness of a brief intervention influenced by previous quit attempts?

Other factors potentially moderating effectiveness including level of addiction, age and sex.

An evidence statement is provided for each of these subsections.

There are problems in common for answering all these questions. Smoking cessation trials typically lack power to detect interactions between baseline characteristics and a main treatment effect. In many of the trials of brief interventions, individual trials failed to detect significant main effects, even where point estimates were suggestive of benefit. Predictors of outcome, if reported, are generally based on participants from all groups, especially in the absence of significant intervention effects. It is therefore difficult to judge whether brief interventions might help some subgroups of smokers relatively
more than others. We found limited evidence relevant to these questions. Because so few trials give relevant data it is also unclear whether the results from the trials where data are available are generally applicable.

We identified three relatively large trials where linked publications specifically addressed predictors of outcome. These form the main evidence for multiple subsections of this question below and are therefore summarised here. The papers reporting data relevant to this section were not formally appraised for quality but all related to trials that had met the criteria for inclusion in reviews that have previously been included in this report.

Two trials involved physician advice. Since neither had a no-advice control they cannot address whether a brief intervention is relatively more or less effective than no intervention, but might identify subgroups that responded relatively less well to brief than to more intensive support.

A US RCT by Ockene and co-workers compared brief advice to a counselling intervention designed to last 5-10 minutes, or to similar counselling with the offer of free nicotine gum. This study lacked a no-advice control so can only address differences between more and less intensive brief intervention. There were 1286 participants in the study. The main study results were reported in Ockene et al. 1991* (included in review by Lancaster & Stead 2004), with predictors based on 77% of study population reported in Hebert et al. 1992. The evidence table is based on the Hebert paper data.

An Italian RCT by Segnan and co-workers compared four different physician interventions: a single counselling session, repeated counselling involving 4 additional follow-up reinforcing sessions, repeated counselling and nicotine gum, or repeated counselling and spirometry. Since this study lacked a no-advice control it can only address differences between brief intervention and more intensive intervention. There were 923 participants in the study. Main study results were reported in Segnan et al. 1991* (included in review by Lancaster & Stead 2004), and predictors were described in Senore et al. 1998 based on 689 participants. The evidence table is based on the Senore paper data.
The other study did not involve face-to-face contact. Orleans and co-workers in the USA compared four conditions; a control listing available resources, a self-help manual, a manual and a guide to enlisting social support, and a manual and telephone counselling (not a brief intervention) in a volunteer population. There were 2,021 participants. Main study results were reported in Orleans et al. 1991*, (included in Lancaster and Stead 2005), a limited analysis of characteristics of participants in Schoenbach et al. 1992 and a longitudinal analysis of predictors based in 1,667 participants with complete follow-up data in Hill et al. 1994*. The evidence table is based on the Hebert & Schoenbach papers.

The influence of previously received brief interventions

One review (West et al. 2000) noted possible evidence that repeated advice might be less effective. This was based on data from the study by Segnan and coworkers described above. The predictors were derived from the more intensive intervention groups rather than the brief counselling control, and no interaction with treatment was noted. Among healthy subjects, previous quit advice from a GP appeared to be a barrier to successful quitting (odds of quitting having had previous advice/ odds of quitting not reporting previous advice OR 0.19, 95% CI, 0.07-0.52). The difference was not significant if advice had been given when shortness of breath was reported (OR 0.63, 95% CI 0.39–9.20) (Senore et al. 1998).

In the trial of self-help materials and telephone counselling by Orleans and co-workers described above, past use of self-help materials was predictive of success, over all intervention conditions, (OR 1.67, 95% CI 1.06 – 2.64) whilst past use of two or more quitting programmes predicted failure (OR 0.67, 95% CI 0.51 – 0.87) (Hill et al. 1994).

Evidence statement

There is insufficient evidence to determine whether previous receipt of brief intervention influences the effect of another brief intervention, whether of the same or different intervention.
The influence of previous quit attempts

Ockene and co-workers reported that smokers with more previous quit attempts were significantly more likely to be successful (adjusted OR 1.24, 95% CI 1.00 – 1.54). There was also some indication that those with four or more quit attempts were relatively more successful when they received the most intensive intervention, but there was no significant interaction of number of quit attempts with treatment condition (Hebert et al. 1992*). Segnan and co-workers did not show that number of previous quit attempts affected the odds of quitting, but confidence intervals were wide and they used multiple categories (no attempts was reference: 1 attempt - OR 1.05 (95% CI 0.49 – 2.24), 2 attempts – OR 0.73 (95% CI 0.33 – 1.60), 3-4 – OR 1.39 (95% CI 0.56 – 3.49), 5+ 1.14 (95% CI 0.37 – 3.54). Their analysis also considered duration of previous abstinence and they found that a previous period of abstinence lasting more than 7 months significantly predicted abstinence in the trial. None of the predictors of overall success were modified by different interventions (Senore et al. 1998*).

In contrast to Ockene, Orleans and co-workers did not find that the number of past quit attempts was associated with outcome, but having achieved at least one period of abstinence lasting >90 days was predictive of success across treatment conditions (assessed at 8, 16 and 24 months, OR 1.80, 95% CI 1.38 – 2.35) (Hill et al. 1994).

There is little evidence about the prognostic impact of number of prior quit attempts on success at stopping smoking. Any relationship between number of quit attempts and likelihood of success might well not be linear. Multiple prior quit attempts might be associated with dependence and difficulty quitting, but might also be associated with a high motivation to quit. There is likely to be confounding with multiple other characteristics of a smokers history including their level of addiction and length of any prior successful quit attempts.
Evidence statement

There is insufficient evidence to determine whether the number of previous quit attempts affects a smoker’s response to a brief intervention.

The influence of level of dependence

Ockene and co-workers reported that brief counselling was more effective than advice only for less addicted smokers, as measured by time to first cigarette and smoking when ill. Both more and less addicted smokers were helped by nicotine gum, with the highest absolute quit rates amongst less addicted smokers. People who didn’t smoke when ill seemed to benefit relatively more from the counselling, and especially the gum condition (Hebert et al. 1992*).

Segnan and co-workers noted that heavier smokers were less likely to quit overall, without reporting any interaction with treatment (OR for smoking 20+ vs 1-19 0.56 (0.31-1.01) (Senore et al. 1998*).

Orleans and co-workers noted that many of the approximately 1900 volunteer participants for the self-help and telephone counselling trial were heavy smokers (average 26 cpd), highly nicotine dependent (Fagerstrom score 5.7) and with multiple previous quit attempts (median 3 serious attempts). They were also likely to have previously received formal quitting assistance. All of these characteristics predicted low success in quitting overall, and suggests that these smoker populations would benefit from more intensive intervention. The four session telephone counselling intervention increased quit rates relatively more for less dependent smokers, who had not already tried intensive assistance or nicotine gum. The authors concluded that this telephone intervention could be regarded as most beneficial for those for whom minimal therapist contact could represent a significant addition to their quitting resources, but less useful for people with strong addiction and previous failures using professional assistance (Schoenbach et al. 1992*). If this multiple contact intervention was relatively unsuccessful for heavily addicted smokers it is probable that a brief intervention would be even less helpful.
Evidence statement

A moderately sized body of evidence suggests that brief interventions that do not include pharmacotherapy are less effective for more dependent smokers.

Social and other factors

Ockene and co-workers noted that successful quitters were less likely to report that most close associates or family smoked (Hebert et al. 1992*). The difference was most marked for those receiving brief counselling. (None or few smoked; 11.9% self reported quit at 6 months with advice only (AO), 19.6% counselling (C), 23.2% counselling and gum (C+NCG). Most or all smoked; 9.6% AO, 11.1% C, 18.8% C+NCG, P<.05 for difference in CI group).

Segnan and co-workers also found a lower likelihood of quitting amongst those who lived with other smokers (1 or more vs none OR 0.45, 95% CI 0.24 – 0.83), or who had a high proportion of smoking colleagues (≥50% vs <50% OR 0.24 95% CI 0.11 0.54) (Senore et al. 1998).

Orleans and co-workers did not find that the number of smoking friends and relatives predicted successful quitting (Hill et al. 1994*) but having a supportive partner did in one analysis (Schoenbach 1992*).

Evidence statement

There is insufficient evidence to identify differential evidence of interventions between groups defined by broad social and other factors.
3.4 Research question 4. Increasing the intensity, duration and/or frequency of a brief intervention can increase effectiveness. Is this increase additive or multiplicative?

NICE guideline PH1 (March 2006) has been updated and replaced by NG92.

Updated or new recommendations have been made about very brief advice, behavioural support and pharmacotherapies.

Parts of this evidence review are relevant to the updated guideline. The evidence in chapters 3.1 to 3.8 has been stood down and replaced.

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1.8), whilst contact lasting between 4-30 minutes almost doubled the odds (OR 1.9, 95% CI 1.5 – 2.3). A second meta-analysis compared the maximum amount of time spent during a single contact, but could include multicontact interventions. This showed a similar effect of increasing contact. The involvement of multiple clinician types also increased quitting. One clinician increased the odds by 80% compared to no clinician involvement (OR 1.8, 95% CI 1.5 – 2.2) whilst two clinicians were more effective (OR 2.5, 95% CI 1.9 – 3.4).

Within individual studies of brief interventions, small differences in intervention components may not lead to significantly different quit rates. The review of physician advice for smoking cessation (Lancaster & Stead 2004, in section 3.1), included a comparison between ‘intensive’ and ‘minimal’ interventions. Fifteen trials directly compared different physician advice interventions. The more intensive intervention could involve additional support during the same visit or additional follow-up or visits from another healthcare professional. Only three of the studies compared different brief interventions during a single visit, and these did not detect a significant effect, either individually or when pooled. When all trials were pooled there was a small but significant advantage of more intensive advice but with some indication of heterogeneity (OR 1.44, 95% CI 1.24 – 1.67, P for heterogeneity = 0.05, I = 5739, C = 4036). There
was no evidence of heterogeneity amongst the subgroup of 10 trials in populations of smokers not selected as high risk or having smoking-related disease, and in this group the impact of more intensive intervention was small and of marginal statistical significance (OR 1.24, 95% CI 1.02 - 1.50), with no individual trials showing significant benefit. Amongst five trials in patients with, or at high risk of, smoking-related diseases, intensive interventions were significantly more effective than minimal interventions (OR 1.82, 95% CI 1.43 - 2.30) although the heterogeneity between trials approached significance (P = .07). Included in this group were two trials conducted in the mid 1980s by the British Thoracic Society (Research committee of the British Thoracic Society 1990*, identified in Lancaster & Stead (2004) as BTS 1990a, BTS 1990b, both reported in the same paper). These trials recruited smokers attending outpatient departments. Neither had a no-advice control. The first compared advice from chest or general physicians to advice supplemented with a signed agreement to stop, a target quit date, two contacts from a health visitor and 5 follow-up letters from the physician. The second investigated the separate effects of a signed agreement, the encouraging letters, or their combination, in a factorial study. The first study showed an increase in sustained validated abstinence at twelve months from 7.0% in the advice only group, to 9.0% in the advice and additional support group (P = 0.17). Some patients were seen repeatedly in the outpatient clinic for clinical reasons, and an interaction was reported, such that the benefit of the intervention was strongest for those who were not seen repeatedly. Control and intervention group quit rates were similar amongst those seen repeatedly. The second study showed no effect of the signed agreement, but an effect of the supportive letters. When the agreement arms were collapsed there was a quit rate of 5.1% for advice and 8.7% for advice and letters (P = .011). In this study the intervention effect was greater for smokers who were seen repeatedly in the clinic, although the interaction was not significant. When the two studies were pooled it appeared that quit rates were increased by reattendance, and by the interventions, but there was no evidence of an interaction. People who reattended the outpatient clinic were likely to have been more seriously ill; they might also have been exposed to further advice and pressure to stop smoking although this was not a part of the intervention.
There was also no evidence based on indirect comparison within the review of physician advice that the use of aids, which could include self-help manuals, or demonstrations of CO or pulmonary function increased the effect. This was consistent with the evidence from reviews specific to self-help (Lancaster et al. 2005) and biomedical feedback (Bize et al. 2005) that such interventions or intervention components were of limited effect (see evidence table for other sections).

When the intensity of a brief intervention is increased by the addition of pharmacotherapy a more substantial benefit can be achieved (Silagy et al. 2004, see results and evidence table for section 3.1.7). The results of this meta-analysis demonstrated that the relative increase in quit rates with the use of NRT compared to a placebo or no NRT appeared moderately stable whether used in addition to brief behavioural support or more intensive support. This indicates that the effect of NRT is multiplicative.

Evidence statement

A body of level 1+ evidence based on one set of meta-analyses directly applicable to UK health care settings suggests that increasing the length of a brief intervention from <3 to 30 minutes will increase the effect on quitting, but for interventions lasting less than 10 minutes small changes in the time spent will have limited effect on outcome.

3.5 Research question 7. Are some interventions more effective than others both a) within and b) between population groups

NICE guideline PH1 (March 2006) has been updated and replaced by NG92.

Updated or new recommendations have been made about very brief advice, behavioural support and pharmacotherapies.

Parts of this evidence review are relevant to the updated guideline. The evidence in chapters 3.1 to 3.8 has been stood down and replaced.

See www.nice.org.uk/guidance/ng92 for more details.
smokers, is there any evidence to suggest that the effectiveness of a brief intervention differs by whether they are employed or in receipt of benefits.

We did not find any evidence addressing these types of subgroups.

One US trial (Hennrikus et al. 2005) (N = 2,095) of a brief intervention in hospital patients reported that quit rates were higher overall amongst participants with a smoking related diagnosis (SRD), and that there was an interaction with treatment condition. The cotinine-corrected 12 month quit rates for those with a smoking related diagnosis vs. those without such a diagnosis were 13.0% vs. 7.0% in the modified usual care condition, 22.4% vs. 5.6% in the advice condition, and 14.2% vs. 8.4% in the advice plus counselling condition. It is unclear that this interaction was statistically significant. It is also unclear why this group of patients might have responded to a brief but not a more intensive intervention. The trial detected no overall benefit of either intervention compared the control group. There is too little evidence to draw conclusions about the reliability or generalisability of this observation.

No further evidence relevant to differences within population groups was identified.

**b) between population groups**

This subquestion sought evidence about whether interventions that work for one broad group (eg. pregnant women) also work for other broad groups (eg. low income, smokers with mental health problems, etc.) We did not identify any evidence that clearly addressed this question. As noted in previous sections the evidence on differential effect of brief interventions even at the broadest population level is scarce.

**Evidence statement**

There is insufficient evidence to identify whether some interventions are more effective than others both within and between population groups.
3.6 Research question 8. Are interventions tailored to sub-sets of the smoking population more effective with them than generic interventions

NICE guideline PH1 (March 2006) has been updated and replaced by NG92.

Updated or new recommendations have been made about very brief advice, behavioural support and pharmacotherapies.

Parts of this evidence review are relevant to the updated guideline. The evidence in chapters 3.1 to 3.8 has been stood down and replaced.

See [www.nice.org.uk/guidance/ng92](http://www.nice.org.uk/guidance/ng92) for more details.

section summarises all the studies. (NB: in that review ‘tailored’ is used to describe materials that were individually tailored for smokers characteristics.

Materials tailored for populations or for stage of change are described as targetted).

One US trial compared a programme intended for mothers with young children with standard American Lung Association or National Cancer Institute (NCI) materials (Davis et al. 1992*). One compared tailored telephone counselling and a mailed guide addressing the quitting needs and barriers of African-American smokers with a standard counselling approach and guide, for smokers calling the NCI Cancer Information Service (Orleans et al. 1998*). One compared culturally sensitive to standard materials for African-American smokers who also received nicotine patches and two phone calls (Ahluwalia et al. 1999*). None of the studies showed significant differences between tailored and untailored materials. (See table)

<table>
<thead>
<tr>
<th>Study</th>
<th>Quit in intervention</th>
<th>Quit in control</th>
<th>Odds ratio [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahluwalia et al. 1999</td>
<td>43/250</td>
<td>37/250</td>
<td>1.20 [ 0.74, 1.93 ]</td>
</tr>
<tr>
<td>Davis et al. 1992</td>
<td>20/198</td>
<td>41/432</td>
<td>1.07 [ 0.61, 1.88 ]</td>
</tr>
<tr>
<td>Orleans et al. 1998</td>
<td>74/733</td>
<td>63/689</td>
<td>1.12 [ 0.78, 1.59 ]</td>
</tr>
</tbody>
</table>

One additional study only reported short-term quit rates for the full study population so was not included in the review meta-analysis. Rimer and co-
workers developed a self-help guide and telephone counselling protocol for older smokers. They compared these to a standard self-help manual alone for smokers aged 50-75 responding to advertisements. The tailored guide alone did not significantly increase self-reported quitting at three month follow-up (6% vs 7%) but preliminary data suggested a benefit at 12 months. Two proactive telephone counselling calls increased quit rates to 10% (Rimer et al. 1994*).

One other study in the Lancaster & Stead (2005) review used population tailored materials but since the control was not an equivalent nontailored intervention the conclusions are less applicable: Lipkus et al. 1999* compared interventions for motivating low-income African-Americans to quit smoking. Participants attended a health centre which treated primarily low income patients. Physicians were prompted via chart reminders to provide support based on the 4As (Ask/ Advise/ Assist/ Arrange) for all participants. One intervention group was also provided with tailored print materials, at 5th grade (age 9-11) reading level. Materials were not linked but sent around the time of birthdays and included a card. Self reported quit rates at 16m were 32.7% with provider plus print materials versus 13.2% with provider alone (P<0.05). Overall predictors of cessation included lower educational level, and being a contemplator rather than pre-contemplator at baseline. A limitation to this study is that 48% of participants were lost to follow-up and could not be included in the analyses, and quitting was self reported, so quit rates are not conservative.

**Evidence statement**

There is insufficient evidence to state whether interventions tailored to subgroups of the smoking population are more effective than generic interventions.
3.7 Research question 9. Does the setting/site of delivery of the intervention influence effectiveness?

NICE guideline PHT (March 2006) has been updated and replaced by NG92.

Updated or new recommendations have been made about very brief advice, behavioural support and pharmacotherapies.

Parts of this evidence review are relevant to the updated guideline. The evidence in chapters 3.1 to 3.8 has been stood down and replaced.

See www.nice.org.uk/guidance/ng92 for more details.

of the characteristics of the recipients. It is therefore difficult to make comparisons of effectiveness across settings.

The Cochrane review of physician advice (Lancaster et al. 2004; see section 3.1.1 for evidence table) included some studies in outpatient clinics as well as others in primary care settings. Indirect comparison between trials conducted in these two settings did not suggest evidence of a difference in effect, but the number of studies in the former category that had a no-advice control was small.

The evidence provided in section 3.1.13 suggests that brief interventions in inpatient settings are not effective. People may be more likely to give up smoking after a hospital admission, but receiving a brief intervention does not further increase abstinence rates. There is limited research in dental and pharmacy settings.

Evidence statement

There is insufficient evidence from direct comparisons to determine whether the setting influences effectiveness of brief interventions although there is evidence (see section on brief interventions for hospital inpatients) to suggest that brief interventions provided in inpatient settings are not effective.
3.8 Research question 10. Does the profession of the practitioner influence effectiveness? What are the significant features?

NICE guideline PH1 (March 2006) has been updated and replaced by NG92.

Updated or new recommendations have been made about very brief advice, behavioural support and pharmacotherapies.

Parts of this evidence review are relevant to the updated guideline. The evidence in chapters 3.1 to 3.8 has been stood down and replaced.

See www.nice.org.uk/guidance/ng92 for more details.

It is possible to estimate the influence that the profession of a practitioner has on intervention effectiveness by pooling study results of brief smoking cessation interventions delivered by the same group of health professionals and then comparing differences in effects across provider type. However, this approach, which is taken by nearly all identified meta-analyses addressing this question (Fiore et al. 2000; Gorin and Heck 2004; West et al. 2000), can only provide indirect evidence for a potential influence of provider profession on intervention effectiveness. The evidence base considered here is therefore rather weak.

Only one meta-analysis (Mojica et al. 2004) attempted to answer the question directly. This review found just one study (McDowell et al. 1985*) which directly compared several provider types providing a smoking cessation intervention. As in the other meta-analyses, the remainder of the studies included in this review were RCTs that assessed the effectiveness of brief interventions in only one provider group.

Almost no research has investigated which occupational features influence intervention effectiveness. One review (Gorin and Heck 2004) and and four trials (Stevens et al. 1993 and Stevens et al. 2000, Katz et al. 2004a and b, Solberg et al. 1997; Williams et al. 2003) provided some information about possible characteristics of providers of brief interventions that may explain differential outcomes by provider type.
Results

Evidence from meta-analyses confirms that GPs, and physicians in general, are effective in providing brief smoking cessation interventions. One review (Mojica et al. 2004) based on 23 relevant studies reported that interventions provided by physicians nearly doubled chances of smoking abstinence at 5 months (relative risk (RR) 1.87, CI 1.42-2.45) compared to a control condition. These results mirror those described in Fiore et al. (2000, see Question 1). The latter meta-analysis also found that the effectiveness of interventions delivered by non-physicians was roughly comparable to that of physician-delivered interventions (OR 1.7, 95% CI 1.3-2.1) but this was based on less direct evidence. In addition, the studies included in the comparison of physicians with non-physicians assessed interventions of varying degrees of intensity. It is therefore possible that these results would have changed significantly had the review focused solely on brief interventions.

In contrast to Fiore, Mojica analysed results separately for non-physicians. The majority of included studies assessed physician delivered interventions (see above), ten evaluated nurses and six psychologists, five studies looked at other types of providers (dietitian, health visitor, receptionist, researcher) and three at counsellors. Interventions delivered both by nurses (RR 1.76, CI 1.21 - 2.57) and psychologists (RR 1.94, CI 1.04 - 3.62) significantly increased smoking cessation, when compared to a control condition. In contrast, neither counsellors (RR 1.82, CI 0.84 - 3.96) nor other types of providers (RR 1.18, CI 0.67 - 2.10) delivering brief smoking cessation interventions significantly increased abstinence when compared to usual care. However, as a caveat it should be noted that due to a smaller number of studies involving these providers, power may have been insufficient to detect small effects. In addition, the review acknowledges the heterogeneity of the included studies in terms of the interventions tested and the specific populations considered. Although the effectiveness of brief interventions differed by provider type, no significant differences between providers were detected. As in the previous review the results are likely to be different had studies been excluded that assessed non-minimal interventions.
The single trial with a direct comparison (McDowell et al. 1985), did not find significant differences in the effectiveness of smoking cessation interventions delivered by different health professionals (family physician, nurse or psychologist). However, the intervention tested varied slightly between health professionals and was not necessarily brief in the case of nurses and psychologists.

A meta-analysis of thirty-seven North-American studies (Gorin and Heck 2004) focused mostly on brief interventions. This review reports results of interventions delivered by physicians (11 studies), nurses (11), dentists (4) and teams of providers (11). Contrary to the other meta-analyses, only physicians and teams of providers produced a significant effect (see Effect sizes below). Comparison of pooled estimates shows physicians to be significantly more effective than nurses ($\beta=5.19$, $p=0.005$) but not dentists ($\beta=4.91$, $p=0.73$) in providing counselling; dentists were also more effective than nurses ($\beta=0.94$, $p=0.002$).

Gorin and Heck also report effect sizes. Brief interventions carried out by physicians produced a significant effect size ($ES=6.01$, CI -2.46 to 13.29, $p=0.002$) for measures of smoking abstinence at 30 weeks following treatment compared to the control condition. Interventions which involved a team of health professionals also produced a significant effect size ($ES=0.79$, CI -0.19-3.71, $p=0.01$) though it is likely that these interventions were not minimal and more intense. Nurse-led interventions did not lead to a significant effect ($ES=0.03$, CI -0.30-0.31, $p=0.37$) and neither did interventions delivered by dentists ($ES=0.33$, CI -0.02-1.16, $p=0.12$) However, the small number of dental studies, and thus the reduced power to detect a significant effect, may account for this finding.

A trial of respiratory therapists, a profession not considered elsewhere in this report, who delivered a brief smoking intervention, highlights a different research issue related to the evaluation of the influence of the intervening profession on outcomes (Stevens et al. 1993, Stevens et al. 2000). These studies indicate that interventions which have been successfully delivered by research staff acting as counsellors in efficacy trials may not show the same
benefit in effectiveness studies. An intervention for hospital inpatients involving a 20 minute bedside counselling session, video, mailed materials and a follow-up telephone call increased quit rates from 9.2% to 13.5%, when delivered by research staff (Stevens et al. 1993*) but did not show a benefit when delivered by respiratory therapists, with 14.2% quitting for six months or more at the 1-year follow-up compared to 13.6% in the usual care condition (Stevens et al. 2000*). These differences were attributed to difficulties implementing the trial protocol when respiratory therapists were combining this with their others duties, although there may also have been biases introduced by differential treatment of participants.

One study was identified which directly addressed the question of why there may be differences in effectiveness by profession (Katz et al. 2004a). This paper was based on a trial (Katz et al. 2004b) investigated the effect of implementing the US smoking cessation guideline (brief advice, provision of self-help manual and free NRT voucher to those wanting to quit as well as follow-up support call) and involved seventy-two clinicians at nine primary care practices. The results showed a significant increase in smoking cessation compared to the control at 6 months follow-up (OR 3.4, CI 1.8-6.3). A subsequent analysis of results (Katz et al. 2004a) compared medical assistants (MA) and licensed practice nurses (LPN) performance of recommended smoking-cessation activities with that of registered nurses (RN). MA and LPN patients were significantly less likely to be asked about their willingness to quit than RN patients (OR 0.39, CI 0.2-0.75 and OR 0.52, CI 0.28-0.95 respectively). The authors believe that these differences may be accounted for by job-related characteristics such as perceived self-efficacy and role-satisfaction. When these variables were added as covariates to the main model, difference were reduced to non-significance for MA and near non-significance for LPN (OR 0.47, CI 0.22-0.99).

The authors postulate that differences in these beliefs and attitudes across LPN, MA and RN could be the result of a lack of formal training in patient education and counselling. The delivery of smoking cessation advice in nurses has been shown to be influenced by a variety of factors related to
training, such as perceived support of clinical leadership (Solberg et al. 1997) and perceived autonomy (Williams et al. 2003), which may explain some of the apparent differences in the effectiveness of brief smoking cessation interventions by provider type (Katz et al. 2000a). Similarly, Gorin and Heck suggest that the different performance of providers that was observed in their review point towards the importance of additional training for health care professionals other than physicians.

**Evidence summary**

Four reviews and additional four studies where identified to determine whether the profession of the practitioner delivering a brief smoking cessation intervention influences its effectiveness. The available evidence is insufficient and rather mixed (possibly due to the inclusion of non-brief interventions in meta-analyses) and therefore allows for tentative and preliminary insights only. Few studies have assessed this variable by directly comparing different professionals delivering the same intervention. The only study (McDowell et al 1985) which directly compared health professionals was not strictly relevant as it also included interventions that were not brief and did not find any significant differences among provider types.

All remaining relevant studies and reviews used cross-sectional data and thus indirect evidence, which provided only partial support for the role of profession. Their outcomes were contradictory as some trials confirmed the above study results whereas others detected differences in the effectiveness of interventions delivered by profession. Studies (Mojica et al, 2004, Gorin and Heck, 2004) that found provider differences compared specific professions, for example, physicians with nurses, dentists with psychologists, as opposed to physicians with all non-physicians against control conditions. However a meaningful interpretation of these results is made impossible due to a range of confounding factors affecting the studies identified.

Most reviews (Forin et al. 2000, Mojica et al 2004, Gorin and Heck 2004) did not sufficiently distinguish between minimal and non-minimal interventions and analysed studies including a wide range of intervention designs and intensities. Some (Mojica et al, 2004, Gorin and Heck, 2004) meta-analyses
based findings on a very small number of relevant studies, which somewhat lessens the reliability and validity that can be ascribed to these findings. In particular, the evidence regarding the impact that dentists and nurses have on intervention effects is mixed. Some studies but not others show differences in abstinence rate for interventions delivered by dentists and nurses in comparison to physicians.

The lack of evidence does not enable definite conclusions to be drawn about the influence of provider type on intervention effectiveness. The only meta-analysis, with a primary focus on brief interventions, found no evidence for the effectiveness of smoking cessation interventions delivered by providers other than physicians. This observation is corroborated by a review of the UK smoking cessation guidelines, which finds that there is currently insufficient evidence to determine whether brief advice from other health professionals is effective (West et al. 2000).

In addition there is very little evidence to determine significant features which may explain potential differences between the effectiveness of interventions delivered by various provider types. A tentative suggestion is that beliefs and attitudes relating to training such as self-efficacy and role satisfaction may explain differences in the implementation of brief smoking cessation interventions between staff at various levels of their professional development.

**Applicability**

As the meta-analyses and trials reviewed for this question primarily include studies from the US and UK, and since there is no evidence for fundamental differences in the implementation of quit advice by the same provider types across (Western) industrialised nations, it is probable that the body of evidence can be applied to the UK setting.

**Evidence statement**

There is insufficient evidence from direct comparisons to draw firm conclusions about the influence of the profession of a provider delivering a brief smoking cessation intervention, or the influence of features of the profession, on intervention effectiveness.
3.9 Research question 11 How applicable is what we know about the most effective brief interventions to the most disadvantaged smokers and pregnant smokers?

**Disadvantaged smokers**

We found limited evidence addressing the applicability of brief interventions to disadvantaged smokers. The strongest evidence would be derived from the large trials of brief interventions that enrolled participants from a range of socio-economic groups and reported results by socioeconomic status subgroup. The results from trials recruiting only amongst disadvantaged groups are difficult to interpret because the absence of a significant benefit may reflect the intervention rather than the population, or may reflect a lack of power. There isn’t enough evidence of similar interventions in different populations to make indirect comparisons between trials in more and less disadvantaged population groups reliable.

One review addressed interventions for smoking cessation amongst US ethnic minorities (Lawrence et al. 2003). Most of the trials had recruited African-Americans, and of the heterogeneous studies that used brief interventions both successful and unsuccessful results were reported. It was not possible to draw useful conclusions.

A UK trial (Jamrozik et al. 1984*) included in the review of physician advice (Lancaster and Stead 2004) compared a no advice control, physician advice and self-help materials only, advice with demonstration of CO levels carried out by trial assistant, or advice and a card giving details of how to contact a health visitor, which was attached to the self-help booklet. There was a significantly higher quit rate for all active treatments combined, compared to control (p<0.02). The influence of intervention appeared substantially greater for social classes I to III non manual. Quit rates were reported by social class and treatment group. Social classes IV-V had the highest rates in the CO demonstration group (15.0%) and lowest for health visitor (8.2%).
average across control and 3 intervention variants was 11.2% in SoC IV-V compared to 17.8% for SoC I,II,III. No formal test of interaction was reported.

A US trial of telephone counselling was aimed initially at blue collar workers calling a specially promoted quitline (Thompson et al. 1993). The experimental intervention was based on a stage of change model that provided individualised advice, adapted via focus groups, to the needs of blue collar workers. The control group was given information in response to specific questions, with mailed self-help materials. The trial failed to recruit as many blue collar workers as intended so includes only 24% in this category. The trial detected no difference between interventions, with 6 month self reported quit rates of 19% in both groups. At first follow-up there was no significant difference in self reported non smoking rates between white-collar, blue-collar and other participants but by 6-month follow-up quit rates were 16.7% amongst blue collar, 22.9% amongst white collar and 42.4% amongst the ‘other’ category, a significant overall difference.

A US study also discussed above (section 3.6), compared the efficacy of three different interventions for motivating low-income African-Americans to quit smoking (Lipkus et al. 1999* see evidence table for Lancaster & Stead 2005 in section 3.6). Participants attended a health centre which treated primarily low income patients. Physicians were prompted via chart reminders to provide 4As based support for all participants. One intervention group was also provided with tailored print materials. Materials were sent around the time of birthdays and included a card. A second intervention group received the materials and one or two telephone calls. Quit rates were 32.7% with provider plus print materials versus 13.2% with provider alone (P<0.05), but the telephone counselling did not increase rates further (19.2%). In this study people with a lower education level were more likely to be successful.

An intervention in US planned parenthood clinics delivered by trained clinic staff, outside the health care consultation, did show a significant long term benefit (30 day abstinence at 6 months, validated abstinence 6.4% for intervention versus 3.8% for advice only control, P = 0.25), though self reported quit rates at 6 weeks were higher (10.2% intervention, 6.9% control,
P <0.05 (Glasgow et al. 2000*). The trial successfully recruited a representative proportion of clinic attenders who were predominantly young and low income. The intervention was intended to include follow-up telephone calls although these were poorly implemented. It is unclear whether this intervention would also have been more successful in a different population.

**Evidence statement**
There is insufficient evidence to determine whether brief interventions are more or less effective in disadvantaged smokers.

**Pregnant smokers**
As discussed in section 3.1.14 a large body of research has been conducted amongst pregnant women, and is therefore directly applicable. Whilst interventions can help pregnant women to stop, we did not find evidence that brief interventions were effective. It appears to be difficult to change the behaviour of women who continue to smoke during pregnancy.

There are a number of barriers specific to delivering smoking cessation interventions in pregnancy, both from the point of view of the care providers and the women themselves. These are discussed further in section 3.10.

**Evidence statement**
See under brief interventions for pregnant smokers.

**3.10 Research question 12. What are the barriers to delivering smoking cessation interventions?**
This section provides a narrative summary of evidence from reviews, trials and qualitative research reporting barriers to delivery of interventions, brief or otherwise. As indicated in the methods, this section is based on a selective review, prioritising evidence most relevant to the UK, including evidence from the process analysis of trials, or focus groups, where possible.
Barriers for GPs in primary care

A recent systematic review estimated the proportion of GPs with negative beliefs and attitudes towards discussing smoking cessation with patients (Vogt et al. 2005). It included 20 studies from 11 countries (5 UK studies). About one-third of GPs have some negative beliefs and attitudes about discussing smoking, which may be contributing to low rates of discussion of smoking in primary care consultations. The review identified eight types of barrier or negative belief about discussing smoking with their patients. These were that it was too time-consuming (42% agreed), that it was not effective (38%), that they did not have confidence in their ability to engage with the subject (22%), that such discussions could be unpleasant (18%), that they did not have sufficient knowledge of the subject (16%), that it was an intrusion on patient privacy (5%), that it was not their professional duty (5%), and that it was generally inappropriate (no reason stated, 3%). Lack of effectiveness was felt by the authors to need further examination, since it was not clear whether GPs felt that discussing smoking was of itself an ineffective intervention, or that, while it might help a few smokers, its impact on the smoking population overall was negligible. The low proportion of GPs who felt that it was not their duty, or that it was intrusive or inappropriate to discuss smoking cessation, suggests that the great majority do see smoking interventions as within their professional remit. The authors found evidence of a correlation between GPs’ beliefs and attitudes about discussing smoking and whether or not they intervene with smokers. This was supported by another survey of 107 GPs which found that the strength of their belief that repeated advice could harm the doctor-patient relationship was the only factor amongst the attitudes measured that independently predicted the number of patients they had advised in the previous week (McEwen et al. 2005a).

Research conducted in the UK is summarised below. This research starts from the premise that doctors and patients influence each other. Consequently, the delivery of brief cessation interventions in primary care consultations depends on the views, attitudes and behaviour of both doctors and patients.
Quantitative research

An initial survey suggested that although GPs believed that advising patients against smoking was an important part of their role, a large majority (97%) thought it was most effective to link any advice to patients’ presenting problems (Coleman and Wilson 1996). Additionally, 65% of respondents indicated that they actually used the strategy of linking advice to patients’ presenting problems when giving advice (Coleman and Wilson 1996). Two subsequent papers provide some evidence for the validity of these self-report statements. The first, based on 115 smokers who completed pre and post-consultation questionnaires found that cessation advice was most likely to be reported by smokers after consultations in which they believed that they had presented with smoking-related problems (Coleman and Wilson 1999). Other factors were also associated with recall of advice, but the study sample size was not large enough to investigate independent effects. The second of these studies based on 719 smokers who completed pre and post-consultation questionnaires included a multivariate analysis which demonstrated that where patients perceived that they had attended the doctor with a smoking-related problem they were more likely to recall receiving cessation advice (Wynn et al. 2002). No other factors were independently associated with recall of advice, though it must be born in mind that, as the data were observational, some factors that influence the provision of advice may not have been included in the analysis.

Two papers investigated the relationship between patients’ attitudes towards smoking and whether or not they considered their problems to be smoking-related. A postal survey of 1005 patients with a 73% response rate including 130 who smoked and reported experiencing at least one respiratory symptom found that those who believed their symptoms were attributable to smoking were more likely to try stopping (Walters and Coleman 2002). In another survey with a sample size of 1026 smokers, multiple logistic regression showed that where smokers perceived that their problems were smoking related they were more likely to have tried stopping in the past (OR 1.78, 95% CI 1.26 - 2.67), to want to stop smoking (OR 1.83, 95% CI 1.15-2.9) or to
intend to stop in the near future (OR 1.58, 95% CI 1.03-2.43) (Coleman et al. 2003).

Taken together this work suggests that general practitioners are more likely to deliver brief interventions in their routine consultations in the context of smoking-related problems and one potential explanation for this is that raising the topic in this context results in more interested responses from patients because they are more motivated to stop smoking when they believe their problems are related to smoking.

**Observational studies**

A study which involved observation of 37 regular smokers’ consultations found that smokers who are motivated to stop smoking behave differently compared to non-motivated ones once the topic of smoking is raised (Coleman, Stevenson and Wilson 2002). Smokers who indicated on pre-consultation questionnaires that they were motivated to stop displayed much less resistant/negative behaviour once the topic of smoking had been raised by their doctors.

**Qualitative studies**

A number of studies have investigated in more detail explanations for the ways in which general practitioners approach the delivery of brief interventions (which from the above work appears to be primarily problem-orientated). One qualitative study using interviews with 39 GPs found that doctors were very reluctant to disturb the doctor-patient relationship and were keen to discuss the patient’s concerns first, because they felt this was the best way to avoid a negative response (Coleman, Murphy & Cheater 2000). Another paper based on interviews with 27 GPs found that they admitted to possessing a relatively limited set of skills for encouraging behaviour change by patients (Coleman, Cheater & Murphy 2004). In particular, GPs preferred discussing smoking with patients who had already made their decision to stop and other than giving very stern advice to those who declined to stop after being warned, they mentioned no other particular skills for discussing smoking with this group of patients. Two papers have used transcriptions of 47 consultations to analyse
the interactions between doctors and patients when smoking is discussed. One found that even when doctors link smoking to patients' medical problems, this still often results in resistance and confrontation from patients (Pilnick and Coleman 2003). Confrontation appeared more likely where the doctor and patient did not appear to share an agenda for discussion with the consultation. The second paper described specific patient behaviours which tended to be followed by doctors ending discussion of smoking after having brought this up (Pilnick and Coleman in press). This work could inform those developing training courses which hope to increase the delivery of brief smoking cessation interventions.

A small study of GPs based on 3 focus groups (McIntyre and Scott 2003) found scepticism among GPs about the desirability of routinely and regularly raising smoking cessation in consultations, especially with socially disadvantaged or psychiatric patients. Some GPs suggested that capitation fees, similar to those for their diabetic and asthmatic patients, might encourage them to address smoking cessation. Knowledge of the smoking cessation services was patchy among the GPs, but those who were best-informed about them appreciated their value, and their potential to lighten their workload. However, a recent postal questionnaire study (n=336, 63% response rate) found that self-reported awareness of the smoking cessation services was reasonably high (94%) among GPs - particularly if they practised in health action zones (HAZ), where these services were introduced a year earlier than in the rest of the UK (McEwen et al. 2005b). GPs also commented that the existence of the smoking cessation services had made it easier for them to raise the topic of smoking with patients, leading to an increase in brief advice giving among 41 % of GPs.

**Barriers for others in primary care**

**Practice nurses**

A UK survey of 152 practice nurses (Hall et al. 2005) found that those who were non-smokers or ex-smokers and those trained in smoking cessation were more positive about giving advice, and perceived it as more effective.
In two UK trials, smokers in intervention groups were encouraged or asked to make appointments with health visitors (Jamrozik et al. 1984*) or practice nurses (Lancaster et al. 1999*) for additional support. In both trials few patients made appointments. In the earlier trial only 6/521 patients made an additional appointment, but the authors offered two explanations: (a) people weren’t familiar with the role and concept of a ‘health visitor’ and (b) GPs were reluctant to delegate smoking cessation support to another health professional. These potential barriers seem of limited relevance now that NHS cessation services provide a clearer pathway for referral.

**Hospital Nurses**

As part of a trial of an intervention for hospitalised patients (Hennrikus et al. 2005; (see section 3.1.3 for evidence table) the investigators conducted focus groups with 97 nurses to explore the reasons for the low rate of documented cessation advice (McCarty et al. 2001). The majority of nurses felt that hospitalisation was a good time to offer advice and that doing so was part of their role. Many though felt that advice should only be given to specific subsets, including those who were receptive. Only a few (<4/97) felt that advice was an invasion of privacy. However several (6-10) said that advice should not be given to patients who were too sick or had other priorities. Other barriers noted were a lack of information about cessation methods, lack of referral options, and lack of time. Some nurses were unaware of the resources that were available to them.

A feasibility study of implementing a smoking cessation programme for cardiac inpatients also included focus groups with the smoking interventionists (McDaniel 1999). This reported problems with nurses remembering to screen and refer smokers to the programme, and with changing fixed routines in acute care. There were perceived time constraints because of short length of stay in acute wards and there was also the perception that patients in this situation are too ill to benefit from smoking cessation interventions, even though they are shown to be receptive to counselling and with high motivation to quit.
A US survey of oncology nurses (n = 1508) (Sarna et al. 2000) reported similar barriers, with 74% of respondents believing that their patients were not motivated to quit. Around half of those questioned also reported a lack of time and of appropriate skills, and nearly a quarter felt that their patients’ poor prognosis made their smoking status irrelevant.

In a trial of an unsuccessful intervention by cardiac nurses (Hajek et al. 2002* referred to in Section 3.1.13) it was noted that it was difficult to implement an intervention lasting around 30 minutes.

**Dentists**

A survey of UK dentists and dental teams (n = 149) (Watt et al. 2004) found that the majority (90%) of dentists ask their patients about their smoking, and give brief advice (82%), especially to those with periodontal disease. Barriers among dentists to assisting smokers to quit included lack of time (80%), of supporting resources (76%), of reimbursement (73%), and of knowledge (72%). The dental teams took a negative and sceptical view of the value of preventive advice, and of smoking cessation in particular. Many felt it was not a relevant activity in dentistry, and that patients arriving for treatment were already anxious and unreceptive. They also feared antagonising and driving away patients, particularly vulnerable groups such as pregnant women and teenagers. Members of the dental team were often unclear about their precise role and responsibilities for giving smoking cessation advice.

A review of the effectiveness of tobacco counselling in the dental setting (Warnakulasuriya et al. 2002; the evidence table for this review is presented under 3.1.14 where the review is first discussed) cites lack of time and reimbursement, and inadequate training as reported barriers. The author recommends integrating smoking cessation into the formative training of dentists and hygienists, to counteract a widespread lack of those skills.

**Pharmacists**

One trial of a pharmacist-delivered smoking cessation programme (Maguire et al. 2001; the evidence table for this is presented under 3.1.3 where the study is first discussed) reported lack of time and remuneration as barriers to
offering smoking cessation advice. The pharmacists were also concerned not
to alienate customers by offering unwanted advice, and identified improved
communication skills for their counter staff as a necessary support for a
smoking cessation service.

**Pregnant smokers**

We discuss here the barriers to delivering cessation interventions amongst
pregnant smokers, based on evidence from reviews, recent UK trials, and
focus groups.

Melvin and coworkers discussed barriers in two recent reviews on treating
pregnant smokers, based on expert opinion and consensus rather than
rigorous reviews of the evidence and including some of the same trials that
were discussed in 3.1.14, (Melvin et al. 2000; Melvin and Gaffney 2004).
Melvin and coworkers (2000) examined whether pregnancy was an
appropriate time for smoking cessation efforts, whether interventions were
effective and then how could they be introduced into health systems. Melvin
and Gaffney (2004) reviewed guidelines for brief interventions with pregnant
smokers and summarised recent research. These reviews found that many
pregnant women are unwilling to disclose their smoking status at the first
prenatal visit. They reported nondisclosure rates to be in the range of 3-6%
citing one English study which found a nondisclosure rate of 3% (Owen and
McNeill 2001*) and commented that higher percentages underreport the
number of cigarettes they smoke. Melvin and Gaffney (2004) concluded that
incorporating a biomarker (such as cotinine) into routine care to help identify
smokers may be problematic as it would increase costs, time of consultation
and could detrimentally affect the healthcare professional’s relationship with
the pregnant smoker. In addition, it appears that the metabolism of cotinine in
pregnant smokers differs from that in non-pregnant smokers, thus making it
harder to develop an accurate cut-off value for cotinine in pregnant smokers.
The reviews noted that research in the US shows that using a structured
question (either written or oral) to determine smoking status among pregnant
women reduced non-disclosure and recommended this method in the
absence of further research.
Example of structured questions to establish smoking status

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>I have never smoked, or I have smoked less than 100 cigarettes in my lifetime.</td>
</tr>
<tr>
<td>B</td>
<td>I stopped smoking before I found out I was pregnant, and I am not smoking now.</td>
</tr>
<tr>
<td>C</td>
<td>I stopped smoking after I found out I was pregnant, and I am not smoking now.</td>
</tr>
<tr>
<td>D</td>
<td>I smoke some now, but I cut down on the number of cigarettes I smoke since I found out I was pregnant.</td>
</tr>
<tr>
<td>E</td>
<td>I smoke regularly now, about the same as before I found out I was pregnant.</td>
</tr>
</tbody>
</table>

(Adapted from Melvin et al. 2000)

Melvin also concluded from US studies that there are barriers to health professionals intervening, many of which are common to intervening with smokers in general, such as the competing demands of other medically urgent issues, time constraints, lack of training and resources, lack of reimbursement, lack of appropriate tools and office systems, and inertia. One US study showed that in addition to these barriers, 85% of obstetrician-gynaecologists reported that their smoking cessation counselling methods were self taught and 95% were not sure which patient education materials were most appropriate for pregnant women (Chapin and Root, 2004*).

Because our search strategy for barriers included a term for prenatal care, we identified a large number of surveys and non randomised evaluations. As noted in the methods section we prioritised evidence from UK sources. Since three trials of apparently unsuccessful brief interventions have been recently conducted in the UK, the interventions used and the barriers that they describe can be regarded as relevant. We therefore describe both the interventions and process measures in detail here.

Hajek and co-workers (Hajek et al. 200;1 the evidence table for this is presented under 3.1.14 where the study is first discussed) evaluated an intervention designed to take on average 10 minutes of midwife time. Smokers who were not intending to stop were given a three page booklet ‘The
Choice is Yours’ intended to enhance motivation and combat barriers. Smokers wanting to stop had their carbon monoxide measured and interpreted, and received a booklet tailored for pregnancy included a place for specifying a quit date, intended to be ‘witnessed’ by the midwife, and the woman’s partner or friend. A component to encourage a woman to pair with a buddy for mutual support was included. Women’s notes were also marked to encourage reinforcement of the intervention at future contacts. The control group received usual care. Seventy-six percent of the intervention group smokers wanted to stop smoking, and for them the implementation of the CO reading and booklet was reported to be good, but midwives reported an agreement to set a quit date only 56% of the time, and few implemented the buddy system. When interviewed after birth, almost all women in both control and intervention groups reported that smoking had been discussed, but it was more likely to have been discussed repeatedly in the intervention group, and there were large differences in most of the specific components covered by the intervention. Thus implementation seems to have been reasonable.

The intervention actually took an average of 15 minutes (including procedures related to the trial) and 65% of midwives who commented on the practicality of the intervention said that it took too long. This suggests that it would be very difficult to use such an intervention in the setting of routine prenatal care.

The authors noted that the two hour training session might have been too brief and that it had been difficult to arrange training. Any intervention that required training would therefore need better support for training, including locum cover.

Moore and co-workers (2002) evaluated an intervention based on a series of self-help booklets. The midwife was responsible for introducing the first booklet, but four subsequent booklets were mailed weekly. A booklet for family and friends was also provided. The booklets were tailored for pregnancy. The midwife was instructed to spend at least five minutes introducing the booklet. The control was usual care. Process evaluation indicated that the amount of time spent by midwives was very variable. A small number of women were interviewed and none of them remembered the
midwife taking them through the booklet, although they remembered receiving it. None of them said booklets helped them quit, but they were seen as a useful resource for others.

Lawrence and co-workers (2003) evaluated an intervention based on providing self-help materials tailored to the woman’s stage of change. A second intervention arm used an interactive computer programme for giving individually tailored advice. The intervention midwives received two and a half days training. The midwives gave intervention group participants sets of six 30 page, stage of change based manuals. These described the stage of change, helped participants stage themselves and included quizzes and exercises to engage processes of change. Midwives in the first intervention arm were expected to assess a participant’s stage of change, point the woman to the appropriate manual and spend no more than 15 minutes going through an exercise. They were to do this on three occasions during pregnancy, at <20 weeks, 23-25 weeks and 28-30 weeks – hence this would not be regarded as a brief intervention. In the second intervention arm, a laptop computer was used to go through the same process, without the involvement of the midwife, so this might be regarded as a potential brief intervention, albeit one based only on self-help. The control arm was usual care with an already widely used HEA booklet. About three quarters of the midwife intervention arm completed questionnaires at the second and third occasions. Although there were some statistically significant effects the authors regarded these as borderline, and emphasized the lack of clinical significance in the small differences in quit rates.

A programme tested in a trial in New Zealand (Pullon et al. 2003) which used an extensive consultation and pretesting for intervention development identified the following issues based on focus groups for midwives:

• uncertainty about how best to ask about smoking status;

• uncertainty about how a smoking education programme would be received by women and/or their partners;
• a lack of knowledge about the specific harmful mechanisms and effects of smoking on the baby and mother, despite good general knowledge about smoking damage;

• a lack of confidence and knowledge about how to undertake active smoking cessation with women;

• concern about the time smoking cessation would take during usual care;

• a lack of knowledge about links between smoking and breastfeeding, and a lack of understanding about the particular problems women who smoke face with breastfeeding;

• concern about low reading age for many women who smoke; and

• a paucity of targeted audio-visual resources for pregnant women to support any ongoing education programme.

Other barriers
A detailed process evaluation of the implementation of a trial of an intervention to improve smoking cessation and relapse prevention among low-income pregnant and postpartum women attending community health centres noted a range of barriers (Zapka et al. 2004). Some of these were specific to the context of a US clinic and to the demands of a research trial, but issues included difficulties in identifying key individuals responsible for organisation decision making, poor formal communication, high staff turnover and low morale. There were time pressures on clinicians. Paediatric care providers viewed the child not the parent as the patient. Providers only delivered intervention if they were committed to the priority of smoking and believed in the effectiveness of the intervention. Many providers only implemented some parts of the intervention.

Further observations on barriers
Other reviews made limited comment on barriers. Two reviews of interventions to protect children from environmental tobacco smoke had relevant data (Hovell et al. 2000; Roseby et al. 2003 described in detail in
3.1.16). Hovell and coworkers was a narrative review of interventions and found little evidence of effectiveness with studies also showing little compliance among health professionals in delivering interventions. Both reviews commented that sustained implementation of trial protocols was difficult. In pediatric settings there were particular barriers to intervening with parents, who were not the patients.

**Summary of barriers: Recurrent themes among health professionals**

- Lack of time
- Intervention is not effective
- Lack of reimbursement
- Lack of skills, training or confidence
- Unwillingness to alienate patients, leading to loss of trust or of business

**Evidence statement**

A body of largely qualitative research with a variety of health professionals suggests that from the health professional perspective the main barriers are lack of time, believing that the intervention is not effective, lack of reimbursement, lack of skills, training or confidence and an unwillingness to alienate patients.

**3.11 Research question 13. What strategies are effective in encouraging primary care professionals and others to undertake smoking cessation interventions?**

Strategies identified as relevant to this section include training of health professionals, organisational mechanisms such as prompts and computerised reminders for promoting identification of and intervention with smokers, and financial incentives to health professionals for intervention.
One U.S. review of preventive services for tobacco use reduction included trials of reminders for providers, provider education, and combinations of components (Hopkins et al. 2001). Inclusion was restricted to well conducted randomised trials, but cessation outcomes were not required. The review identified seven suitable studies of provider reminders. It concluded that provider reminders implemented alone increased provider delivery of advice to quit. Only one study measured smoking cessation after 6 months but the 4% increase was non significant so no conclusion could be drawn about the impact on cessation. There were 16 suitable studies of provider education without reminders of which only one assessed tobacco use cessation. The conclusion was that there was insufficient evidence that provider education alone increased cessation, whilst there were inconsistent results for the effect on advice delivery. There was a larger evidence base (based on 31 studies) for the effect of combined education and reminder systems. There were 21 studies of which 14 measured cessation. The median difference in quit rates over a range of follow-up points up to 12 months was 5.7 percentage points with a range from –1.0 to 25.9, but no confidence intervals were reported. The conclusion was that ‘there was strong evidence that multicomponent health care system interventions that include a minimum of a provider reminder system and a provider education programme are effective in increasing both provider delivery of advice to quit and patient cessation’. The review reported that additional effectiveness on patient cessation was demonstrated by studies that included the use of patient education materials.

A Cochrane review of interventions for training health professionals in smoking cessation (Lancaster et al. 2000) included only randomised trials that reported cessation outcomes at least six months after the intervention. Trials that evaluated reminder systems without training were excluded. Of the ten studies included, only two reported significant increases in abstinence rates. One specifically trained physicians to prescribe nicotine gum, set a quit date and schedule follow-up visits. The second was conducted amongst Taiwanese physicians. Neither of the two trials conducted in the UK combined training with reminder systems, and neither reported significant differences in cessation. One which used a one day workshop to train general practice
teams of doctors, nurses and health visitors detected no effect on patients’ reports that health professionals had discussed smoking with them. One study which trained pharmacists to offer support found an increase in patient reported discussion of smoking. Similar to the review discussed above, this review concluded that there was a lack of consistent evidence that training leads to significant increases in quitting in patients visiting health care professionals who had been trained.

A third review and meta-analysis (Anderson and Jane-Llopis 2004) concluded that educational and practice based strategies increased quit rates. However, this review included a study which reported assessment of smoking status rather than smoking cessation, and is likely to have biased the meta-analysis, so this review is not included in the evidence base.

In addition to review level evidence, we identified 13 additional individual studies of strategies to increase cessation interventions that were not included in the reviews. One additional unpublished UK study (McRobbie, Hajek, Feder, unpublished 2005) gave GPs training intended to increase the level of referrals to the cessation services. Because it has most relevance to the questions addressing referrals it is discussed in more detail in section 4.

The 13 trials are discussed here, beginning with two that were conducted in the UK.

In a UK randomised trial (McEwen et al. 2002), a desktop resource for GPs that included guidance for GPs and tear off advice and information sheets for patients significantly increased the GP reported rate of opportunistic advice giving (p=.0025) and the rate of GP counselling (P=.025) over a control group of GPs not sent the resource. The proportion who had recommended or prescribed NRT was not increased. The findings were based on GP self reports 1 month after distribution, and patient outcomes were not recorded. In a further analysis of data from this trial, (also noted in the discussion of barriers above in section 3.10) there was an interaction between the desktop resource and concern over the doctor-patient relationship. GPs who were
concerned about harming the doctor-patient relationship were more likely to advise patients if they had the desktop resource.

A pre-post study (Coleman et al. 2001; Coleman et al. 2004) in general practices in a deprived area of Leicester evaluated the effect of paying GPs £15 for identifying any smokers who had stopped smoking for three months or more as a result of their antismoking advice during consultations. Smoking patients attending appointments were surveyed for 9 months before and 9 months after payment introduction. There was no significant difference in the proportion of smokers reporting that they had received advice, with 21% recalling it during the control period and 19% during the intervention. A parallel qualitative study of practice staff found that opinions about the incentive scheme were mostly negative. Practices that made claims did so by changing the way they recorded smoking status rather than changing their advice giving.

The other trials were conducted in a variety of non-UK healthcare settings. Five trials addressed training or skills:

In a cluster randomised Swiss study (Cornuz et al. 2002), residents in internal medicine clinics were given two half day training sessions including an interactive workshop, practice with standardised patients, algorithms & brochures. A control group of residents received training in dyslipidemia management. Residents were blind to the study and were not prompted to give advice to their patients. The patients of each resident constituted the clusters. Self reported abstinence at 1 year was higher in intervention than control group patients; cluster adjusted OR 2.8 (95% CI 1.4 – 5.5).

In a non-randomised Danish study (Wisborg et al. 1998) midwives were trained to offer stop smoking advice during routine care. Only 2% of women who were smoking at the first antenatal visit displayed cotinine validated quitting at 30 weeks of pregnancy, and there was no difference in quit rates between those visiting trained or untrained midwives.

In a quasi-experimental study of disseminating counselling programmes (Goldstein et al. 2003), the intervention used office practice consultants who
made 4-5 physician-centred visits to encourage adoption of an intervention based on a 4As (Ask, Advise, Assist and Arrange follow up) approach. They provided resources and training based on physicians' knowledge and skills. All physicians including those in the control group received a manual ‘How to Help Your Patients Stop Smoking’. Allocation was by geographical area, and data were gathered using random dialling to contact smokers who had had a physician visit, so data were also gathered on physicians who were not participating in the project. Control and experimental physicians were more likely to counsel smoking patients than those not participating (based on patients reports of abstinence at 12, 18 and 24 month follow-ups) (p = .008). Differences between control and intervention groups were small but close to statistical significance at 18 months for arranging a follow-up visit (p=0.06). Among those who reported receiving counselling (their physicians talked about smoking, advised them about smoking and arranged follow-up): 18% of those who talked about quitting smoking with a control physician reported they quit and, 30% of those who talked to an intervention physician reported quitting (p=0.00). Inferences from this study are limited because of the non-randomised design.

An Australian cluster randomised trial (Young et al. 2002) tested a multi-component intervention including audit, feedback and academic detailing to improve family physicians’ use of evidence-based cessation strategies. Based on patient report and chart audit it was successful only in promoting the use of nicotine replacement therapy. There were improvements in most outcomes in the control group too. Patients’ smoking behaviour was not assessed in this study.

In one US RCT (Ockene et al. 1994), an algorithm placed in patients' medical charts which instructed the physician in ten smoking intervention steps did not improve any cessation intervention components based on patient exit interviews. All doctors in the study had been trained in the use of the algorithm, and patient charts were labelled to prompt intervention.

The following six studies tested prompts or system level interventions to influence practice:
A US cluster randomised trial (Piper et al. 2003) tested an expanded vital signs form, which requested the physicians in the intervention group to record smoking status in all patients. More patients reported being asked about smoking after introduction of the stamp, compared with control clinics. However identified smokers were less likely to be advised to quit in the post-intervention than the pre-intervention period and there was no difference between intervention and control. There were also decreases in assistance (quit date and NRT) and scheduling follow-up visit for smoking cessation. There was no change in quit attempts or abstinence between pre and post intervention or between groups. Abstinence was independent of being asked about smoking, receiving advice to quit, being prescribed NRT or having follow-up appointment. This suggests that recording smoking status, whilst necessary, is not sufficient for ensuring delivery of appropriate intervention.

A US trial in 20 Veteran Affairs medical centres (Joseph et al. 2004) aimed to improve implementation of clinical practice guidelines by training clinics in the intervention group to improve identification of smoking status, promote primary care interventions and increase medication availability. Although documentation of smoking status increased, there was no significant increase in counselling, either judged from medical records or smoker report. The self-reported quit rate amongst baseline smokers followed after one year was 11.4% in the intervention clinics and 13.2% in the control sites (P=0.51, Pearson X2). There was relatively high use of treatment in both groups.

In a non randomised trial (Milch et al. 2004) a vital signs stamp (minimal intervention) and a combination of the stamp with a questionnaire assessing patient readiness to change, and including prompts to the provider (enhanced intervention), significantly increased documentation of smoking status (P <.001) and giving of advice (P=.014) over control. Self-reported patient smoking cessation was higher with the enhanced intervention (12%) compared with the minimal (2%) and control (4%) teams (P < 0.001).

In a randomised trial of providing physicians with ‘smoker’ stickers to label charts (Etter et al. 2000) there was no overall difference in the proportion of patients asked whether they smoked (p=0.12), the proportion of patients
advised to quit smoking (p=0.76), or the proportion of ready to quit smokers who were given support to quit (p=0.42) between intervention and control groups at baseline and follow-up. The 20% of intervention group physicians who did report using the stickers reported advising more smokers to quit after the intervention (89% vs 80%, p=0.02).

In a US study (Ahluwalia et al. 1999), periodic use of a form for recording vital signs that included smoking status, led to patients being significantly more likely to be asked by their physicians if they smoked cigarettes during the intervention compared with the control periods when smoking status was not recorded as part of the vital signs, 78.4% versus 45.6% (OR 4.28: 95% CI 3.58 - 5.10). Patients were also more likely to be told by their physician to quit, 39.9% versus 26.9% (OR 1.81; 95% CI 1.36 - 2.40), and have follow up arranged, 12.3% versus 6.2% (OR 2.16: 95% CI 1.30 - 3.38). The intervention did not increase the low rate at which specific advice was given, and smoking cessation was not measured.

A randomised trial in a US clinic (Roski et al. 2003) tested the effects of two organisational support processes: the provision of a financial incentive for superior performance, or the availability of a smoker registry combined with access to proactive telephone support for smoking cessation, on provider adherence to accepted practice guidelines and associated patient outcomes. The interventions increased the recording of tobacco use status but did not increase provision of advice and assistance for quitting. There was no difference in self reported quitting at 6 months, with rates around 20% in all three groups.

**Evidence Summary**

There is limited evidence about the effect of strategies to increase the likelihood of health professionals providing smoking cessation interventions. Most research has been conducted amongst primary care physicians. We did not find evidence specifically addressing reminder systems in hospital settings.
One review concluded that provider reminder systems combined with provider training are required for increasing quit rates amongst patients.

A second review concluded that training, with or without prompts, had a measurable effect on provider activity but that there was no strong evidence for an effect on smoking outcomes.

One more recent randomised trial demonstrated a significant effect on quit rates amongst patients of trained residents, who did not receive any specific reminders to intervene (Cornuz et al. 2000).

Of the two recent UK studies, one trial detected a benefit of a desktop resource for increasing GP reported rate of advice giving, and in overcoming the barrier that advice might harm the doctor-patient relationship (McEwen et al. 2002). In the other, a pilot pre-post study assessed the effect of paying GPs for patients who had quit smoking. There was no change in patient-reported advice giving and qualitative data suggested problems with the scheme (Coleman et al. 2001, Coleman et al. 2004).

Additional trial evidence did not support a clear effect of any training or reminder interventions. The trials described above are summarised here. A non randomised Danish study did not detect an effect of midwife training on cessation by pregnant women. This is consistent with evidence in section 3.1.14 that brief opportunistic interventions may be insufficient to enhance quit rates in this group (Wisborg et al. 1998). A US quasi-experimental study using consultants to provide individual training and resources for physicians had some effects on patients’ reports of receiving counselling and patient reported quitting (Goldstein et al. 2003). An Australian trial of audit, feedback and academic detailing increased the promotion of NRT but did not change use of other evidence-based strategies (Young et al. 2002). One trial amongst trained physicians given labelled charts detected no additional effect of an algorithm in patient notes on increasing intervention delivery (Ockene et al. 1994). A US trial of a vital signs stamp did not detect an increase in advice giving or on abstinence (Piper et al. 2003). A US trial of clinic level training to increase implementation of guidelines did not demonstrate an increase in
counselling or quitting (Joseph 2004). In a non random US trial a vital signs stamp did not change behaviour but using a questionnaire with provider prompts increased advice giving (Milch et al. 2004). A Swiss RCT providing physicians with ‘smoker’ stickers found they were rarely used and no overall increase in advice or support was detected (Etter et al. 2000). A US study of periodic use of a vital signs stamp showed an increase in patient reported advice to quit and arrangement of follow-up but no increase in specific advice (Ahluwalia et al. 1999). A US study tested a financial incentive, or a smoker registry and telephone support. The interventions did not increase provision of advice or assistance or self-reported quitting (Roski et al. 2003).

**Applicability/Implementability**

The results indicate that complex interventions involving both system level and individual components may be required to increase provision of effective interventions.

The available evidence supports a combination of training and reminder systems but no trial of these approaches has been conducted in the UK. The potential of training to significantly improve the effectiveness of brief opportunistic intervention is probably small. There is no direct evidence about the type and intensity of training that would be most effective. Section 12 has described some of the reasons why GPs do not intervene with patients. An effective educational intervention would need to address these barriers. The positive results of the training intervention for hospital residents described by Cornuz and co workers (2002) may be related to the approach they used. The two half days of training included role play and other interactive elements. This may have been more effective in overcoming barriers to advice giving than approaches used in earlier trials, but may not be practicable within the constraints of primary care.

There is evidence from a UK pilot study (McEwen et al. 2002) that a reminder/information resource may increase advice giving by GPs but no evidence yet on whether it can affect patient quit rates.
The results of US studies in health care settings where assessment of smoking status is undertaken by a staff member before contact with the main care provider are likely to be of limited applicability to UK primary care settings.

The contents of the optimal primary care advice in the UK have changed considerably with the establishment of specialist fully funded smoking cessation service. GPs and others no longer need to find the specialist skills and time to counsel dependent smokers. The best brief advice they can offer consists of raising the issue, stimulating interest in quitting, and referring smokers who need help to the treatment services. As this situation is relatively new, few studies have addressed appropriate new training strategies, but an objectively evaluated randomised trial has just been completed, yielding highly encouraging results (McRobbie, Hajek, Feder, unpublished 2005). This is reported in Section 4. This type of training is both applicable and implementable within the UK primary care.

There is little direct evidence about financial incentives. Since 2004, GPs have been paid for recording smoking status in the notes and giving cessation advice to some smokers. This, and the Quality Outcomes Framework means that the context for the delivery of smoking cessation interventions within the UK has changed. We cannot be sure how the introduction of the QOF will affect the effectiveness of other prompt systems that aim to increase the frequency with which GPs deliver brief interventions. An evaluation of the impact of including brief interventions in the General Medical Services and Pharmacy contracts is needed.

**Evidence statement**

A moderately sized body of evidence yields conflicting results on the efficacy of training interventions with or without reminder systems for clinicians on smoking cessation in patients. There is insufficient evidence to determine the effect of incentive payments to health care providers on either intervention delivery or smoking behaviour. This evidence preceded the development of specialist smoking treatment services in the UK.
3.12 Research question 14. What, if any, negative consequences arise from brief interventions?

As discussed in Question 12, a barrier to raising smoking cessation at all clinical encounters is that it might harm the doctor-patient relationship. Here we include evidence from a patient perspective. Although surveys indicate that most smokers expect doctors to raise the issue, and regard it as part of their role, there is limited evidence from qualitative studies that a small subset of patients may resent advice.

Butler et al. 1998 used qualitative analysis of interviews with 43 smokers and recent quitters who participated in a trial comparing two physician interventions. They identified the following themes: participants had already made their own evaluation about their smoking; they were sceptical about the power of doctors’ words to influence their smoking; most believed that quitting was down to the individual; they felt that doctors should be sensitive to the individual patient when talking about smoking. The authors grouped smokers in terms of their reactions to advice, and identified a ‘contrary’ group who were less convinced of the merits of quitting, smoked more in response to advice and anticipated ritualistic advice from doctors. Two participants reported that they had been deterred from visiting a doctor because they expected their health problem to be attributed to smoking.

McIntyre and Scott (2003) reported the results of focus group interviews with lower income (C2DE) smokers, both 45-65 year olds and younger women. The total number was not specified. All expressed some interest in giving up and had visited their GP within the last 12 months. In this group, no mention was made of people being deterred from seeing their doctor because of their smoking.

Two reviews noted the possibility that advice could be counterproductive for some smokers in some settings. Roseby et al. 2003, reviewing interventions aimed at families and carers of children, noted that in one study there was a non significant trend for parents in the intervention group to smoke more than those in the control. Lumley et al. 2004, reviewing interventions for pregnant
smokers, sought the views of women who smoked before or during pregnancy. They emphasised the potential adverse effects of smoking cessation programmes, ‘in particular, the consequent guilt, anxiety and additional stress experienced by those who continue to smoke, especially through ’high risk’ pregnancies, and the detrimental effect on their relationships with their family and maternity care providers’. Only one trial measured psychological status at baseline and end of pregnancy, with no difference found between groups. McClure 2004, reviewing the use of biomarker feedback for motivating cessation amongst pregnant smokers, noted the possibility that biomarkers that are not distressing among non pregnant populations, may be upsetting for pregnant women and may have longer term impact, such as distress and guilt after birth if complications that might be related to complications occur.

Evidence statement
A limited body of qualitative data suggests that some smokers may resent advice from doctors about smoking, some may be deterred from seeking care and some might even smoke more as a response to advice. Evidence that this can occur is derived from qualitative data, so the prevalence is unknown.

3.13 Research question 15. What is the impact on inequalities and health?

There were limited data to address this question.

If disadvantaged smokers are less likely to receive or benefit from brief interventions, then increases in their use could increase inequalities.

We identified four US studies that addressed whether smokers who reported receiving brief interventions differed from those who had not received advice. They are described here, although their generalisability, and applicability to UK practice is unclear.
In a US trial of an unsuccessful intervention to increase counselling (Ockene et al. 1994, see evidence table for 3.11), there were no patient characteristics related to disadvantaged status that predicted delivery of cessation components. Physicians intervened more frequently with more dependent smokers.

In a US study (Ossip-Klein et al. 2000) of smokers aged over 50 who had a physician visit in the previous year, 82% reported receiving advice to quit. No demographic variables predicted reported receipt of advice. Correlates of receiving advice included poorer health status and having had a hospital stay in previous 12 months. Histories of heart attack, hypertension, stroke, emphysema, asthma or chronic bronchitis all significantly increased likelihood of advice.

Patient recall versus physician documentation in report of smoking cessation counselling performed in the inpatient setting.

In a US study (Nicholson et al. 2000) of patient report and physician documentation of counselling, there was no significant correlation between either measure and educational status. No other baseline measures related to socieoeconomic status.

In a US prospective study (Pollak et al. 2002) nested in a randomised trial of mailed self-help materials, female smokers who had attended a cervical screening appointment were asked if they had been advised to quit; 47% reported receiving advice. Multivariate analyses showed women who reported that their physician discussed smoking with them were more likely to be; White (Risk Ratio 1.42, 95% CI 1.14 - 1.64), employed (RR 1.28, 95% CI 1.04 - 1.49,), married or practising safe sex (RR 1.3, 95% CI, 1.09 - 1.54) and more ready to quit smoking (RR 1.27 95% CI 1.08 - 1.44).

Summarising the above four studies, three did not report any differences in provision of advice that might be linked to inequalities. Only Pollak (2002) reported differential receipt of advice that could have been related to socioeconomic status.
If disadvantaged smokers have other characteristics that are linked to poorer outcomes from brief interventions, their use might increase inequalities. Having more friends and family who smoked was noted to be a predictor of difficulty quitting (Hebert et al. 1992*; Senore et al. 1998*). Smokers in disadvantaged groups where smoking prevalence is high are therefore likely to have more difficulty stopping. As discussed in Section 3.3 there is evidence indicating that brief interventions for smokers willing to make a quit attempt, especially if they do not include pharmacotherapy, are probably less effective for more dependent smokers, who may need more intensive support. There is also evidence that the level of nicotine dependence is higher in lower socio-economic groups (Jarvis et al. 2003). It is therefore possible that brief interventions will be more effective with smokers from higher socio-economic groups but more data on these issues are needed.

**Evidence statement**

There is insufficient evidence to determine whether brief interventions are more or less likely to be delivered to disadvantaged smokers or are more or less effective in this group, and therefore the impact on health inequalities is unknown.

### 4 SUMMARY OF FINDINGS - REFERRAL

One year after the initial implementation of smoking cessation services in Health Action Zones (HAZ), smoking cessation services started operating nationwide in April 2000 (McNeill et al. 2005). It has always been clear that one important aspect of the success of these services is accessibility (McEwen et al. 2005b). Smokers can either self-refer to the services, or be referred by health professionals. While the referral of smokers to the smoking cessation services by health professionals is therefore an important component of accessibility, there is very little research investigating health professionals’ referral behaviour per se and possible ways of altering it. The majority of studies that were identified provide only piecemeal and mostly indirect evidence regarding the questions below.
In terms of referral activity, a study looking at the short term outcomes of the smoking treatment services, which involved 9 PCTs in two disparate areas of England, estimated that around 53.5% of smokers attending cessation clinics are self-referred, 33% are referred by general practitioners and the remainder by other health professionals (Judge et al. 2005). Interestingly, four week biochemically validated quit rates were significantly higher among GP referred smokers (as opposed to self-referred). Similar findings were reported in an unpublished study looking at smoking cessation services in the Liverpool area (Owens, unpublished data). A significantly larger proportion of GP referred smokers (69% compared with 62%) were abstinent at 4 weeks follow-up. Similarly, an unpublished study of a specialist smoking cessation service in Glasgow (Bauld, unpublished data, 2005), found that 48% of smokers were self-referred and had a CO validated 4 week cessation rate of 40%, whereas 32% were GP referred and had a four week CO validated cessation rate of 48%. However, as both the Liverpool and Glasgow analyses did not enable controlling for possible confounding factors (such as dependency levels), these finding should be viewed with caution.

While a majority of GPs (74%) agree that they should refer patients to specialist services if appropriate, a substantial minority (19%) rejects this idea (McEwen et al. 2001). A questionnaire survey of randomly selected GPs (N=336) shows that up to 70% of GPs regularly referred patients to their local specialist smoking cessation service (McEwen et al. 2005b). Although this figure is relatively high, it should be noted that GPs are likely to overestimate their own referral behaviour as studies have shown a tendency among GPs to also overestimate the number of times they discuss smoking with their patients (eg Coleman and Wilson 2000). Moreover, considering the high cost-effectiveness of the NHS smoking treatment services, ideally this number should be closer to 100%. However, it is also possible that some GPs do not regularly refer patients to local services because of practice based services.

Following a request to Regional Stop Smoking Service Managers, which asked for relevant data on referrals, five responses were received. One
interesting finding was that stop smoking services in the Blackpool area noticed an increase in referrals after the introduction of new NRT products.

There is little evidence on the referral behaviour of other health professionals. A questionnaire and interview study looking at dentists’ activities found that of 149 dentists, only 24 % always or sometimes refer patients to specialist smoking cessation services (Watt et al. 2004). Further questioning of dental health professionals revealed that this low referral rate was due to a combination of factors, primarily relating to a lack of payment, time and resources, inadequate knowledge of the smoking cessation services and the view that smoking cessation was not a relevant activity in dentistry (see Question 12 for more details on barriers).

4.1 Research question 1. What factors – training, incentives – influence the number of referrals?

Evidence of efficacy

No systematic or non-systematic reviews were identified that addressed this issue directly. However, there is limited evidence from two studies (McRobbie, Hajek, Feder, unpublished 2005; Anderson 1995) suggesting a positive effect of training on referral rates.

Results

Only one England-based study could be found that tried to increase GP referral rates to smoking cessation clinics (McRobbie, Hajek, Feder, unpublished 2005). General practitioners working for three different primary care trusts in 55 practices in East London were provided with a 40 minute interactive powerpoint presentation covering reasons why dependent smokers need help, as well as background information on smoking cessation services. It also addressed likely barriers to the referral of smokers to such clinics. GPs in the intervention and control group were given referral forms, a free quit smoking telephone line number and monetary incentive for referrals. This intervention significantly increased referral rates among GPs and this difference remained until the end of the 3 month follow-up.
Another study, carried out before the introduction of national smoking cessation services, which was identified in a review of pharmacy-based interventions (Blenkinsopp et al. 2003) showed that training pharmacists increased the likelihood of them asking smokers key questions, using written information and referring them to doctors for smoking cessation support where appropriate (Anderson, 1995). However, this study was not investigating referrals to smoking cessation clinics and provides therefore only indirect support for the use of training in increasing referral rates to specialist services.

In contrast to the lack of studies attempting to increase referral rates, a large number of studies have investigated strategies to increase health professionals’ provision of quit-smoking advice (see section 3.11).

**Effect size**

No effect sizes were reported. McRobbie and co-workers report a mean referral rate of 6.44 referrals per three months per GP in the intervention group compared to 1.76 in the control group (z=-6.03, p<.001). (This represents an increase of 5.82 referrals per three month period per GP from baseline rates in the intervention group.) In the pharmacist study, significantly more trained pharmacists referred a covert researcher posing as diabetic to their GP for supervised smoking cessation than untrained pharmacists ($\chi^2=3.956$, df=1, p<.05).

**Applicability**

Both studies were carried out in the UK but only one addressed referral to smoking cessation services.

**Implementability**

Barriers to the implementation of this and other training are discussed in section 3.10. McRobbie and co-workers reported a decrease in referrals over the course of their study (3 months) indicating the need for reminders or follow-ups to be employed in similar one-off interventions. Although a number of reviews (eg Mojica et al. 2004; Sinclair et al. 2004) indicate that lack of remuneration is one of the main barriers to the provision of smoking cessation advice and particularly pertinent to referrals to smoking cessation clinics, it
should be noted that this may not always be the case. An American review of
Treating nicotine use in pregnant smokers reported that inclusion of financial
incentives and other payment scheme for health professionals does not
always lead to better and more compliant treatment (Melvin and Gaffney
2004).

Evidence statement
One randomised controlled study (level 1+ evidence) directly relevant to the
UK setting found that a short training session increased referrals to smoking
cessation services by GPs.

4.2 Research question 2. What impact, if any, does
the PCT have on referrals from primary care to the
services?

There is very little evidence regarding the impact that PCTs have on referrals.
As discussed in Question 13, training of GPs is largely successful, however, if
it is not done carefully, it may also have negative consequences. In a PCT in
South Tyneside both lack of communication between GPs and smoking
cessation services as well as overzealous referring by some health
professionals were found to increase the number of inappropriate referrals of
smokers to quit-smoking clinics considerably (Quinn et al. 2001). An
inappropriate referral was one where the patient appeared to be not suitably
motivated to quit and therefore never went to the clinic. While this problem
may be specific to this PCT, it may also happen in PCTs still adapting to the
new treatment services and related administrative issues and problems.

Comparison of GPs working in HAZs and non-HAZs suggests another
possible difference between referral rates of PCTs (McEwen et al. 2005b).
GPs who work in areas with more established smoking cessation services
(HAZs) were significantly more likely to report referring smokers to cessation
clinics, as well as being more aware of the specialist services available than
GPs working in areas where smoking cessation services were less
established or introduced later.
Evidence statement
There is insufficient evidence to determine how far PCT characteristics influence referrals to smoking cessation services.

4.3 Research question 3. What factors – mechanisms, role of referrer, type and/or location of service – influence the likelihood of a ‘patient’ following up the referral?

Some limited and circumstantial evidence addressing this question comes from qualitative studies carried out in the UK and abroad. Qualitative studies indicate that the doctor-patient relationship may be fundamental to the acceptance of advice on smoking (such as referrals to specialist clinics) (Cable et al. 1999). The more respected the health professional and the more patient centred the communication, the more likely it seems that the patient will follow the advice (Butler et al. 1998).

Evidence statement
There is insufficient evidence to determine how far patient, clinician and structural factors affect uptake of referrals by patients.

4.4 Research question 4. Does the method of promoting the specialist service (e.g. national advertising, referral from GPs and other health professionals, word of mouth) influence the number of referrals?

One unpublished study (Owens et al, 2005, unpublished data) concerning smoking cessation services in Liverpool found that over the 4 years of data collection, the proportion of GP referrals decreased from 46 % to 17 %. This represented a real decrease in referrals from 3136 to 1671 during that period. At the same time the proportion of self-referrals increased from 48 % to 74 %, doubling the number of self-referrals to 7272. There was an overall increase
of referrals from 6818 to 9827 over this time (between 2001 and 2005). The authors speculate that this increase was partially due to the facility for potential users to self-refer without waiting lists, thus taking advantage of the user’s motivated state. The removal of such barriers is thought to increase flexibility and accessibility to smoking cessation services and thereby reach (Miller et al. 2005). Owen and co-authors also suggest that this increase is a result of word-of-mouth promotion of the profile of the services in the community.

Evidence statement
There is insufficient evidence to determine the effectiveness of different methods of promoting the stop smoking services.
5 EVIDENCE TABLES  See separate document
APPENDIX 1 Included reviews and other studies


APPENDIX 2: Bibliography for sections 3 & 4

* indicates papers within included reviews


Katz DA, Muehlenbruch DR, Brown RL et al. (2004b) Effectiveness of implementing the agency for healthcare research and quality smoking


Muir J, Mant D, Jones L et al. (1994) Effectiveness of health checks conducted by nurses in primary care: Results of the OXCHECK study after one year. British Medical Journal 308(6924):308-12.*


Muir J, Mant D, Jones L et al. (1994) Effectiveness of health checks conducted by nurses in primary care: Results of the OXCHECK study after one year. British Medical Journal 308(6924):308-12.*


Orleans CT, Schoenbach VJ, Wagner EH et al. (1991) Self-help quit smoking interventions: effects of self-help materials, social support instructions, and


APPENDIX 3 Retrieved references covered within included reviews


Muir J, Mant D, Jones L et al. (1994) Effectiveness of health checks conducted by nurses in primary care: Results of the OXCHECK study after one year. British Medical Journal 308(6924):308-12.


APPENDIX 4 Retrieved and excluded references


Eden KB, Orleans CT, Mulrow CD et al. (2002) Clinician counseling to promote physical activity (Structured abstract). X:34.


Humerfelt S, Kvale G, Aaro LE et al. (1994) Success rates of smoking cessation after a doctor's postal advice to quit smoking in a randomized trial among men with asbestos exposure and reduced FEV1 from a population


Kinoshita T, Nakamura M, Chikamoto Y et al. (2002) [Identifying perceived needs among nurses in providing their patients with smoking cessation support in a Japanese hospital results from focus group interviews]. Nippon Koshu Eisei Zasshi 49(1):41-51.


Litt J. (2002) How to provide effective smoking cessation advice in less than a minute without offending the patient. Aust Fam Physician 31(12):1087-94.


Nakagawa M, Nakamura M, Masui S et al. (1999) [Development of a smoking cessation program during health checkups. Preliminary study to evaluate the usefulness of this program]. Nippon Koshu Eisei Zasshi 46(9):820-7.


Pisinger C, Vestbo J, Borch-Johnsen K et al. (2005) It is possible to help smokers in early motivational stages to quit. The Inter99 study. Preventive Medicine 40(3):278-84.


Röske K, Hannöver W, Kelbsch J et al. (2004) The readiness of women, after they have given birth to children, to participate in individualized counselling for
smoking cessation. Gesundheitswesen (Bundesverband der Arzte des Öffentlichen Gesundheitsdienstes (Germany)) 66(10):697-702.


Schofield PE, Hill DJ, Johnston CI et al. (1995) Do doctors stop giving quit-smoking advice when other programs are reaching their patients? Medical Care 33:161-9.


Sørensen LT, Jørgensen T. (2003) Short-term pre-operative smoking cessation intervention does not affect postoperative complications in


Thompson RL, Summerbell CD, Hooper L et al. (2003) Dietary advice given by a dietitian versus other health professional or self-help resources to reduce blood cholesterol. Thompson RL, Summerbell CD, Hooper L, Higgins JPT, Little PS, Talbot D, Ebrahim S.Dietary advice given by a dietitian versus other
health professional or self help resources to reduce blood cholesterol. The Cochrane Database of Systematic Reviews: Review(3).


APPENDIX 5 Search strategies

REVIEWS

Primary set:

MEDLINE

SilverPlatter MEDLINE(R) 2000 - August Week 2 2005/08 (228 records)

((PT:MEDS = CLINICAL-TRIAL) or (PT:MEDS = CONTROLLED-CLINICAL-TRIAL) or (PT:MEDS = EVALUATION-STUDIES) or (PT:MEDS = META-ANALYSIS) or (PT:MEDS = RANDOMIZED-CONTROLLED-TRIAL) or (PT:MEDS = REVIEW) or (clinic* adj trial*) or ("Random-Allocation" / WITHOUT SUBHEADINGS in MIME,MJME) or ("Randomized-Controlled-Trials" / all SUBHEADINGS in MIME,MJME) or (explode "Clinical-Trials" / all SUBHEADINGS in MIME,MJME)) and ( (((chewing tobacco) or (pipe adj smok*) or cigar* or bidi* or kretek or paan or gutka or snuff or snus or betel) or ("Tobacco-Use-Disorder" / all SUBHEADINGS in MIME,MJME) or ("Tobacco-Smokeless" / all SUBHEADINGS in MIME,MJME) or ("Smoking-" / prevention-and-control,therapy in MIME,MJME))) and (quit* or stop* or giv* or ceas* or cessation or withdrawal)) or ((smoking cessation) or ("Smoking-Cessation" / all SUBHEADINGS in MIME,MJME) and (minimal near intervention) or (counsel?ing) or (minimal or minimum or low) near (intervention or intensity)) or (low-intensity) or (advice) or motivational or opportunistic or self-help or self help)) and (LA:MEDS = ENGLISH) and ((PT:MEDS = META-ANALYSIS) or (PT:MEDS = REVIEW)) and (PY:MEDS = 2000-2005)(228 records)

Cochrane Database of Systematic Reviews (26 records ) & DARE (24 records)

#1 MeSH descriptor Smoking Cessation explode all trees in MeSH products
#2 MeSH descriptor Tobacco Use Cessation explode all trees in MeSH products
#3 smoking cessation in All Fields in all products
#4 (chewing tobacco) or (pipe adj smok*) or cigar* or bidi* or kretek or paan or gutka or snuff or snus or betel in All Fields in all products
#5 MeSH descriptor Tobacco Use Disorder explode all trees in MeSH products
#6 MeSH descriptor Tobacco, Smokeless explode all trees in MeSH products
#7 MeSH descriptor Smoking, this term only with qualifiers: TH,PC in MeSH products
#8 (quit* or stop* or giv* or ceas* or cessation or withdrawal) in Record Title or (quit* or stop* or giv* or ceas* or cessation or withdrawal) in Abstract in all products
#9 (#4 OR #5 OR #6 OR #7)
#10 (#8 AND #9)
#11 (#1 OR #2 OR #3 OR #10)
#12 (brief near intervention*) or (counsel*ing) or ((minimal or minimum or low) near (intervention* or intensity)) or (low-intensity) or (advice) or motivational or opportunistic or self-help or (self next help) in All Fields in all products
#13 (#11 AND #12), from 2000 to 2005

Secondary set:

**ASSIA (7 hits)**

(((smoking cessation) or ((DE=("smoking" or "heavy smoking" or "moderate smoking" or "occasional smoking" or "passive smoking" or "tobacco smoke"))
and (DE="cessation")) or (chewing tobacco or pipe smok* or cigar* or bidi* or kretek or paan or gutka or snuff or snus or betel) or (DE="tobacco" or "tobacco products")) or ((DE=("smoking" or "heavy smoking" or "moderate smoking" or "occasional smoking" or "passive smoking" or "tobacco smoke"))
and (quit* or stop* or giv* or ceas* or cessation or withdrawal))) and ((brief near intervention) or counsel?ing or ((minimal or low or minimum) near (intensity or intervention)) or low-intensity or advice or motivational or opportunistic or self-help or self help)) and (meta-anal* or meta anal*or review*)

**British Nursing Index**

1. SEARCH: SMOKING ADJ CESSATION
2. SEARCH: CHEWING ADJ TOBACCO
3. SEARCH: PIPE ADJ SMOK$
4. SEARCH: CIGAR$
5. SEARCH: BIDI$
6. SEARCH: KRETEK
7. SEARCH: PAAN
8. SEARCH: GUTKA
Cinahl – 2005/07 (88 records)

(((motivational in ti,ab) or (advice in ti,ab) or (low-intensity in ti,ab) or (((minimal or low or minimum) near (intervention or intensity)) in ti,ab) or (counsel?ing in ti,ab) or ((brief near intervention) in ti,ab) or (opportunistic in ti,ab) or ((self help or self-help) in ti,ab)) and (((chewing adj tobacco) or (pipe adj smok*) or cigar* or bidi* or kretek or paan or gutka or snuff or snus or betel) in ti,ab) or ("Smoking-Cessation-Programs" / all TOPICAL SUBHEADINGS / all AGE SUBHEADINGS in DE) or ("Smoking-Cessation" / all TOPICAL SUBHEADINGS / all AGE SUBHEADINGS in DE) or ((smoking cessation) in ti,ab) or ("Smoking-" / prevention-and-control ,therapy / all AGE SUBHEADINGS in DE) and ((quit* or stop* or giv* or ceas* or cessation or withdrawal) in ti,ab))) and (((REVIEW in DT) or (SYSTEMATIC-REVIEW in DT)) or ("Systematic-Review" / all TOPICAL SUBHEADINGS / all AGE SUBHEADINGS in DE))
Embase – 2005/08 (387 records)

(((opportunistic) or (motivational) or (advice) or (low-intensity) or (brief near intervention*) or ((minimal or low or minimum) near (intervention* or intensity)) or (counsel?ing) or self-help or self help) and (((quit* or stop* or giv* or ceas* or cessation or withdrawal) and ("smoking-*" / all SUBHEADINGS in DEM,DER,DRM,DRR)) or ("tobacco-dependence" / all SUBHEADINGS in DEM,DER,DRM,DRR) or ("smokeless-tobacco" / all SUBHEADINGS in DEM,DER,DRM,DRR) or ("counsel?ing" or self-help or self help) and (((quit* or stop* or giv* or ceas* or cessation or withdrawal) and ("smoking-*" / all SUBHEADINGS in DEM,DER,DRM,DRR)) or ("tobacco-dependence" / all SUBHEADINGS in DEM,DER,DRM,DRR) or ("smokeless-tobacco" / all SUBHEADINGS in DEM,DER,DRM,DRR) or ((kretek) or (bidi*) or (cigar*) or (pipe adj smok*) or (chewing tobacco) or (betel) or (snus) or (snuff) or (gutka) or (paan)) or ("smoking-cessation" / all SUBHEADINGS in DEM,DER,DRM,DRR) or (smoking cessation)))) or (((opportunistic) or (motivational) or (advice) or (low-intensity) or (brief near intervention*) or ((minimal or low or minimum) near (intervention* or intensity)) or (counsel?ing) or self-help or self help) and (((quit* or stop* or giv* or ceas* or cessation or withdrawal) and ("smoking-*" / all SUBHEADINGS in DEM,DER,DRM,DRR)) or ("tobacco-dependence" / all SUBHEADINGS in DEM,DER,DRM,DRR) or ("smokeless-tobacco" / all SUBHEADINGS in DEM,DER,DRM,DRR) or ("counsel?ing" or self-help or self help) and (((quit* or stop* or giv* or ceas* or cessation or withdrawal) and ("smoking-*" / all SUBHEADINGS in DEM,DER,DRM,DRR)) or ("tobacco-dependence" / all SUBHEADINGS in DEM,DER,DRM,DRR) or ("smokeless-tobacco" / all SUBHEADINGS in DEM,DER,DRM,DRR) or ((kretek) or (bidi*) or (cigar*) or (pipe adj smok*) or (chewing tobacco) or (betel) or (snus) or (snuff) or (gutka) or (paan)) or ("smoking-cessation" / all SUBHEADINGS in DEM,DER,DRM,DRR) or (smoking cessation)))) and (explode "meta-analysis" / all SUBHEADINGS in DEM,DER,DRM,DRR) or (systematic review* or meta anal* or meta-anal*) or (review-* / all SUBHEADINGS in DEM,DER,DRM,DRR))

PsycINFO – 2005/08 week 1 (62 records)

("Brief-Psychotherapy" in MJ,MN) or ((brief near intervention*) or counsel?ing or (minimal or low or minimum) near (intervention or intensity)) or low-intensity or advice or motivational or opportunistic) or self help or self-help) and ("Smokeless-Tobacco" in MJ,MN) or (chewing tobacco or (pipe adj smok*) or cigar* or bidi* or kretek or gutka or snuff or snus or betel) or ("Smoking-Cessation" in MJ,MN) or (smoking cessation) or ("Tobacco-Smoking" in MJ,MN) and (quit* or stop* or giv* or ceas* or cessation or withdrawal)))) and (review* or meta-anal* or meta-anal*) or (REVIEW in DT)
or ("Meta-Analysis" in MJ,MN) or ("Literature-Review" in MJ,MN)) and (LA:PSYI = ENGLISH) and (PY:PSYI = 2000-2005)

*Sociological Abstracts* (no records)

(((smoking cessation) or ((DE="smoking") and (quit* or stop* or giv* or ceas* or cessation or withdrawal))) and ((brief near intervention*) or counsel?ing or ((minimal or low or minimum) near (intensity or intervention)) or low-intensity or advice or motivational or opportunistic or self-help or self help)) and (review* or meta-anal* or meta anal*)

**TRIALS**

Primary set

**MEDLINE – 2005 Aug week 2 (690 records)**

((PT:MEDS = CLINICAL-TRIAL) or (PT:MEDS = CONTROLLED-CLINICAL-TRIAL) or (PT:MEDS = EVALUATION-STUDIES) or (PT:MEDS = RANDOMIZED-CONTROLLED-TRIAL) or (clinic* adj trial*) or ("Random-Allocation" / WITHOUT SUBHEADINGS in MIME,MJME) or ("Randomized-Controlled-Trials" / all SUBHEADINGS in MIME,MJME)) or (explode "Clinical-Trials" / all SUBHEADINGS in MIME,MJME)) and ((((((chewing tobacco) or (pipe adj smok*) or cigar* or bidi* or kretek or paan or gutka or snuff or snus or betel) or ("Tobacco-Use-Disorder" / all SUBHEADINGS in MIME,MJME) or ("Tobacco-Smokeless" / all SUBHEADINGS in MIME,MJME) or ("Smoking-" / prevention-and-control,therapy in MIME,MJME))) and (quit* or stop* or giv* or ceas* or cessation or withdrawal)) or ((smoking cessation) or ("Smoking-Cessation" / all SUBHEADINGS in MIME,MJME) or ("Tobacco-Use-Cessation" / all SUBHEADINGS in MIME,MJME))) and ((brief near intervention) or (counsel?ing) or ((minimal or minimum or low) near (intervention or intensity)) or (low-intensity) or (advice) or motivational or opportunistic or self-help or self help)) and (LA:MEDS = ENGLISH) and (PY:MEDS = 1985-2005)

Cochrane Controlled Trials Register (CENTRAL) (674 records)

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#2 MeSH descriptor Tobacco Use Cessation explode all trees in MeSH products

#3 smoking cessation in All Fields in all products

#4 (chewing tobacco) or (pipe adj smok*) or cigar* or bidi* or kretek or paan or gutka or snuff or snus or betel in All Fields in all products

#5 MeSH descriptor Tobacco Use Disorder explode all trees in MeSH products

#6 MeSH descriptor Tobacco, Smokeless explode all trees in MeSH products

#7 MeSH descriptor Smoking, this term only with qualifiers: TH, PC in MeSH products

#8 (quit* or stop* or giv* or ceas* or cessation or withdrawal) in All Fields in all products

#9 (#4 OR #5 OR #6 OR #7)

#10 (#8 AND #9)

#11 (#1 OR #2 OR #3 OR #10)

#12 (brief near intervention*) or (counsel*ing) or ((minimal or minimum or low) near (intervention* or intensity)) or (low-intensity) or (advice) or motivational or opportunistic or self-help or (self next help) in All Fields in all products

#13 (#11 AND #12), from 2000 to 2005

Cochrane Tobacco Addiction group Specialised Register (Reference Manager Database) (514 records after limiting by date and excluding non English papers)

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Secondary set:

**ASSIA – via CSA, 16/9/05 (71 records)**

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"passive smoking" or "tobacco smoke") and (quit* or stop* or giv* or ceas* or cessation or withdrawal)) and ((brief near intervention) or counsel?ing or ((minimum or minimal or low) near (intensity or intervention)) or low-intensity or advice or motivational or opportunistic or self-help or self help)) and ((clinical trial* or control* trial* or rct* or random*) or (DE="clinical trials") or (DE="randomized controlled trials" or "clinical randomized controlled trials" or "cluster randomized controlled trials" or "double blind randomized controlled trials" or "randomized consent design" or "single blind randomized controlled trials" or "urn randomization" or "randomization" or "unequal randomization"))

**British Nursing Index**

1. SEARCH: SMOKING ADJ CESSATION
2. SEARCH: CHEWING ADJ TOBACCO
3. SEARCH: PIPE ADJ SMOK$  
4. SEARCH: CIGAR$6  
5. SEARCH: BIDI$  
6. SEARCH: KRETEK  
7. SEARCH: PAAN  
8. SEARCH: GUTKA  
9. SEARCH: SNUFF  
10. SEARCH: SNUS  
11. SEARCH: BETEL  
12. SEARCH: 1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11  
13. SEARCH: SMOK$  
14. SEARCH: SMOKING#.W..DE.  
15. SEARCH: 13 OR 14  
16. SEARCH: QUIT$ OR STOP$ OR GIV$ OR CEAS$ OR CESSATION OR WITHDRAWAL  
17. SEARCH: 15 AND 16  
18. SEARCH: 12 OR 17  
19. SEARCH: BRIEF NEAR INTERVENTION  
20. SEARCH: COUNSEL$4  
21. SEARCH: (MINIMAL OR LOW OR MINIMUM) NEAR (INTERVENTION OR INTENSITY)  
22. SEARCH: LOW-INTENSITY  
23. SEARCH: ADVICE  
24. SEARCH: MOTIVATIONAL  
25. SEARCH: OPPORTUNISTIC  
26. SEARCH: SELF-HELP OR SELF ADJ HELP  
27. SEARCH: 19 OR 20 OR 21 OR 22 OR 23 OR 24 OR 25 OR 26  
28. SEARCH: 18 AND 27  
29. SEARCH: TRIAL$ OR RCT$ OR RANDOM$
**Embase -2005/08 (917 records)**

#19 (((opportunistic or (motivational) or (advice) or (low-intensity) or (brief near intervention*) or ((minimal or low or minimum) near (intervention* or intensity)) or (counsel?ing or self-help or self help) and (((quit* or stop* or giv* or ceas* or cessation or withdrawal) and ("smoking-" / all SUBHEADINGS in DEM,DER,DRM,DRR)) or ("tobacco-dependence" / all SUBHEADINGS in DEM,DER,DRM,DRR) or ("smokeless-tobacco" / all SUBHEADINGS in DEM,DER,DRM,DRR) or ((kretek) or (bidi*) or (cigar*) or (pipe adj smok*) or (chewing tobacco) or (betel) or (snus) or (snuff) or (gutka) or (paan)) or ("smoking-cessation" / all SUBHEADINGS in DEM,DER,DRM,DRR) or (smoking cessation))) and ((explode "clinical-trial" / all SUBHEADINGS in DEM,DER,DRM,DRR) or (clinical trial* or control trial* or random* or rct*)) or ("randomization-" / all SUBHEADINGS in DEM,DER,DRM,DRR))

**Cinahl –2005/07 (281 records)**

#18 (((motivational in ti,ab) or (advice in ti,ab) or (low-intensity in ti,ab) or ((minimal or low or minimum) near (intervention or intensity)) in ti,ab) or (counsel?ing in ti,ab) or ((brief near intervention) in ti,ab) or (opportunistic in ti,ab) or ((self help or self-help) in ti,ab)) and (((chewing adj tobacco) or (pipe adj smok*) or cigar* or bidi* or kretek or paan or gutka or snuff or snus or betel) in ti,ab) or ("Smoking-Cessation-Programs" / all TOPICAL SUBHEADINGS / all AGE SUBHEADINGS in DE) or ("Smoking-Cessation" / all TOPICAL SUBHEADINGS / all AGE SUBHEADINGS in DE) or ((smoking cessation) in ti,ab) or ("Smoking-" / prevention-and-control,therapy / all AGE SUBHEADINGS in DE) and ((quit* or stop* or giv* or ceas* or cessation or withdrawal) in ti,ab))) and ("Random-Assignment" / all TOPICAL SUBHEADINGS / all AGE SUBHEADINGS in DE) or ((rct* or random* or (clinical adj trial*) or (control* adj trial*)) in ti,ab) or (CLINICAL-TRIAL in DT) or (explode "Clinical-Trials" / all TOPICAL SUBHEADINGS / all AGE SUBHEADINGS in DE))(281 records)
**PsycINFO –2005/07 (269 records)**

((("Brief-Psychotherapy" in MJ,MN) or ((brief near intervention*) or counsel?ing or ((minimal or low or minimum) near (intervention or intensity))) or low-intensity or advice or motivational or opportunistic) or self help or self-help) and ("Smokeless-Tobacco" in MJ,MN) or (chewing tobacco or (pipe adj smok*) or cigar* or bidi* or kretek or gutka or snuff or snus or betel) or ("Smoking-Cessation" in MJ,MN) or (smoking cessation) or ("Tobacco-Smoking" in MJ,MN) and (quit* or stop* or giv* or ceas* or cessation or withdrawal)) and ("Random-Sampling" in MJ,MN) or ("Clinical-Trials" in MJ,MN) or (clinical trial* or control* trial or random* or rct*) or (clinical trial* or control* trial or random* or rct*) or ("Random-Sampling" in MJ,MN) or ("Clinical-Trials" in MJ,MN))

**Sociological Abstracts – searched 16/9/05 (9 records)**

(((smoking cessation) or ((DE="smoking") and (quit* or stop* or giv* or ceas* or cessation or withdrawal))) and ((brief near intervention*) or counsel?ing or (minimal or low or minimum) near (intensity or intervention)) or low-intensity or advice or motivational or opportunistic or self-help or self help)) and (clinical trial* or control trial* or rct* or random*)

**BARRIERS**

**MEDLINE**

(((smoking cessation) or ("Smoking-Cessation" / all SUBHEADINGS in MIME,MJME) or ("Tobacco-Use-Cessation" / all SUBHEADINGS in MIME,MJME)) or ((quit* or stop* or giv* or ceas* or cessation or withdrawal) and ((chewing tobacco) or (pipe adj smok*) or cigar* or bidi* or kretek or paan or gutka or snuff or snus or betel) or ("Tobacco-Use-Disorder" / all SUBHEADINGS in MIME,MJME)) or ("Tobacco-Smokeless" / all SUBHEADINGS in MIME,MJME) or ("Tobacco-Smokeless" / all SUBHEADINGS in MIME,MJME) or ("Smoking-* / prevention-and-control,therapy in MIME,MJME))) and ((("Prenatal-Care" / all SUBHEADINGS in MIME,MJME) and (LA:MEDS = ENGLISH) and (PY:MEDS = 1985-2005)) or ("Health-Plan-Implementation" / all SUBHEADINGS in MIME,MJME) and (LA:MEDS = ENGLISH) and (PY:MEDS = 1985-2005)) or ("Patient-Acceptance-of-Health-Care" / all SUBHEADINGS in MIME,MJME) and (LA:MEDS = ENGLISH) and (PY:MEDS = 1985-2005)) or ("Delivery-of-Health-Care" / all SUBHEADINGS in MIME,MJME) and (LA:MEDS = ENGLISH) and (PY:MEDS = 1985-2005)) or ("barrier* or implement*")) and ((brief near intervention) or (counsel?ing) or ((minimal or minimum) near (intensity or intensity)) or (low-intensity) or (advice) or motivational or opportunistic)(391 records)
REFERRALS

MEDLINE

#18 ((("Referral-and-Consultation" / all SUBHEADINGS in MIME,MJME) or (refer or referral)) and ((("Tobacco-Use-Cessation" / all SUBHEADINGS in MIME,MJME) or (explode "Smoking-Cessation" / all SUBHEADINGS in MIME,MJME) or (smoking cessation) or ((quit* or stop* or giv* or ceas* or cessation or withdrawal) and ("Smoking-" / prevention-and-control ,therapy in MIME,MJME)) or ("Tobacco-Use-Disorder" / all SUBHEADINGS in MIME,MJME) or ("Tobacco-Smokeless" / all SUBHEADINGS in MIME,MJME) or (chewing tobacco or (pipe adj smok*) or cigar* or bidi* or krettek or paan or gutka or snuff or snus or betel))) and (((uk or united kingdom or gb or great britain or wales or scotland or northern ireland) in AD) or (explode "Great-Britain" / all SUBHEADINGS in MIME,MJME))(49 records)

PsycINFO

#9 (((uk or united kingdom or gb or great britain or wales or scotland or northern ireland or ulster) in AF) and (((explode "Professional-Referral" in MJ,MN) or (explode "Self-Referral" in MJ,MN)) or (refer or referral)) and ((("Brief-Psychotherapy" in MJ,MN) or (brief near intervention*) or counsel*?ing or ((minimal or low or minimum) near (intervention or intensity)) or low-intensity or advice or motivational or opportunistic or self help or self-help) and ("Smokeless-Tobacco" in MJ,MN) or (chewing tobacco or (pipe adj smok*) or cigar* or bidi* or krettek or gutka or snuff or snus or betel) or ("Smoking-Cessation-Programs" / all TOPICAL SUBHEADINGS / all AGE SUBHEADINGS in DE) or ("Smoking-Cessation" / all TOPICAL SUBHEADINGS / all AGE SUBHEADINGS in DE) or ((smoking cessation) in ti,ab) or ("Smoking-" / prevention-and-control ,therapy in all AGE SUBHEADINGS in DE) and ((quit* or stop* or giv* or ceas* or cessation or withdrawal) in ti,ab)))))(2 records)

CINAHL

((explode "United-Kingdom" / all TOPICAL SUBHEADINGS / all AGE SUBHEADINGS in DE) or ((uk or united kingdom or gb or great britain or england or wales or scotland or northern ireland or ulster) in AA)) and (((minimal in ti,ab) or (advice in ti,ab) or (low-intensity in ti,ab) or ((minimal or low or minimum) near (intervention or intensity)) in ti,ab) or (counsel?ing in ti,ab) or ((brief near intervention) in ti,ab) or (opportunistic in ti,ab) or (self help or self-help) in ti,ab)) and (((chewing adj tobacco) or (pipe adj smok*) or cigar* or bidi* or krettek or paan or gutka or snuff or snus or betel) in ti,ab) or ("Smoking-Cessation-Programs" / all TOPICAL SUBHEADINGS / all AGE SUBHEADINGS in DE) or ("Smoking-Cessation" / all TOPICAL SUBHEADINGS / all AGE SUBHEADINGS in DE) or ((smoking cessation) in ti,ab) or ("Smoking-" / prevention-and-control ,therapy in all AGE SUBHEADINGS in DE) and ((quit* or stop* or giv* or ceas* or cessation or withdrawal) in ti,ab)))) and (explode "Referral-and-Consultation" / all TOPICAL SUBHEADINGS / all AGE SUBHEADINGS in DE) or (refer or referral) in ti,ab)))(7 records)
EMBASE

#20 ((explode "United-Kingdom" / all SUBHEADINGS in DEM,DER,DRM,DRR) or ((uk or united kingdom or great britain or gb or wales or england or scotland or northern ireland or ulster) in AD)) and (((opportunistic) or (motivational) or (advice) or (low-intensity) or (brief near intervention*) or ((minimal or low or minimum) near (intervention* or intensity)) or (counseling) or self-help or self-help) and (((quit* or stop* or giv* or ceas* or cessation or withdrawal) and ("smoking-" / all SUBHEADINGS in DEM,DER,DRM,DRR)) or ("tobacco-dependence" / all SUBHEADINGS in DEM,DER,DRM,DRR) or ("smokeless-tobacco" / all SUBHEADINGS in DEM,DER,DRM,DRR) or ("kretek" or (bidi*) or (cigar*) or (pipe adj smok*) or (chewing tobacco) or (betel) or (snus) or (snuff) or (gutka) or (paan)) or ("smoking-cessation" / all SUBHEADINGS in DEM,DER,DRM,DRR) or (smoking cessation))) and ((explode "patient-referral" / all SUBHEADINGS in DEM,DER,DRM,DRR) or (refer or refers or referral))(13 records)
APPENDIX 6 Classification of references

(A/a indicates probable review, C/c probable trial, B/b, other study design

* Paper will be assessed by second reviewer to determine whether the intervention is brief preferably on basis of abstract alone, or, if that’s not possible, the complete paper will be obtained to decide
What does paper provide data on?

- Info on subgroups/special populations?
  - Include Code A1, B1 or

- Info on barriers to intervention delivery?
  - Include Code A2, B2 or

- Info on referrals?
  - Include Code A3, B3 or

- Info on incentives for Health Professionals to
  - Include Code A4, B4 or

- Info on inequalities and health?
  - Include Code A5, B5 or

- Info on negative consequences of BI
  - Include Code A6, B6 or

More than one of the above
  - Include Code A7, B7 or

Info on other relevant issue
  - Include Code A8, B8 or
APPENDIX 7 Summary of Search Results

Search Results for Reviews

MEDLINE (WebSpirs 2000-2005 Aug week 2) 228

Cochrane Database of Systematic Reviews (CL 2005, 3) 26

Total after deduplication 236

Excluded on basis of title/abstract 176

Full papers obtained and checked 60

Excluded on basis of full paper 31

Included in review 29

Reviews from other sources 9

Total reviews 38

1 Not review, systematic or concerned with brief interventions or smoking cessation
2 Including trial & barriers searches, original NICE search, very recent publications
Search Results for Trials

MEDLINE (WebSpirs 1986-2005 Aug week 2) 690
Tobacco Addiction Register 15/08/05 514
Cochrane CENTRAL CL 2005, 3 674

Total after deduplication 865
Excluded on basis of title/abstract 551
Probable or possible relevance 314
Excluded on basis of full paper/ additional information 99
Already covered by an included review 184
Contribute individual data to review 31

1 Foreign language papers excluded at this stage
2 Not trial, or concerned with brief interventions, smoking cessation or relevant in any other way
3 Includes controlled trials and other evaluations if potentially relevant to qualitative questions, and trials covered by reviews included above, whether or not clearly classifiable as brief interventions
4 Full paper or from additional study details recorded in Cochrane trials register
5 Includes primary and secondary reports