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Physician advice for smoking cessation

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ABSTRACT

Background

Healthcare professionals frequently advise patients to improve their health by stopping smoking. Such advice may be brief, or part of more intensive interventions.

Objectives

The aims of this review were to assess the effectiveness of advice from physicians in promoting smoking cessation; to compare minimal interventions by physicians with more intensive interventions; to assess the effectiveness of various aids to advice in promoting smoking cessation, and to determine the effect of anti-smoking advice on disease-specific and all-cause mortality.

Search strategy

We searched the Cochrane Tobacco Addiction Group trials register. Date of the most recent search: September 2007.

Selection criteria

Randomized trials of smoking cessation advice from a medical practitioner in which abstinence was assessed at least six months after advice was first provided.

Data collection and analysis

We extracted data in duplicate on the setting in which advice was given, type of advice given (minimal or intensive), and whether aids to advice were used, the outcome measures, method of randomization and completeness of follow up.

The main outcome measure was abstinence from smoking after at least six months follow up. We also considered the effect of advice on mortality where long-term follow-up data were available. Subjects lost to follow up were counted as smokers. Effects were expressed as relative risks. Where possible, meta-analysis was performed using a Mantel-Haenszel fixed effect model.

Main results

We identified 41 trials, conducted between 1972 and 2007, including over 31,000 smokers. In some trials, subjects were at risk of specified diseases (chest disease, diabetes, ischaemic heart disease), but most were from unselected populations. The most common setting for delivery of advice was primary care. Other settings included hospital wards and outpatient clinics, and industrial clinics.
Pooled data from 17 trials of brief advice versus no advice (or usual care) detected a significant increase in the rate of quitting (relative risk (RR) 1.66, 95% confidence interval (CI) 1.42 to 1.94). Amongst 11 trials where the intervention was judged to be more intensive the estimated effect was higher (RR 1.84, 95% CI 1.60 to 2.13) but there was no statistical difference between the intensive and minimal subgroups. Direct comparison of intensive versus minimal advice showed a small advantage of intensive advice (RR 1.37, 95% CI 1.20 to 1.56). Direct comparison also suggested a small benefit of follow-up visits. Only one study determined the effect of smoking advice on mortality. This study found no statistically significant differences in death rates at 20 years follow up.

Authors’ conclusions
Simple advice has a small effect on cessation rates. Assuming an unassisted quit rate of 2 to 3%, a brief advice intervention can increase quitting by a further 1 to 3%. Additional components appear to have only a small effect, though there is a small additional benefit of more intensive interventions compared to very brief interventions.

Plain Language Summary
Does advice from doctors encourage people who smoke to quit
Advice from doctors helps people who smoke to quit. Even when doctors provide brief simple advice about quitting smoking this increases the likelihood that someone who smokes will successfully quit and remain a nonsmoker 12 months later. More intensive advice may result in slightly higher rates of quitting. Providing follow-up support after offering the advice may increase the quit rates slightly.

Background
The role of healthcare professionals in smoking cessation has been the subject of considerable debate (Chapman 1993). During the late 1980s there was evidence from some randomized trials to suggest that advice from motivated physicians to their smoking patients could be effective in facilitating smoking cessation (Kottke 1988). However, concern was expressed about the low detection rate of smokers by many physicians and the small proportion of smokers who routinely receive advice from their physicians to quit (Dickinson 1989).

From a public health perspective, even if the effectiveness of facilitating smoking cessation by physicians is small, provided large numbers of physicians offer advice the net effect on reducing smoking rates could still be substantial (Chapman 1993). Since that time, there have been numerous attempts to encourage physicians to routinely identify all people who smoke and to provide smoking cessation advice (Fiore 1996; Fiore 2000; Raw 1998; Taylor 1994; West 2000).

The first systematic review on this topic was published two decades ago (Kottke 1988). Since then a number of further studies have examined the effectiveness of medical practitioners in facilitating smoking cessation. Much of this research has occurred amidst a culture in which medical practitioners are playing an increasing role in health education and health promotion, and have an increasing array of options to assist people who want to quit. Doctors now have access to pharmacotherapies that have been shown to increase the chances of success for people making quit attempts, including nicotine replacement therapy (Stead 2008), bupropion (Hughes 2007) and varenicline (Cahill 2007). In some healthcare settings they can also refer patients to more intensive behavioural counselling and support, either face-to-face (Lancaster 2005a; Stead 2006) or via telephone quitline services (Stead 2006).

Objectives
The primary objective of the review was to determine the effectiveness of advice from medical practitioners in promoting smoking cessation. A secondary objective (added in 1996) was to determine the effectiveness of advice from medical practitioners on reducing smoking-related mortality and morbidity. Our a priori hypotheses were:

- advice from a medical practitioner to stop smoking is more effective than not giving advice.
- the effectiveness of advice from a medical practitioner is greater if the advice is more intensive and includes follow up.
• the supplementation of advice with aids such as self-help manuals is more effective than advice alone.

• motivational advice is more effective than simple advice (added in 2001 update).

The review does not address the incremental effects of adding nicotine replacement therapy or other pharmacotherapies to advice, as these interventions are addressed in separate Cochrane reviews (Cahill 2007; Hughes 2007; Stead 2008). From 2008 it does not address the incremental effect of demonstrating the pathophysiological effect of smoking (e.g. spirometry, expired carbon monoxide), which is covered by a separate Cochrane review (Bize 2005).

METHODOLOGY

METHODS

Criteria for considering studies for this review

Types of studies
Randomized controlled trials. Trials where allocation to treatment was by a quasi-randomized method were also included, but appropriate sensitivity analysis was used to determine whether their inclusion altered the results. Studies which used historical controls were excluded.

Types of participants
Participants could be smokers of either gender recruited in any setting, the only exception being trials which only recruited pregnant women. These were excluded since they are reviewed elsewhere (Lumley 2004).

Types of interventions
We included trials if they compared physician advice to stop smoking versus no advice (or usual care), or compared differing levels of physician advice to stop smoking. We defined advice 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. We excluded studies in which patients were randomized to receive advice versus advice plus some form of nicotine replacement therapy, since these were primarily comparisons of the effectiveness of NRT rather than advice. We excluded studies where advice to stop smoking was included as part of multifactorial lifestyle counselling (e.g. including dietary and exercise advice). Therapists were physicians, or physicians supported by another healthcare worker. Trials which randomized therapists rather than smokers were included except where the therapists were randomized to receive an educational intervention in smoking cessation advice, since this is the subject of another Cochrane review (Lancaster 2000).

We defined trials where advice was provided (with or without a leaflet) during a single consultation lasting less than 20 minutes plus up to one follow-up visit as minimal intervention. We defined a trial 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. We considered adjunctive aids to advice as additional strategies other than simple leaflets (e.g. demonstration of expired carbon monoxide or pulmonary function tests, self-help manuals).

Types of outcome measures
The principal outcome used in the review was smoking cessation rather than reduction in withdrawal symptoms, or reduction in amount of cigarettes smoked. Thus we excluded trials that did not provide data on smoking cessation rates. In each study we used the strictest available criteria to define abstinence. That is, we used rates of sustained cessation rather than point prevalence abstinence where possible. Where biochemical validation was used, we classified only those subjects meeting the biochemical criteria for cessation as abstainers; and where participants were lost to follow up, they were regarded as continuing smokers. We required a minimum follow up of at least six months for inclusion, and used the longest follow up reported. A secondary outcome was the effect of smoking advice on subsequent mortality and morbidity.

Search methods for identification of studies
We identified trials from the Tobacco Addiction Group specialised register. This has been developed from electronic searching of MEDLINE, EMBASE and PsycINFO and the Cochrane Central Register of Controlled Trials (CENTRAL) together with hand-searching of specialist journals, conference proceedings and reference lists of previous trials and overviews in smoking cessation. We used the following MeSH terms to identify potentially relevant trials in the register: ‘physician-patient-relations’ or ‘physicians’ or ‘family-practice’ or ‘physician’s-role’. Trials with the words ‘GP’ or ‘general practice’ or ‘physician*’ in the title or abstract were also checked. For this update of the review the register was searched in September 2007.

Data collection and analysis
Data extraction:
In all versions of this review data two people independently extracted data from the published reports. For this update, GB and
LS extracted new data. Any disagreements were resolved by referral to a third author. For each trial, we documented the following aspects:

- country of origin.
- study population (including whether studies randomized only selected, motivated volunteers or all smokers, unselected by motivation to quit).
- eligibility criteria.
- nature of the intervention (including the nature, frequency and duration of advice, use of aids, and training of therapist).
- details of study design (including method of allocation, blinding, study structure).
- outcome measures.
- validation of smoking status.

In trials where details of the methodology were unclear or where results were not expressed in a form that allowed extraction of the necessary key data, we wrote to the individual investigators to provide the required information. In trials where patients were lost to follow up they were regarded as being continuing smokers. Reports that only appeared in non-English language journals were examined with the assistance of a translator.

**Quality assessment:**

We assessed the methodological quality of the studies included in the review using the scheme described in the Cochrane Handbook which involves assessing the quality of the random allocation (i.e. control of selection bias at entry). This is the only type of bias which has been empirically shown to result in systematic differences in assessment of the effect size (Schulz 1995). A three point rating scale was used, with a grading of: A if the effort to control selection bias had been maximal (e.g. by telephone randomization, or use of consecutively numbered, sealed envelopes); B if there was uncertainty about whether the allocation was adequately concealed (e.g. where the method of randomization was not stated), and C if the allocation was definitely not adequately concealed or was not used at all.

**Data Analysis:**

We expressed results as the relative risk (intervention:control) of abstinence from smoking at a given point in time, or for mortality and/or morbidity, together with the 95% confidence intervals for the estimates. This is a change from previous versions of this review, in which results were expressed as an odds ratio. This change takes in to account the fact that most clinicians find the relative risk more straightforward to interpret than the odds ratio.

We estimated pooled treatment effects using the Mantel-Haenszel fixed-effect method. We now use the $I^2$ statistic to investigate statistical heterogeneity, given by the formula $[(Q - df)/Q] \times 100$, where $Q$ is the chi squared statistic and $df$ is its degrees of freedom (Higgins 2003). This describes the percentage of the variability in effect estimates that is due to heterogeneity rather than to sampling error (chance). A value greater than 50% may be considered substantial heterogeneity.

Studies that used cluster randomization (with the physician or practice as the unit of allocation) were included in the meta-analyses using the patient level data, but we assessed the effect on the results of excluding them. Where reported, we have recorded the statistical methods used in studies to investigate or compensate for clustering.

**RESULTS**

**Description of studies**

See: Characteristics of included studies; Characteristics of excluded studies.

We include forty-one trials, published between 1972 and 2007 and including more than 31,000 participants. Twenty-six trials with 22,000 participants contributed to the primary comparison between advice and a no-advice or usual care control. Seventeen studies compared a minimal advice intervention with a control intervention in which advice was not routinely offered. Eleven studies compared an intervention that we classified as intensive with a control. Fourteen studies (thirteen of which did not have a non-advice control group) compared an intensive with a minimal intervention, and one study compared two intensive interventions (Gilbert 1992). One study compared an intervention based on the 4-Ax model (Ask, Advise, Assist, Arrange follow up), delivered in two different styles (Williams 2001). Some studies tested variations in interventions and contributed to more than one comparison. These are described and the meta-analyses to which they contribute are identified in the Table ‘Characteristics of included studies’.

The definition of what constituted ‘advice’ varied considerably. In one study (Slama 1995) patients were asked whether they smoked, and were given a leaflet if they wanted to stop. The control group were not asked about their smoking status until follow up. In all other studies the advice included a verbal ‘stop smoking’ message. This verbal advice was supplemented by provision of some sort of printed ‘stop smoking’ material (27 studies), or additional advice from a support health worker or referral to a cessation clinic or both. Four studies described the physician intervention as behavioural counselling with a stop smoking aim. One study compared motivational consulting (based on information from theoretical models) with simple advice (Butler 1999). In two studies the smoker was encourage to make a signed contract to quit (BTS 1990A; BTS 1990B). One study provided an incentive (a telephone card) to those who successfully quit (Higashi 1995). Three studies included an intervention which involved a demonstration of the participant’s pulmonary function (Li 1984; Richmond 1986; Segnan 1991), or expired air carbon monoxide (Jamrozik 1984). One study, using a cluster design, compared information...
and a letter alone to advice from a paediatrician to mothers of babies attending well-baby clinics with a view to reducing exposure of the children to passive smoke (Wall 1995). One study (Unrod 2007) used a computer-generated tailored report to assist with cessation, and a further recent study (Meyer 2008) compared brief advice to the use of computer-generated tailored or no intervention.

In the analysis we aggregated groups allocated to brief advice alone with those allocated to brief advice plus brief printed material. We did this with the view that advice plus provision of printed material is a practical approach in the primary care setting. In the two studies which directly compared the additional benefit of offering printed material none was observed (Jamrozik 1984; Russell 1979). Studies which provided a smoking cessation 'manual' were classified as offering an intensive intervention, but there is only weak evidence that self-help materials have a small benefit when combined with face-to-face support (Lancaster 2005b). The intensive intervention subgroup also included studies that offered additional visits.

The follow-up periods during the trials varied considerably, with a tendency towards shorter follow-up periods amongst the older studies. Definitions of abstinence were variable and frequently not stated.

Risk of bias in included studies

Randomization and Allocation

Of the 41 included trials, 10 that allocated small numbers of clusters of people to interventions and their procedures for randomization and allocation concealment are considered separately below. In the 31 other trials, there was typically little information about the way in which the randomization schedule had been generated. Only eight (25%) were rated A for having provided information about use of sealed envelopes (or some more secure method) to conceal the allocation sequence and minimize selection bias at entry, and none used an independent secure centralized randomization process. Only one of these A-rated studies contributed to the primary comparison. Ten studies (32%) used methods open to selection bias such as allocation by day of attendance or birthdate. In the remaining 13 (42%) individually randomized trials, insufficient information was provided on the method of randomization and allocation concealment.

Ten trials (Haug 1994; Hilberink 2005; Janz 1987; Lang 2000; Meyer 2008; Morgan 1996; Unrod 2007; Russell 1983; Wall 1995; Wilson 1990) had as the unit of allocation the physician, practice or clinic or week of attendance, rather than the individual smoker. In some of these it was unclear whether or not bias in the identification and recruitment of the individual smokers could be avoided. Some studies reported post-randomization dropouts of clinics or physicians. In one study (Meyer 2008) each practice provided each of the three treatment conditions for a week, in the same order with a gap between recruitment periods. We note in the Included Studies table where authors had allowed for or ruled out an effect of clustering, and we used sensitivity analyses to test the contribution of the cluster-randomized trials to the meta-analysis.

Outcome assessment

As required by the inclusion criteria, all trials assessed smoking status at least six months after the start of the intervention. Twenty-nine of the 41 studies (69%) had a longer follow-up period, typically one year, the longest being three years. Since the interventions generally did not require a quit date to be set, the definitions of cessation used are less strict than are typically found in trials of pharmacotherapies. About half the studies defined the cessation outcome as the point prevalence of abstinence at the longest follow up, and the other half reported sustained abstinence, which typically required abstinence at an intermediate follow-up point as well. Validation of all self-reported cessation by biochemical analysis of body fluids or measurement of expired carbon monoxide was reported in ten studies (24%) (Arndron 1988; BTS 1990A; BTS 1990B; Gilbert 1992; Li 1984; Marshall 1985; Segnan 1991; Slama 1990; Vetter 1990; Williams 2001), but only three of these contributed to the primary analysis. Validation in a sample of quitters was reported in three (Russell 1979; Russell 1983; Unrod 2007). One study used biochemical validation at 12 months but not at 18 month follow up (Haug 1994), and one study used biochemical validation or confirmation by a relative/friend (Richmond 1986). One study adjusted rates based on the deception rate found in a subsample where validation was performed (Fagerstrom 1984). No biochemical validation was used in the remaining 25 studies (61%).

Effects of interventions

Advice versus no advice

When all 17 trials of brief advice (as part of a minimal intervention) versus no advice (or usual care) were pooled (Comparison 01.01.01), the results demonstrated a statistically significant increase in quit rates; relative risk (RR) 1.66, 95% confidence interval (CI) 1.42 to 1.94. Heterogeneity was low (I²=31%). When trials compared a more intensive intervention to no advice control (Comparison 01.01.02), the point estimate was a little larger, with moderate heterogeneity between the trials (11 trials, RR 1.84, 95% CI 1.60 to 2.13, I²=50%). Although the estimate for the more intensive subgroup was higher, the confidence intervals overlapped and the division of the trials into two groups based on this classification of intensity did not explain any of the overall heterogeneity (I² = 39% across the 28 trials). The estimated effect combining both groups was 1.76 (95% CI 1.58 to 1.96). We classified a more intensive intervention as a longer consultation, additional visits, or a self-help manual. There is only weak evidence that self-help materials have a small additional benefit when combined with face-to-face support (Lancaster 2005b), and the absence of a difference between the subgroups may in part reflect the difficulty in categorizing intensity. From this indirect comparison there was
insufficient evidence to establish a significant difference in the effectiveness of physician advice according to the intensity of the intervention.

More intensive versus minimal advice
The direct comparison between intensive and minimal advice in 15 trials (Comparison 02) suggested overall that there was a small but significant advantage of more intensive advice (RR 1.37, 95% CI 1.20 to 1.56), with little evidence of heterogeneity (I²=32%). In the subgroup of 10 trials in populations of smokers not selected as having smoking-related disease, the increased effect of more intensive intervention was small and the confidence interval only narrowly excluded 1 (RR 1.20, 95% CI 1.02 to 1.43). No individual trials in this subgroup showed a significant benefit and there was no evidence of heterogeneity (I²=0%). Statistical significance was lost if the trial that used cluster randomization (Lang 2000) was removed. Amongst five trials in patients with, or at high risk of, smoking-related diseases the pooled estimate was larger, with little sign of heterogeneity, (RR 1.65 95% CI 1.35 to 2.03, I²=21%) and three of the trials showed significant effects. Since the confidence intervals overlapped this does not however provide strong evidence for a differential effect in these two populations.

Number of follow-up visits
The direct comparison of the addition of further follow up to a minimal intervention showed a just significant increase in the odds of quitting in the pooled analysis, although none of the five studies individually detected significant differences (RR 1.52, 95% CI 1.08 to 2.14, Comparison 03.01.01). This analysis did not include one study of the effect of follow-up visits (Gilbert 1992), because the control group received more than minimal advice, including two visits to the doctor. In this study, there was no significant difference in biochemically validated cessation rates between the two visit group and a group offered a further four follow-up visits. Indirect comparison between subgroups of studies suggested that an intervention including follow-up visits had a slightly larger estimated effect compared to no advice than an intervention delivered at a single visit. The RR for cessation when follow up was provided was 2.22 (six studies, 95% CI 1.84 to 2.68, I²=30%, Comparison 03.01.02), compared to 1.55 (18 studies, 95% CI 1.35 to 1.79, I²=35%, Comparison 03.01.04) when it was not.

Use of additional aids
Indirect comparison between 10 studies in which the intervention incorporated additional aids such as demonstration of expired carbon monoxide levels or pulmonary function tests or provision of self-help manuals and 17 where such aids were not used did not show important differences between subgroups (Comparison 04).

Comparisons between different types of advice
In a single trial of motivational counselling (approximately 10 minutes) compared with brief advice (2 minutes) a significant benefit was not detected, but the point estimate favoured the motivational approach and confidence intervals were wide (Butler 1999, RR 1.97, 95% CI 0.6 to 6.7). Quit rates were low in both groups, but motivational advice appeared to increase the likelihood of making a quit attempt. This study also contributes to the comparison between intensive and minimal advice.

One trial comparing brief advice using an autonomy-supporting style to advice given in a controlling style did not detect a significant difference. Quit rates were high in both groups and the point estimate favoured a controlling style (Williams 2001, RR 0.51, 95% CI 0.19 to 1.32). Both interventions took about 10 minutes and this trial does not contribute to the intensive versus minimal comparison.

One study included a comparison between brief advice and personalized computer-generated tailored letters. At two-year follow up, rates of sustained six month abstinence did not differ significantly (Meyer 2008, RR 0.95, 95% CI 0.64 to 1.41).

Effect of advice on mortality
Only one study (Rose 78-92) has reported the health outcomes of anti-smoking advice as a randomized single factor intervention. At 20-year follow up, in the intervention compared to the control group, total mortality was 7% lower, fatal coronary disease was 13% lower and lung cancer (death plus registrations) was 11% lower. These differences were not statistically significant, reflecting low power and the diluting effects of incomplete compliance with the cessation advice in the intervention group, and a progressive reduction in smoking by men in the control group. After 33 years of follow up differences in rates for most causes of death were not significant but there was a significantly smaller number of deaths from respiratory conditions. The age adjusted hazard ratio was 0.72 (95% CI 0.54 to 0.96).

Sensitivity analyses
The results of the meta-analyses in Comparison 01 were not sensitive to exclusion of either trials using cluster randomization or of trials rated as C (inadequate or not used) on their quality of allocation concealment. Only one trial contributing to comparison 01 was rated A (adequate). Comparison 2 results were not sensitive to the exclusion of studies rated C, but the marginally significant effect in the unselected population subgroup was lost if inclusion was restricted to the 4 A-rated studies, or if, as already noted above, the only cluster randomized study (Lang 2000) was excluded.

Discussion
The results of this review, first published in 1996 and updated in 2008, continue to confirm that brief advice from physicians is effective in promoting smoking cessation. Based on the results of a meta-analysis incorporating 28 trials and over 20,000 participants, a brief advice intervention is likely to increase the quit rate by 1% to 3 percentage points. The quit rate in the control groups in the included studies was very variable, ranging from 1% to 14% across the trials in the primary comparison. However the relative effect of the intervention was much less variable, because trials with low control group quit rates generally had low rates with intervention.
and vice versa. The general absence of substantial heterogeneity between trials when relative risks are compared makes for reliable estimates of relative effect. However it is more difficult to estimate the absolute effect on quitting, and the number needed to treat. Absolute quit rates will be influenced by motivation of the participants who are recruited or treated, the period of follow up, the way in which abstinence is defined, and whether biochemical confirmation of self-reported abstinence is required. Many of the trials in this review were conducted in the 1970s and 1980s, and did not use the gold standard methods for assessing smoking abstinence that would now be recommended (West 2005). Only a minority of trials used biochemical measures to confirm self reports of abstinence, and although 12 month follow up was common, many trials assessed smoking status at a single follow-up point. This will tend to lead to higher quit rates overall than in trials with biochemical validation and requiring repeated abstinence at or between multiple assessments, but there is not strong evidence that it will lead to bias in the estimates of relative effect. There were too few trials in the primary analysis to test the effect size when including only trials with complete biochemical validation. We did not find that the control group quit rates were any less variable amongst studies with a longer period of follow up and with abstinence sustained at more than one assessment.

If an unassisted quit rate of 2% at 12 months in a population of primary care attenders is assumed, we can use the confidence intervals for the minimal intervention subgroup, 1.42 to 1.94, to estimate a number needed to treat (NNT) of 50-120. If the background rate of quitting was expected to be 3%, then the same effect size estimate would translate to an NNT of 35-80. Using the pooled estimate from combining both intensity subgroups in the primary comparison would raise the lower confidence interval and reduce the upper estimate of the NNTs.

Although the methodological quality of the trials was mixed, with a number using unclear or unsatisfactory methods of treatment allocation, our sensitivity analyses did not suggest that including these trials has led to any overestimate of treatment effects. Although we noted heterogeneity in some subgroups, overall the trials showed consistent relative effects. As noted above the lack of biochemically validated cessation was the other possible methodological limitation.

Based on subgroup analyses there is little evidence about components that are important as part of an intervention, although direct comparison in a small number of trials suggest that providing a follow-up appointment may increase the effect. Indirect comparisons indicate that various aids tested do not appear to enhance the effectiveness of physician advice. However, caution is required in interpreting such indirect comparisons since they do not take account of any inherent systematic biases in the different populations from which the study samples are drawn. Direct comparison of differing intensities of physician advice suggest a probable benefit from the more intensive interventions compared to a briefer intervention, although subgroup analyses suggest that this might be small or non-existent in unselected smokers, but larger when provided to smokers in high risk groups. The effect of intensified advice in a population with established disease is however based on a small number of trials. If the marginal benefit of a more intensive advice-based intervention is based on the pooled estimate combining unselected and high risk population subgroups (RR CI 1.20 to 1.56), and assuming that the minimal intervention alone could achieve a quit rate of 3.5%, an NNT of 50-140 would be estimated for the effect of providing more support. There was insufficient evidence to draw any conclusion about the effect of motivational as opposed to simple advice (Butler 1999), or between different advice-giving styles (Williams 2001).

If these results are to translate into a public health benefit, the important issue will be the proportion of physicians who actually offer advice. Although 80% of the general population visit a physician annually, reports of the proportion who receive any form of smoking cessation advice vary considerably. While many of those who are not offered smoking cessation advice will quit unaided, every smoker who does not receive advice represents a 'missed opportunity'. Provision of lifestyle advice within the medical consultation is now promoted as a matter of routine, but advice on smoking may still not be offered systematically (Denny 2003; McLeod 2000). Not all primary care physicians agree that advice should be given at every consultation (McEwen 2001), and some practitioners still consciously choose not to raise smoking cessation as an issue in order to preserve a positive doctor-patient relationship (Coleman 2000), although some research indicates that satisfaction may be increased by provision of advice (Solberg 2001).

Several strategies have been shown convincingly to enhance the effectiveness of advice from a medical practitioner, including provision of nicotine replacement therapy and/or bupropion (Hughes 2007; Stead 2008). Addition of either of these forms of therapy increases quit rates 1.5 to 2-fold, and is a potentially valuable adjunct to any advice provided. Both individual and group-based counselling are also effective at increasing cessation rates amongst patients prepared to accept more intensive intervention (Lancaster 2005; Stead 2005). Telephone counselling can also be effective (Stead 2006). National clinical practice guidelines generally advise the use of a brief intervention in which asking about tobacco use is followed by advice to quit, and an assessment of the smoker's willingness to make a quit attempt. Patients willing to make a quit attempt can then be offered specific assistance and follow up (Fiore 2000; Miller 2001; NHC 2002; West 2000).

**AUTHORS’ CONCLUSIONS**

**Implications for practice**

The results of this review indicate the potential benefit from brief
simple advice given by physicians to their smoking patients. The challenge as to whether or not this benefit will be realized depends on the extent to which physicians are prepared to systematically identify their smoking patients and offer them advice as a matter of routine.

Providing follow up, if possible, is likely to produce additional benefit. However, the marginal benefits of more intensive interventions, including use of aids is small, and cannot be justified as a routine intervention in unselected smokers. They may, however, be of benefit for individual, motivated smokers.

**Implications for research**

Further studies of interventions offered by physicians during routine clinical care are unlikely to yield new information about the role of advice. Work is now required to develop strategies to increase the frequency with which smokers are identified and offered advice and support.

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**References to studies included in this review**

**Ardron 1988 [published data only]**

**Betson 1997 [published and unpublished data]**

**BTS 1990A [published data only]**

**BTS 1990B [published data only]**

**Burt 1974 [published data only]**

**Butler 1999 [published data only]**

**Demers 1990 [published data only]**

**Fagerstrom 1984 [published data only]**

**Gilbert 1992 [published data only]**

**Haug 1994 [published data only]**

**Higashi 1995 [published data only]**

**Hilberink 2005 [published data only]**
Law 2000 [published data only]

McDowell 1985 [published data only]

Meyer 2008 [published data only]

Morgan 1996 [published data only]

Nebot 1989 [published data only]

Ockene 1991 [published data only]

Page 1986 [published data only]

Pieterse 2001 [published data only]

Porter 1972 [published data only]

Richmond 1986 [published data only]

Rose 78-92 [published and unpublished data]
Rose G, Hamilton PJ. A randomised controlled trial of the effect on middle-aged men of advice to stop smoking.

**Vetter 1990 [published data only]**


**Wall 1995 [published data only]**


**Williams 2001 [published data only]**

Williams GC, Deci EL. Activating patients for smoking cessation through physician autonomy support. *Medical Care* 2001;39:813–23.


**Wilson 1982 [published data only]**


**Wilson 1990 [published data only]**


**References to studies excluded from this review**

**Ahluwalia 1999 [published data only]**


**Alexandre 1998 [published data only]**


**Andrews 2006 [published data only]**

Bakkevig 2000  {published data only}

Becker 2005  {published data only}

Bentz 2007  {published data only}

BTS 1983  {published data only}

Buffels 2006  {published data only}

Carpenter 2004  {published data only}

Chalah 2005  {published data only}

Cohen 1989  {published data only}

Cohen 1989 b  {published data only}

Colby 2005  {published data only}

Conger 1987  {published data only}

Cummins 1989  {published data only}

Cummins 1989 b  {published data only}

Ettet 2006  {published data only}

Fang 2006  {published data only}

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**Kreuter 2000 [published data only]**

**Loeb 1983 [unpublished data only]**

**Loke 2005 [published data only]**

**Lopez 2007 [published data only]**

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McLeod 2000

Miller 2001

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Young 2002 (published data only)
## Characteristics of included studies

### Ardon 1988

**Methods**
- Setting: Adult diabetic outpatient clinic in Liverpool, UK.
- Recruitment: volunteers who responded yes to the question ‘Do you want to give up smoking?’ (selected by motivation)
- Randomization: method not stated

**Participants**
- 60 clinically stable diabetic patients <40 yrs, smoking >5 cpd, motivated to stop
- Therapists: medical registrar supported by health visitor

**Interventions**
- 1. Routine advice (5 mins talk)
- 2. Intensive advice (longer talk, leaflet, and visit from heath visitor at home within 2 wks involving family, giving further advice and written materials).
- Intervention level: intensive (2) vs minimal (1)
- Aids used: none. Follow-up visits: 1

**Outcomes**
- Point prevalence at 6 months
- Validation: expired CO and urinary cotinine

**Notes**
- Contributes data to intensive vs minimal comparison only

### Risk of bias

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### Betson 1997

**Methods**
- Setting: government outpatient clinic, Hong Kong
- Recruitment: older smokers, unselected
- Randomization: Sequentially numbered envelopes containing computer-generated random intervention allocation

**Participants**
- 865 smokers, aged >65, 92% male, 49% smoking >10 cpd

**Interventions**
- 1. No intervention
- 2. Written materials (Chinese translation of American Cancer Society booklet)
- 3. Physician advice (1 min, based on 4 As)
- 4. Physician advice and booklet
- Intervention level: minimal (3&4)
- Aids used: none. Follow-up visits: none

**Outcomes**
- Abstinence at 1 yr (sustained from 3 m)
- Validation: poor response to request for urine specimen so data based on self report
**Betson 1997** (Continued)

**Notes**

Groups 3 & 4 compared to 1 & 2 for minimal advice vs control.
Full paper provided by Professor Lam.

**Risk of bias**

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**BTS 1990A**

**Methods**

- Setting: hospital or chest clinic in UK
- Recruitment: Volunteers selected by motivation
- Randomization: by sequential, sealed envelopes

**Participants**

- New patients with smoking-related disease but not pregnant, terminally or psychiatrically ill
- 1462 patients, smoking at least 1cpd, mean 17cpd
- Therapists: physicians

**Interventions**

- 1. Advice
- 2. Advice + signed agreement to stop, health visitor support, letters from physician
- Intervention level: intensive vs minimal
- Aids used: yes; Follow-up visits: from health visitor, not doctor

**Outcomes**

- Sustained at 12m (& 6m)
- Validation: expired CO

**Notes**

- Contributes data to intensive vs minimal comparison only.
- (Two studies are reported in the same paper)

**Risk of bias**

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**BTS 1990B**

**Methods**

- Setting: hospital or chest clinic in UK
- Recruitment: Volunteers selected by motivation
- Randomization: by sequential, sealed envelopes

**Participants**

- New patients with smoking-related disease but not pregnant, terminally or psychiatrically ill
- 1392 patients, smoke at least 1cpd, mean 17cpd
- Therapists: physicians
BTS 1990B  (Continued)

| Interventions | 1. Advice  
|               | 2. Advice plus signed agreement  
|               | 3. Advice plus letters of support  
|               | 4. Advice plus letters plus signed agreement  
|               | Intervention level: intensive vs minimal  
|               | Aids used: yes. Follow-up visits: none  

| Outcomes | Sustained at 12 months (& 6m)  
|          | Validation: expired CO  

| Notes | The use of supportive letters was classified as intensive so 3&4 compared to 1&2 in the intensive vs minimal comparison.  
|       | (Two studies are reported in the same paper)  

Risk of bias

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Burt 1974

Methods

| Setting | Hospital cardiac unit and cardiac outpatient clinic in Scotland  
| Recruitment | Consecutive survivors of acute myocardial infarction identified as smokers (unselected)  
| Randomization | by day of admission  

Participants

| 210 survivors of acute myocardial infarction  
| Ages not stated, pipe and cigarette smokers  
| Number of cpd not stated  
| Therapists: Hospital consultants, reinforced by junior medical and nursing staff  

Interventions

| 1. Repeated emphatic advice to quit as an inpatient with follow up in a special clinic  
| 2. Normal inpatient care followed by discharge to care of the family doctor  
| Intervention level: intensive vs minimal  
| Aids used: none. Follow-up visits: yes, number not stated  

Outcomes

| PP abstinence at 12m  
| Validation: none  

Notes

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### Butler 1999

<table>
<thead>
<tr>
<th>Methods</th>
<th>Setting: general practices (registrars), UK; Recruitment: All smokers attending for consultation (except those with terminal illness) (unselected) Randomization: block randomization using sealed envelopes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>536 smokers (70% female) at various stages of change</td>
</tr>
<tr>
<td>Interventions</td>
<td>1. Standardized brief advice (estimated time 2 minutes) 2. Structured motivational counselling (mean length 10 mins) (based on stage of readiness to change)</td>
</tr>
<tr>
<td>Outcomes</td>
<td>PP at 6m (self-reported abstinence in the previous month). Validation: none</td>
</tr>
<tr>
<td>Notes</td>
<td>Contributes data to intensive vs minimal comparison only.</td>
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### Demers 1990

<table>
<thead>
<tr>
<th>Methods</th>
<th>Setting: family practices in southeast Michigan, USA Recruitment: patients attending the practices in a defined intake period identified as smokers by questionnaire (unselected) Randomization: by medical record numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>519 adult smokers; Mean cpd 22 Therapists : Family practitioners</td>
</tr>
<tr>
<td>Interventions</td>
<td>1. 3-5 min smoking cessation counselling and written materials plus routine care 2. Routine care Intervention level: minimal Aids used: none. Follow-up visits: no</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Sustained at 12m (&amp; 6m) Validation: none</td>
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<tr>
<td>Notes</td>
<td>Sustained replaced PP abstinence from 2008</td>
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<td>No</td>
<td>C - Inadequate</td>
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</table>
### Fagerstrom 1984

**Methods**
- Setting: Swedish general practices and industrial clinics
- Recruitment: Smokers who were considered motivated to stop, accepted advice and agreed to follow up (selected)
- Randomization: by birthdate

**Participants**
- 145 adult smokers (49 in relevant arms), mean cpd: 19
- Therapists: 10 Swedish GPs, 3 Swedish industrial physicians

**Interventions**
1. Short follow up (advice plus 1 appointment)
2. Long follow up (advice plus 2 appointments, phone call + letter)
3. Short follow up plus nicotine gum (not used in review)
4. Long follow up plus nicotine gum (not used in review)

**Intervention level**: Intensive vs minimal
- Aids used: yes. Follow up: 1 vs 2 visits

**Outcomes**
- Sustained abstinence at 1, 6 and 12m
- Validation: Results adjusted for 15% deception rate detected by expired CO measured in a random subset of claimed non-smokers

**Notes**
- Contributes data to intensive vs minimal comparison only. Adjusted rates used in analysis.

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### Gilbert 1992

**Methods**
- Setting: 41 family practices in Ontario, Canada
- Recruitment: Patients volunteering for a smoking cessation programme in physician's office (selected)
- Randomization: Sequential, sealed envelopes. Patients randomized when they returned for a first follow-up visit

**Participants**
- 647 smokers, mean cpd 22.
- Therapists: Family practitioners who had attended 4-hr training session

**Interventions**
1. Brief advice, self-help booklet and 1 follow-up visit including use of nicotine gum
2. As group 1, plus 3 further follow-up visits.

**Outcomes**
- Sustained at 12m (& 3m)
- Validation: salivary cotinine

**Notes**
- Not included in any meta-analysis table since the control group received more than a minimal intervention.

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### Haug 1994

**Methods**
- **Setting:** 187 general practices in Norway
- **Recruitment:** opportunistically by the general practitioners (unselected)
- **Randomization:** cluster randomized by doctor, method not stated

**Participants**
- Reports separate trials in pregnant and non-pregnant women: 274 non-pregnant women age 18-34:
  - Smoking >4 cpd, mean 13
  - Therapists: GPs

**Interventions**
1. Advice + leaflet + invitation to attend 4 follow-up visits
2. Normal care controls
   - Intervention level: minimal
   - Aids used: none. Follow-up visits: Offered

**Outcomes**
- Abstinence at 18m
- Validation: none (serum thiocyanate at 12m only)

**Notes**
- Cluster randomized, but 187 GPs so cluster size small.

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### Higashi 1995

**Methods**
- **Country:** Japan
- **Recruitment:** Primary Care (unclear whether selected)
- **Randomization method:** not stated

**Participants**
- 957 adult smokers

**Interventions**
1. Brief advice plus leaflet, encouragement card at 1m and telephone card at 6m
2. No intervention
   - Intervention level: minimal
   - Aids used: yes. Follow-up: no

**Outcomes**
- PP abstinence at 12m
- Validation: none

**Notes**
- Information derived from English abstract. Full publication in Japanese and not translated.
### Risk of bias

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### Hilberink 2005

**Methods**
- Setting: 43 general practices in the Netherlands
- Recruitment: Patients with COPD identified from medical records in participating practices (?unselected)
- Randomization: Cluster randomized by practice. 5 practices (3 in control) dropped out before patients recruited.

**Participants**
- 392 patients with COPD (244 intervention, 148 control due to dropout of large control group practices)
  - cpd not stated.
  - Intervention had more patients in preparation (25.8% vs 17.6%) or contemplation stage (32.0% vs 28.4%) P=0.059

**Interventions**
1. Intensive advice - Initial session to identify preparers and contemplators, further 3 visits and up to 3 follow-up phone calls from nurse, plus booklet and video
2. No intervention (usual care)
- Intervention level: Intensive
- Aids used: yes. Follow-up visits: yes (for motivated patients)

**Outcomes**
- PP abstinence at 6m
- Validation: none - bogus pipeline procedure used

**Notes**
- New for 2008 update
- Multi-level analysis did not alter results

### Risk of bias

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### Jamrozik 1984

**Methods**
- Setting: general practices in Oxfordshire, UK
- Recruitment: Identified smokers attending the practices during recruitment period (unselected)
- Randomization: according to day of attendance (not counted as cluster randomized since large number of clusters)

**Participants**
- 2110 adult smokers, cpd not stated
- Therapists: General practitioners who had in earlier studies indicated an interest in participating in smoking research
Jamrozik 1984  (Continued)

| Interventions | 1. Normal care control group  
|               | 2. Brief advice to quit plus smoking cessation pamphlet  
|               | 3. Advice plus pamphlet plus a demonstration of the patient’s level of exhaled CO (by research supervisor)  
|               | 4. Advice plus pamphlet plus provision of a card offering follow up from health visitor  
|               | Intervention level: Minimal (groups 1 and 2), Intensive (groups 3 and 4)  
|               | Aids used: Yes (groups 3 and 4). Follow-up visits: Offered in group 4  

| Outcomes | PP abstinence at 12m  
|          | Validation: a sample of self-reported quitters selected for urinary cotinine validation (up to 40% deception rate). Results not adjusted, and no evidence that deception rates differed in treatment and control groups  

| Notes | 2 compared to 1 for effects of minimal intervention, 3&4 compared to 1 for effects of intensive intervention. To avoid double counting group 1 when minimal and intensive pooled together, the control group is divided between the two categories.  
|       | 3 & 4 compared to 2 for intensive vs minimal intervention, 4 compared to 1 for effects of intervention with offer of followup  

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Janz 1987

| Methods | Setting: Outpatient medical clinic at midwestern US teaching hospital  
|         | Recruitment: Consecutive attenders identified as smoking over 5 cpd and giving consent to participation (unselected)  
|         | Randomization: cluster randomization by clinic unit (number of clusters not clear)  

| Participants | 250 adult smokers, mean cpd 24  
|              | Therapists : Intervention physicians and nurses given brief tutorial. Control physicians not informed of study.  

| Interventions | 1. Normal care  
|               | 2. Brief advice from physician and brief consultation from nurse  
|               | 3. As 2 plus self-help manual  
|               | Intervention level: Minimal  
|               | Aids used: group 3. Follow-up visits: no  

| Outcomes | PP abstinence at 6m  
|          | Validation : none  

| Notes | Numbers quit estimated from graphs with unclear denominators - original data sought but not obtainable.  
|       | 2 & 3 compared to 1 for minimal advice vs no advice (Classifying 3 as intensive does not alter meta-analysis findings)  
|       | 3 vs 1 in advice plus aids subgroup, 2 vs 1 in advice without aids  

Physician advice for smoking cessation (Review)
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#### Lang 2000

**Methods**
- Setting: Workplace
- Recruitment: smokers at annual check up (unselected)
- Randomization: cluster randomization by occupational physician

**Participants**
- 1095 smokers (excludes losses to follow up due to company reorganization)
- 17% F, av cpd 14, >64% smoked >10 cpd

**Interventions**
1. Minimal advice; 5-10 min from occupational physician.
2. Intensive intervention; contract with quit date, phone call 7 days post quit date, follow-up visit

**Outcomes**
- Sustained abstinence (≥ 6m) at 12m, assessed at annual check up.
- Validation: CO for a subsample. Unclear whether results reclassified

**Notes**
- Contributes data to intensive vs minimal comparison only. Two physicians randomized to deliver minimal intervention declined to participate, 28 physicians participated.
- Reported statistical analysis with physician as unit. Difference in 12m PP quit significant, not significant using sustained measure.

### Risk of bias

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#### Li 1984

**Methods**
- Setting: Worksite (naval shipyard) in the USA
- Recruitment: Smokers identified at worksite screening (unselected)
- Randomization: method not stated

**Participants**
- 871 Asbestos-exposed smokers; mean cpd: 24-26.
- Therapists: Occupational physicians

**Interventions**
1. Minimal warning, results of pulmonary function tests, leaflet
2. As group 1 plus behavioural counselling
- Intervention level: Minimal (1), Intensive (2)
- Aids used: yes. Follow-up visits: no
### Li 1984 (Continued)

<table>
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<tr>
<th>Outcomes</th>
<th>Sustained abstinence at 11m</th>
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<tr>
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<td>Validation: expired CO</td>
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| Notes | Contributes data to intensive vs minimal comparison only |

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### Marshall 1985

#### Methods

- Setting: Six general practices on the Isle of Wight, UK
- Recruitment: Patients responding to a postcard from the GP (selected)
- Randomization: method not stated but married couples allocated to same group

#### Participants

- 200 adult smokers, mean cpd 22. 21% had a smoking-related disease
- Therapists: 11 general practitioners with no specific training

#### Interventions

1. Advice plus nicotine gum
2. As 1 plus offer of 4 follow-up visits over 3m
- Intervention level: Intensive (2) vs Minimal (1)
- Aids used: yes. Follow up: 4 in group 2

#### Outcomes

- Sustained at 12m (from 6m)
- Validation: CO

#### Notes

- Contributes data to intensive vs minimal comparison only

#### Risk of bias

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### McDowell 1985

#### Methods

- Setting: Family practices in Canada
- Recruitment: Volunteers for smoking cessation programme (selected)
- Randomization: method not stated

#### Participants

- 366 adult cigarettes smokers in 9 group family practices (153 relevant to review); mean cpd 25
- Therapists: 56 family physicians
<table>
<thead>
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<th>McDowell 1985</th>
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| **Interventions** | 1. Brief physician advice  
| | 2. Health education in groups for 8 wks (not used in review)  
| | 3. Cognitive behaviour modification in 8 group sessions (not used in review)  
| | 4. Control: self-monitoring of smoking  
| | Intervention level: Minimal  
| | Aids used: none. Follow-up visits: no  
| **Outcomes** | PP abstinence at 12m  
| | Validation: none performed, although subjects threatened with salivary thiocyanate measurement.  
| **Notes** | In this review only groups 1 (intervention) and 4 (control) are considered.  
| **Risk of bias** | |
| **Item** | **Authors’ judgement** | **Description** | 
| Allocation concealment? | Unclear | B - Unclear | 

<table>
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<th>Meyer 2008</th>
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| **Methods** | Setting: 34 general practices from a German region  
| | Recruitment: smoking patients attending practices during 3 study wks (unselected)  
| | Randomization: Quasi-random & clustered based on time of attendance. Fixed sequence of assessment-only, tailored letters, advice. At least 2 wks between each study wk.  
| **Participants** | 1499 patients (1011 in relevant conditions) aged 18-70 who reported daily cigarette smoking; 48% F, mean cpd 16  
| **Interventions** | 1. Control group (assessment only - 22 sided questionnaire administered in waiting room)  
| | 2. Computer-generated tailored letters - received 3 personalised letters tailored to the patients stage of change and selected self-help manuals (not included in meta-analysis)  
| | 3. Brief advice from trained physician and selected self-help manuals  
| | Intervention level: Intensive  
| | Aids used: yes. Follow-up visits: no  
| **Outcomes** | Abstinence at 24m (sustained for 6m)  
| | Validation: none  
| **Notes** | New for 2008 update, identified from early report, 2008 paper available as epub  
| | 3 versus 1 contributes data to intensive versus control. Physicians trained between 2nd and 3rd study wks to avoid contamination of first two conditions. A stricter outcome reporting 6m abstinence at 12, 18 & 24m was also given. This gave a higher estimated effect with CIs that excluded 1.  
| **Risk of bias** | |
| **Item** | **Authors’ judgement** | **Description** | 
| | | |
**Morgan 1996**

| Allocation concealment? | No | C - Inadequate |

| Methods | Setting: outpatient medical practices, USA  
Recruitment: Practices volunteered, patients unselected by motivation  
Randomization: cluster randomized by practice, no blinding at stage of recruitment of participants |
|---|---|
| Participants | 659 smokers aged 50-74  
Therapists: Physicians with 45-60 mins training |
| Interventions | 1. Physician advice, stage-based, tailored self-help guide. Follow-up letter from physician and call from project staff. Smokers in contemplation given prescription and free 1 wk supply of gum.  
2. Usual care (delayed intervention)  
Intervention level: intensive  
Aids used: yes. Follow-up visits: yes (phone call) |
| Outcomes | Abstinence at 6m (assume PP)  
Validation: none |
| Notes | Some practices excluded post-randomization, possibility of selection bias. Results sensitive to use of a model allowing for correlation, but corrected OR not provided. |

**Risk of bias**

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**Nebot 1989**

| Methods | Setting: 7 primary care practices in Spain  
Recruitment: smokers identified prior to seeing doctor (unselected)  
Randomization: quasi-random by wk (6 wk recruitment, 25 doctors so not classified as clustered) |
|---|---|
| Participants | 424 adult smokers, 24% smoked >20 cpd  
Therapists: 25 doctors in 6 primary care centres |
| Interventions | 1. Brief physician advice, 3-5 min, and self-help leaflet  
2. Usual care  
Intervention level: minimal  
Aids used: none. Follow-up visit: no |
| Outcomes | Abstinence at 12m (definition unclear)  
Validation: incomplete |
### Nebot 1989 (Continued)

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### Ockene 1991

**Methods**
- Setting: US primary care residency programme (physicians in training)
- Recruitment: unselected
- Randomization: Each physician delivered 1 of the 3 interventions according to instructions in a packet for each patient.

**Participants**
- 1286 smoking patients not selected for motivation to quit
- Therapist: 196 primary care physicians in training.

**Interventions**
1. Advice only
2. Patient-centred counselling, written materials, asked to schedule follow-up visit, follow-up letter
3. Patient-centred counselling and offer of prescription for nicotine gum (not used in review).
   - Each group was further randomized to minimal (no calls) or intensive follow up by telephone (3 calls over 6m) from a health educator (HE).
   - Intervention level: Minimal (1 without follow-up counselling) vs Intensive (all other conditions)
   - Aids used: yes. Follow up: with physician (2)

**Outcomes**
- PP abstinence at 6m (self-reported)
- Validation: none

**Notes**
- Contributes data to intensive vs minimal comparison only. Adjusted rates used in analysis. All physicians received training in minimal vs intensive interventions and delivered them according to random allocation of patient. Group 1 without HE follow up is considered minimal intervention and is compared to all the other arms as intensive intervention. 2 compared to 1 (both without HE follow up) for effect of physician follow up. 12m outcomes have been reported but do not give rates by HE follow-up condition; no main effects or interactions were found.

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### Methods

**Setting:** Five family practitioners in Canada  
**Recruitment:** all patients attending the practices identified as smokers during study period (unselected)  
**Randomization:** by day of attendance (4 wk recruitment period for 5 doctors so not classified as clustered)

### Participants

289 adult smokers, cpd not stated  
Therapists: family practitioners in full time practice

### Interventions

1. No advice  
2. Advice to quit  
3. As 2 plus offer of nicotine chewing gum prescription (not used in review)  
**Intervention level:** minimal  
**Aids used:** none. Follow-up visits: no

### Outcomes

PP abstinence at 6m  
Validation: none

### Notes

**Risk of bias**

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### Pieterse 2001

**Methods**

Setting: 22 GPs in 18 Dutch family practices  
**Recruitment:** proactive recruitment in waiting room (probably selected)  
**Randomization:** structured allocation list, no description of blinding

### Participants

530 adult smokers (excludes 7 controls who received intervention)  
cpd not stated, ~15% smoked >=25 cpd  
**Practitioners:** 22 GPs and 19 assistants, 2 hrs training

### Interventions

1. Advice/counselling tailored to stage of change, self-help manual, follow-up visit if quit date set. Approx 10 mins  
2. Usual care  
**Intervention level:** intensive  
**Aids used:** yes. Follow-up visits: offered

### Outcomes

Sustained at 12m (from 6m)  
**Validation:** none

### Notes

A logistic regression correcting for baseline differences gave a higher estimate of the effect on the odds of quitting (3.04 95% CI 1.7 to 5.6). A RR derived from crude data is used in the meta-analysis
### Porter 1972

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**Methods**
- Setting: single London suburban general practice
- Recruitment: opportunistic through direct question by the physician (unselected)
- Randomization: patients randomized by reference to a book derived from random number tables at the physician's desk

**Participants**
- 191 adult smokers, smoked 4+ cpd
- Therapist: one general practitioner working in a group practice of three

**Interventions**
- 1. No advice
- 2. 5 mins of advice delivered 'with conviction and vigour' plus antismoking leaflet.
- Intervention level: minimal
- Aids used: none. Follow-up visits: none

**Outcomes**
- PP abstinence at 6m
- Validation: by family report/neighbour report

**Notes**

### Risk of bias

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### Richmond 1986

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**Methods**
- Setting: single general practice in Australia
- Recruitment: smokers who attended the practice- no further methodology stated
- Randomization: by day of attendance (recruitment over 6m period so not classified as clustered)

**Participants**
- 200 adult smokers; mean cpd 24
- Therapists: 3 male GPs

**Interventions**
- 1. Six visits to the GP over 6m, including advice, spirometry demonstration and serum cotinine and written materials
- 2. Control group completed questionnaire and gave blood sample at single visit.
- Intervention level: intensive
- Aids used: yes. Follow-up visits: 6
Richmond 1986  (Continued)

| Outcomes | Sustained abstinence 3 yrs (assessed at 6m & 3yrs)  
|          | Validation: by serum carboxyhaemoglobin concentrations or by salivary cotinine measurement or confirmation by relatives and/or friends. |

| Notes |

| Risk of bias |

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**Rose 1978-92**

| Methods | Setting: Whitehall research study of male civil servants  
|         | Recruitment: drawn from men who had undergone a cardiorespiratory screening examination in the Whitehall study, identified as smokers at entry to study, excluding those with major disease or receiving therapy for cardiovascular disease (unselected)  
|         | Randomization: method not stated |

| Participants | 1445 male civil servants in London smoking >5 cpd with high risk of cardiorespiratory disease  
|              | Therapists: doctors who were members of the research team |

| Interventions | 1. Controls: GPs were sent a record of their screening examination  
|               | 2. Intervention: received advice to stop, written materials and a follow-up visit  
|               | Intervention level: Intensive  
|               | Aids used: no. Follow-up visits: yes |

| Outcomes | PP of cessation at 1 and 3 yrs (Rose 1978), 20 yr follow-up data on mortality (Rose 1992)  
|          | Validation: none |

| Notes | Rose 1992 reports 20 yr follow-up data on mortality from the intervention trial described in Rose 1978.  
|       | Unpublished 33 yr follow-up provided by Martin Shipley and added to review from issue 1, 2007 |

| Risk of bias |

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**Russell 1979**

| Methods | Setting: 5 group general practices in London  
Recruitment: all identified cigarette smokers attending during the 4 wk entry period (unselected)  
Randomization: allocated to intervention group on basis of day of attendance (4 wk recruitment period in 5 practices so not classified as clustered) |
|---------|-------------------------------------------------------------------------------------------------|
| Participants | 2138 adult smokers; cpd not stated.  
Therapists: 37 GPs |
| Interventions | 1. No intervention  
2. Questionnaire only  
3. Advice to stop smoking  
4. Advice to stop smoking plus leaflet plus a warning that the patient would be followed up  
Intervention level: minimal  
Aids used: no. Follow-up visits: no, except group 4 (offer of 1 visit) |
| Outcomes | Sustained abstinence at 12m (& 1m)  
Validation: small sample of those reporting cessation validated by salivary cotinine analysis (N = 23) |
| Notes | 3 & 4 vs 1 & 2  
Authors' discussion based on data after those lost to follow up excluded, not at randomization |

**Risk of bias**

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**Russell 1983**

| Methods | Setting: 6 group general practices in England  
Recruitment: Consecutive attenders admitting to being cigarette smokers and consenting to participate (unselected)  
Randomization: according to week /day of attendance over 3 wk + 3 day period in each practice (18 clusters of 1 wk's recruitment and 18 clusters of 1 day's recruitment) |
|---------|-------------------------------------------------------------------------------------------------|
| Participants | 2106 adult smokers (1377 in relevant arms). Mean cpd 17.5  
Therapists: GPs' level of training not stated |
| Interventions | 1. No intervention  
2. Advised to stop smoking plus provided with a 'give up smoking' booklet  
3. As group 2, plus offer of nicotine chewing gum prescription (not used in review)  
Intervention level: minimal  
Aids used: none. Follow-up visits: no |
| Outcomes | Sustained abstinence 12m (& 4m)  
Validation: 66% of those claiming to have quit validated with CO breath testing |
| Notes | Authors note that data could be pooled across practices without altering results |
Risk of bias

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Schnoll 2003

Methods
- Setting: 17 oncology centres in USA
- Recruitment: cancer patients recruited by participating physicians (unselected)
- Randomization: permuted blocks with dynamic balancing within sites, no description of blinding

Participants
- 432 smokers with cancer (406 surviving at 12m); 66% F, av cpd 20

Interventions
- 1. Advice and self-help manual, prescription of NRT if appropriate. Possible follow up
- 2. Usual care
- Intervention level: intensive
- Aids used: yes. Follow-up visits: not routinely

Outcomes
- PP abstinence at 12m
- Validation: none

Notes
- 34% of intervention and 19% of usual care group prescribed NRT.

Risk of bias

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Segnan 1991

Methods
- Setting: 44 general practices in Italy
- Recruitment: Consecutive patients attending on study days (unselected)
- Randomization: Sequential, sealed envelopes

Participants
- 923 smoking general practice attenders aged 20-60.
- Therapists: GPs who had undergone a 3-hr training session

Interventions
- 1. Advice and leaflet
- 2. Repeated counselling (follow up at 1,3,6,9m)
- 3. Repeated counselling plus nicotine gum (not used in review)
- 4. Repeated counselling plus spirometry (conducted by specialist centre)
- Intervention level: Minimal (1) Intensive (2&4)
- Aids used: yes (group 4). Follow-up visits: yes
Segnan 1991

Outcomes
Sustained abstinence at 12m (sustained for 3m by self-report)
Validation: Urinary cotinine

Notes
Does not contribute to Comparison 1. 2 & 4 compared to 1 for effects of intensive vs minimal advice
2 compared to 1 for effect of follow up

Risk of bias

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Slama 1990

Methods
Setting: General practices in Newcastle, Australia
Recruitment: Practice attenders identified as smokers by questionnaire (unselected)
Randomization: method not stated

Participants
311 general practice attenders age 18-64 years; mean cpd : not stated
Therapists: GPs who had received a 1-hr training session

Interventions
1. Advice plus leaflets (minimal intervention)
2. GP-delivered, brief, behavioural change programme (intensive intervention)
3. Control.
Intervention level : Minimal & Intensive
Aids used: none. Follow -up visits: no

Outcomes
Sustained abstinence at 12m (& 1m & 6m)
Validation: salivary cotinine

Notes
1 compared to 3 for advice vs no advice, 2 compared to 3 for intensive intervention vs no advice, 2 compared to 1 for intensive vs minimal intervention

Risk of bias

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Slama 1995

Methods
Setting: 373 general practices in France.
Recruitment: Consecutive attenders aged >15 yrs (unselected)
Randomization: Consecutive colour-coded randomized sheets (therapist not blinded)
### Slama 1995

**Participants**
3128 adult smokers (a random sample of those randomized) followed up at 12m.
Therapists: GPs, minimal training

**Interventions**
1. Asking about smoking status and giving leaflet to smokers who wanted to stop
2. Controls who were not asked about smoking status until follow up
Intervention level: minimal
Aids used: none. Follow-up visits: no

**Outcomes**
Sustained abstinence at 12m (& 1m)
Validation: none

**Notes**

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### Stewart 1982

**Methods**
Setting: Family practice in Ottawa, Canada
Recruitment: Consecutive attenders identified as smokers by questionnaire (unselected)
Randomization: by sealed envelopes drawn by nurse

**Participants**
691 cigarette smokers age >11 yrs; cpd not stated
Therapists: physicians - level of training not stated

**Interventions**
1. Advice to quit on 1 occasion
2. Advice to quit on every visit for a 1 yr period
3. Advice plus pamphlet
4. control.
Groups 1 and 2 were subsequently merged as group 2 did not prove to be a practical intervention in this practice
Intervention level: minimal
Aids used: none. Follow-up visits: no

**Outcomes**
Sustained abstinence at 12m (& 5m)
Validation: none

**Notes**
1 and 2 and 3 compared to 4 for advice vs no advice

### Risk of bias

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Thompson 1988

Methods
Setting: Health Maintenance Organization, USA  
Recruitment: consecutive attenders identified & recruited by study staff (unselected)  
Randomization: by random folder allocation

Participants
1039 adult smokers; mean cpd not stated, 68% smoked >15 cpd  
Therapists: 37 family physicians

Interventions
1. Brief advice (internal control group)  
2. Usual care (external control group)  
3. Intervention group; The intervention group received, in a factorial design, 1 or 2 of the following interventions:  
   A. Structured physician advice (3-5 min talk); B. National Cancer Institute self-help materials C. Referral to group therapy.  
Intervention level: minimal and intensive groups  
Aids used: in some groups. Follow-up visits: in some groups

Outcomes
PP abstinence at 9m  
Validation: none

Notes
Analyzed in a stratified fashion to take into account the fact the intervention being delivered by a number of different therapists.  
The internal control group received brief advice as defined by this review, so the study is excluded from all intervention vs control comparisons.  
In the comparison of intensive vs minimal advice, groups receiving Structured Advice and Referral to group therapy are compared to those receiving Structured Advice only.

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Unrod 2007

Methods
Setting: family physicians' offices in New York, USA  
Recruitment: Physicians recruited & randomized. Patients recruited in waiting rooms by project staff, max 10 patients per physician  
Randomization: Cluster randomized by physician, no post-randomization dropouts

Participants
518 adult smokers; mean cpd 14

Interventions
1. Physician & patient given 1 page tailored report based on computer-based assessment in waiting room. Physician trained to provide 5As-based brief counselling. Follow-up appointment could be arranged  
2. No intervention (usual care)  
Intervention level: Intensive  
Aids used: none. Follow-up visits: yes for some participants
Outcomes

- PP abstinence at 6m
- Validation: salivary cotinine <25 ng/ml, in 35% subsample

Notes

- New for 2008 update
- Classified as intensive intervention based on provision of written materials and possibility of follow-up appointment. Meta-analysis results not sensitive to its classification.
- OR in paper derives from a generalized linear model allowing for clustering. Meta-analysis data derived from percentage quit, sensitivity analysis does not affect summary estimate.

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Vetter 1990

Methods

- Setting: single group general practice in the UK
- Recruitment: questionnaire sent by post to all patients registered with the practice > age 60 and those responding and identifying themselves as cigarette smokers included (unselected)
- Randomization: method not stated

Participants

- 471 smokers aged >60. cpd not stated.
- Therapists: GPs, backed up by practice nurse. No therapist training stated.

Interventions

- 1. Simple advice at a single visit with the GP, backed up by offer of advice on quitting strategies from practice nurse
- 2. Non-intervention control group.
- Intensity of intervention: minimal
- Aids used: none. Follow-up visits: no

Outcomes

- PP abstinence at 6m
- Validation: Expired CO

Notes

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### Wall 1995

**Methods**  
Setting: 49 private paediatric practices  
Recruitment: mothers attending for well baby visits (unselected)  
Randomization: by practice (cluster randomization), method not stated

**Participants**  
1478 smoking mothers (intervention also given to recent quitters, data not used here); 25 intervention practices, 23 control.  
Therapists: paediatricians.

**Interventions**  
1. Information pack including a letter from paediatrician on risks of passive smoking, provided by birth hospital  
2. As 1, and extended support (counselling plus follow up at 2, 4, and 5m visits) and materials (incl video tape, written materials, signs, magnets, bib)  
Intervention level: intensive  
Aids used: yes. Follow-up visits: yes

**Outcomes**  
PP abstinence at 12m  
Validation: none

**Notes**  
Study design allowed for clustering in calculating sample size. Intraclass correlation proved to be low. Longer term follow-up data with different denominators reported in Severson 1997 paper used from 2001. Logistic regression analysis controlling for baseline variance slightly reduced estimated effect (OR 1.78, 95% CI 0.84 to 3.74) but does not affect overall result so raw numbers used in meta-analysis

### Risk of bias

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### Williams 2001

**Methods**  
Setting: 27 community physicians, USA  
Recruitment: smokers willing to schedule a visit to discuss smoking, but not selected by motivation  
Randomization: method not described, enrolled and randomized before seeing physician

**Participants**  
316 smokers unselected for motivation; mean cpd (6m completers): 22  
Therapists: community physicians, trained on 4As model and 2 delivery styles

**Interventions**  
1. Advice using 4As model, using autonomy supportive style. NRT recommended for quit date setters.  
2. Advice using 4As model, using controlling style. NRT prescribed for quit date setters without con-traindications  
Average session length 11 mins.  
In both conditions, patients setting a quit date were asked to schedule a follow-up visit.

**Outcomes**  
Prolonged abstinence at 6, 12 & 30m  
Validation: CO at 6 & 30m, 4 disconfirmations reclassified.
Notes
Compared 2 types of advice, not included in main comparison. Drop-out rate not differential, all classified as smokers.

Risk of bias

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Wilson 1982

Methods
Setting: 2 university-based family practices in Ontario, Canada
Recruitment: Consecutive attenders identified as smokers by questionnaire (unselected)
Randomization: method not stated

Participants
211 adult smokers; mean cpd: not stated
Therapists: family physicians not further categorized

Interventions
1. Brief advice (5 min counselling)
2. Brief advice plus follow-up appointments at 1, 3 and 6m.
Intervention level: intensive vs minimal
Aids used: none. Follow-up visits: 3

Outcomes
PP abstinence at 6m
Validation: none

Notes
Contributes data to intensive vs minimal comparison only. Effect of intervention greater in this than other follow-up studies which have used biochemical validation. PP only given in study but Kozlowski 1987 notes that follow up was 6m post initial visit not 6m post intervention completion.

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Wilson 1990

Methods
Setting: 31 general practices in Adelaide, Australia
Recruitment: consecutive attenders identified as smokers by questionnaire (unselected)
Randomization: cluster randomization by practice, method not stated.

Participants
1238 adult smokers; cpd not stated
Therapists: GPs in the intervention group received a 2-hr instruction seminar.
**Interventions**

1. Personalized advice plus leaflets and visual aids at single visit
2. Normal care control group (advice given if clinically indicated).

Intervention level: minimal  
Aids used: none. Follow-up visits: no

**Outcomes**

Sustained abstinence at 12m (& 6m)  
Validation: none

**Notes**

Doctors in the intervention group unaware of the results of the smoking survey, ie had to ascertain themselves if the patient was a smoker.  
Excluding this study on the basis that it tests the effect of training rather than advice does not materially affect any meta-analysis findings.

**Risk of bias**

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**Characteristics of excluded studies [ordered by study ID]**

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<tr>
<td>Ahluwalia 1999</td>
<td>Intervention tested was the use of a prompt to increase advice.</td>
</tr>
<tr>
<td>Aleixandre 1998</td>
<td>Intervention provider unclear.</td>
</tr>
<tr>
<td>Andrews 2006</td>
<td>Follow up less than 6m.</td>
</tr>
<tr>
<td>Bakkevig 2000</td>
<td>General practice treatment was the control, compared with a behavioural programme.</td>
</tr>
<tr>
<td>Becker 2005</td>
<td>A nurse practitioner-delivered multicomponent intervention.</td>
</tr>
<tr>
<td>Bentz 2007</td>
<td>Smoking cessation rates were not included as an outcome.</td>
</tr>
<tr>
<td>BTS 1983</td>
<td>All patients received advice from a physician with adjuncts of a booklet and/or nicotine gum; included in NRT and Self-help reviews.</td>
</tr>
<tr>
<td>Buffels 2006</td>
<td>The RCT did not include a comparison of advice versus placebo or usual care. All patients received advice and were then randomized to spirometry in addition or advice alone.</td>
</tr>
<tr>
<td>Study Reference</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Carpenter 2004</td>
<td>The intervention was delivered by psychologists rather than physicians.</td>
</tr>
<tr>
<td>Chahal 2005</td>
<td>Insufficient data were available from the published abstract to allow analysis.</td>
</tr>
<tr>
<td>Cohen 1989</td>
<td>This study principally assesses the effect of training doctors to provide smoking cessation interventions and contributes data to a separate Cochrane review (Lancaster et al 2000).</td>
</tr>
<tr>
<td>Cohen 1989 b</td>
<td>This study principally assesses the effect of training doctors to provide smoking cessation interventions and contributes data to a separate Cochrane review (Lancaster et al 2000).</td>
</tr>
<tr>
<td>Colby 2005</td>
<td>The intervention was delivered by research assistants rather than physicians.</td>
</tr>
<tr>
<td>Conger 1987</td>
<td>Follow up &lt;6m.</td>
</tr>
<tr>
<td>Cummings 1989</td>
<td>This study principally assesses the effect of training doctors to provide smoking cessation interventions and contributes data to a separate Cochrane review (Lancaster et al 2000).</td>
</tr>
<tr>
<td>Cummings 1989 b</td>
<td>This study principally assesses the effect of training doctors to provide smoking cessation interventions and contributes data to a separate Cochrane review (Lancaster et al 2000).</td>
</tr>
<tr>
<td>Etter 2006</td>
<td>This study principally assesses the effect of training doctors to provide smoking cessation interventions. There are no data on quit rates, only on the number of physicians recommending a stop-smoking programme.</td>
</tr>
<tr>
<td>Fang 2006</td>
<td>Follow up &lt;6m</td>
</tr>
<tr>
<td>Folsom 1987</td>
<td>Follow up &lt;6m</td>
</tr>
<tr>
<td>Grandes 2000</td>
<td>Not randomized - 7 intervention and 3 control practices selected</td>
</tr>
<tr>
<td>Hollis 1993</td>
<td>Intervention delivered by a nurse. All intervention groups received brief advice from a physician.</td>
</tr>
<tr>
<td>Hurt 1994</td>
<td>Evaluates the effect of physician advice and nicotine patch compared to advice alone. Contributes to Cochrane NRT review (Stead et al 2008).</td>
</tr>
<tr>
<td>Hymowitz 2006</td>
<td>Assesses the effects of training doctors to provide smoking cessation.</td>
</tr>
<tr>
<td>Jackson 2004</td>
<td>Intervention was delivered by research assistants rather than physicians.</td>
</tr>
<tr>
<td>Kadowaki 2000</td>
<td>Intervention from an occupational physician included extended counselling.</td>
</tr>
<tr>
<td>Knight 1989</td>
<td>Follow up &lt;6m</td>
</tr>
<tr>
<td>Kottke 1989</td>
<td>This study principally assesses the effect of training doctors to provide smoking cessation interventions and contributes data to a separate Cochrane review (Lancaster et al 2000).</td>
</tr>
<tr>
<td>Reference</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Kozlowski 1987</td>
<td>Not a primary study; reanalyzes data from Wilson 1982.</td>
</tr>
<tr>
<td>Kreuter 2000</td>
<td>Physician advice was not the intervention tested.</td>
</tr>
<tr>
<td>Loeb 1983</td>
<td>Study population was pregnant women.</td>
</tr>
<tr>
<td>Loke 2005</td>
<td>Non-smoking pregnant women given advice by physicians to try to stop their husbands smoking. Follow up &lt;6m.</td>
</tr>
<tr>
<td>Lopez 2007</td>
<td>A multicomponent intervention for cancer prevention in patients with a family member affected by cancer.</td>
</tr>
<tr>
<td>Macarthur 1987</td>
<td>Study population was pregnant women.</td>
</tr>
<tr>
<td>Manfredi 1999</td>
<td>Multicomponent intervention; advice could be delivered by physician or nurse. Also included a motivational telephone counselling call, and practice-based systems for identification of smokers.</td>
</tr>
<tr>
<td>Mayer 1990</td>
<td>Study population was pregnant women, and advice was delivered by a health educator, not a physician.</td>
</tr>
<tr>
<td>McAfee 2005</td>
<td>Examines recall of smoking advice delivered to patients rather than analysing quit rates.</td>
</tr>
<tr>
<td>McEwen 2002</td>
<td>Intervention was intended to increase advice giving, not to test the impact of advice. Outcome was GP's behaviour.</td>
</tr>
<tr>
<td>McEwen 2006</td>
<td>This study addressed the training of physicians to provide smoking cessation.</td>
</tr>
<tr>
<td>Messimer 1989</td>
<td>Study population was pregnant women.</td>
</tr>
<tr>
<td>Richman 2000</td>
<td>Only 3m follow up.</td>
</tr>
<tr>
<td>Risser 1990</td>
<td>Provides interesting data on the effect of feedback from carbon monoxide and spirometry, but excluded here because advice was delivered by nurse-practitioners.</td>
</tr>
<tr>
<td>Rodriguez 2003</td>
<td>Intervention included NRT in addition to structured advice</td>
</tr>
<tr>
<td>Russell 1987</td>
<td>Randomized by practice and some practices unwilling to undertake the more intensive intervention.</td>
</tr>
<tr>
<td>Sanchez Beiza 1992</td>
<td>Both treatment arms received a minimal intervention level of physician advice.</td>
</tr>
<tr>
<td>Sanz-Pozo 2006</td>
<td>Compares nurse-led counselling to one-off advice given by a GP; no control group.</td>
</tr>
<tr>
<td>Secker-Walker 1998</td>
<td>Advice given to pregnant women, included in Cochrane review 'Interventions for promoting smoking cessation during pregnancy'.</td>
</tr>
<tr>
<td>Sippel 1999</td>
<td>Excluded since 2008; trial addresses the effect of spirometry and CO measurement as an adjunct to advice and was not relevant to the primary comparison. Now included in Cochrane review by Bize et al 'Biomedical risk assessment as an aid for smoking cessation' which encompasses all trials of this approach.</td>
</tr>
<tr>
<td>Study</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Soria 2006</td>
<td>Advice given to control group. Intervention was multisession motivational interviewing, too intensive to compare with the intensive interventions in the review.</td>
</tr>
<tr>
<td>Stratelis 2006</td>
<td>All patients received advice; compares the impact of repeated spirometry on smokers with and without COPD.</td>
</tr>
<tr>
<td>Strecher 1991</td>
<td>This study principally assesses the effect of training doctors to provide smoking cessation interventions and contributes data to a separate Cochrane review (Lancaster et al 2000).</td>
</tr>
<tr>
<td>Tait 2007</td>
<td>Compares telephone support and NRT to no intervention</td>
</tr>
<tr>
<td>Takahashi 2006</td>
<td>Not an RCT. Observational study of quit rates using the 5As approach.</td>
</tr>
<tr>
<td>Torrecilla 2001</td>
<td>Potentially eligible only for intensive versus minimal comparison, borderline for a multiple session counselling intervention</td>
</tr>
<tr>
<td>Twardella 2007</td>
<td>Trial of training and financial incentives</td>
</tr>
<tr>
<td>Ward 2006</td>
<td>Follow up &lt;6m.</td>
</tr>
<tr>
<td>Williams 2006</td>
<td>Intervention delivered by counsellors rather than physicians; also attempted to modify serum cholesterol levels in those subjects with raised cholesterol.</td>
</tr>
<tr>
<td>Wilson 1988</td>
<td>This study principally assesses the effect of training doctors to provide smoking cessation interventions and contributes data to a separate Cochrane review (Lancaster et al 1998)</td>
</tr>
<tr>
<td>Windsor 1985</td>
<td>Advice delivered by a health educator, not a physician</td>
</tr>
<tr>
<td>Young 2002</td>
<td>Intervention tested strategies to increase and support advice giving, not the effect of advice.</td>
</tr>
</tbody>
</table>

NRT: nicotine replacement therapy
## Data and Analyses

### Comparison 1. Effect of advice versus control (subgroups by intensity)

<table>
<thead>
<tr>
<th>Outcome or subgroup title</th>
<th>No. of studies</th>
<th>No. of participants</th>
<th>Statistical method</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Smoking cessation (at longest follow up)</strong></td>
<td>26</td>
<td>22240</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>1.76 [1.58, 1.95]</td>
</tr>
<tr>
<td>1.1 Minimal intervention</td>
<td>17</td>
<td>13724</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>1.66 [1.42, 1.94]</td>
</tr>
<tr>
<td>1.2 Intensive intervention</td>
<td>11</td>
<td>8516</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>1.84 [1.60, 2.13]</td>
</tr>
</tbody>
</table>

### Comparison 2. Effect of intensive advice versus minimal advice

<table>
<thead>
<tr>
<th>Outcome or subgroup title</th>
<th>No. of studies</th>
<th>No. of participants</th>
<th>Statistical method</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Smoking cessation (at longest follow up)</strong></td>
<td>15</td>
<td>9775</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>1.37 [1.20, 1.56]</td>
</tr>
<tr>
<td>1.1 Unselected populations</td>
<td>10</td>
<td>6002</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>1.20 [1.02, 1.43]</td>
</tr>
<tr>
<td>1.2 High risk populations</td>
<td>5</td>
<td>3773</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>1.65 [1.35, 2.03]</td>
</tr>
</tbody>
</table>

### Comparison 3. Effect of number of advice sessions (direct comparison and subgroup analysis)

<table>
<thead>
<tr>
<th>Outcome or subgroup title</th>
<th>No. of studies</th>
<th>No. of participants</th>
<th>Statistical method</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Smoking cessation (at longest follow up)</strong></td>
<td>30</td>
<td></td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Subtotals only</td>
</tr>
<tr>
<td>1.1 Within-trial comparison: with follow up versus single visit</td>
<td>5</td>
<td>1254</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>1.52 [1.08, 2.14]</td>
</tr>
<tr>
<td>1.2 Subgroup of interventions involving multiple visits</td>
<td>6</td>
<td>4511</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>2.22 [1.84, 2.68]</td>
</tr>
<tr>
<td>1.3 Subgroup of interventions with an option of more than 1 visit</td>
<td>3</td>
<td>1863</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>1.60 [1.21, 2.11]</td>
</tr>
<tr>
<td>1.4 Subgroup of interventions involving only 1 visit</td>
<td>18</td>
<td>14675</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>1.55 [1.35, 1.79]</td>
</tr>
</tbody>
</table>
### Comparison 4. Effect of aids as adjuncts to advice (direct comparison and subgroup analysis)

<table>
<thead>
<tr>
<th>Outcome or subgroup title</th>
<th>No. of studies</th>
<th>No. of participants</th>
<th>Statistical method</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking cessation (at longest follow up)</td>
<td>25</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Subtotals only</td>
<td></td>
</tr>
<tr>
<td>1.1 Aids not used</td>
<td>17</td>
<td>14518</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>1.78 [1.56, 2.04]</td>
</tr>
<tr>
<td>1.2 Aids used</td>
<td>10</td>
<td>7291</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>1.71 [1.46, 1.99]</td>
</tr>
<tr>
<td>1.3 Aids (spirometry &amp; CO levels) and advice versus advice only</td>
<td>0</td>
<td>0</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Not estimable</td>
</tr>
</tbody>
</table>

### Comparison 5. Direct comparisons between types of advice

<table>
<thead>
<tr>
<th>Outcome or subgroup title</th>
<th>No. of studies</th>
<th>No. of participants</th>
<th>Statistical method</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking cessation (maximum follow up)</td>
<td>3</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Totals not selected</td>
<td></td>
</tr>
<tr>
<td>1.1 Motivational counselling versus brief advice</td>
<td>1</td>
<td></td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Not estimable</td>
</tr>
<tr>
<td>1.2 Autonomy supportive versus controlling style advice</td>
<td>1</td>
<td></td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Not estimable</td>
</tr>
<tr>
<td>1.3 Brief advice versus tailored letters</td>
<td>1</td>
<td></td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Not estimable</td>
</tr>
</tbody>
</table>

### Comparison 6. Effect of advice on mortality and morbidity

<table>
<thead>
<tr>
<th>Outcome or subgroup title</th>
<th>No. of studies</th>
<th>No. of participants</th>
<th>Statistical method</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of events during 20 years follow up</td>
<td>1</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Totals not selected</td>
<td></td>
</tr>
<tr>
<td>1.1 Death or registration of lung cancer</td>
<td>1</td>
<td></td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Not estimable</td>
</tr>
<tr>
<td>1.2 Death or registration of cancers other than lung</td>
<td>1</td>
<td></td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Not estimable</td>
</tr>
<tr>
<td>1.3 Death from coronary heart disease</td>
<td>1</td>
<td></td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Not estimable</td>
</tr>
<tr>
<td>1.4 Death from all causes</td>
<td>1</td>
<td></td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Not estimable</td>
</tr>
<tr>
<td>Number of events during 33 years follow up</td>
<td>1</td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Totals not selected</td>
<td></td>
</tr>
<tr>
<td>2.1 Death from coronary heart disease</td>
<td>1</td>
<td></td>
<td>Risk Ratio (M-H, Fixed, 95% CI)</td>
<td>Not estimable</td>
</tr>
</tbody>
</table>
### Analysis 1.1. Comparison 1 Effect of advice versus control (subgroups by intensity), Outcome 1 Smoking cessation (at longest follow up).

**Review:** Physician advice for smoking cessation  
**Comparison:** 1 Effect of advice versus control (subgroups by intensity)  
**Outcome:** 1 Smoking cessation (at longest follow up)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Control</th>
<th>Risk Ratio (M-H, Fixed, 95% CI)</th>
<th>Weight</th>
<th>Risk Ratio (M-H, Fixed, 95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n/N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betson 1997</td>
<td>14/443</td>
<td>13/422</td>
<td>2.7 %</td>
<td>1.03 [ 0.49, 2.16 ]</td>
</tr>
<tr>
<td>Demers 1990</td>
<td>10/292</td>
<td>4/227</td>
<td>0.9 %</td>
<td>1.94 [ 0.62, 6.12 ]</td>
</tr>
<tr>
<td>Haug 1994</td>
<td>31/154</td>
<td>8/109</td>
<td>1.9 %</td>
<td>2.74 [ 1.31, 5.73 ]</td>
</tr>
<tr>
<td>Higushi 1995</td>
<td>53/468</td>
<td>35/489</td>
<td>6.9 %</td>
<td>1.58 [ 1.05, 2.38 ]</td>
</tr>
<tr>
<td>Jannraek 1984</td>
<td>77/512</td>
<td>29/274</td>
<td>7.6 %</td>
<td>1.42 [ 0.95, 2.12 ]</td>
</tr>
<tr>
<td>Janz 1987</td>
<td>26/144</td>
<td>12/106</td>
<td>2.8 %</td>
<td>1.59 [ 0.84, 3.01 ]</td>
</tr>
<tr>
<td>McDowell 1985</td>
<td>12/85</td>
<td>11/78</td>
<td>2.3 %</td>
<td>1.00 [ 0.47, 2.14 ]</td>
</tr>
<tr>
<td>Nebot 1989</td>
<td>11/208</td>
<td>5/216</td>
<td>1.0 %</td>
<td>2.28 [ 0.81, 6.46 ]</td>
</tr>
<tr>
<td>Page 1986</td>
<td>8/114</td>
<td>5/68</td>
<td>1.3 %</td>
<td>0.95 [ 0.33, 2.80 ]</td>
</tr>
<tr>
<td>Porter 1972</td>
<td>5/101</td>
<td>4/90</td>
<td>0.8 %</td>
<td>1.11 [ 0.31, 4.02 ]</td>
</tr>
<tr>
<td>Russell 1979</td>
<td>34/1031</td>
<td>8/1107</td>
<td>1.5 %</td>
<td>4.56 [ 2.12, 9.81 ]</td>
</tr>
<tr>
<td>Russell 1983</td>
<td>43/740</td>
<td>35/637</td>
<td>7.5 %</td>
<td>1.06 [ 0.69, 1.63 ]</td>
</tr>
<tr>
<td>Slama 1990</td>
<td>11/104</td>
<td>1/106</td>
<td>0.2 %</td>
<td>1.02 [ 0.06, 16.08 ]</td>
</tr>
<tr>
<td>Slama 1995</td>
<td>42/2199</td>
<td>5/929</td>
<td>1.4 %</td>
<td>3.55 [ 1.41, 8.94 ]</td>
</tr>
<tr>
<td>Stewart 1982</td>
<td>11/504</td>
<td>4/187</td>
<td>1.2 %</td>
<td>1.02 [ 0.33, 3.16 ]</td>
</tr>
<tr>
<td>Vetter 1990</td>
<td>34/237</td>
<td>20/234</td>
<td>4.0 %</td>
<td>1.68 [ 1.00, 2.83 ]</td>
</tr>
<tr>
<td>Wilson 1990</td>
<td>43/577</td>
<td>17/532</td>
<td>3.5 %</td>
<td>2.33 [ 1.35, 4.04 ]</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td><strong>7913</strong></td>
<td><strong>5811</strong></td>
<td><strong>47.5 %</strong></td>
<td><strong>1.66 [ 1.42, 1.94 ]</strong></td>
</tr>
</tbody>
</table>

Total events: 455 ( ), 216 (Control)

---

(Continued ...)

**Physician advice for smoking cessation (Review)**

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<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Control</th>
<th>Risk Ratio</th>
<th>Weight</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n/N</td>
<td>n/N</td>
<td>M-H,Fixed, 95% CI</td>
<td>M-H,Fixed, 95% CI</td>
</tr>
<tr>
<td>2 Intensive intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hilberink 2005</td>
<td>39/244</td>
<td>13/148</td>
<td>——</td>
<td>3.2 %</td>
</tr>
<tr>
<td>Jamrozik 1984</td>
<td>160/1049</td>
<td>29/274</td>
<td>——</td>
<td>9.2 %</td>
</tr>
<tr>
<td>Meyer 2008</td>
<td>39/402</td>
<td>41/609</td>
<td>——</td>
<td>6.5 %</td>
</tr>
<tr>
<td>Morgan 1996</td>
<td>43/279</td>
<td>31/380</td>
<td>——</td>
<td>5.3 %</td>
</tr>
<tr>
<td>Pieterse 2001</td>
<td>22/269</td>
<td>8/261</td>
<td>——</td>
<td>16.4%</td>
</tr>
<tr>
<td>Richmond 1986</td>
<td>23/100</td>
<td>2/100</td>
<td>——</td>
<td>0.4 %</td>
</tr>
<tr>
<td>Rose 78-92</td>
<td>162/714</td>
<td>74/731</td>
<td>——</td>
<td>14.7 %</td>
</tr>
<tr>
<td>Schnoll 2003</td>
<td>27/203</td>
<td>28/206</td>
<td>——</td>
<td>5.6 %</td>
</tr>
<tr>
<td>Slama 1990</td>
<td>5/101</td>
<td>1/106</td>
<td>——</td>
<td>0.2 %</td>
</tr>
<tr>
<td>Unrod 2007</td>
<td>29/237</td>
<td>17/228</td>
<td>——</td>
<td>3.5 %</td>
</tr>
<tr>
<td>Wall 1995</td>
<td>25/1073</td>
<td>10/802</td>
<td>——</td>
<td>2.3 %</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>4671</td>
<td>3845</td>
<td>•</td>
<td>52.5 %</td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td>12584</td>
<td>9656</td>
<td>•</td>
<td>100.0 %</td>
</tr>
</tbody>
</table>

Heterogeneity: Chi² = 23.33, df = 16 (P = 0.11); I² = 31%
Test for overall effect: Z = 6.33 (P < 0.00001)

Heterogeneity: Chi² = 19.98, df = 10 (P = 0.03); I² = 50%
Test for overall effect: Z = 8.40 (P < 0.00001)

Heterogeneity: Chi² = 44.41, df = 27 (P = 0.02); I² = 39%
Test for overall effect: Z = 10.45 (P < 0.00001)
**Analysis 2.1. Comparison 2 Effect of intensive advice versus minimal advice, Outcome 1 Smoking cessation (at longest follow up).**

Review: Physician advice for smoking cessation

Comparison: 2 Effect of intensive advice versus minimal advice

Outcome: 1 Smoking cessation (at longest follow up)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Treatment</th>
<th>Control</th>
<th>Risk Ratio (M-H, Fixed) 95% CI</th>
<th>Weight (M-H, Fixed)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Unselected populations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butler 1999</td>
<td>8/270</td>
<td>4/266</td>
<td>1.97 [0.60, 6.47]</td>
<td>0.12</td>
</tr>
<tr>
<td>Fagerstrom 1984</td>
<td>3/22</td>
<td>1/27</td>
<td>3.68 [0.41, 32.97]</td>
<td>0.03</td>
</tr>
<tr>
<td>Jarmo 1984</td>
<td>16/1049</td>
<td>77/512</td>
<td>1.01 [0.79, 1.30]</td>
<td>0.30</td>
</tr>
<tr>
<td>Lang 2000</td>
<td>36/591</td>
<td>23/504</td>
<td>1.33 [0.80, 2.22]</td>
<td>0.72</td>
</tr>
<tr>
<td>Marshall 1985</td>
<td>17/100</td>
<td>14/100</td>
<td>1.21 [0.63, 2.33]</td>
<td>0.41</td>
</tr>
<tr>
<td>Ockene 1991</td>
<td>70/625</td>
<td>18/227</td>
<td>1.41 [0.86, 2.32]</td>
<td>0.77</td>
</tr>
<tr>
<td>Segnan 1991</td>
<td>62/861</td>
<td>3/62</td>
<td>1.49 [0.48, 4.61]</td>
<td>0.16</td>
</tr>
<tr>
<td>Slama 1990</td>
<td>5/101</td>
<td>1/104</td>
<td>1.51 [0.61, 4.30]</td>
<td>0.03</td>
</tr>
<tr>
<td>Thompson 1988</td>
<td>23/182</td>
<td>26/188</td>
<td>0.91 [0.54, 1.54]</td>
<td>0.74</td>
</tr>
<tr>
<td>Wilson 1982</td>
<td>21/106</td>
<td>11/105</td>
<td>1.89 [0.96, 3.72]</td>
<td>0.32</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>3907</td>
<td>2095</td>
<td>62.9% [1.02, 1.43]</td>
<td></td>
</tr>
</tbody>
</table>

Total events: 405 (Treatment), 178 (Control)

Heterogeneity: \( \chi^2 = 8.72, \text{df} = 9 \) \( (P = 0.46); I^2 = 0.0\%

Test for overall effect: \( Z = 2.14 \) \( (P = 0.032) \)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Treatment</th>
<th>Control</th>
<th>Risk Ratio (M-H, Fixed) 95% CI</th>
<th>Weight (M-H, Fixed)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2 High risk populations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ardon 1988</td>
<td>0/60</td>
<td>1/60</td>
<td>0.33 [0.01, 8.02]</td>
<td>0.4%</td>
</tr>
<tr>
<td>BTS 1990A</td>
<td>66/730</td>
<td>51/732</td>
<td>1.30 [0.91, 1.84]</td>
<td>14.8%</td>
</tr>
<tr>
<td>BTS 1990B</td>
<td>61/702</td>
<td>35/690</td>
<td>1.71 [1.15, 2.56]</td>
<td>10.2%</td>
</tr>
<tr>
<td>Burt 1974</td>
<td>70/125</td>
<td>27/98</td>
<td>2.03 [1.42, 2.90]</td>
<td>8.8%</td>
</tr>
<tr>
<td>Li 1984</td>
<td>18/215</td>
<td>13/361</td>
<td>2.32 [1.16, 4.65]</td>
<td>2.8%</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>1832</td>
<td>1941</td>
<td>37.1% [1.35, 2.03]</td>
<td></td>
</tr>
</tbody>
</table>

Total events: 215 (Treatment), 127 (Control)

Heterogeneity: \( \chi^2 = 5.05, \text{df} = 4 \) \( (P = 0.28); I^2 = 21\%

Test for overall effect: \( Z = 4.86 \) \( (P < 0.00001) \)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Treatment</th>
<th>Control</th>
<th>Risk Ratio (M-H, Fixed) 95% CI</th>
<th>Weight (M-H, Fixed)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td>5739</td>
<td>4036</td>
<td>100.0% [1.20, 1.56]</td>
<td></td>
</tr>
</tbody>
</table>

Total events: 620 (Treatment), 305 (Control)

Heterogeneity: \( \chi^2 = 20.49, \text{df} = 14 \) \( (P = 0.12); I^2 = 32\%

Test for overall effect: \( Z = 4.75 \) \( (P < 0.00001) \)

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**Physician advice for smoking cessation (Review)***

Copyright © 2008 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.
### Analysis 3.1. Comparison 3 Effect of number of advice sessions (direct comparison and subgroup analysis), Outcome 1 Smoking cessation (at longest follow up).

Review: Physician advice for smoking cessation

Comparison: Effect of number of advice sessions (direct comparison and subgroup analysis)

Outcome: Smoking cessation (at longest follow up)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>n/N</th>
<th>n/N</th>
<th>Risk Ratio (M-H,Fixed,95% CI)</th>
<th>Weight</th>
<th>Risk Ratio (M-H,Fixed,95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within-trial comparison: with follow up versus single visit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fagerstrom 1984</td>
<td>3/22</td>
<td>1/27</td>
<td>1.8 % 3.68 [0.41, 32.97]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marshall 1985</td>
<td>17/100</td>
<td>14/100</td>
<td>28.6 % 1.21 [0.63, 2.33]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odense 1991</td>
<td>28/230</td>
<td>18/227</td>
<td>37.0 % 1.54 [0.87, 2.70]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Segnan 1991</td>
<td>15/275</td>
<td>3/62</td>
<td>10.0 % 1.13 [0.34, 3.77]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilson 1982</td>
<td>21/106</td>
<td>11/105</td>
<td>22.6 % 1.89 [0.96, 3.72]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td><strong>733</strong></td>
<td><strong>521</strong></td>
<td>100.0 % 1.52 [1.08, 2.14]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total events: 84 (0.47)

Heterogeneity: Chi² = 1.72, df = 4 (P = 0.79); I² = 0.0%

Test for overall effect: Z = 2.43 (P = 0.015)

2 Subgroup of interventions involving multiple visits

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>n/N</th>
<th>n/N</th>
<th>Risk Ratio (M-H,Fixed,95% CI)</th>
<th>Weight</th>
<th>Risk Ratio (M-H,Fixed,95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hilberink 2005</td>
<td>39/244</td>
<td>13/148</td>
<td>1.14 % 1.82 [1.01, 3.29]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morgan 1996</td>
<td>43/279</td>
<td>31/380</td>
<td>18.5 % 1.89 [1.22, 2.92]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Richmond 1986</td>
<td>23/100</td>
<td>2/100</td>
<td>1.4 % 1.10 [0.79, 1.74]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rose 78-92</td>
<td>162/714</td>
<td>74/731</td>
<td>51.6 % 2.24 [1.74, 2.89]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Segnan 1991</td>
<td>16/275</td>
<td>3/62</td>
<td>3.5 % 1.20 [0.36, 4.00]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wall 1995</td>
<td>50/842</td>
<td>17/636</td>
<td>13.7 % 2.22 [1.29, 3.81]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td><strong>2454</strong></td>
<td><strong>2057</strong></td>
<td>100.0 % 2.22 [1.84, 2.68]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total events: 333 (1.40)

Heterogeneity: Chi² = 7.13, df = 5 (P = 0.21); I² = 30%

Test for overall effect: Z = 8.33 (P < 0.00001)

3 Subgroup of interventions with an option of more than 1 visit

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>n/N</th>
<th>n/N</th>
<th>Risk Ratio (M-H,Fixed,95% CI)</th>
<th>Weight</th>
<th>Risk Ratio (M-H,Fixed,95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haug 1994</td>
<td>31/154</td>
<td>8/109</td>
<td>12.7 % 2.74 [1.31, 5.73]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jamrozek 1984</td>
<td>69/521</td>
<td>58/549</td>
<td>76.4 % 1.25 [0.90, 1.74]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petersen 2001</td>
<td>22/269</td>
<td>8/261</td>
<td>11.0 % 2.67 [1.21, 5.89]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td><strong>944</strong></td>
<td><strong>919</strong></td>
<td>100.0 % 1.60 [1.21, 2.11]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total events: 122 (0.74)

Heterogeneity: Chi² = 5.78, df = 2 (P = 0.06); I² = 65%

Test for overall effect: Z = 3.31 (P = 0.00092)
<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>n/N</th>
<th>n/N</th>
<th>Risk Ratio</th>
<th>Weight</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subgroup of interventions involving only 1 visit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betson 1997</td>
<td>14/443</td>
<td>13/422</td>
<td></td>
<td>4.6%</td>
<td>1.03 [0.49, 2.16]</td>
</tr>
<tr>
<td>Demers 1990</td>
<td>15/292</td>
<td>5/292</td>
<td></td>
<td>1.7%</td>
<td>3.00 [1.10, 8.15]</td>
</tr>
<tr>
<td>Higashi 1995</td>
<td>53/468</td>
<td>35/489</td>
<td></td>
<td>11.7%</td>
<td>1.58 [1.05, 2.38]</td>
</tr>
<tr>
<td>Janrozik 1984</td>
<td>77/512</td>
<td>58/549</td>
<td></td>
<td>19.1%</td>
<td>1.42 [1.03, 1.96]</td>
</tr>
<tr>
<td>Janz 1987</td>
<td>26/144</td>
<td>12/106</td>
<td></td>
<td>4.7%</td>
<td>1.59 [0.84, 3.01]</td>
</tr>
<tr>
<td>McDowell 1985</td>
<td>12/85</td>
<td>11/78</td>
<td></td>
<td>3.9%</td>
<td>1.00 [0.47, 2.14]</td>
</tr>
<tr>
<td>Nebot 1989</td>
<td>11/208</td>
<td>5/216</td>
<td></td>
<td>1.7%</td>
<td>2.28 [0.81, 6.46]</td>
</tr>
<tr>
<td>Page 1986</td>
<td>8/114</td>
<td>5/68</td>
<td></td>
<td>2.1%</td>
<td>0.95 [0.33, 2.80]</td>
</tr>
<tr>
<td>Porter 1972</td>
<td>5/101</td>
<td>4/90</td>
<td></td>
<td>1.4%</td>
<td>1.11 [0.31, 4.02]</td>
</tr>
<tr>
<td>Russell 1979</td>
<td>34/1031</td>
<td>8/1107</td>
<td></td>
<td>2.6%</td>
<td>4.56 [2.12, 9.81]</td>
</tr>
<tr>
<td>Russell 1983</td>
<td>43/740</td>
<td>35/637</td>
<td></td>
<td>12.9%</td>
<td>1.06 [0.69, 1.63]</td>
</tr>
<tr>
<td>Schnoll 2003</td>
<td>27/203</td>
<td>28/206</td>
<td></td>
<td>9.5%</td>
<td>0.98 [0.60, 1.60]</td>
</tr>
<tr>
<td>Slama 1990</td>
<td>11/104</td>
<td>11/106</td>
<td></td>
<td>0.3%</td>
<td>1.02 [0.06, 16.08]</td>
</tr>
<tr>
<td>Slama 1995</td>
<td>42/2199</td>
<td>5/929</td>
<td></td>
<td>2.4%</td>
<td>3.55 [1.41, 9.94]</td>
</tr>
<tr>
<td>Stewart 1982</td>
<td>11/504</td>
<td>4/187</td>
<td></td>
<td>2.0%</td>
<td>1.02 [0.33, 3.16]</td>
</tr>
<tr>
<td>Unrod 2007</td>
<td>28/237</td>
<td>18/228</td>
<td></td>
<td>6.3%</td>
<td>1.50 [0.85, 2.63]</td>
</tr>
<tr>
<td>Vetter 1990</td>
<td>34/237</td>
<td>20/234</td>
<td></td>
<td>6.9%</td>
<td>1.68 [1.00, 2.83]</td>
</tr>
<tr>
<td>Wilson 1990</td>
<td>43/577</td>
<td>17/532</td>
<td></td>
<td>6.1%</td>
<td>2.33 [1.35, 4.04]</td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td>8199</td>
<td>6476</td>
<td></td>
<td>100.0%</td>
<td>1.55 [1.35, 1.79]</td>
</tr>
</tbody>
</table>

Total events: 484 (1, 284 ()
Heterogeneity: $Q = 25.96$, df = 17 ($P = 0.08$); $I^2 = 35%$
Test for overall effect: $Z = 6.11$ ($P < 0.00001$)
### Analysis 4.1. Comparison 4 Effect of aids as adjuncts to advice (direct comparison and subgroup analysis), Outcome 1 Smoking cessation (at longest follow up).

Review: Physician advice for smoking cessation

Comparison: 4 Effect of aids as adjuncts to advice (direct comparison and subgroup analysis)

Outcome: 1 Smoking cessation (at longest follow up)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Treatment n/N</th>
<th>Control n/N</th>
<th>Risk Ratio M-H,Fixed 95% CI</th>
<th>Weight M-H,Fixed 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Aids not used</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betson 1997</td>
<td>14/443</td>
<td>13/422</td>
<td>4.4 % 1.03 [0.49, 2.16]</td>
<td></td>
</tr>
<tr>
<td>Demers 1990</td>
<td>15/292</td>
<td>5/292</td>
<td>1.6 % 3.00 [1.10, 8.15]</td>
<td></td>
</tr>
<tr>
<td>Haug 1994</td>
<td>31/154</td>
<td>8/109</td>
<td>3.1 % 2.74 [1.31, 5.73]</td>
<td></td>
</tr>
<tr>
<td>Jamrozik 1984</td>
<td>77/512</td>
<td>58/549</td>
<td>18.4 % 1.42 [1.03, 1.96]</td>
<td></td>
</tr>
<tr>
<td>Janz 1987</td>
<td>10/69</td>
<td>12/106</td>
<td>3.1 % 1.28 [0.59, 2.80]</td>
<td></td>
</tr>
<tr>
<td>McDowell 1985</td>
<td>12/85</td>
<td>11/78</td>
<td>3.8 % 1.00 [0.47, 2.14]</td>
<td></td>
</tr>
<tr>
<td>Page 1986</td>
<td>8/114</td>
<td>5/68</td>
<td>2.1 % 0.95 [0.33, 2.80]</td>
<td></td>
</tr>
<tr>
<td>Porter 1972</td>
<td>5/101</td>
<td>4/90</td>
<td>1.4 % 1.11 [0.31, 4.02]</td>
<td></td>
</tr>
<tr>
<td>Rose 78-92</td>
<td>162/714</td>
<td>74/731</td>
<td>24.1 % 2.24 [1.74, 2.89]</td>
<td></td>
</tr>
<tr>
<td>Russell 1979</td>
<td>34/1031</td>
<td>8/1107</td>
<td>25 % 4.56 [2.12, 9.81]</td>
<td></td>
</tr>
<tr>
<td>Russell 1983</td>
<td>43/740</td>
<td>35/637</td>
<td>12.4 % 1.06 [0.69, 1.63]</td>
<td></td>
</tr>
<tr>
<td>Slama 1990</td>
<td>1/104</td>
<td>1/106</td>
<td>0.3 % 1.02 [0.06, 16.08]</td>
<td></td>
</tr>
<tr>
<td>Slama 1995</td>
<td>42/2199</td>
<td>5/929</td>
<td>2.3 % 3.55 [1.41, 8.94]</td>
<td></td>
</tr>
<tr>
<td>Stewart 1982</td>
<td>11/504</td>
<td>4/187</td>
<td>1.9 % 1.02 [0.33, 3.16]</td>
<td></td>
</tr>
<tr>
<td>Unrod 2007</td>
<td>28/237</td>
<td>18/228</td>
<td>6.0 % 1.50 [0.85, 2.63]</td>
<td></td>
</tr>
<tr>
<td>Vetter 1990</td>
<td>34/237</td>
<td>20/234</td>
<td>6.6 % 1.68 [1.00, 2.83]</td>
<td></td>
</tr>
<tr>
<td>Wilson 1990</td>
<td>43/577</td>
<td>17/532</td>
<td>5.8 % 2.33 [1.35, 4.04]</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td><strong>8113</strong></td>
<td><strong>6405</strong></td>
<td><strong>100.0 %</strong> <strong>1.78 [1.56, 2.04]</strong></td>
<td></td>
</tr>
</tbody>
</table>

Total events: 570 (Treatment), 298 (Control)

Heterogeneity: \( \chi^2 = 30.15, \) df = 16 (P = 0.02); I\(^2 = 47\%\)

Test for overall effect: Z = 8.45 (P < 0.00001)

2 Aids used

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Treatment n/N</th>
<th>Control n/N</th>
<th>Risk Ratio M-H,Fixed 95% CI</th>
<th>Weight M-H,Fixed 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higashi 1995</td>
<td>53/468</td>
<td>35/489</td>
<td>15.2 % 1.58 [1.05, 2.38]</td>
<td></td>
</tr>
<tr>
<td>Hiberink 2005</td>
<td>39/244</td>
<td>13/148</td>
<td>7.2 % 1.82 [1.01, 3.29]</td>
<td></td>
</tr>
<tr>
<td>Jamrozik 1984</td>
<td>91/528</td>
<td>58/549</td>
<td>25.2 % 1.63 [1.20, 2.22]</td>
<td></td>
</tr>
<tr>
<td>Janz 1987</td>
<td>16/75</td>
<td>12/106</td>
<td>4.4 % 1.88 [0.95, 3.75]</td>
<td></td>
</tr>
</tbody>
</table>

(Continued...)
### Analysis 5.1. Comparison 5 Direct comparisons between types of advice, Outcome 1 Smoking cessation (maximum follow up).

**Review:** Physician advice for smoking cessation  
**Comparison:** 5 Direct comparisons between types of advice  
**Outcome:** 1 Smoking cessation (maximum follow up)

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Advice type 1 n/N</th>
<th>Advice type 2 n/N</th>
<th>Risk Ratio M-H,Fixed,95% CI</th>
<th>Weight</th>
<th>Risk Ratio M-H,Fixed,95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Motivational counselling versus brief advice</td>
<td>Butler 1999 8/270</td>
<td>4/266</td>
<td>1.97 [0.60, 6.47]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Autonomy supportive versus controlling style advice</td>
<td>Williams 2001 6/157</td>
<td>12/159</td>
<td>0.51 [0.19, 1.32]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Brief advice versus tailored letters</td>
<td>Meyer 2008 39/402</td>
<td>50/488</td>
<td>0.95 [0.64, 1.41]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Analysis 6.1. Comparison 6 Effect of advice on mortality and morbidity, Outcome 1 Number of events during 20 years follow up.

**Review:** Physician advice for smoking cessation  
**Comparison:** Effect of advice on mortality and morbidity  
**Outcome:** Number of events during 20 years follow up

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Treatment</th>
<th>Control</th>
<th>Risk Ratio M-H,Fixed,95% CI</th>
<th>Risk Ratio M-H,Fixed,95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Death or registration of lung cancer</td>
<td>Rose 78-92</td>
<td>45/714</td>
<td>51/731</td>
<td>0.90 [0.61, 1.33]</td>
</tr>
<tr>
<td>2 Death or registration of cancers other than lung</td>
<td>Rose 78-92</td>
<td>87/714</td>
<td>72/731</td>
<td>1.24 [0.92, 1.66]</td>
</tr>
<tr>
<td>3 Death from coronary heart disease</td>
<td>Rose 78-92</td>
<td>105/714</td>
<td>126/731</td>
<td>0.85 [0.67, 1.08]</td>
</tr>
<tr>
<td>4 Death from all causes</td>
<td>Rose 78-92</td>
<td>296/714</td>
<td>324/731</td>
<td>0.94 [0.83, 1.05]</td>
</tr>
</tbody>
</table>

Favours treatment | Favours control
Analysis 6.2. Comparison 6 Effect of advice on mortality and morbidity, Outcome 2 Number of events during 33 years follow up.

Review: Physician advice for smoking cessation

Comparison: 6 Effect of advice on mortality and morbidity

Outcome: 2 Number of events during 33 years follow up

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Treatment</th>
<th>Control</th>
<th>Risk Ratio</th>
<th>Risk Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n/N</td>
<td>n/N</td>
<td>M-H, Fixed, 95% CI</td>
<td>M-H, Fixed, 95% CI</td>
</tr>
<tr>
<td>1 Death from coronary heart disease</td>
<td>181/703</td>
<td>178/723</td>
<td>1.05 [ 0.87, 1.25 ]</td>
<td></td>
</tr>
<tr>
<td>2 Death from cardiovascular disease</td>
<td>264/703</td>
<td>277/723</td>
<td>0.98 [ 0.86, 1.12 ]</td>
<td></td>
</tr>
<tr>
<td>3 Death from respiratory disease</td>
<td>82/703</td>
<td>111/723</td>
<td>0.76 [ 0.58, 0.99 ]</td>
<td></td>
</tr>
<tr>
<td>4 Death from cancer</td>
<td>164/703</td>
<td>158/723</td>
<td>1.07 [ 0.88, 1.29 ]</td>
<td></td>
</tr>
<tr>
<td>5 Death from all causes</td>
<td>561/703</td>
<td>599/723</td>
<td>0.96 [ 0.92, 1.01 ]</td>
<td></td>
</tr>
</tbody>
</table>

**FEEDBACK**

Intention to treat analyses

**Summary**

I wonder whether the studies included were based on intention to treat analysis? If they were not, I believe that a selection of more motivated subjects has taken place even in studies where unselected populations were invited. Smokers who are not motivated to quit, do not take the same interest in such on offer. Intention to treat principles should be applied if the size of the effect should apply to whole practice populations.

**Reply**

In extracting data from the studies, the denominators were derived from the number of participants stated to be randomised to each condition, and participants lost to follow-up were assumed to be continuing smokers, an intention to treat analysis. Where unselected participants were recruited, the results should therefore reflect whole practice smoker populations. However, the exact way in which participants were recruited differed between trials. In some studies where the intention was to recruit unselected participants, it may be that those recruited were not typical of the practice populations.

**Contributors**

Ann Dorrit Guassora (commenter); Lindsay Stead (author)
WHAT'S NEW

Last assessed as up-to-date: 13 February 2008.

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 August 2008</td>
<td>Amended</td>
<td>Converted to new review format.</td>
</tr>
</tbody>
</table>

HISTORY

Protocol first published: Issue 2, 1996

Review first published: Issue 2, 1996

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 February 2008</td>
<td>New citation required but conclusions have not changed</td>
<td>Updated for issue 2, 2008. Three new included studies added, new author added, and metric changed from odds ratios to risk ratios.</td>
</tr>
<tr>
<td>12 July 2004</td>
<td>New search has been performed</td>
<td>Updated for issue 4, 2004. Five additional studies added, and statistical methods for meta-analysis changed from Peto to Mantel-Haenszel. There were no major changes to the conclusions of the review.</td>
</tr>
</tbody>
</table>

CONTRIBUTIONS OF AUTHORS

Chris Silagy initiated the review and was contact author until the review was updated in 2004 following his death in 2001. Sarah Ketteridge developed the first version of the review including data extraction and drafting. Ruth Ashenden provided technical support in the preparation of the initial version of the review.

Lindsay Stead has identified trials, extracted data and drafted updates since 1998. Tim Lancaster has checked data extraction and finalised updates since 2002.

Rafael Perera gave statistical and translation support for the 2008 update. Gillian Bergson extracted data from trials for the 2008 update, and contributed to revisions of the text.
DECLARATIONS OF INTEREST

None known

SOURCES OF SUPPORT

Internal sources

- University of Oxford, Department of Primary Health Care, UK.
- National School for Health Research School for Primary Care Research, UK.

External sources

- NHS Research and Development Programme, UK.

NOTES

Chris Silagy was first author at the time of his death in 2001. The authors for citation were changed when the review was updated in 2004.

INDEX TERMS

Medical Subject Headings (MeSH)

*Patient Education as Topic; *Physician's Role; *Smoking Cessation; Physician's Practice Patterns; Randomized Controlled Trials as Topic; Smoking [*prevention & control]; Treatment Outcome

MeSH check words

Humans