

Physician advice for smoking cessation (Review)

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[Intervention Review]

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. We used the most rigorous definition of abstinence in each trial, and biochemically validated rates where 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.

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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 (Kortke 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 (Kortke 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 health-care settings they can also refer patients to more intensive behavioural counselling and support, either face-to-face (Lancaster 2005a; Stead 2005) 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).

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-relationships' 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 4As 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 encouraged 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 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%) (Ardron 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 ($I^2=31\%$). When trials compared a more intensive intervention to a 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, $I^2=50\%$). 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 ($I^2 = 39\%$ 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 ($I^2=32\%$). 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 ($I^2=0\%$). 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, $I^2=21\%$) 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, $I^2=30\%$, Comparison 03.01.02), compared to 1.55 (18 studies, 95% CI 1.35 to 1.79, $I^2=35\%$, 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 min-

utes) 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 personalised 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 2005a; 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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* Indicates the major publication for the study

CHARACTERISTICS OF STUDIES

Characteristics of included studies [ordered by study ID]

Ardron 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 health 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

Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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 >10cpd
Interventions	1. No intervention 2. Written materials (Chinese translation of American Cancer Society booklet) 3. Physician advice (1min, based on 4As) 4. Physician advice and booklet Intervention level: minimal (3&4) Aids used: none. Follow-up visits: none
Outcomes	Abstinence at 1 yr (sustained from 3m) 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		
Item	Authors' judgement	Description
Allocation concealment?	Yes	A - Adequate

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		
Item	Authors' judgement	Description
Allocation concealment?	Yes	A - Adequate

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		
Item	Authors' judgement	Description
Allocation concealment?	Yes	A - Adequate

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		
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

Butler 1999

Methods	Setting: general practices (registrars), UK; Recruitment: All smokers attending for consultation (except those with terminal illness) (unselected) Randomization: block randomization using sealed envelopes.	
Participants	536 smokers (70% female) at various stages of change	
Interventions	1. Standardized brief advice (estimated time 2 minutes) 2. Structured motivational counselling (mean length 10 mins) (based on stage of readiness to change)	
Outcomes	PP at 6m (self-reported abstinence in the previous month). Validation: none	
Notes	Contributes data to intensive vs minimal comparison only.	
<i>Risk of bias</i>		
Item	Authors' judgement	Description
Allocation concealment?	Yes	A - Adequate

Demers 1990

Methods	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	
Participants	519 adult smokers; Mean cpd 22 Therapists : Family practitioners	
Interventions	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	
Outcomes	Sustained at 12m (& 6m) Validation: none	
Notes	Sustained replaced PP abstinence from 2008	
<i>Risk of bias</i>		
Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

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.

Risk of bias

Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

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.

Risk of bias

Item	Authors' judgement	Description
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Gilbert 1992 (Continued)

Allocation concealment?	Yes	A - Adequate
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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.

Risk of bias

Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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.

Higashi 1995 (Continued)

<i>Risk of bias</i>		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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 drop out 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

Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

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	<p>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</p>
Outcomes	<p>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</p>
Notes	<p>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</p>

Risk of bias

Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

Janz 1987

Methods	<p>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)</p>
Participants	<p>250 adult smokers, mean cpd 24 Therapists : Intervention physicians and nurses given brief tutorial. Control physicians not informed of study.</p>
Interventions	<p>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</p>
Outcomes	<p>PP abstinence at 6m Validation : none</p>
Notes	<p>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</p>

Janz 1987 (Continued)

<i>Risk of bias</i>		
Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

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 (≥ 6 m) 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.

<i>Risk of bias</i>		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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)

Outcomes	Sustained abstinence at 11m Validation: expired CO	
Notes	Contributes data to intensive vs minimal comparison only	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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	

McDowell 1985 (Continued)

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

Meyer 2008

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

Meyer 2008 (Continued)

Allocation concealment?	No	C - Inadequate
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Morgan 1996

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

Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

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)

Notes		
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

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.	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Yes	A - Adequate

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		
<i>Risk of bias</i>		
Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

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	
<i>Risk of bias</i>		

Pieterse 2001 (Continued)

Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

Porter 1972

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

Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

Richmond 1986

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		
<i>Risk of bias</i>		
Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

Rose 78-92

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	
<i>Risk of bias</i>		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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

Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

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

Russell 1983 (Continued)

<i>Risk of bias</i>		
Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

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

Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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 (Continued)

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		
Item	Authors' judgement	Description
Allocation concealment?	Yes	A - Adequate

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		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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)	
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Slama 1995 (Continued)

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		
<i>Risk of bias</i>		
Item	Authors' judgement	Description
Allocation concealment?	No	C - Inadequate

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	
<i>Risk of bias</i>		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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.

Risk of bias

Item	Authors' judgement	Description
Allocation concealment?	Yes	A - Adequate

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

Unrod 2007 (Continued)

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.	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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		
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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

Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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 contraindications 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.

Williams 2001 (Continued)

Notes	Compares 2 types of advice, not included in main comparison. Drop-out rate not differential, all classified as smokers	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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.	
Risk of bias		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

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.	

Wilson 1990 (Continued)

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		
Item	Authors' judgement	Description
Allocation concealment?	Unclear	B - Unclear

CI: confidence interval. cpd: cigarettes per day. GP: general practitioner. m: month(s). NRT: nicotine replacement therapy. OR: Odds Ratio. PP: point prevalence.

Characteristics of excluded studies [ordered by study ID]

Ahluwalia 1999	Intervention tested was the use of a prompt to increase advice.
Aleixandre 1998	Intervention provider unclear.
Andrews 2006	Follow up less than 6m.
Bakkevig 2000	General practice treatment was the control, compared with a behavioural programme.
Becker 2005	A nurse practitioner-delivered multicomponent intervention.
Bentz 2007	Smoking cessation rates were not included as an outcome.
BTS 1983	All patients received advice from a physician with adjuncts of a booklet and/or nicotine gum; included in NRT and Self-help reviews.
Buffels 2006	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.

(Continued)

Carpenter 2004	The intervention was delivered by psychologists rather than physicians.
Chahal 2005	Insufficient data were available from the published abstract to allow analysis.
Cohen 1989	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).
Cohen 1989 b	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).
Colby 2005	The intervention was delivered by research assistants rather than physicians.
Conger 1987	Follow up <6m.
Cummings 1989	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).
Cummings 1989 b	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).
Etter 2006	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.
Fang 2006	Follow up <6m
Folsom 1987	Follow up <6m
Grandes 2000	Not randomized - 7 intervention and 3 control practices selected
Hollis 1993	Intervention delivered by a nurse. All intervention groups received brief advice from a physician.
Hurt 1994	Evaluates the effect of physician advice and nicotine patch compared to advice alone. Contributes to Cochrane NRT review (Stead et al 2008).
Hymowitz 2006	Assesses the effects of training doctors to provide smoking cessation.
Jackson 2004	Intervention was delivered by research assistants rather than physicians.
Juarranz Sanz 1998	Physician advice confounded with systematic use of nicotine gum.
Kadowaki 2000	Intervention from an occupational physician included extended counselling.
Knight 1989	Follow up <6m
Kottke 1989	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).

(Continued)

Kozlowski 1987	Not a primary study; reanalyzes data from Wilson 1982.
Kreuter 2000	Physician advice was not the intervention tested.
Loeb 1983	Study population was pregnant women.
Loke 2005	Non-smoking pregnant women given advice by physicians to try to stop their husbands smoking. Follow up <6m.
Lopez 2007	A multicomponent intervention for cancer prevention in patients with a family member affected by cancer.
Macarthur 1987	Study population was pregnant women.
Manfredi 1999	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.
Mayer 1990	Study population was pregnant women, and advice was delivered by a health educator, not a physician.
McAfee 2005	Examines recall of smoking advice delivered to patients rather than analysing quit rates.
McEwen 2002	Intervention was intended to increase advice giving, not to test the impact of advice. Outcome was GP's behaviour.
McEwen 2006	This study addressed the training of physicians to provide smoking cessation.
Messimer 1989	Study population was pregnant women.
Richman 2000	Only 3m follow up.
Risser 1990	Provides interesting data on the effect of feedback from carbon monoxide and spirometry, but excluded here because advice was delivered by nurse-practitioners.
Rodriguez 2003	Intervention included NRT in addition to structured advice
Russell 1987	Randomized by practice and some practices unwilling to undertake the more intensive intervention.
Sanchez Beiza 1992	Both treatment arms received a minimal intervention level of physician advice.
Sanz-Pozo 2006	Compares nurse-led counselling to one-off advice given by a GP; no control group.
Secker-Walker 1998	Advice given to pregnant women, included in Cochrane review 'Interventions for promoting smoking cessation during pregnancy'.
Sippel 1999	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.

(Continued)

Soria 2006	Advice given to control group. Intervention was multisession motivational interviewing, too intensive to compare with the intensive interventions in the review.
Stratelis 2006	All patients received advice; compares the impact of repeated spirometry on smokers with and without COPD.
Strecher 1991	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).
Tait 2007	Compares telephone support and NRT to no intervention
Takahashi 2006	Not an RCT. Observational study of quit rates using the 5As approach.
Torrecilla 2001	Potentially eligible only for intensive versus minimal comparison, borderline for a multiple session counselling intervention
Twardella 2007	Trial of training and financial incentives
Van 2006	A multicomponent intervention for prevention of cardiovascular disease.
Ward 2006	Follow up <6m.
Williams 2006	Intervention delivered by counsellors rather than physicians; also attempted to modify serum cholesterol levels in those subjects with raised cholesterol.
Wilson 1988	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)
Windsor 1985	Advice delivered by a health educator, not a physician
Young 2002	Intervention tested strategies to increase and support advice giving, not the effect of advice.

NRT: nicotine replacement therapy

DATA AND ANALYSES

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

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

Comparison 2. Effect of intensive advice versus minimal advice

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

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

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Smoking cessation (at longest follow up)	30		Risk Ratio (M-H, Fixed, 95% CI)	Subtotals only
1.1 Within-trial comparison: with follow up versus single visit	5	1254	Risk Ratio (M-H, Fixed, 95% CI)	1.52 [1.08, 2.14]
1.2 Subgroup of interventions involving multiple visits	6	4511	Risk Ratio (M-H, Fixed, 95% CI)	2.22 [1.84, 2.68]
1.3 Subgroup of interventions with an option of more than 1 visit	3	1863	Risk Ratio (M-H, Fixed, 95% CI)	1.60 [1.21, 2.11]
1.4 Subgroup of interventions involving only 1 visit	18	14675	Risk Ratio (M-H, Fixed, 95% CI)	1.55 [1.35, 1.79]

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

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

Comparison 5. Direct comparisons between types of advice

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

Comparison 6. Effect of advice on mortality and morbidity

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Number of events during 20 years follow up	1		Risk Ratio (M-H, Fixed, 95% CI)	Totals not selected
1.1 Death or registration of lung cancer	1		Risk Ratio (M-H, Fixed, 95% CI)	Not estimable
1.2 Death or registration of cancers other than lung	1		Risk Ratio (M-H, Fixed, 95% CI)	Not estimable
1.3 Death from coronary heart disease	1		Risk Ratio (M-H, Fixed, 95% CI)	Not estimable
1.4 Death from all causes	1		Risk Ratio (M-H, Fixed, 95% CI)	Not estimable
2 Number of events during 33 years follow up	1		Risk Ratio (M-H, Fixed, 95% CI)	Totals not selected
2.1 Death from coronary heart disease	1		Risk Ratio (M-H, Fixed, 95% CI)	Not estimable

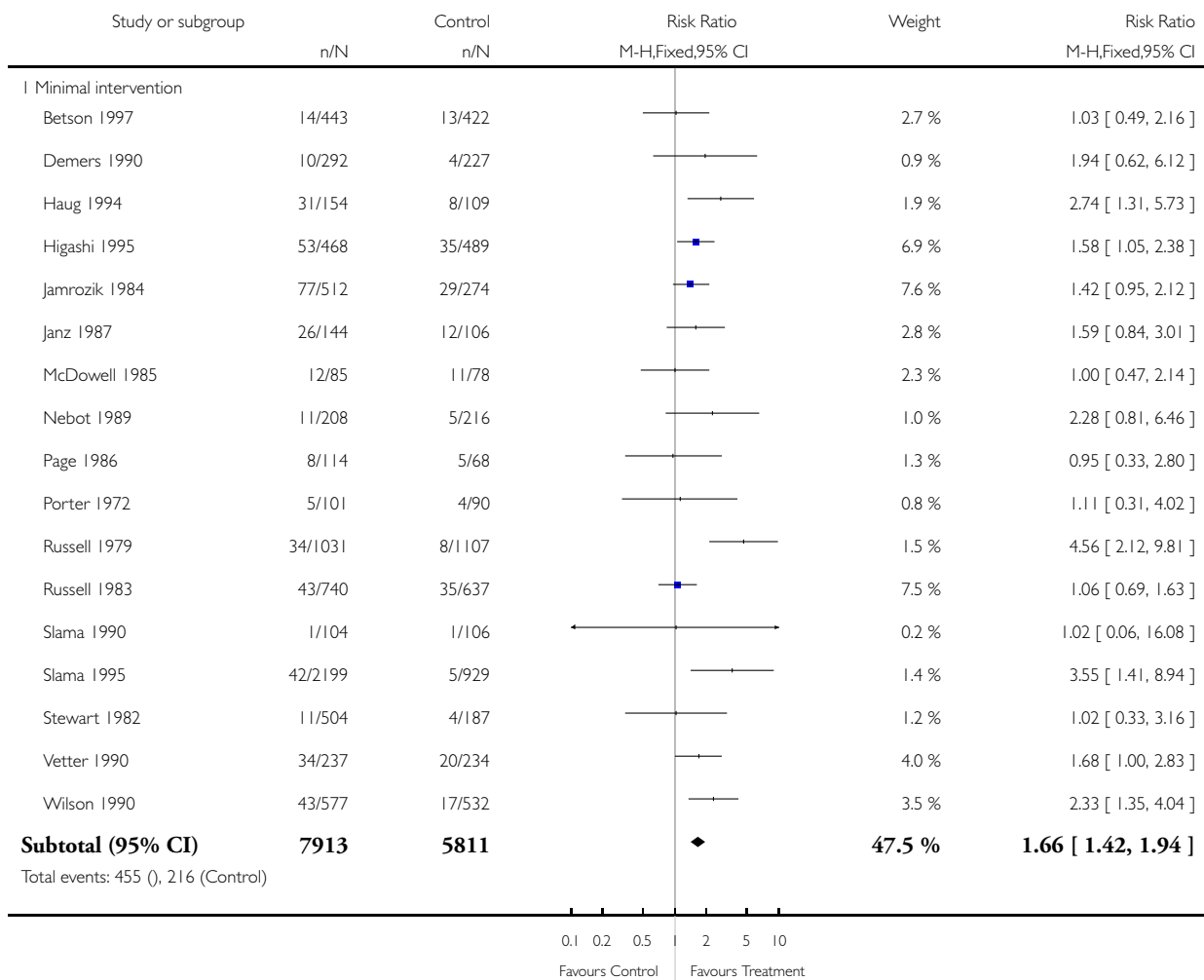
2.2 Death from cardiovascular disease	1	Risk Ratio (M-H, Fixed, 95% CI)	Not estimable
2.3 Death from respiratory disease	1	Risk Ratio (M-H, Fixed, 95% CI)	Not estimable
2.4 Death from cancer	1	Risk Ratio (M-H, Fixed, 95% CI)	Not estimable
2.5 Death from all causes	1	Risk Ratio (M-H, Fixed, 95% CI)	Not estimable

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

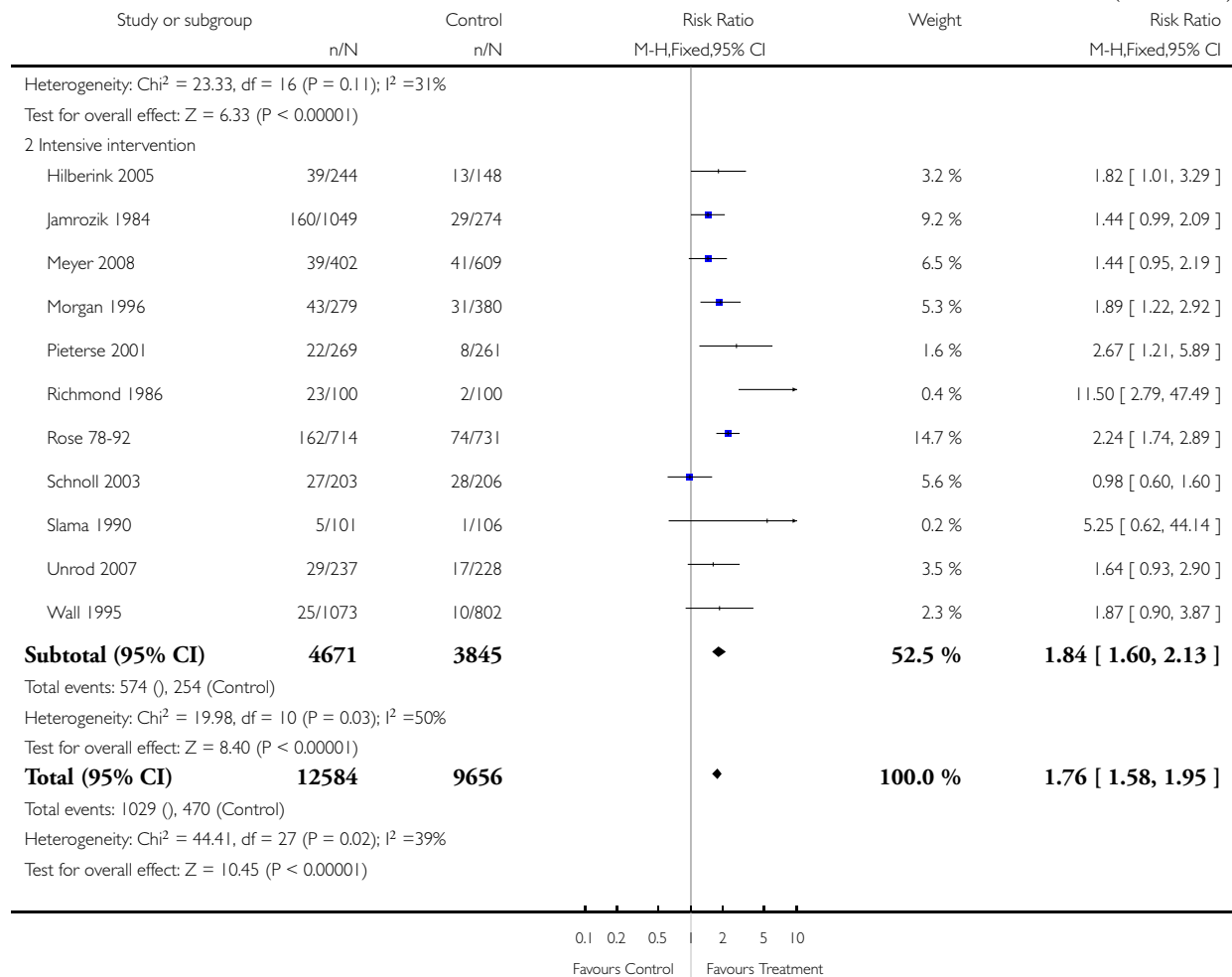
Comparison: 1 Effect of advice versus control (subgroups by intensity)

Outcome: 1 Smoking cessation (at longest follow up)



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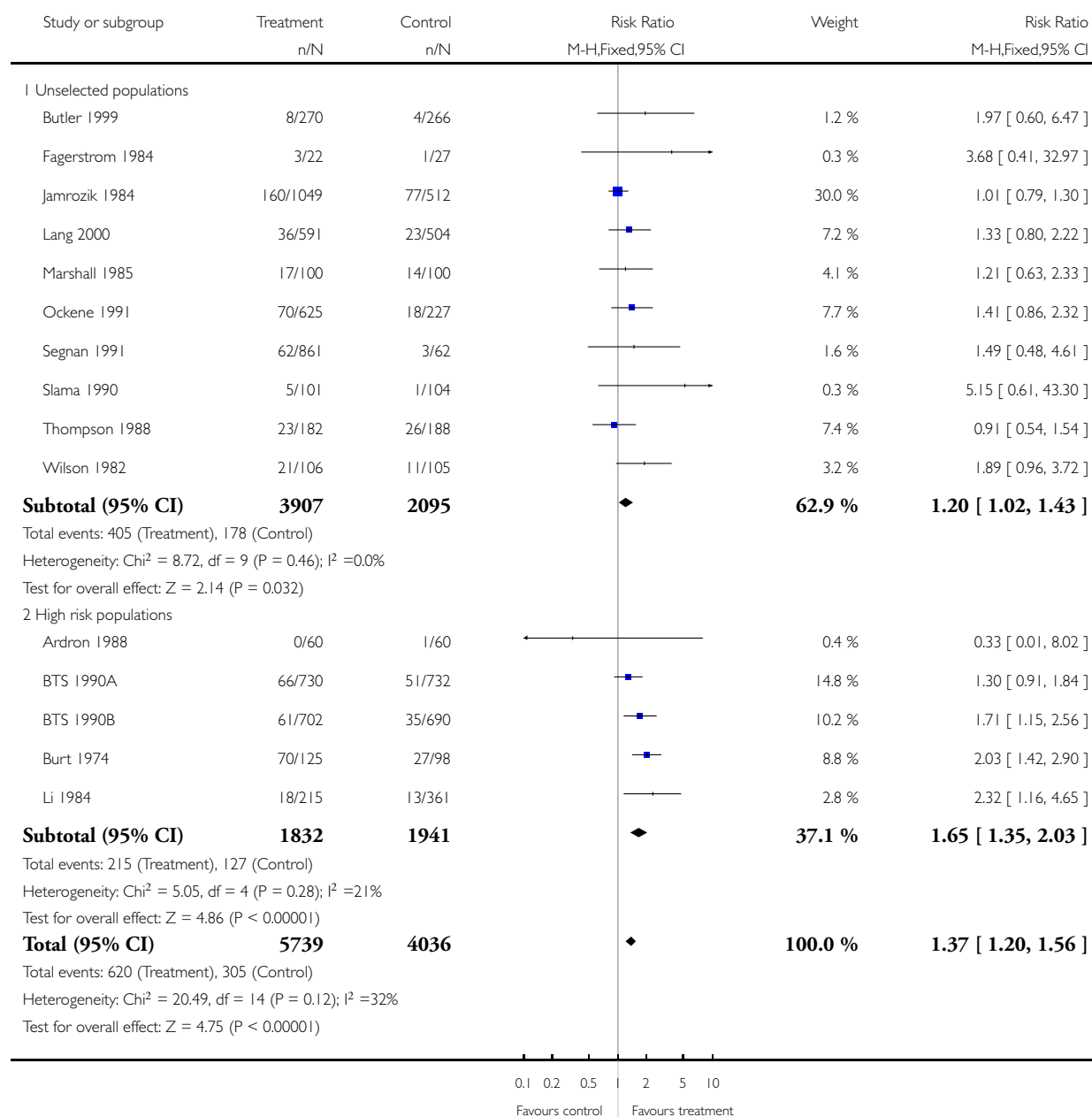


Analysis 2.1. Comparison 2 Effect of intensive advice versus minimal advice, Outcome 1 Smoking cessation (at longest follow up).

Review: Physician advice for smoking cessation

Comparison: 2 Effect of intensive advice versus minimal advice

Outcome: 1 Smoking cessation (at longest follow up)

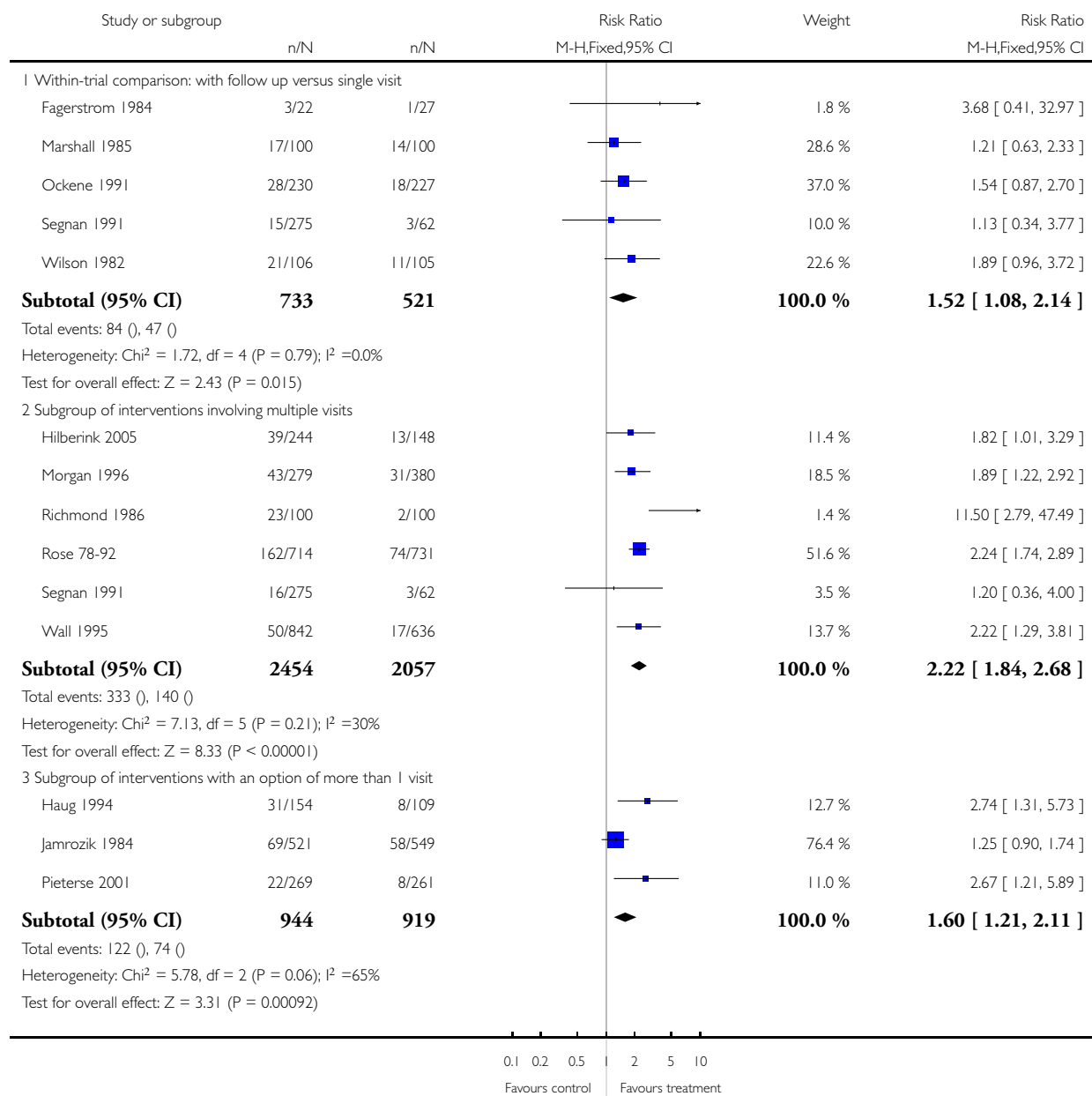


Analysis 3.1. Comparison 3 Effect of number of advice sessions (direct comparison and subgroup analysis), Outcome 1 Smoking cessation (at longest follow up).

Review: Physician advice for smoking cessation

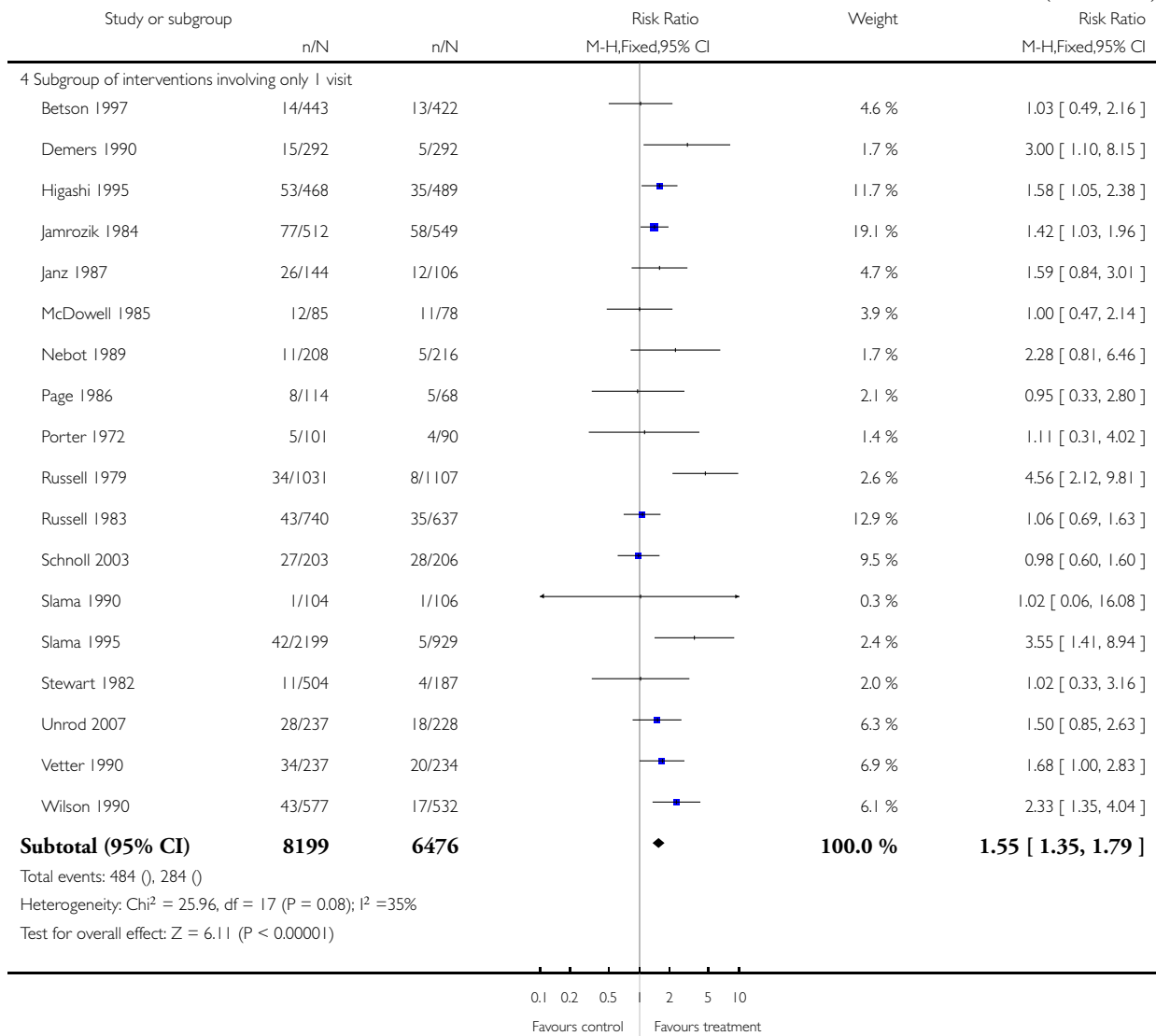
Comparison: 3 Effect of number of advice sessions (direct comparison and subgroup analysis)

Outcome: 1 Smoking cessation (at longest follow up)



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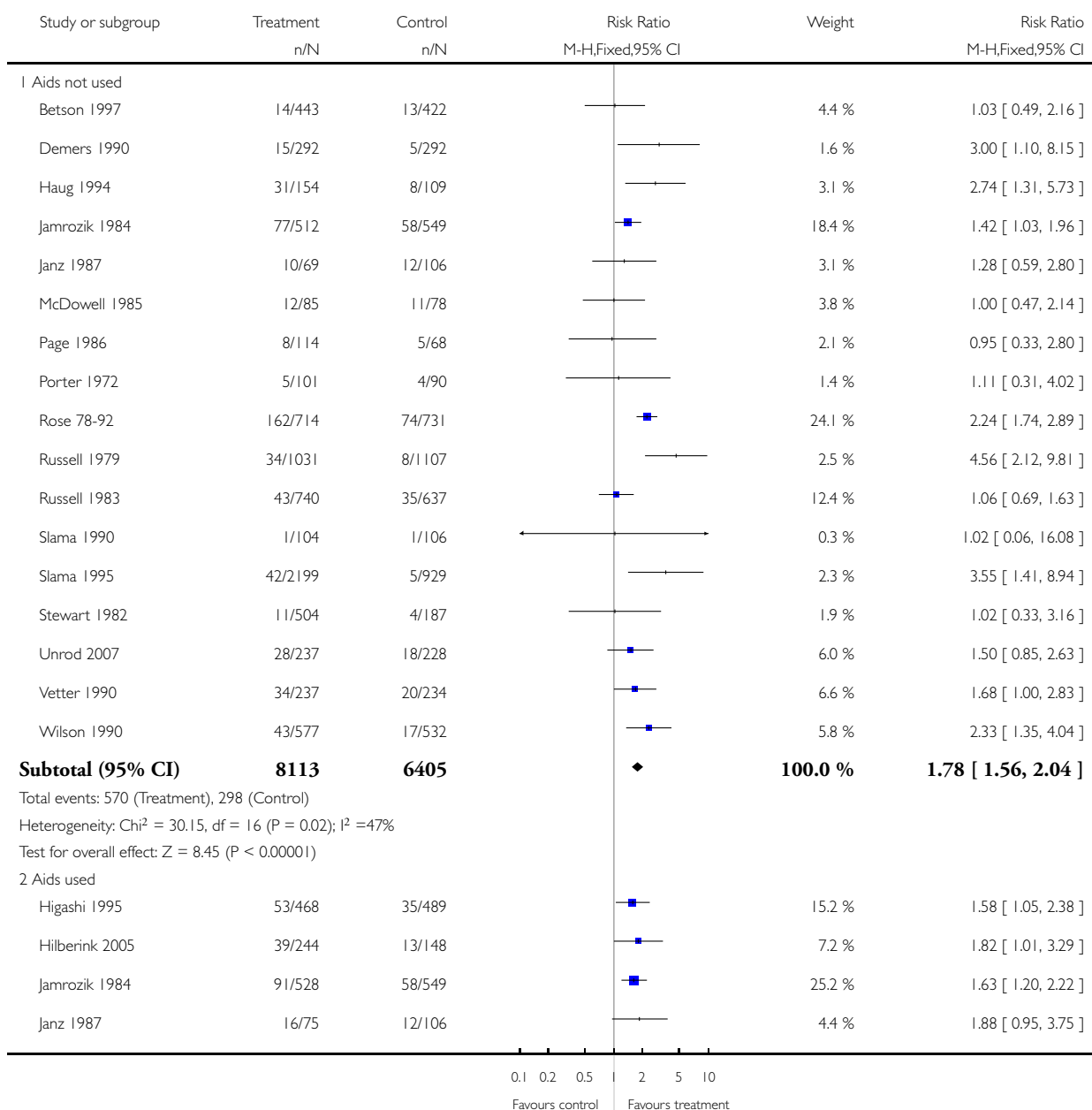


Analysis 4.1. Comparison 4 Effect of aids as adjuncts to advice (direct comparison and subgroup analysis), Outcome 1 Smoking cessation (at longest follow up).

Review: Physician advice for smoking cessation

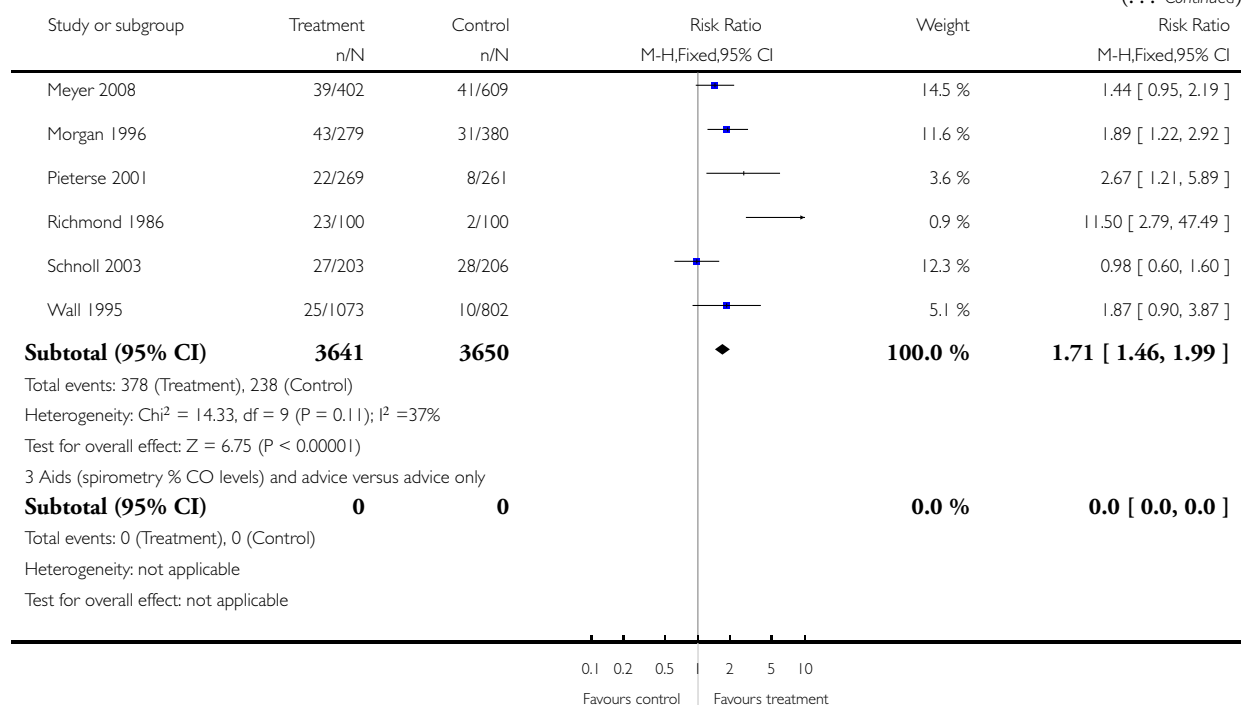
Comparison: 4 Effect of aids as adjuncts to advice (direct comparison and subgroup analysis)

Outcome: 1 Smoking cessation (at longest follow up)



(Continued . . .)

(... Continued)

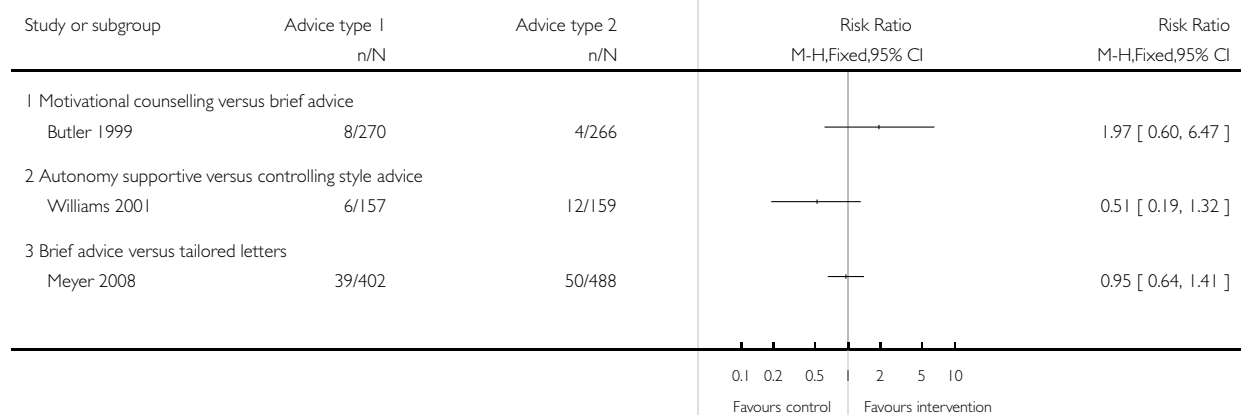


Analysis 5.1. Comparison 5 Direct comparisons between types of advice, Outcome 1 Smoking cessation (maximum follow up).

Review: Physician advice for smoking cessation

Comparison: 5 Direct comparisons between types of advice

Outcome: 1 Smoking cessation (maximum follow up)

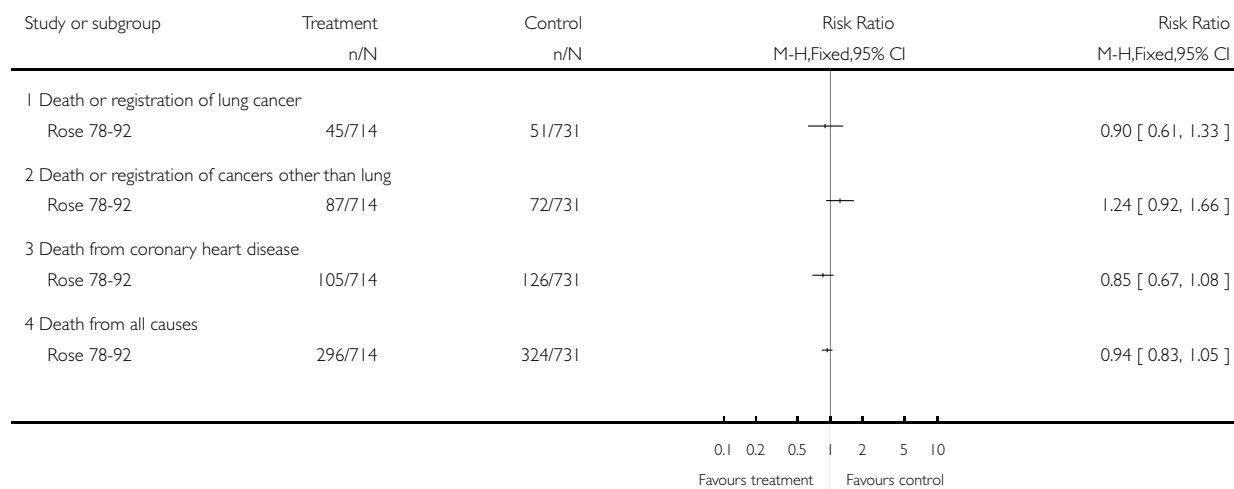


Analysis 6.1. Comparison 6 Effect of advice on mortality and morbidity, Outcome 1 Number of events during 20 years follow up.

Review: Physician advice for smoking cessation

Comparison: 6 Effect of advice on mortality and morbidity

Outcome: 1 Number of events during 20 years follow up

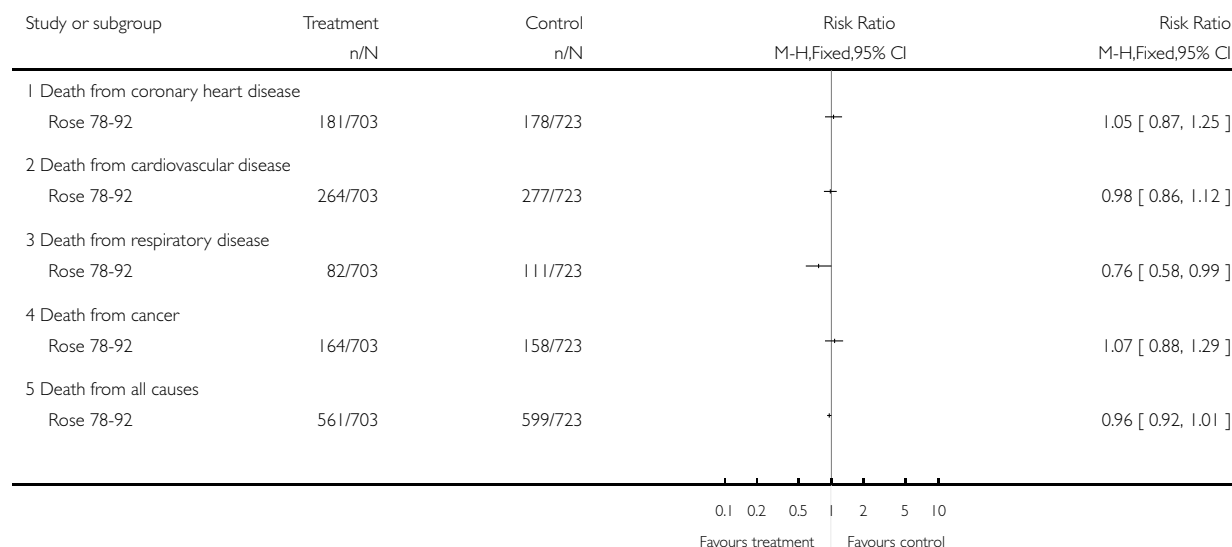


Analysis 6.2. Comparison 6 Effect of advice on mortality and morbidity, Outcome 2 Number of events during 33 years follow up.

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



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 an 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.

4 August 2008	Amended	Converted to new review format.
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HISTORY

Protocol first published: Issue 2, 1996

Review first published: Issue 2, 1996

14 February 2008	New citation required but conclusions have not changed	Updated for issue 2, 2008. Three new included studies added, new author added, and metric changed from odds ratios to risk ratios.
12 July 2004	New search has been performed	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.

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