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Interventions for smoking cessation in hospitalised patients (Review)

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Rigotti N, Munafo MR, Murphy MRG, Stead LF, Munafo' MR.
Interventions for smoking cessation in hospitalised patients.
Cochrane Database of Systematic Reviews 2002, Issue 4. Art. No.: CD001837.
DOI: 10.1002/14651858.CD001837.

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[Intervention Review]

Interventions for smoking cessation in hospitalised patients

Nancy Rigotti[1], M R Munafo[2], Mike RG Murphy[3], Lindsay F Stead[4], Marcus R Munafo'[5]

[1]General Internal Medicine Unit, Massachusetts General Hospital, Boston, MA, USA. [2]Other. [3]Childhood Cancer Research Group, University of Oxford, Oxford, UK. [4]Department of Primary Health Care, Oxford University, Oxford, UK. [5]ICRF General Practice Research Group, Institute of Health Sciences, Oxford, UK

Contact address: Nancy Rigotti, General Internal Medicine Unit, Massachusetts General Hospital, S50-9, Boston, MA, 02114, USA. nrigotti@partners.org.

Editorial group: Cochrane Tobacco Addiction Group.
Publication status and date: Unchanged, published in Issue 2, 2007.

Citation: Rigotti N, Munafo MR, Murphy MRG, Stead LF, Munafo' MR. Interventions for smoking cessation in hospitalised patients. *Cochrane Database of Systematic Reviews* 2002, Issue 4. Art. No.: CD001837. DOI: 10.1002/14651858.CD001837.

ABSTRACT

Background

An admission to hospital provides an opportunity to help people stop smoking. Individuals may be more open to help at a time of perceived vulnerability, and may find it easier to quit in an environment where smoking is restricted or prohibited. Providing smoking cessation services during hospitalisation may help more people to attempt and sustain a quit attempt.

Objectives

To determine the effectiveness of interventions for smoking cessation in hospitalised patients.

Search methods

We searched the Cochrane Tobacco Addiction Group register, CINAHL and the Smoking and Health database in March 2002 for studies of interventions for smoking cessation in hospitalised patients, using terms including (hospital and patient*) or hospitali* or inpatient* or admission* or admitted.

Selection criteria

Randomised and quasi-randomised trials of behavioural, pharmacological or multicomponent interventions to help patients stop smoking conducted with hospitalised patients who were current smokers or recent quitters. We excluded studies of patients admitted for psychiatric disorders or substance abuse, those that did not report abstinence rates and those with follow-up of less than six months.

Data collection and analysis

Two authors extracted data independently for each paper, with disagreements resolved by consensus.

Main results

Seventeen trials met the inclusion criteria. Intensive intervention (inpatient contact plus follow-up for at least one month) was associated with a significantly higher quit rate compared to control (Peto Odds Ratio 1.82, 95% CI 1.49-2.22, six trials). Interventions with less than a month of follow-up did not show evidence of significant benefit (Peto Odds Ratio 1.09, 95% CI 0.91-1.31, seven trials). There was no evidence to judge the effect of very brief (<20 minutes) interventions delivered only during the hospital stay. Longer interventions delivered only during the hospital stay were not significantly associated with a higher quit rate (Peto Odds Ratio 1.07, 95% CI 0.79-1.44, three trials). Although the interventions increased quit rates irrespective of whether nicotine replacement therapy (NRT) was used, the results for NRT were compatible with other data indicating that it increases quit rates. There was no strong evidence that clinical diagnosis affected the likelihood of quitting.

Authors' conclusions

High intensity behavioural interventions that include at least one month of follow-up contact are effective in promoting smoking cessation in hospitalised patients. The findings of the review were compatible with research in other settings showing that NRT increases quit rates.

PLAIN LANGUAGE SUMMARY

Smoking cessation support provided during hospitalisation helps people stop smoking

Smoking contributes to many health problems including cancers and lung diseases. Smoking also increases the risk associated with hospitalisation for surgery. If a person is in hospital because of a smoking related illness, they are usually more receptive to accepting help to give up smoking. The review of trials found that programs to stop smoking delivered during hospitalisation that include a one month follow-up are most effective. More research is needed.

BACKGROUND

Smoking contributes to many of the health problems leading to hospitalisation, particularly vascular disease, respiratory illness and certain cancers. In addition, smoking increases the risk associated with hospitalisations for surgical procedures. Hospitalisation, especially for a tobacco-related illness, may boost receptivity to smoking cessation messages by increasing perceived vulnerability, a so-called 'teachable moment'. Illness also brings smokers to the health care setting, where they have contact with health professionals who can provide a smoking cessation message or intervention. Procedures such as coronary arteriography that provides detail of the patient's cardiac status may minimise the subsequent denial of cardiac risk by the patient (Ockene 1992). Many hospitals restrict or prohibit smoking by patients to protect patients and staff from passive smoking. This smoke-free environment may also provide an opportunity to attempt tobacco abstinence away from the usual environmental cues to smoke. For these reasons, providing (or at least initiating) tobacco dependence treatments in hospitals may be an effective preventive health strategy. Indeed, provision of smoking cessation services is often promoted as an integral part of strategies for achieving a smoke-free hospital.

Before investing in such services, it is important to determine the evidence that they are effective. A number of studies have evaluated smoking cessation services provided or initiated in hospital. The interventions have included behavioural counselling of different forms and intensity (including post-hospitalisation contacts), pharmacological therapies, and combinations of the two. The aim of this review is to evaluate the effectiveness of smoking cessation interventions directed at the hospitalised patient. In order to inform policy, we aimed to identify the components of effective programmes. In addition, we aimed to explore whether there is a difference in effect according to the reason for hospitalisation.

OBJECTIVES

The first objective was to determine the efficacy of any type of smoking cessation programme for hospitalised patients. Our hypotheses were that:

· Systematic behavioural intervention (brief advice, individual counselling, provision of self-help materials, group therapy) increases quit rates more than usual care, and that intensive intervention increases quit rates more than brief intervention.

· Interventions that occur both in hospital and after discharge increase quit rates more than interventions limited to the hospital stay, and that longer post-discharge follow-up increases quit rates more than short follow-up.

· Adding NRT to a behavioural intervention increases quit rates more than placebo or no medication, and that combining NRT and a behavioural intervention increases quit rates more than either alone.

A secondary objective was to explore the possibility that the efficacy of interventions differed for patients with different diagnoses. This was done using subgroup analysis of trials that recruited patients from more than one specialty, and by indirect comparison of trials that recruited patients from within one disease category. These analyses were post hoc and exploratory in nature, and designed only to generate hypotheses.

METHODS

Criteria for considering studies for this review

Types of studies

Randomised or quasi-randomised controlled trials.

Types of participants

Participants were patients who were hospitalised, or about to be hospitalised and who were currently smoking or had recently quit. We excluded trials of secondary prevention or cardiac rehabilitation that did not recruit on the basis of smoking history and trials in patients hospitalised for psychiatric disorders or substance abuse (including inpatient tobacco addiction programmes). Trials in which "recent quitters" were classified as smokers were included, but a sensitivity analysis was performed on these data to determine whether they differed from trials that excluded such individuals.

Types of interventions

Any intervention to increase motivation to quit, to assist a quit attempt or to help recent quitters avoid relapse. The intervention could be delivered by physicians, nursing staff, psychologists, smoking cessation counsellors or other hospital staff. The intervention could include advice or more intensive behavioural therapy with or without the use of pharmacotherapy or post-discharge follow-up. The control intervention could be usual care or any less intensive programme, such as brief advice only. We included studies of smoking interventions that were part of a broader rehabilitation programme only if it was possible to extract data on the outcome effects of the smoking cessation component specifically, and if details of the nature of the intervention and control were explicitly stated. We included studies that reported the use of NRT or other pharmacotherapy.

We categorised interventions during the hospital stay according to whether they included follow-up after discharge. Within these categories we further defined both the hospital and follow-up interventions by level of intensity. This led to four categories of intervention intensity:

1. Single contact in hospital lasting <= 15 mins, no follow-up support.
2. One or more contacts in hospital lasting in total > 15 mins, no follow-up support.
3. Any hospital contact plus follow-up <=1 month.
4. Any hospital contact plus follow-up > 1 month.

Types of outcome measures

The principal outcome measure was abstinence from smoking, at least 6 months after the start of the intervention. We used the most conservative measure of quitting at the longest follow-up. That is, a biochemically validated sustained quit rate was used in preference to self-reported point prevalence abstinence, and abstinence at 12 month follow-up was used in preference to abstinence at 6 month follow-up. We counted participants lost to follow-up as continuing smokers.

Search methods for identification of studies

We searched the Tobacco Addiction Group trials register in March 2002. This specialised register is regularly updated by electronic searches and handsearching. Searches for the register cover smoking cessation, nicotine dependence, nicotine addiction and tobacco use. In addition, we searched the Cochrane Controlled Trials Register (Issue 1, 2002), the Centers for Disease Control Smoking and Health database (March 2002) and CINAHL (March 2002). We asked individuals with expertise in the area of smoking cessation for details of conference abstracts and studies in press. Bibliographies of studies generated by the search were hand-checked for further studies.

Search strategy for the Tobacco Addiction specialised register and for CCTR (used in combination with the terms specific to tobacco used to identify records for specialised register):
(hospital and patient*) or hospitali* or inpatient* or admission* or admitted

Search strategy for Smoking & Health Database (National Center for Chronic Disease Prevention and Health Promotion CDP File):
For records with descriptor indexing -
(SMOKING-CESSATION* in DE) AND ((hospital* AND patient*) OR inpatient* OR admission*)
For records without descriptor indexing -
(smoking near (cessation OR quit* OR stop*)) AND ((HOSPITAL* AND patient*) OR inpatient* OR admission*)

Search strategy for CINAHL (Silverplatter):
#1 ((hospital with patient*) in TI OR AB
#2 (hospitali* OR inpatient* OR admission* OR admitted) in TI OR AB
#3 (hospitali* OR inpatient*) in DE
#4 (quit* OR smok* OR cigar* OR tobacco OR nicotine) in TI OR AB
#5 (smok* OR tobacco OR nicotine) in DE
(#1 OR #2 OR # 3) AND (#4 OR #5)

Data collection and analysis

Identification of studies and data extraction

Three authors checked studies identified by the search strategies for relevance. One author extracted data independently with checking by a second. Disagreements were resolved by consensus. We noted reasons for the exclusion of studies. For each study we extracted the following data:

(i) author(s) and year of publication,
(ii) methods (country of origin, recruitment, randomisation and participants),
(iii) description of intervention(s) and control, including a designation of intensity (1-4), and
(iv) outcomes (length of follow-up, definition of abstinence, validation technique).

If necessary we contacted the original authors for clarification of data.

We reported the following information about each trial in the table 'Characteristics of Included Studies':

· Country
· Reasons for hospitalisation or specialty of admission.
· Criteria for recruitment (e.g. current smokers only or recent quitters) and whether selected according to willingness to make a quit attempt.
· Other relevant inclusion/ exclusion criteria for trial.
· Method of randomisation.
· Smoking behaviour and characteristics of participants, number of deaths.
· Therapists.
· Description of experimental and control interventions and classification by length of in hospital contact and post discharge support.
· Outcome measures (definition of abstinence used in review, use of biochemical validation).

Evaluation of quality

We evaluated studies on the basis of the quality of the randomisation procedure used, as this is the main source of bias which has been empirically associated with over-estimation of treatment effects (Schulz 1995). We also assessed whether the studies reported validation of self-reported smoking cessation, and how they handled patients lost to follow-up, since these are possible sources of bias in smoking cessation studies. At the suggestion of a peer reviewer, we also assessed the extent to which study populations consisted of current smokers and recent quitters.

Analysis of the data

We used statistical methods for pooling described by Peto's group (Yusuf 1985). We express results as an odds ratio (intervention: control) for achieving abstinence from smoking together with the 95% confidence interval for this estimate. We performed tests for heterogeneity using a Mantel-Haenszel chi-square statistic.

We calculated quit rates based on the numbers of patients randomised to an intervention, excluding any deaths. We counted those who dropped out or were lost to follow-up as continuing smokers. We noted the number of deaths in the table of included studies.

We analysed data according to our pre-determined classification of four levels of intensity. Where we included studies that were judged by quality criteria to be more prone to bias, we planned sensitivity analyses to assess whether their inclusion altered our findings. We also planned sensitivity analyses to explore, where possible, the contribution of different components to an overall effect (for example, the role of NRT in a multicomponent intervention) and to determine whether the effects were different when the study population was restricted to those wishing to stop.

In an exploratory analysis, we evaluated the effects of intervention in patients with a diagnosis of cardiovascular disease, respiratory disease and cancer. Where there were insufficient data for meta-analysis the results were tabulated. In cases where a single study reported data on patients from different categories, we pooled the data only when it was possible to extract data by disease category. Otherwise we included only those studies reporting data from patients in a single disease category.

RESULTS

Description of studies

Seventeen trials conducted in the United States, the United Kingdom, Canada and Spain between 1990 and 2002 met the inclusion criteria and contributed to the review. All but two of these studies contributed to the main comparison of intervention, classified by intensity, versus control. Those that did not contribute (Campbell 1991, Campbell 1996) did not include a usual care control group. Seven studies included NRT as a component, of which four studies (Campbell 1991, Campbell 1996, Simon 1997, Lewis 1998,) used NRT as a specific intervention offered to all (as opposed to a sub-group of) participants receiving the intervention. Eleven studies (Taylor 1990, Campbell 1991, Pederson 1991, CASIS 1992, De Busk 1994, Rigotti 1994, Campbell 1996, Miller 1997, Dornelas 2000, Ortigosa 2000, Hajek 2002) provided separate data by disease and contributed to the exploratory comparison of intervention in different disease categories versus control. We excluded eleven studies which appeared relevant but did not meet all inclusion criteria (see table of excluded studies).

We describe each intervention in the table of included studies. Of the seventeen studies, seven included physician advice (Campbell 1991, De Busk 1994, Campbell 1996, Miller 1997, Lewis 1998, Pelletier 1998, Ortigosa 2000). In six of these physician advice was supplemented by support, either by a nurse (De Busk 1994, Lewis 1998, Miller 1997, Pelletier 1998) or a counsellor (Campbell 1991, Campbell 1996). In one study (Pederson 1991) physician advice was offered prior to admission. In another (Rigotti 1997) the patient chart was stamped with a prompt to remind the physician to offer smoking cessation advice. The remaining studies included advice delivered by either a nurse or a counsellor. This ranged in duration from less than 5 minutes to 1 hour; in three studies advice was delivered on more than one occasion during the hospitalisation period (Pederson 1991, CASIS 1992, Rigotti 1994). Seven included nicotine replacement therapy (NRT) as part of the intervention, either as gum or patch, while all but four studies (Campbell 1991, Campbell 1996, Dornelas 2000, Ortigosa 2000) included other materials such as self-help booklets, relaxation audio tapes and video tapes. Four studies used NRT as a specific component of the intervention: (Campbell 1991, Campbell 1996, Simon 1997, Lewis 1998). The remaining three studies reporting use of NRT only provided it to a sub-group of patients or did not specify the extent of its use (Taylor 1990, De Busk 1994, Rigotti 1997). All but three studies (Pederson 1991, Pelletier 1998, Hajek 2002) offered follow-up support following discharge. Of these, twelve offered support by telephone (Taylor 1990, CASIS 1992, Stevens 1993, De Busk 1994, Rigotti 1994, Miller 1997, Rigotti 1997, Simon 1997, Lewis 1998, Dornelas 2000, Ortigosa 2000, Stevens 2000) and two at an outpatient clinic (Campbell 1991, Campbell 1996). The duration of follow-up ranged from 1 week to 6 months from discharge.

One study compared two intervention conditions with a usual care control (Miller 1997), with the difference between the two intervention conditions being in the duration of post-discharge follow-up. Results from each arm of this study were included separately in the analysis by intervention intensity. In one study the smoking cessation intervention was part of a multi-component risk intervention for patients with cardiovascular disease (De Busk 1994). In this case the smoking cessation intervention was well defined and met our inclusion criteria.

Follow-up for rates of abstinence were relatively consistent across studies, with seven studies reporting validated, sustained abstinence at 12 month follow-up. Only three studies reported a shorter follow-up period of 6 months (Lewis 1998, Pederson 1991, Rigotti 1997). Six studies reported point-prevalence abstinence rates (Pederson 1991, Rigotti 1997, Simon 1997, Lewis 1998, Dornelas 2000, Ortigosa 2000). One study reported sustained abstinence rates for overall cessation but point prevalence rates by diagnosis (Miller 1997).

Risk of bias in included studies

Five of the seventeen studies reported an adequate randomisation procedure (Taylor 1990, Miller 1997, Simon 1997, Lewis 1998, Dornelas 2000). Nine studies did not report the method of randomisation. Two studies allocated treatment by alternating between hospitals over time (Stevens 1993, Stevens 2000) and one study employed a quasi-experimental design with one intervention and two control hospitals (Pelletier 1998).

Validation of smoking status at follow-up was by expired air carbon monoxide in eight studies (Taylor 1990, Campbell 1991, CASIS 1992, De Busk 1994, Campbell 1996, Lewis 1998, Ortigosa 2000, Hajek 2002), and by plasma or salivary cotinine in six studies (De Busk 1994, Rigotti 1994, Miller 1997, Rigotti 1997, Simon 1997 and Hajek 2002). One study used serum carboxyhaemoglobin measurements in a sample of patients (Pederson 1991), one study used serum thiocyanate (Taylor 1990), two studies used "corroboration by significant other" in cases where a plasma or salivary cotinine measure was not available (Miller 1997, Lewis 1998) and one study (Dornelas 2000) used corroboration by a significant other only. Three studies (Stevens 1993, Pelletier 1998, Stevens 2000) did not biochemically validate quitting. Two studies used more than one means of validation other than corroboration by significant other (Taylor 1990, De Busk 1994).

Most studies recruited participants on the basis of a convenience sample, with randomisation being to group (intervention or control) rather than to initial inclusion. Random selection for inclusion was carried out in only one study (Rigotti 1997). Participation rates (i.e. the proportion of those approached who agreed to take part in the trial) were also seldom recorded. Most studies recorded those lost to follow-up as continuing smokers. In one study (Stevens 2000), the intervention was offered inconsistently, with only 68% of those eligible for the intervention actually being approached.

All studies included male and female adults who smoked cigarettes or were recent cigarette smokers. Six studies included recent quitters as well as current smokers (CASIS 1992, Stevens 1993, De Busk 1994, Rigotti 1994, Rigotti 1997, Stevens 2000).

Effects of interventions

Hospital interventions categorised by intensity

No included studies reported on the effects of brief interventions in hospitalised patients (intensity 1). Three studies (Pederson 1991, Pelletier 1998, Hajek 2002) used a more intensive intervention in hospital but with no follow-up after discharge (intensity 2). There was no evidence of a significant benefit from pooling these studies but the confidence intervals do not exclude the possibility of a benefit (Peto Odds Ratio 1.07, 95% CI 0.79-1.44). Analysis of six studies reporting on the effects of any contact during the

hospitalisation period followed by minimal follow-up (intensity 3) failed to detect a statistically significant effect, but does not rule out a 30% increase in smoking cessation (Peto Odds Ratio 1.09, 95% CI 0.91-1.31). Pooled analysis of seven studies reporting on the effects of more intensive follow-up following an intervention in hospital (intensity 4) shows a statistically significant increase in quit rates (Peto Odds Ratio 1.82, 95% CI 1.49-2.22).

Sensitivity analysis

A sensitivity analysis excluding four studies that reported the use of NRT within the highest intervention intensity (Taylor 1990, De Busk 1994, Simon 1997, Lewis 1998) did not suggest that the efficacy of these interventions was due to the use of NRT (Peto Odds Ratio 1.61, 95% CI 1.26-2.06). Only one study that delivered a minimal intensity intervention with follow up (intensity 3) reported the use of NRT (Rigotti 1997), but this was in only about 4% of participants, so that a sensitivity analysis was not possible.

Within studies that delivered an intervention with minimal follow-up (intensity 3) we performed a sensitivity analysis excluding the data reported by two studies that did not randomise patients (Stevens 1993, Stevens 2000). This changed the point estimate, but did not substantially affect the confidence intervals (Peto Odds Ratio 1.01, 95% CI 0.78-1.31).

Within studies that delivered the highest intervention intensity (intensity 4) we performed a sensitivity analysis excluding the data reported by studies in which participants were selected on the basis of willingness to make a quit attempt (Miller 1997, Simon 1997, Lewis 1998). There continued to be an effect on quit rates in the remaining studies (Peto Odds Ratio 2.12, 95% CI 1.57-2.87).

Finally, we performed a sensitivity analysis excluding studies that reported data from recent quitters as well as current smokers (CASIS 1992, Stevens 1993, De Busk 1994, Rigotti 1994, Rigotti 1997, Stevens 2000). In the case of studies delivering a minimal intensity intervention with follow up (intensity 3) there was little change in the estimates (Peto Odds Ratio 1.04, 95% CI 0.76-1.41). In studies delivering the highest intervention intensity (intensity 4) there remained an increase in quitting (Peto Odds Ratio 1.79, 95% CI 1.41-2.28).

Effects of intervention by diagnosis

Nine studies (Taylor 1990, Campbell 1991, CASIS 1992, De Busk 1994, Rigotti 1994, Miller 1997, Dornelas 2000, Ortigosa 2000, Hajek 2002) reported on the effects of interventions in patients hospitalised with a cardiovascular diagnosis. Pooled analysis of these studies suggested that intervention increased quitting (Peto Odds Ratio 1.41, 95% CI 1.17-1.70). Four studies (Campbell 1991, Pederson 1991, Campbell 1996, Miller 1997) reported on interventions in patients hospitalised with a respiratory diagnosis. Pooled analysis failed to detect an increase in cessation rates compared to the control group (Peto Odds Ratio 0.99, 95% CI 0.66-1.48), but the confidence intervals do not rule out a clinically useful effect. No study reported on the effects of interventions in patients hospitalised with a diagnosis of cancer.

Effects of nicotine replacement therapy

Analysis of three studies (Campbell 1991, Campbell 1996, Lewis 1998) comparing the use of NRT with placebo NRT failed to detect a statistically significant effect. However, the confidence intervals were wide and do not rule out the possibility of a 50% increase in smoking cessation due to the use of NRT as part of an inpatient smoking cessation intervention (Peto Odds Ratio 1.12, 95% CI 0.65-1.93).

We detected significant heterogeneity in only one analysis (intervention by cardiovascular diagnosis). The fitting of a random effects model to account for this heterogeneity did not substantially alter the results (Odd Ratio 1.49, 95% CI 1.05 -2.18).

DISCUSSION

The results of this review suggest that smoking cessation interventions delivered during a period of hospitalisation, with follow-up support after discharge, increase smoking cessation. There is no evidence to support brief interventions delivered only during hospitalisation. There were only three studies in this category and the largest, which showed no evidence of benefit, provided a 20-30 minute intervention from a cardiac rehabilitation nurse for smokers who wanted to quit (Hajek 2002). Although nurses have been shown to deliver effective smoking cessation interventions (Rice 2002) these are generally not delivered by nurses also responsible for other aspects of clinical care. Brief interventions from dedicated counselling services may be more effective (West 2002). There is evidence from other populations that brief advice from physicians is an effective intervention in promoting cessation, but these trials have largely been in primary care settings, and not directed at smokers who are already motivated to quit (Silagy 2004a). There is also evidence from other sources that smoking behaviour early in the inpatient cessation attempt is a strong predictor of long-term remission (Sciamanna 2000), and indirect evidence that increasing intensity of intervention, in particular by increasing the amount of follow-up contact after discharge, is associated with higher rates of cessation. This suggests that post-discharge follow-up may be an important part of interventions delivered initially during the hospitalisation period. Unfortunately one of the largest studies carried out on hospitalised patients (BTS 1983) was excluded because it did not report separate data for inpatient and outpatient groups.

It is not possible to determine how much NRT contributes to the effect of hospital interventions, as all studies that used this were also categorised as high intensity on the basis of the degree of post-discharge follow-up. Excluding those studies that report the use of NRT did not reduce the apparent efficacy of these interventions and analysis of studies that compared the use of NRT to placebo NRT delivered within a high intensity intervention failed to detect a statistically significant effect (Campbell 1991, Campbell 1996, Lewis 1998). However, the confidence intervals were compatible with an effect of NRT similar to that found in other settings (Silagy 2004b), and hence these data are supportive of its usefulness in appropriate patients during and following hospitalisation. Similarly, while no study considered the use of antidepressants in hospitalised patients, there is increasing evidence from other populations that they help sustain a quit attempt (Hughes 2004), and can be considered in such patients when there is no clinical contra-indication.

In the case of the highest intensity interventions (intensity 4), neither the exclusion of studies that included recent quitters as well as current smokers nor those that included patients selected for motivation significantly affected the quit rates achieved. Treatment of nicotine dependence should be matched to the needs of the

individual, but these data support the idea that help of some form should be offered to all smoking patients, irrespective of motivation to quit.

The analyses by diagnosis suggest that in patients with a cardiovascular diagnosis there is an increase in cessation rate in patients given an intervention. As these were not patients selected by motivation to quit, this finding lends some support to the hypothesis that patients with a smoking-related illness are receptive to intervention. The effectiveness of interventions in patients with a respiratory diagnosis is less clear, generating the hypothesis that patients with some diagnoses may find it more difficult to quit. However, the confidence intervals were wide and overlap with the estimates in patients with cardiovascular disease. Hence there is no strong evidence for a differential effect by diagnosis. Although different diagnoses may provide greater or lesser motivation to make a quit attempt, degree of tobacco dependence is likely to be a stronger indicator of ability to quit than clinical diagnosis.

AUTHORS' CONCLUSIONS

Implications for practice

The results support the use of smoking cessation interventions delivered during the hospitalisation period that also include follow-up for at least one month post-hospitalisation. Although such interventions were effective whether or not NRT was used, the results are compatible with data which show the effectiveness of NRT in other populations. There was no clear evidence that patients with different clinical diagnoses respond in different ways.

Implications for research

There are some notable areas where there is little or no research available that is eligible for inclusion in this review. In particular, there are no studies that report on the efficacy of interventions that deliver brief advice during the inpatient period with no subsequent follow-up, although there are now three studies that report on the efficacy of intensive advice delivered during the inpatient period with no subsequent follow-up.

It was also not possible to examine the impact of interventions delivered to patients with a diagnosis of cancer. Although several studies reported data on interventions delivered to patients with a cardiovascular diagnosis and patients with a respiratory diagnosis, the lack of evidence with respect to patients with a diagnosis of cancer suggests another area where research is required.

ACKNOWLEDGEMENTS

The authors would like to thank Sarah Welch and Sarah Roberts of the ICRF General Practice Research Group for their assistance in extracting data, and Corinne Husten, John Britton and Ian Campbell for helpful comments during peer review.

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* Indicates the major publication for the study

CHARACTERISTICS OF STUDIES

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

Campbell 1991

Methods	Country: UK Recruitment: Inpatients with smoking-related diseases. Selected: Invited to participate. Randomization: Method not stated.
Participants	Participants: 212 current smokers. Number smoked and age not stated. Most had heart or lung disease. Therapists: Physician and non-specialist counsellor.
Interventions	1. Intervention: Physican advice Counselling (1x, total not stated, type not stated) NRT (gum, dose 2-4 mg, for 3 mo.) Follow-up (5x @ 2, 3, 5 wk, 3, 6 mo. in clinic by counsellor) 2. Comparison: Other (as above, placebo NRT gum) Intensity: 4 NRT: Yes
Outcomes	Abstinence: Sustained abstinence at 6 & 12 months. Validation: Expired air CO. Died: None reported.
Notes	Heart disease, lung disease and other given separately in analysis by diagnosis.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Unclear risk	B - Unclear

Campbell 1996

Methods	Country: UK Recruitment: Inpatients with respiratory or cardiovascular disease. Selected: Prepared to make quit attempt. Randomization: Method not stated.
Participants	Participants: 62 current smokers. Number smoked and age not stated. Approx. 75% had respiratory disease. Therapists: Physician and non-specialist counsellor.
Interventions	1. Intervention: Physician advice Counselling (1x, total 30-60 min., type information) NRT (patch, dose 17.5-35 mg, for 12 wk) Follow-up (4x @ 2, 4, 8, 12 wk in clinic by counsellor) 2. Comparison: Other (as above, placebo NRT patch)

Campbell 1996 *(Continued)*

	Intensity: 4 NRT: Yes
Outcomes	Abstinence: Sustained abstinence at 3, 6 &12 months. Validation: Expired air CO. Died: None reported.
Notes	Only data on inpatients extracted from study. Included in respiratory disease subcategory.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Unclear risk	B - Unclear

CASIS 1992

Methods	Country: USA Recruitment: Inpatients with coronary artery stenosis confirmed by catheterisation. Selected: Invited to participate. Randomization: Method not stated.
Participants	Participants: 267 current smokers or recent quitters (50%, defined as at least 5 cig/day at any time in previous 2 mo.). 25 cig/day, age 53 average. 78 had acute MI, 21 recent MI, 152 other symptoms. Therapists: Masters level health educators.
Interventions	1. Intervention: Counselling (2x, total 40 min., type not stated) Other (self-help materials, relaxation tapes) Follow-up (4x @ 1, 3 wk and 3 mo. if quit or 2,4 mo. if did not quit by telephone) 2. Comparison: Advice only Intensity: 4 NRT: No
Outcomes	Abstinence: Sustained abstinence at 6 & 12 months. Validation: Expired air CO. Died: None reported.
Notes	Patients admitted with MI more likely to be quitters at 6 months (74%). Evidence of interaction between intervention and illness.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Unclear risk	B - Unclear

De Busk 1994

Methods	Country: USA Recruitment: Inpatients with acute MI. Selected: Invited to participate. Randomization: Method not stated.
Participants	Participants: 252 current smokers or recent quitters (proportion not stated, defined as any tobacco use in previous 6 mo.). Number smoked not stated, age 57 average. First year after MI. Therapists: Physician and nurse.
Interventions	1. Intervention: Physician advice Counselling (1x, total not stated, type not stated) NRT ("reserved for highly-addicted patients") Other (self-help materials, relaxation tapes) Follow-up (8x @ 48 hr, 1 wk, and every mo. for 6 mo. by telephone) 2. Comparison: Advice only Intensity: 4 NRT: Yes?
Outcomes	Abstinence: Sustained abstinence at 6 & 12 months. Validation: Expired air CO and plasma cotinine. Died: None reported.
Notes	

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Unclear risk	B - Unclear

Dornelas 2000

Methods	Country: USA Recruitment: Inpatients with acute MI. Selected: Invited to participate. Randomization: Number drawn from envelope.
Participants	Participants: 100 current smokers. 29 cig/day, age 54 average. Therapists: Psychologist.
Interventions	1. Intervention: Counselling (1x, total 20 min, type behavioural) Follow-up (7x @ <1, 4, 8, 12, 16, 20, 26 wk by telephone) 2. Comparison: Advice only Intensity: 4 NRT: No
Outcomes	Abstinence: Abstinence at 12 months (point prevalence).

Dornelas 2000 *(Continued)*

	Validation: Significant other Died: 5 at 12 mo.
Notes	Validation by significant other only in 70% of cases.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Low risk	A - Adequate

Hajek 2002

Methods	Country: UK Recruitment: Inpatients with acute MI. Selected: Invited to participate. Randomization: Not stated.
Participants	Participants: 540 current smokers. 23 cig/day, age 56 average. Therapists: cardiac rehab nurse.
Interventions	1. Intervention: Nurse advice Counselling (1x, total 20-30 min) Other (self-help materials) 2. Comparison: Brief advice and booklet Intensity: 2 NRT: No
Outcomes	Abstinence: Abstinence at 12 months (point prevalence), with visit to self-reported non-smoker. Validation: Expired air CO and salivary cotinine. Died: 35 at 12 mo.
Notes	New study 2003/1 update

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Low risk	A - Adequate

Lewis 1998

Methods	Country: USA Recruitment: Inpatients excluding certain cardiac conditions. Selected: Prepared to make quit attempt. Randomization: Computer-generated code.
Participants	Participants: 185 current smokers.

Lewis 1998 *(Continued)*

	24 cig/day, age 43 average. 12 ICD-9 categories. Therapists: Physician and nurse.
Interventions	1. Intervention: Physician advice Counselling (1x, total 2-3 min., type information) NRT (patch, dose 22 mg, for 3 wk + 11 mg, for 3 wk) Other (self-help materials) Follow-up (4x @ 1,3,6 wk, 6 mo. by telephone) 2. Intervention: Physician advice Counselling (1x, total 2-3 min., type information) NRT (patch, placebo) Other (self-help materials) Follow-up (4x @ 1,3,6 wk, 6 mo. by telephone) 3. Comparison: Advice only Intensity: 4 NRT: Yes
Outcomes	Abstinence: Abstinence at 6 months (point prevalence). Validation: Expired air CO. Died: None reported.
Notes	1 vs 2 for effect of NRT. Not used in behavioural intervention analysis. Highest quit rates found in patients with respiratory disease.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Low risk	A - Adequate

Miller 1997

Methods	Country: USA Recruitment: Inpatients excluding obstetric and psychiatric patients. Selected: Prepared to make quit attempt, those wishing to do so alone excluded. Randomization: Sealed envelope.
Participants	Participants: 1942 current smokers. 20 cig/day, age 51 average. 32% with cardiovascular, 12% pulmonary diagnosis. Therapists: Physician and nurse counsellor.
Interventions	1. Intervention: Physician advice Counselling (1x, total 30 min., type behavioural) Other (self-help materials, relaxation tapes, video) Follow-up (4x @ 48hr, 1, 3 wk, 3 mo. by telephone) 2. Intervention: Physician advice Counselling (1x, total 30 min., type behavioural) Other (self-help materials, relaxation tapes, video)

Miller 1997 *(Continued)*

	Follow-up (1x @ 48 hr by telephone) 3. Comparison: Advice only Intensity: 3, 4 NRT: No
Outcomes	Abstinence: Sustained abstinence at 3, 6 & 12 months. Validation: Plasma cotinine or family member corroboration. Died: 82 at 12 mo.
Notes	1 vs 3 in intensive comparison, 2 vs 3 in minimal comparison 12 months abstinence 1+2 vs 3 separately for cardiovascular, pulmonary and other diagnosis.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Low risk	A - Adequate

Ortigosa 2000

Methods	Country: Spain Recruitment: Inpatients with acute MI. Selected: Invited to participate. Randomization: Method not stated.
Participants	Participants: 90 current smokers. 25 cig/day, age 57 average Therapists: Physician.
Interventions	1. Intervention: Physician advice Follow-up (3x @ 2,3,4 wk by telephone) 2. Comparison: Usual care Intensity: 3 NRT: No
Outcomes	Abstinence: Abstinence at 12 months (point prevalence). Validation: Expired air CO. Died: 3 at 12 mo.
Notes	Intervention not delivered by specialist counsellor.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Unclear risk	B - Unclear

Pederson 1991

Methods	Country: USA Recruitment: Inpatients with COPD. Selected: Invited to participate. Randomization: Method not stated.
Participants	Participants: 74 current smokers. 25 cig/day, age 53 average. 43% chronic bronchitis, 57% emphysema. Therapists: Non-specialist trained in counselling.
Interventions	1. Intervention: Physician advice (prior to admission) Counselling (3-9x, total 45-160 min., type information) Other (self-help materials) 2. Comparison: Advice only Intensity: 2 NRT: No
Outcomes	Abstinence: Abstinence at 6 months (point prevalence). Validation: Serum COHb (in sample). Died: 8 at 6 mo.
Notes	8 deaths excluded, 8 lost to follow-up included.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Unclear risk	B - Unclear

Pelletier 1998

Methods	Country: Canada Recruitment: Inpatients with acute MI. Selected: Invited to participate. Randomization: Quasi-experimental
Participants	Participants: 504 current smokers. cig/day not stated, age not stated. Therapists: Nurse.
Interventions	1. Intervention: Physician advice Other (self-help materials) 2. Comparison: Usual care Intensity: 2 NRT: No.
Outcomes	Abstinence: Abstinence at 12 months (self-reported point prevalence). Validation: None. Died: Not stated.
Notes	New study 2003/1 update

Pelletier 1998 *(Continued)*

	1 experimental hospital and 2 control hospitals.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Low risk	A - Adequate

Rigotti 1994

Methods	Country: USA Recruitment: Inpatients scheduled for CABS. Selected: Invited to participate. Randomization: Method not stated.
Participants	Participants: 87 current smokers or recent quitters (38%, defined as at least 1 pack / cig in previous 6 mo.). 33 cig/day, age 58 average. 82% of all CABG surgery. Therapists: Nurse.
Interventions	1. Intervention: Counselling (3x, total 60 min., type behavioural) Other (self-help materials, video) Follow-up (1x @ 1 wk by telephone) 2. Comparison: Advice only Intensity: 3 NRT: No
Outcomes	Abstinence: Sustained abstinence at 4, 8 & 12 months. Validation: Salivary cotinine. Died: 7 at 12 mo.
Notes	Abstinence rates include smokers who had quit prior to surgery.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Unclear risk	B - Unclear

Rigotti 1997

Methods	Country: USA Recruitment: Inpatients in medical or surgical services. Selected: Invited to participate. Randomization: Method not stated.
Participants	Participants: 615 current smokers or recent quitters (proportion not stated, defined as at least 1 cig in previous 1 mo.). 24 cig/day, age 48 average.

Rigotti 1997 *(Continued)*

	23% had cardiac or pulmonary diagnosis. Therapists: Research assistant and nurse.
Interventions	1. Intervention: Physician advice (prompt on chart) Counselling (1x, total 15 min., type behavioural) Other (self-help materials) NRT ("some" c.4%) Follow-up (1-3x @ 1-3 wk by telephone) 2. Comparison: Usual care Intensity: 3 NRT: Yes?
Outcomes	Abstinence: Abstinence at 6 months (point prevalence). Validation: Salivary cotinine. Died: 35 at 12 mo.
Notes	Randomization by eligibility, then listwise recruitment. 50% of patients could recall being given physician advice.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Unclear risk	B - Unclear

Simon 1997

Methods	Country: USA Recruitment: Inpatients undergoing noncardiac surgery. Selected: Prepared to make quit attempt. Randomization: Sealed envelope.
Participants	Participants: 299 current smokers. 20 cig/day, age 54 average. Most cardiovascular or respiratory disease. Therapists: Public health educator.
Interventions	1. Intervention: Counselling (1x, total 30-60 min., type behavioural) Other (self-help materials, video) NRT (gum, dose not stated, for 3 mo.) Follow-up (5x @ 1-3 wk 2, 3 mo. by telephone) 2. Comparison: Advice only Intensity: 4 NRT: Yes
Outcomes	Abstinence: Abstinence at 12 months (point prevalence). Validation: Serum or salivary cotinine or corroboration by significant other. Died: 25 at 12 mo.
Notes	Approx 65% intervention and 17% control used NRT. Not associated with quitting in either group.

Simon 1997 *(Continued)*

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	Low risk	A - Adequate

Stevens 1993

Methods	Country: USA Recruitment: Inpatients with stay >36 hours excluding postpartum and psychiatric patients. Selected: Invited to participate. Randomization: Not random (alternated between hospitals on monthly basis).
Participants	Participants: 1119 current smokers or recent quitters (5%, defined as smoking regularly at any time in previous 3 mo.). 20 cig/day, age 44 average. 17% cardiovascular or respiratory diagnosis. Therapists: Masters level cessation counsellors.
Interventions	1. Intervention: Counselling (1x, total 20 min., type behavioural) Other (self-help materials, video) Follow-up (1-2x @ 1-3 wk by telephone) 2. Comparison: Usual care Intensity: 3 NRT: No
Outcomes	Abstinence: Sustained abstinence at 3 & 12 months. Validation: None (low success in obtaining cotinine returns). Died: None reported.
Notes	No significant baseline differences between patient characteristics in intervention and control.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	High risk	C - Inadequate

Stevens 2000

Methods	Country: USA Recruitment: Inaptients with stay >36 hours excluding postpartum and psychiatric patients. Selected: Invited to participate. Randomization: Not random (alternated between hospitals on monthly basis).
Participants	Participants: 1173 current smokers or recent quitters (proportion not stated, defined as smoking regularly at any time in previous 3 mo.). 19 cig/day, age 47 average. Therapists: Respiratory therapist.

Stevens 2000 *(Continued)*

Interventions	1. Intervention: Counselling (1x, total 20 min., type behavioural) Other (self-help materials, video) Follow-up (1x @ 1 wk by telephone) 2. Comparison: Usual care Intensity: 3 NRT: No
Outcomes	Abstinence: Sustained abstinence at 12 mo. (sustained for 6 mo.) Validation: None. Died: None reported.
Notes	Only 68% of intervention group actually offered intervention.

Risk of bias

Bias	Authors' judgement	Support for judgement
Allocation concealment (selection bias)	High risk	C - Inadequate

Taylor 1990

Methods	Country: USA Recruitment: Inapatients with acute MI. Selected: Invited to participate. Randomization: Sealed envelope.
Participants	Participants: 173 current smokers. 25 cig/day, 58 years average. 10% previous MI. Therapists: Nurse.
Interventions	1. Intervention: Counselling (1x, total not stated, type behavioural) Other (self-help materials, relaxation tapes) NRT (gum "available", dose not stated, for not stated) Follow-up (6-7x @ 1-3 wk, every mo. for 4 mo. by telephone) 2. Comparison Usual care. Intensity: 4 NRT: Yes?
Outcomes	Abstinence: Sustained abstinence at 3 & 12 months. Validation: Serum thiocyanate, expired air CO. Died: 7 at 12 mo.
Notes	Higher loss to follow up in control group increases apparent effect of intervention when using ITT approach. NRT gum prescribed to 5 patients.

Risk of bias

Bias	Authors' judgement	Support for judgement

Taylor 1990 *(Continued)*

Allocation concealment (selection bias)	Low risk	A - Adequate

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

Study	Reason for exclusion
Agewall 2001	Multifactorial intervention. No smoking cessation outcomes reported.
Allen 1998	Not inpatients (delivered at outpatient clinic).
BTS 1983	Inpatient and outpatient data not reported separately.
Burt 1974	Not randomised.
Colby 1998	Short follow-up (3 months). Only investigated adolescent smokers.
Cole 2001	Review, not study
Dale 1995	Not inpatients (some participants admitted to inpatients unit for smoking intervention).
Emmons 2000	Baseline and pharmacy data from a trial. Main outcomes not yet reported.
Feeney 2001	Intervention delivered after hospital discharge.
Galvin 2001	Not inpatients (delivered at outpatient clinic)
Gritz 1993	Not inpatients (only recruitment carried out in hospital setting).
Johnson 1999	Not randomised.
Jones 2001	Intervention delivered after discharge from ICS
Kalman 2001	Participants hospitalised for alcohol dependence treatment
Lisspers 1999	Intervention delivered after discharge following PCTA
McHugh 2001	Multicomponent intervention delivered prior to hospitalisation for CABG
Meenan 1998	Not randomised.
Moller 2002	Intervention delivered prior to hospital admission.
Richman 2000	Patients not admitted to hospital, follow-up 3 months.
Rissel 2000	Intervention delivered to outpatients. Not randomised
Schmitz 1999	No control / usual care group.
Smith 2002	Not a trial. Evaluates real world effect of intervention used in De Taylor 1990, Busk 1994 and Miller 1997 studies.
Strecher 1985	Not randomised.

Study	Reason for exclusion
Wewers 1994	Short follow-up (5 weeks).

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

Froelicher 2000

Trial name or title	Women's Initiative for Nonsmoking (WINS)
Methods	
Participants	278 women with cardiovascular disease
Interventions	1. Intervention: Nurse managed care focusing on relapse prevention in hospital cessation
Outcomes	Abstinence at 6, 12, 24 mo.
Starting date	
Contact information	
Notes	

Lando 2000

Trial name or title	Promoting smoking cessation in hospital patients.
Methods	
Participants	Participants: 2354 current smokers or recent quitters (proportion not stated, defined as at least 1 cig at any time in previous 3 mo. and consider themselves a regular smoker for 1 mo. in year prior to admission). Therapists: Physician, nurse and smoking-cessation counsellor.
Interventions	1. Intervention: Physician advice Other (self-help materials) 2. Intervention: Physician advice Counselling (1x, total 20-30 min., type not stated) Follow-up (3-6x, interval not state, by telephone) 3. Comparison: Usual care
Outcomes	Abstinence: 7-day point prevalence at 12 mo. Validation: Salivary cotinine
Starting date	January 1997
Contact information	Dr HA Lando (lando@epi.umn.edu)
Notes	

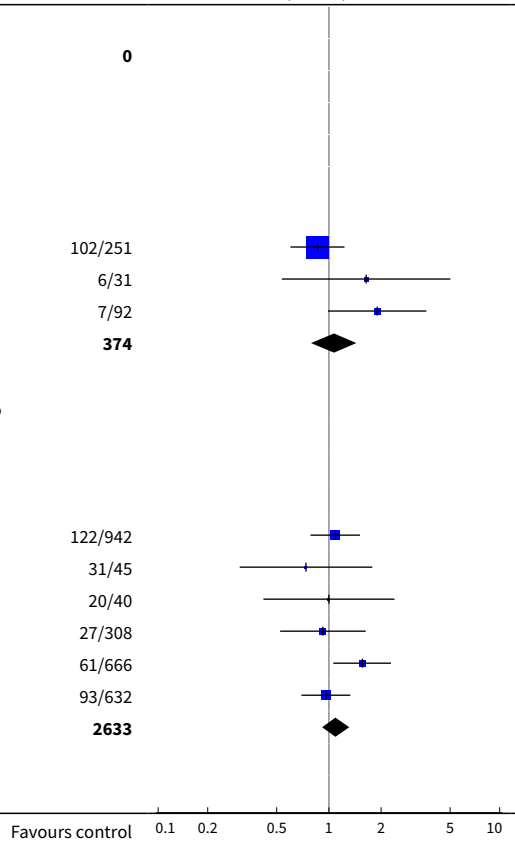
DATA AND ANALYSES

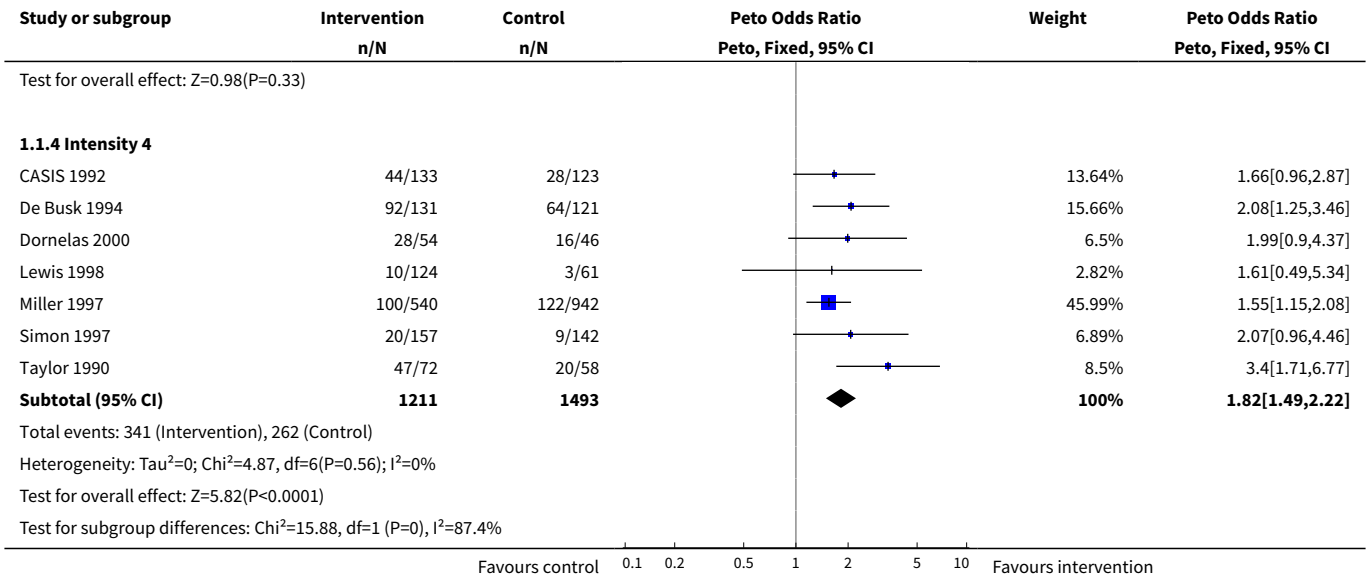
Comparison 1. Intervention v Control, trials grouped by intensity of intervention

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Quit at longest follow-up (6+ months)	15		Peto Odds Ratio (Peto, Fixed, 95% CI)	Subtotals only
1.1 Intensity 1	0	0	Peto Odds Ratio (Peto, Fixed, 95% CI)	0.0 [0.0, 0.0]
1.2 Intensity 2	3	1075	Peto Odds Ratio (Peto, Fixed, 95% CI)	1.07 [0.79, 1.44]
1.3 Intensity 3	6	4476	Peto Odds Ratio (Peto, Fixed, 95% CI)	1.09 [0.91, 1.31]
1.4 Intensity 4	7	2704	Peto Odds Ratio (Peto, Fixed, 95% CI)	1.82 [1.49, 2.22]

Analysis 1.1. Comparison 1 Intervention v Control, trials grouped by intensity of intervention, Outcome 1 Quit at longest follow-up (6+ months).

Study or subgroup	Intervention n/N	Control n/N	Peto Odds Ratio Peto, Fixed, 95% CI	Weight	Peto Odds Ratio Peto, Fixed, 95% CI
1.1.1 Intensity 1					
Subtotal (95% CI)	**0**	**0**			**Not estimable**
Total events: 0 (Intervention), 0 (Control)					
Heterogeneity: Not applicable					
Test for overall effect: Not applicable					
1.1.2 Intensity 2					
Hajek 2002	94/254	102/251		71.32%	0.86[0.6,1.23]
Pederson 1991	10/35	6/31		7.28%	1.64[0.54,5.02]
Pelletier 1998	63/412	7/92		21.4%	1.9[0.99,3.65]
Subtotal (95% CI)	**701**	**374**		**100%**	**1.07[0.79,1.44]**
Total events: 167 (Intervention), 115 (Control)					
Heterogeneity: Tau^2=0; Chi^2=4.98, df=2(P=0.08); I^2=59.82%					
Test for overall effect: Z=0.42(P=0.68)					
1.1.3 Intensity 3					
Miller 1997	64/460	122/942		29.68%	1.09[0.78,1.51]
Ortigosa 2000	26/42	31/45		4.14%	0.74[0.31,1.78]
Rigotti 1994	20/40	20/40		4.22%	1[0.42,2.39]
Rigotti 1997	25/307	27/308		9.94%	0.92[0.52,1.63]
Stevens 1993	61/453	61/666		21.86%	1.56[1.06,2.28]
Stevens 2000	77/541	93/632		30.15%	0.96[0.69,1.33]
Subtotal (95% CI)	**1843**	**2633**		**100%**	**1.09[0.91,1.31]**
Total events: 273 (Intervention), 354 (Control)					
Heterogeneity: Tau^2=0; Chi^2=5.03, df=5(P=0.41); I^2=0.62%					

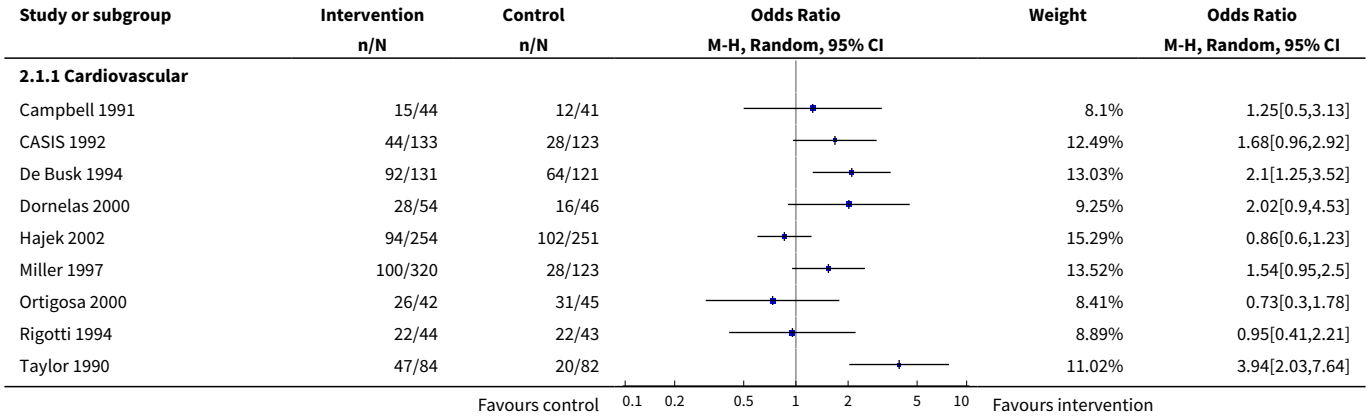


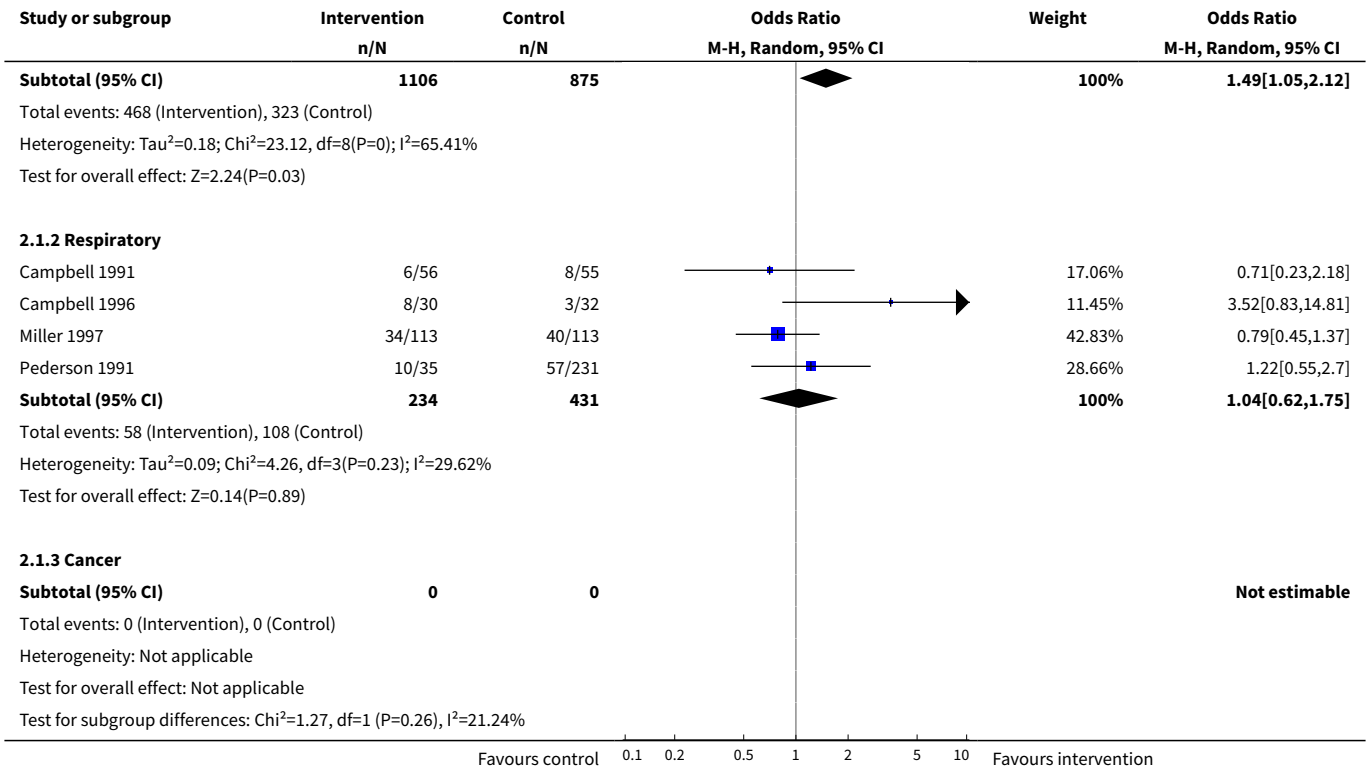


Comparison 2. Intervention v Control, by diagnostic subgroup

Outcome or subgroup title	No. of studies	No. of partici-pants	Statistical method	Effect size
1 Quit at longest follow-up (6+ months)	11		Odds Ratio (M-H, Random, 95% CI)	Subtotals only
1.1 Cardiovascular	9	1981	Odds Ratio (M-H, Random, 95% CI)	1.49 [1.05, 2.12]
1.2 Respiratory	4	665	Odds Ratio (M-H, Random, 95% CI)	1.04 [0.62, 1.75]
1.3 Cancer	0	0	Odds Ratio (M-H, Random, 95% CI)	0.0 [0.0, 0.0]

Analysis 2.1. Comparison 2 Intervention v Control, by diagnostic subgroup, Outcome 1 Quit at longest follow-up (6+ months).

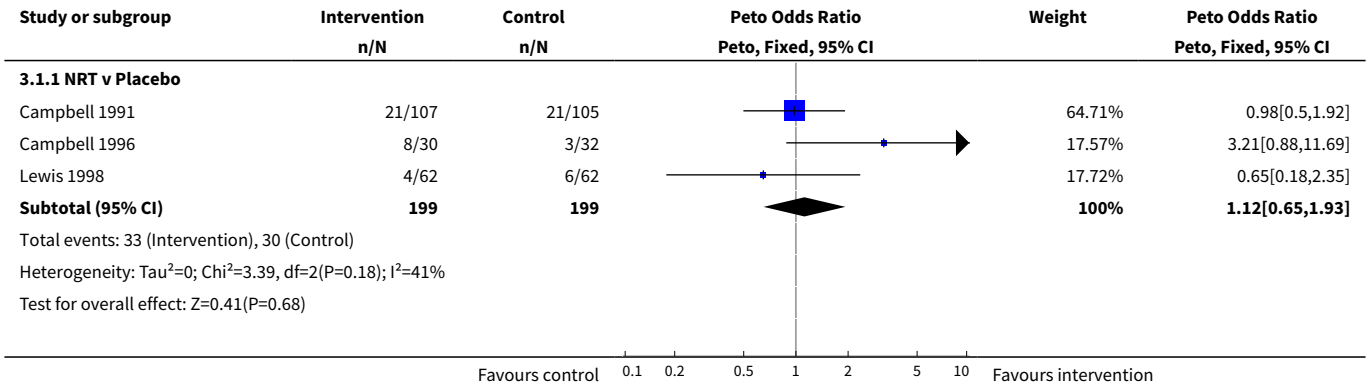


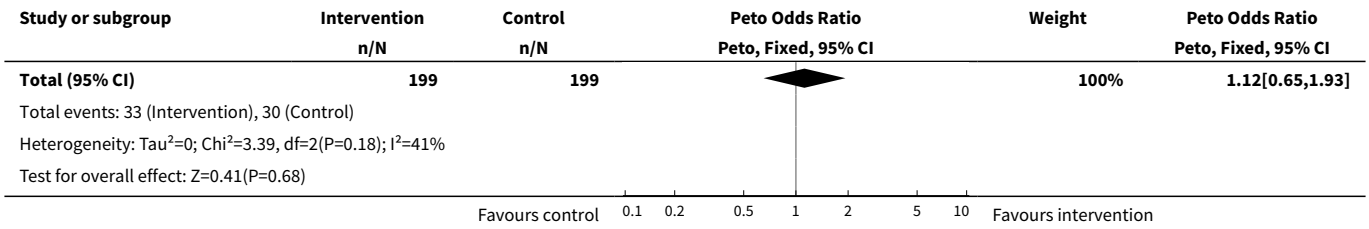


Comparison 3. Intervention v Control, trials of NRT

Outcome or subgroup title	No. of studies	No. of partici-pants	Statistical method	Effect size
1 Quit at longest follow-up (6+ months)	3	398	Peto Odds Ratio (Peto, Fixed, 95% CI)	1.12 [0.65, 1.93]
1.1 NRT v Placebo	3	398	Peto Odds Ratio (Peto, Fixed, 95% CI)	1.12 [0.65, 1.93]

Analysis 3.1. Comparison 3 Intervention v Control, trials of NRT, Outcome 1 Quit at longest follow-up (6+ months).





WHAT'S NEW

Date	Event	Description
10 May 2017	Amended	Converted to new review format.

HISTORY

Protocol first published: Issue 4, 1999
Review first published: Issue 2, 2001

Date	Event	Description
27 August 2002	New citation required and conclusions have changed	Substantive amendment

CONTRIBUTIONS OF AUTHORS

Conception of idea: Stead, Rigotti, Murphy.
Extraction of data: Munafo, Murphy, Stead.
Writing: Munafo, Murphy, Stead, Rigotti.

DECLARATIONS OF INTEREST

One of the authors (Rigotti) was the co-author of two studies included in the review.

SOURCES OF SUPPORT

Internal sources

- Department of Primary Health Care, Oxford University, UK.

External sources

- NHS Research and Development Programme, UK.

INDEX TERMS

Medical Subject Headings (MeSH)

*Inpatients; *Smoking Cessation; *Smoking Prevention; Counseling [methods]; Hospitalization; Patient Education as Topic [*methods]; Randomized Controlled Trials as Topic; Sensitivity and Specificity

MeSH check words

Humans