Strategies for smoking cessation

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Smoking cessation strategies should be geared to the target group's level of motivation to quit, and degree of tobacco addiction. Motivational interventions (e.g. media campaigns) aim to encourage more people to try to stop smoking. Treatment interventions (e.g. nicotine replacement) aim to increase the chances of a quit attempt being successful. In populations which have already been saturated by motivational interventions, the overall effect of adding further motivational interventions may be rather small, and possibly non-existent in heavy smokers. As a population's smoking prevalence declines, so the balance of interventions should shift from motivational to treatment approaches. Nicotine replacement is an effective smoking cessation aid and should form the basis for treating moderate to heavy smokers. There may be a case for the development of more specialist clinics to treat motivated but addicted smokers and train health professionals how to apply effective smoking cessation methods as part of their routine work.

The four main methods of reducing the health consequences of tobacco are: (i) reducing the number of people who initiate tobacco use; (ii) increasing the number of tobacco users who stop; (iii) increasing the number of continuing tobacco users who switch to less harmful forms of tobacco use; and (iv) decreasing non-smokers' exposure to environmental tobacco smoke. This paper will focus on describing and evaluating interventions designed to promote smoking cessation, which can potentially be carried out by health professionals.

Smokers generally do not stop smoking without first deciding that this is a desirable outcome and making a conscious decision to do so. However, it has become clear that a large proportion of smokers who decide that they would like to stop smoking and make attempts to do so are unsuccessful. Before going on to describe and evaluate the various types of smoking cessation interventions which exist, it is appropriate to consider in some detail two of the main factors which determine whether or not an individual smoker stops smoking: motivation (desire/intention to stop smoking) and addiction (compulsive smoking characterised by impaired voluntary control, also often called ‘dependence’).
Motivation

A smoker’s motivation (drive, intention, desire) to stop smoking is clearly a critical factor in whether or not they are likely to quit. There are two commonly used methods of assessing this factor. The first method consists of asking smokers a few simple questions about the strength of their desire to stop smoking. Two typical multiple choice questions are given below, along with a suggested scoring format:

(a) Would you give up smoking altogether, if you could do so easily?
   Yes, definitely   Yes, probably   Possibly   Probably not   Definitely not
   (4)               (3)                (2)           (1)            (0)

(b) How much do you want to stop smoking altogether?
   Not at all   Slightly   Moderately   Quite strongly   Very strongly
   (0)          (1)       (2)           (3)             (4)

A number of studies have found (not surprisingly) that likelihood of successful cessation is predicted by total motivation scores like those given above.

The other method of assessing motivation to change is that implicit in the ‘Stage of Change’ model of human behaviour. This model recognises that, like many other behaviours, smoking cessation is often better described as a cyclical activity than as a discrete event. It is suggested that smokers typically progress through five stages described below: Precontemplation: currently smoking and not seriously considering quitting within the next six months. Contemplation: currently smoking and seriously considering quitting within the next six months (but not within the next thirty days). Preparation: Currently smoking and seriously intending to quit within the next thirty days. Action: Not currently smoking, having quit in the last six months. Maintenance: Not currently smoking, having abstained for over six months.

Of course relapse is very common in smokers attempting to quit, causing them to re-enter the cycle again at some earlier stage. Again, this method of assessing motivation predicts likelihood of making an attempt to quit and likelihood of success in smokers exposed to a brief smoking cessation intervention.

There are some obvious merits to assessing the level of motivation/stage of change of the group of smokers to whom an intervention is being targeted. For example, it is clear that targeting an intensive smoking cessation treatment at smokers with no intention of quitting is likely to be a waste of time. It has been suggested that a better approach is to assess motivation and target appropriate interventions according to the target group/individual’s level of motivation. For example, precontemplators...
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Table 1  DSMIV diagnostic criteria for nicotine withdrawal.

A. Daily use of nicotine for at least several weeks.
B. Abrupt cessation of nicotine use, or reduction in the amount of nicotine used, followed within 24 h by 4 (or more) of the following:
   (1) dysphoric or depressed mood
   (2) insomnia
   (3) irritability, frustration or anger
   (4) anxiety
   (5) difficulty concentrating
   (6) restlessness
   (7) decreased heart rate
   (8) increased appetite or weight gain
C. The symptoms in Criterion B cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
D. The symptoms are not due to a general medical condition and are not better accounted for by another mental disorder.

Associated features: craving for nicotine, desire for sweets, impaired performance on tasks requiring vigilance, EEG slowing, decrease in catecholamine and cortisol levels, decreased metabolism of some medications and other substances.

...might be exposed to information on the health effects of tobacco together with the financial advantages of quitting, contemplators might be provided with information designed to tip their decisional balance in favour of quitting, along with materials giving advice on how to stop smoking, and people in the action stage might be given relapse prevention material. While this approach has considerable face validity, it has yet to be demonstrated to improve long term abstinence rates.

Addiction

Central to most definitions of drug addiction is the idea that it involves an element of compulsion (often in the face of serious adverse health consequences) and that it involves an impairment of self-control over the use of the drug (evidenced by failure to abstain despite high motivation and serious attempts to do so).

There is now a consensus amongst the medical and scientific communities that tobacco is addicting, that nicotine is the drug causing tobacco addiction, and that the mechanisms causing tobacco addiction are similar to those causing addiction to heroin and cocaine. The evidence supporting this view is reviewed comprehensively in the 1988 US Surgeon General’s Report, entitled Nicotine Addiction, but it is perhaps worth mentioning some of that evidence. The 1-year continuous abstinence rate for smokers making an unaided quit attempt is less than 5%. It is therefore clear that most smokers find it difficult to stop smoking, even after they have made a conscious decision to do so.

When smokers abstain they frequently experience an unpleasant withdrawal syndrome, the main diagnostic features of which are shown...
in the Table. At least 49% of self-quitters and 68% of patients (smokers of at least 10 cigarettes per day) attempting to stop smoking with the help of their family doctor experience withdrawal symptoms meeting diagnostic criteria for the nicotine withdrawal syndrome. This withdrawal syndrome is relieved by nicotine administration (e.g. in the form of gum, nasal spray or skin patch) compared with placebo. The proven efficacy of nicotine replacement as a smoking cessation aid (discussed below) is further evidence that many smokers are addicted to nicotine.

Like other addictions, tobacco addiction has degrees of severity which can be measured in a number of ways. Biochemical measures of nicotine consumption (e.g. blood nicotine or saliva cotinine concentration) sometimes provide the most powerful predictor of likelihood of success in any given quit attempt, but again a few brief questions about the time before smoking the first cigarette of the day, and daily cigarette consumption also provide good measures of tobacco dependence, which predict the difficulty an individual will have in stopping smoking. If a smoker typically smokes at least 15 cigarettes per day or smokes their first cigarette of the day within half an hour of waking, then it is highly likely that they will find it difficult to stop smoking and will experience nicotine withdrawal symptoms on trying to do so.

When discussing smoking cessation interventions, it is important to consider which type of smoker the intervention is best targeted at, in terms of level of motivation to stop and degree of addiction to tobacco. In particular, it is important not to fall into the trap of comparing ‘success rates’ across interventions targeted at totally different groups of smokers.

Population based smoking cessation interventions

Community or population based smoking cessation projects generally aim to increase the number of smokers within the community who make an attempt to stop smoking, producing a net reduction in smoking prevalence within the target community. One assumption common to most community based interventions is that the important circumstances supporting a person’s decision to smoke are social. Such interventions aim to create a social climate that does not support tobacco use, by intervening through social structures within a community. The intervention methods typically involve political, business and health leaders in the planning strategy, use of mass media to promote public education and campaign awareness, encouragement of health professionals to raise smoking as an issue with their patients, initiation of smoking cessation events (e.g. ‘Quit and Win’ contests) and provision of self-help materials.
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(e.g. booklets and telephone quitlines) for smokers. Such interventions can be seen as trying to move the whole smoking population along the 'stage of change continuum' in the direction from 'precontemplation' towards maintained abstinence.

Such interventions have the advantage of being able to reach a sizeable proportion of the population. Even if only a small fraction of the smokers stop smoking as a result, this may still amount to a relatively large number, and hence a sizeable health gain.

Some studies of this type of intervention\textsuperscript{13,14} have produced modest but encouraging results while others suggested that increased community education may be unlikely to improve upon secular reductions in smoking prevalence\textsuperscript{15}. However, in order to illustrate some of the main issues involved in such interventions, particular attention will be paid here to the Community Intervention Trial for Smoking Cessation (COMMIT)\textsuperscript{16,17}. At the time of writing this is the only such trial which focused on changing smoking behaviour (rather than a range of risk factors) and which involved random assignment within a sufficient number of community pairs to provide adequate statistical power to detect changes in smoking cessation rates using the community as the unit of analysis. It is probably the most extensive tobacco-control study yet undertaken.

The Community Intervention Trial for Smoking Cessation (COMMIT)

The COMMIT study took place in North America from 1989 to 1992. It aimed to evaluate whether a 4-year community-level intervention would increase quit-rates among cigarette smokers, with heavy smokers (>24 cigarettes per day) being a particular priority group. Twenty-two communities (populations in each ranged from 50,000 to 250,000) participated, forming eleven matched pairs. One of each pair was randomly assigned to receive the community intervention, while the other acted as a control community.

The intervention consisted of public education activities (e.g. publicising local smoking control plans, organisation of Quit and Win contests), encouraging interventions by health professionals (e.g. training doctors and dentists in cessation methods), work-site activities (e.g. holding smoking-policy workshops and dispensing self-help materials) and developing cessation resources (e.g. maintaining a local smoking resources guide). A total of 58 activities were mandated as part of the intervention, and each intervention community could add their own initiatives (e.g. mass media cessation campaigns). The main aim was to
utilise existing resources within each community, but an additional $220,000 per year for 4 years was provided to each intervention community.

For the purposes of evaluation, a smoker was defined as someone (aged 25–64 years) who had smoked at least 100 cigarettes and who was smoking at the time of the initial baseline survey, with a heavy smoker being a smoker of at least 25 cigarettes per day. Approximately 550 heavy and 550 light-moderate smokers were identified in each community and this cohort was followed-up by telephone interview annually from 1988 to 1993 in order to assess the impact of the intervention. The total cohort sample consisted of approximately 5,000 initial heavy smokers (median daily consumption=30) and 5,000 initial light-moderate smokers (median daily consumption=15) in both the intervention and control conditions.

Changes in smoking prevalence and overall quit ratios were also assessed by telephone interviews with over 100,000 households for the baseline survey (1988) and over 50,000 households for the final prevalence survey (1993).

The results of this study were disappointing. Within the heavy smoker cohort, 18.0% in the intervention communities had quit (self-report of no smoking in previous 6 months) by the end of the study, compared with 18.7% in the control communities. For light-moderate smokers the corresponding quit rates were 30.6% and 27.5%, suggesting that the intervention resulted in an extra 3% quitting within this group of smokers. The intervention had no significant impact on total smoking prevalence in either group (falling by just under 3% in all groups) and the overall quit ratio was similar within intervention and control communities.

The detailed results of this trial are worth closer inspection by anyone considering implementing this type of intervention. They suggest that in countries or communities in which the health educational message about smoking is already widely accepted and motivation to quit is generally high, further motivational interventions produce rather small effects and may have absolutely no influence at all on heavy (highly addicted) smokers. It is possible that if a similar intervention had been carried out in a country at a less advanced stage of anti-smoking policy development then it would have had a larger effect, at least among lighter smokers. This is supported by the fact that virtually all of the intervention effect on light-moderate smokers in the COMMIT trial occurred in those with no college education, a portion of the US population which may not have been reached by previous health educational efforts.

One clear implication here is that efforts to increase motivation to quit among addicted smokers may be fairly ineffectual unless accompanied by greater availability of treatments directed at their dependence on nicotine.
Brief smoking cessation interventions by health professionals

Brief advice and encouragement to stop smoking by a health professional during a routine consultation has been recognised to be a particularly cost-effective method of increasing the number of smokers who stop smoking\textsuperscript{18}. For example, the GP could briefly advise the smoker in the following way:

The best thing you can do for your health is to stop smoking and I want to advise you to stop as soon as possible. I know it can be hard and many try several times before finally succeeding. I’d like you to take home this leaflet and read it. It provides some information on the health effects of smoking and some tips on ways of stopping smoking. The sooner you stop the better.

A recent review of the effectiveness of smoking cessation interventions\textsuperscript{18} concluded that each episode of systematically applied brief family doctors’ advice results in an extra 2\% of smokers becoming long-term abstainers (over and above the natural background quit rate). One of the most influential studies on this issue in the UK was that published by Russell and colleagues in 1979\textsuperscript{19}. This study randomly allocated all 2,138 smokers attending 28 family doctors in May 1974 to receive either: (a) brief advice (one or two minutes) to stop smoking plus a 4-page leaflet entitled \textit{How you can give up smoking}; (b) brief advice only; (c) a smoking questionnaire only; or (d) no intervention (control group). The proportion of subjects who were abstinent at both one month and one year follow-ups in those groups were: (a) 5.1\%; (b) 3.3\%; (c) 1.6\%; and (d) 0.3\%. It was argued that if all the GPs in the UK routinely provided brief advice and a leaflet to smokers then this would produce an extra half million ex-smokers each year.

The intervention in this study worked by motivating more people to try to stop smoking rather than increasing the success rate among those who did try. There was also good evidence that those who succeeded in stopping smoking in that study were generally the lighter smokers. For example, the one year abstainers averaged only 9 cigarettes per day at baseline, compared with 17 per day in those who were still smoking at one month follow-up.

In 1983, Russell and colleagues published another similar study\textsuperscript{20} (conducted in November 1980). On this occasion patients were randomly allocated to: (a) no intervention; (b) brief advice plus a booklet; or (c) brief advice plus a booklet plus the offer of nicotine gum. The proportions who were abstinent at both the 4 and 12 month follow-ups were: (a) 3.9\%; (b) 4.1\%; and (c) 8.8\%. Unlike the original study,
Fig. 1  Relationship
between odds of
stopping smoking and
self-rated baseline
motivation to stop
smoking in light and
heavy smokers receiving
no intervention.
(Reproduced from
Jackson, Stapleton,
Russell, Merriman,
Preventive Medicine,
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this one found no material effect of brief advice by the family doctor. The
reasons for this are not entirely clear, but it is possible that the relative
effectiveness of simple brief advice to quit lessened over the six and a half
years between the studies, as the general anti-smoking climate within the
UK population strengthened. In this study the nicotine gum (provided
free) motivated more smokers to try to stop, increased the success rate
among those who tried, and reduced the relapse rate of those who
stopped.

Subsequent analyses of the results of this study uncovered some
interesting relationships between, motivation to quit, tobacco depend-
ence (both assessed pretreatment), and smoking cessation following
various family doctor interventions1. Figures 1 and 2 illustrate these
relationships. Figure 1 shows the relationship between likelihood of
successful cessation and strength of motivation to quit in heavy (e.g. 30
cigarettes per day) and light smokers (e.g. 5 per day) receiving no
intervention. Heavy smokers are less likely to quit on their own than
lighter smokers, but this effect is particularly strong at lower levels of
motivation. Thus for a heavy smoker to succeed in stopping smoking
they must have a particularly strong desire to quit. Figure 2 illustrates the
relationship between gender, tobacco dependence, treatment, and
Smoking cessation. More dependent smokers are less likely to quit, but are particularly helped by the offer of nicotine gum. The negative effect of increased dependence appears to be particularly strong in women.

More recently the efficacy of transdermal nicotine patches when used as an accompaniment to family doctors' advice and follow-up has been confirmed in large placebo-controlled trials\textsuperscript{12,21}. The results of one such study\textsuperscript{12} are illustrated in Figure 3. Consistent with the results of the trial of nicotine gum discussed above, these results indicate that nicotine patches can roughly double the 1-year abstinence rate in motivated and dependent smokers (from about 5% to about 10% 1-year sustained abstinence).

These studies have also suggested that the vast majority of smokers who are going to succeed in quitting following a brief intervention with nicotine patches achieve abstinence within the first week of quitting. Much of the concern about reimbursing for nicotine replacement products or subsidising them on the National Health Service centres around the potentially high cost of providing these products free for months to the vast number of smokers who may wish to use them. The existing evidence suggests that it may be appropriate for a doctor to
continue to prescribe nicotine replacement only to those who managed to achieve abstinence using the product within the first week. If this became normal practice then it would drastically reduce the potential cost of subsidising nicotine replacement, and would ensure that this medication was being targeted efficiently at those who benefit from it.

A brief treatment intervention for moderate to heavy smokers (i.e. at least 10 cigarettes per day) with some interest in stopping smoking should include the arrangement of a quit date, offer of nicotine replacement medication with advice on its use, and the offer of a follow-up appointment within 1 week of the quit date. Those attending the follow-up and claiming abstinence (ideally confirmed by an afternoon measure of expired carbon-monoxide less than 10 ppm) should be continued on the nicotine replacement according to the recommended treatment schedule (or until they relapse).

Much of the research on brief smoking interventions has focused on interventions by medical doctors. However, it is possible that such interventions would be as effective if carried out by other professionals, such as nurses and pharmacists. Now that nicotine replacement products are available over the pharmacy counter in many countries (i.e. without a doctor’s prescription), there is a good case for evaluating the role of the pharmacist as a smoking cessation advisor.
Specialist smoking cessation treatment

The previous sections have outlined the role of public health campaigns and brief interventions by healthcare workers to promote smoking cessation. Such interventions are generally designed to encourage smokers to quit on their own, or to provide a level of clinical help for patients to stop smoking which can be fitted into the routine work of healthcare workers. There is little doubt that, when such interventions are appropriately targeted, they are cost-effective methods of reducing the number of smokers and producing a substantial health gain. However, consistent use of such measures will still leave a large number of smokers who have tried to quit on their own, and tried again following some brief advice from their doctor but without success. This select group of highly motivated and highly addicted smokers are the appropriate clientele for a specialist smokers clinic.

The specific treatment components used in a smokers clinic vary from clinic to clinic. The efficacy of specific components of intensive treatments have generally not been evaluated properly. One is, therefore, forced to select treatment components which have face-validity and some supporting data, as well as components which have been proven effective. Some of the assessment and treatment components which can be advocated for smokers clinics are described below:

Nicotine replacement: Just as nicotine replacement has been shown to be effective as part of a brief intervention, this treatment component has been shown to roughly double long term abstinence rates (e.g. from 16% to 27% when nicotine gum or patch are provided\textsuperscript{23}) in the context of an intensive smokers clinic treatment\textsuperscript{22-24}. A specialist clinic has the advantage of being able to acquire expertise in the use of nicotine replacement products and can provide a level of support necessary to ensure adequate compliance. Although the nicotine patch is ideal for brief interventions, in that it is relatively easy to use and has a favourable side-effect profile, some of the other nicotine replacement products require more guidance. For example, patients should be advised how to chew nicotine gum in a manner which will enhance buccal absorption and should be prepared for the initial irritant side-effects. Similarly, compliance with nicotine nasal spray treatment may be poor unless provided along with considerable encouragement and explanation (due to initial nasal irritancy).

At the time of writing two strengths of nicotine gum, a variety of transdermal patches (both daytime and 24 h varieties), and a nasal spray are licensed and available in the UK, with new products (e.g. a nicotine inhaler) under evaluation. There is no doubt that these treatments help reduce nicotine withdrawal symptoms and increase the chances of long
term abstinence from tobacco. There is also preliminary evidence that certain products are particularly helpful to certain types of smoker. For example, Figure 4 shows the 3 month abstinence rates in subjects attending a smokers clinic and participating in a placebo-controlled trial of nasal nicotine spray\textsuperscript{24}. Among those receiving placebo spray, the heavier their nicotine intake while smoking prior to the trial (as assessed by baseline blood nicotine concentration) the less likely they were to be abstinent at 3 months follow-up. This relationship was completely offset in those who received the nicotine spray. One can therefore see that the nasal spray was particularly helpful to the heaviest smokers, producing an 8-fold increase in their chances of achieving abstinence from cigarettes.

Preliminary evidence suggests that combining nicotine replacement products (e.g. patch plus gum) can enhance abstinence rates\textsuperscript{25} and again this is the type of treatment which could best be offered in a specialist clinic.

**Group treatment:** By recruiting clients from a wide geographical area, smokers clinics can provide regular group treatments, and so benefit from this more efficient use of therapist time. Stop-smoking groups aim to provide additional support in order to help maintain abstinence in the first month during which most relapse occurs, and to encourage the use
of positive smoking cessation strategies (e.g. proper use of nicotine replacement products, avoidance of high-risk relapse situations, etc.). There is also some evidence that the use of group processes can actually enhance both attendance and abstinence rates\textsuperscript{26}. The clinician can encourage therapeutic group processes by increasing group cohesion (e.g. by asking group members to introduce themselves, initiating group discussions, etc.) and enhancing group pressure to maintain abstinence (e.g. by initiating publicly declared commitments to remain abstinent).

**Biochemical feedback on smoke intake:** There are now a number of methods of biochemically quantifying patients’ smoke intake\textsuperscript{27}. Saliva cotinine is the ‘gold standard’ measure (for individuals not using nicotine replacement) and can be measured accurately in samples sent to a laboratory by post\textsuperscript{28}. Expired carbon monoxide (CO) monitors are now widely available and have the advantage of providing an immediate quantitative feedback of the amount of smoke which the patient has recently inhaled. Expired CO is about 90\% accurate in discriminating a smoker from a nonsmoker\textsuperscript{27}. There is some evidence that the use of this measure at assessment and follow-up encourages more smokers in disadvantaged socioeconomic groups to quit\textsuperscript{29} and it may facilitate the cohesiveness of groups due to greater confidence of honest self-reporting by the participants. Portable CO monitors for use with smokers cost around £450, and there is a good case for these being used routinely in hospital clinics and general practice. However, this assessment and treatment tool is currently only used routinely in specialist clinics.

Unfortunately, other than nicotine replacement, none of these (or any other) treatment components have been adequately evaluated. Perhaps the best guide to the kind of long term results produced by an intensive smokers clinic treatment combining these and other components can be gained from analysis of the results of the Lung Health Study\textsuperscript{30} in the US. This study is therefore described in some detail below.

**The Lung Health Study (LHS)**

This landmark study aimed to assess whether an intensive smoking cessation intervention and the use of a bronchodilator could slow the rate of decline in lung function in otherwise healthy smokers who already had mild impairment of lung function. 5,887 smokers, aged 35–60 years, were randomly allocated to receive either: (1) smoking intervention plus bronchodilator; (2) smoking intervention plus placebo; or (3) no intervention. All participants smoked at least 10 cigarettes per day, were willing to consider smoking cessation, and to participate in a 5-year
follow-up. In practice the group averaged 31 cigarettes per day and had smoked for 31 years. Thus all the participants in this study were moderate to heavy smokers with moderate to high motivation to stop smoking.

Because a major aim of the study was to assess the effect of smoking cessation on lung function (and therefore required a high proportion of participants to successfully quit), the investigators used an intensive intervention which could reasonably be considered ‘state of the art’ at the time the trial was designed. 3,923 subjects were randomised to receive the smoking intervention and 1,964 to receive usual care. The smoking intervention involved 12 group meetings within the first 10 weeks (4 meetings in the first week), with the quit day set at the beginning of the programme. Within the groups, emphasis was placed on behaviour modification techniques and expired CO was measured at every appointment. Relapse prevention skills were taught and relapers were able to restart treatment immediately (throughout the 5-year duration of the study). Spouses and significant others were included in the cessation programme if they wished, and follow-up appointments were arranged every 4 months. Nicotine replacement therapy (nicotine gum) was used ‘aggressively’ and provided free to all participants throughout the trial.

This intensive intervention was rewarded by cessation rates amongst the highest reported in a major trial. 35% of the intervention group were abstinent at 1 year (compared with 9% in the no-intervention control group) and 22% of the intervention group sustained abstinence for 5 years (compared with 5% of the control group). These results provide some indication of what impact an intensive treatment provided at a smokers clinic can have compared with the natural background cessation rate occurring as a result of health education, usual care by healthcare workers and naturally occurring self-quit attempts.

The stepped care approach: implications for clinical practice

Ideally, each smoker should be targeted with the least expensive treatment which is likely to enable that person to stop smoking. This requires matching the intensity of the intervention to the smoker’s levels of motivation and addiction. This paper has described four steps or levels of intervention, each of which is appropriate for smokers with particular levels of motivation and addiction. These are summarised below:

1. The first level of intervention involves the provision of health education and other such information designed to increase motivation to quit
smoking. This type of intervention can be delivered relatively cheaply to the population via the mass media. It should be targeted at sections of the population not yet aware of the information provided (those with little current desire to stop smoking).

2. The next level is the provision of brief (i.e. lasting a couple of minutes at most) advice to stop smoking from health professionals. In populations which have not already been saturated with such messages, both of these first two levels of intervention can result in more people making an attempt to stop smoking, with a worthwhile number (of mainly light smokers) actually succeeding in becoming long term abstainers. Those with moderate levels of motivation and addiction should be offered more help.

3. The next level of intervention is for healthcare workers to offer nicotine replacement plus a follow-up appointment. This type of intervention might require a total of about 20 min of the clinician’s time. It increases the proportion who try to quit, but also the proportion who actually succeed. Such interventions are able to help moderately motivated and addicted smokers to quit.

4. Finally, one has the intensive treatments which can most appropriately be offered in a specialist clinic. Such interventions are relatively expensive per smoker treated, but, if based on treatment in groups, may still be cost effective due to higher success rates (group treatment requires an average of about 30 min therapist time per patient). Unlike the less expensive interventions, intensive support with nicotine replacement helps the more highly addicted smokers to quit (i.e. those who are destined to suffer the greatest health consequences).

More detailed descriptions of the application of the stepped care approach in medical settings have been proposed. It has been suggested that about 20% of smokers might appropriately be treated with nicotine replacement and brief support (level 3), and about 5% with nicotine replacement and intensive support (level 4).

In many countries (including the UK), virtually all the smoking cessation resources have been targeted at the first two levels of intervention. GPs have been encouraged to shoulder much of the burden for encouraging smokers to quit, but neither they nor their staff are usually provided with resources (e.g. a CO monitor, ability to prescribe subsidised nicotine replacement) or training in implementing effective smoking cessation interventions. Recent trials of very brief interventions on smoking (health checks by practice nurses) do not support the effectiveness of this intervention.

In countries in which public desire to stop smoking is already high, there is a need to meet that demand with some form of treatment for those who have been unable to do so on their own. This may be
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particularly the case for the more deprived sections of society. 22% of UK social classes I and II are smokers (64% of whom want to stop), and 55% are ex-smokers. Among the unemployed, 55% are smokers (67% of whom want to stop) and only 20% are ex-smokers. Around 80% of smokers in both social groups have already tried unsuccessfully to quit. Thus it seems as though the current higher smoking rate in the poorer sections of society is due to a difficulty in stopping smoking once an attempt has been made rather than a lack of desire to quit. Compared with treatment services for other addictions, there is a marked absence of provision of specialist smoking cessation services. Given the vast health consequences and addictiveness of tobacco smoking there is a good case for every large general hospital having its own specialist smoking cessation service, to provide intensive treatment for highly motivated and addicted smokers, and to train and support other healthcare workers to deliver brief interventions as part of their routine work.

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