



# Best Practice

Evidence based information sheets for health professionals

## Smoking cessation interventions and strategies

### Recommendations

- Self help should not be considered a front line smoking cessation therapy; where it is the only available form of therapy, materials should be tailored to individuals' needs (**Grade A**)
- Intensive individual behaviour therapy interventions in the form of 12 brief counselling sessions are recommended in cases where NRT has not been effective, or where persons do not want to use NRT (**Grade A**)
- Group therapy programs should be offered before self help programmes and can be added to NRT (**Grade A**)
- Aversion therapy and alternative therapies such as acupuncture or acupressure should not be used (**Grade A**)
- NRT patches when worn during waking hours (16hrs/day) for up to 8 weeks have a therapeutic effect (**Grade A**)
- Where NRT gum is used, offer 4mg doses to highly dependent smokers and 2mg gum to low dependency smokers (**Grade A**)
- Clonidine, Lobeline or opioid antagonists should not be offered in smoking cessation (**Grade A**)
- In individual cases where NRT has not been effective, consider a course of either Bupropion or Nortriptyline (**Grade A**)
- Among hospitalised patients, continue intensive counselling for up to one month post-hospital discharge (**Grade A**) cont. >

### Information Source

The evidence concerning smoking cessation has grown in strength since the first Smoking Cessation Interventions and Strategies information sheet was published in 2001.<sup>1</sup> This information sheet includes 12 new or updated systematic reviews, providing more conclusive evidence about effective smoking cessation both for NRT (Nicotine Replacement Therapy) and other strategies or interventions.<sup>2-15</sup>

### Background

While NRT forms the mainstay of smoking cessation strategies,<sup>12</sup> a comprehensive body of evidence concerning a broad range of other interventions, ranging from forms of behaviour therapy, types of counseling, self help strategies, other pharmacotherapeutic interventions, to strategies for specific populations of patients and/or specific conditions. An initial prompt from a health professional is important to stimulate awareness and then individuals can be either referred to a specialist, for example the NHS Stop Smoking Service in the UK.

Self help is a form of therapy where the individual undertakes to manage their own smoking cessation program.

Consequently, self help is low-cost but its cost effectiveness compared to other therapies is low.<sup>8</sup> Behavioural interventions include coping and social skills training, contingency management, self control, and cognitive-behavioural interventions.<sup>7,14</sup> That group therapy sits between intensive

individual counseling and self help with minimal support by a therapist makes it a less resource-consuming option than intensive one-to-one counseling while offering equivalent cessation rates in a more economically viable model. Twenty studies have shown that a significant increase in the chance of a person quitting occurs with a nurse intervention.<sup>10</sup>

Anecdotal evidence suggests a history of depression is more prevalent among smokers, and that smoking cessation itself may lead to depressive episodes.

Additionally, some people considering quitting smoking may prefer a non-nicotine-based form of pharmacotherapy.<sup>12</sup> Antidepressants therefore may serve a dual purpose as a smoking cessation strategy; several antidepressants have been subject to extensive trial.<sup>6</sup> While NRT and antidepressants are the most viable pharmaceutical options, alternate therapies, including hypnotherapy and acupuncture have been subject to systematic review and are reported in this information sheet.

### Grades of Recommendation

These Grades of Recommendation have been based on the JBI-developed 2006 *Grades of Effectiveness*<sup>16</sup>

**Grade A** Strong support that merits application

**Grade B** Moderate support that warrants consideration of application

**Grade C** Not supported

## Recommendations cont.

- Commence strategies for preoperative smoking cessation 6-8 weeks prior to surgery **(Grade A)**
- Among CHD patients, psychosocial interventions with ongoing follow-up are recommended for smoking cessation **(Grade B)**
- All patients should be asked if they use tobacco and have their smoking status documented **(Grade B)**
- All patients who use tobacco should be offered advice on smoking cessation by their general physician, pharmacist or nurse **(Grade B)**

In addition to specific interventions, specific patient groups have also been investigated for their willingness to quit smoking to decrease long or short-term health risks. Those addressed in this information sheet include patients preparing for surgery, those with depression, or coronary heart disease, or admitted to hospital. Pharmacists' and physicians' advice has also been reviewed, with long and short consulting times examined for effect on quit rates compared to no advice and no other intervention.

## Objectives

The purpose of this Best Practice information sheet is to describe the best interventions that lead to smoking cessation.

## Types of Intervention

The interventions that are documented in this information sheet consist of therapeutic strategies (for example, self help or group-oriented) and medications derived from pharmacotherapeutic sources.

## Findings – Treatment formats

### Self Help

Self help treatment relies on a range of strategies such as video or paper-based support materials. Trials of self help compared it with either a brief letter, or no information, self help with brief contact, or advice, or self help + NRT, or NRT alone, or individualised self help materials, additional written materials or video-based resources. The main results were that self help can improve smoking cessation rates, but the effect is small, while adding self help to other forms of therapy such as NRT has no significant effect on quit rates.<sup>8</sup> Tailoring self help materials may help more than standardised materials, however, the impact is small compared to other forms of therapy. In the absence of such materials, self help is likely to fail, while tailoring materials to individuals' needs increases the likelihood they will quit, although self help is only slightly more effective than providing no support whatsoever.<sup>8</sup>

### Individual Therapy

In 21 trials with over 7000 participants, individual therapy (a behavioural intervention) was evaluated in comparison to the effect of group therapy. Compared to minimal contact, individual therapy was more likely to lead to smoking cessation. Combining individual therapy with NRT did not result in an increase in effectiveness for either therapy. In fact it results in a lower overall likelihood of quitting smoking. The evidence does not support moderate individual counselling as being more beneficial than brief counselling. However, intensive individual counselling was linked to an increase in cessation. The intensive input consisted of 12 cognitive behaviour-based relapse prevention sessions.<sup>7</sup>

### Group Therapy

Over 100 forms of group therapy have been described in the literature. The functions of group therapy are to: analyse motives for group members' behaviour; provide an opportunity for social learning; generate emotional experiences; and impart information and teach new skills.<sup>14</sup> A total of 55 trials met inclusion criteria for

comparisons. Sixteen studies compared a group programme with a self-help programme. Cessation increased with a group programme (N = 4395, odds ratio (OR) 2.04, 95% confidence interval (CI) 1.60 to 2.60). Group programmes were more effective than no intervention controls (seven trials, N = 815, OR 2.17, 95% CI 1.37 to 3.45). There was no evidence that group therapy was more effective than a similar intensity of individual counselling.<sup>14</sup> Combining group therapy with other forms of treatment such as NRT was effective in promoting smoking cessation, although group therapy is not always well received by patients. There was limited evidence that programmes including components for increasing cognitive and behavioural skills and avoiding relapse were more effective than same length or shorter programmes without these components.<sup>14</sup>

### Aversion therapy

Available research on aversion therapy suggests it increases the odds of quitting smoking. However, the level of benefit is small and possibly related to publication bias rather than a true effect. None of the aversion therapies apart from rapid smoking were found to be effective. Therefore this form of therapy should not be considered for most patients.<sup>5</sup>

### Alternative therapies

Acupuncture is a form of traditional Chinese therapy using needles to stimulate particular points in the body. Acupuncture has been reviewed for its capacity to improve smoking cessation by reducing symptoms people experience when quitting smoking. In addition to acupuncture, evidence regarding acupressure, laser therapy and electrical stimulation has been reviewed. However, the existing evidence does not support their use.<sup>15</sup>

## Pharmacotherapy

### NRT

NRT is available in a range of methods of administration, including gum, patch, inhalers, intranasal sprays, and sublingual tablets.

These vary in dosage and duration of delivery per administration, and may require different treatment regimens. The evidence, however, clearly shows NRT in any form is significantly more effective than either placebo or no NRT at increasing rates of smoking cessation.<sup>12</sup>

### NRT Gum

The evidence related to NRT gum indicates that efficacy of therapy is inhibited by acidic beverages and coffee. NRT gum is also associated with gastric side effects and transference of dependency. The dosage of gum can be tailored to the individual's level of nicotine dependency, with highly dependent individuals benefiting from 4mg gum, while smokers with low dependency can be effectively treated with a lower dose (2mg) gum.<sup>12</sup>

### NRT Patch

Nicotine patches come in a range of strengths and are worn for various hours of therapy per day for the duration of a smoking cessation program. Evidence from a large systematic review indicates that wearing a patch for 16 hours during waking hours is as effective as a 24-hour patch. The same review identified that continuing NRT patch therapy beyond 8 weeks was no more effective than an 8-week duration of therapy. Smaller trials suggest even shorter timeframes; down to 3 weeks are as effective as longer durations but larger studies need to be conducted to confirm these findings. NRT patch therapy can be stopped without tapering or weaning, as there is no difference in effect for method of ceasing NRT patch treatment.<sup>12</sup>

### Other Medications

Clonidine, originally an antihypertensive, acts on the central nervous system to decrease CNS-related symptoms of withdrawal. One highly significant study of the six studies in a systematic review found in favour of clonidine, perhaps influencing the overall positive effect compared with placebo. Unpleasant side

effects and wide confidence intervals mean Clonidine should not be recommended where other alternatives exist.<sup>4</sup>

Lobeline has been widely used as a smoking cessation intervention. However, the evidence is of poor quality with one systematic review in 1997 excluding all identified studies. No updates of that review have been performed.<sup>13</sup>

### Opioid antagonists for smoking cessation

Four RCTs were of sufficient quality to include in meta-analysis examining the impact of the opioid antagonist naltrexone on quit rates. There was no significant difference in quit rates at 6 months between placebo and naltrexone; therefore, it cannot be recommended for smoking cessation.<sup>3</sup>

### Antidepressants for smoking cessation

A review on antidepressants, including 53 trials examining bupropion and nortriptyline as the sole therapy for smoking cessation, found both medications doubled the odds of cessation compared to no treatment. Three trials of long-term therapy with bupropion found no beneficial effect on prevention of relapse. The evidence was inadequate in determining if adding antidepressants to nicotine replacement therapy provided additional longer-term benefit.<sup>6</sup> Three trials found smoking cessation was more likely with varenicline compared to bupropion. These medications' effectiveness must be balanced with an associated risk of seizures, and other unpleasant or serious side effects. Bupropion is not advised during pregnancy, breastfeeding or being < 18 years of age. Additionally, using selective serotonin uptake inhibitors had no impact on smoking cessation. The clinical benefits associated with antidepressants, particularly bupropion and nortriptyline, are not strong enough to warrant use of antidepressants as frontline therapy for smoking cessation in place of nicotine replacement therapy.<sup>6</sup>

## Specific Patient Populations

### Hospitalised patients

One review found intensive counselling that began during hospital stay and continued

with supportive contacts for at least one month after discharge increased smoking cessation rates after discharge, although the effect size was small. Counselling of longer duration during the hospital stay was not associated with a higher quit rate; nor was the addition of NRT to intensive counselling, these findings indicate commencing a smoking cessation program in hospital can assist patients to quit, and that the intervention does not need to be resource intensive, or include NRT to be effective. Nonetheless, longer counselling can be more effective.<sup>11</sup>

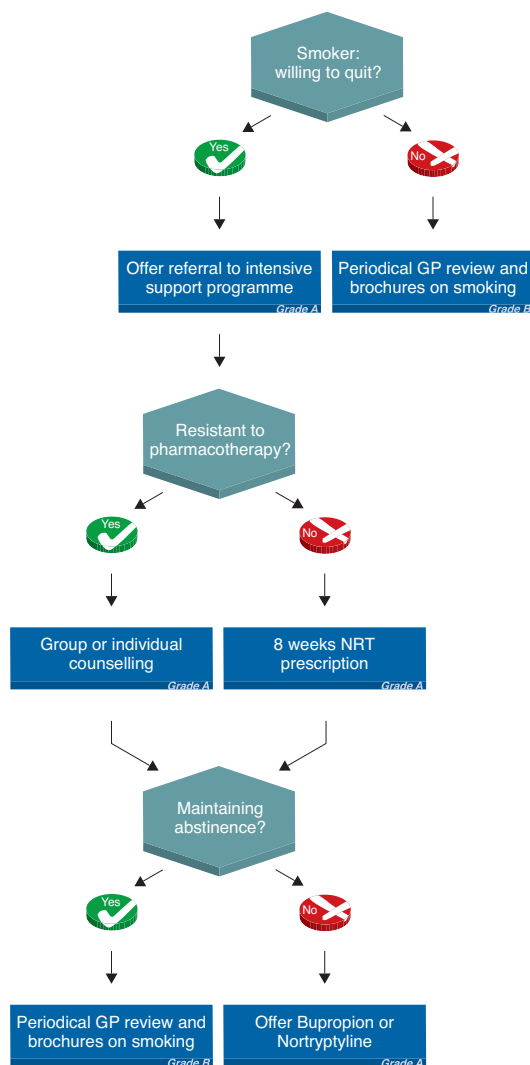
### Preoperative patients

Four trials reported in one review aimed to establish if a relationship exists between smoking cessation and postoperative outcomes.<sup>9</sup> All trials significantly reduced preoperative smoking but only two trials reported the effect of the smoking intervention on wound complications, and the results were heterogenous, with significant reductions in wound-related complications, cardiopulmonary complications and overall risk of any complication in one trial, and no evidence of difference in clinical outcomes in the other. The benefits came from one study where smoking cessation started 6-8 weeks preoperatively. The effect on longer-term smoking cessation was not significant in either of the two trials with follow-up beyond the preoperative period.<sup>9</sup>

### Coronary Heart Disease Patients

One review evaluated therapeutic behavioural treatments, self-help interventions, telephone support and risk factor targeted interventions where the outcome was smoking cessation at 6 month follow-up for patients with coronary heart disease. Self help included information booklets, pamphlets, video or audio. The intensity of intervention was also examined, based on number of contact hours. The outcome of interest was abstinence at 6-12 months follow-up. The review found all psychosocial interventions were equally effective compared with usual care. It also found that greater intensity of therapy (contact hours) substantially increased the odds of successful smoking cessation, while low intensive (brief intervention with no follow-up within 4 weeks) therapy was not effective.<sup>2</sup>

# Smoking cessation interventions and strategies



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## References

1. The Joanna Briggs Institute. Smoking Cessation Interventions and Strategies. Best Practice: evidence-based practice information sheets for health professionals. 2001; 5(3).
2. Barth J, Critchley J, and Bengel J. Efficacy of Psychosocial interventions for smoking cessation in patients with Coronary Heart Disease: A systematic review and meta analysis. *Annals of Behavioural Medicine* 2006;32(1): 10-20.
3. David S, Lancaster T, Stead LF and Evins AE. Opioid antagonists for smoking cessation. *Cochrane Database of Systematic Reviews* 2006 Issue 3.
4. Gourlay SG, Stead LF and Benowitz NL. Clonidine for smoking cessation. *Cochrane Database of Systematic Reviews* 2004 Issue 3.

5. Hajek P and Stead LF. Aversive smoking for smoking cessation. *Cochrane Database of Systematic Reviews* 2001 Issue 3.
6. Hughes JR, Stead LF and Lancaster T. "Antidepressants for smoking cessation. *Cochrane Database of Systematic Reviews* 2007 Issue 1.
7. Lancaster T and Stead LF. Individual behavioural counselling for smoking cessation. *The Cochrane Database of Systematic Reviews* 2005 Issue 3.
8. Lancaster T and Stead LF. Self-help interventions for smoking cessation. *Cochrane Database of Systematic Reviews* 2005 Issue 3.
9. Möller A and Villebro N. Interventions for preoperative smoking cessation. *Cochrane Database of Systematic Reviews* 2005 Issue 3.
10. Rice VH and LF Stead. Nursing interventions for smoking cessation. *Cochrane Database of Systematic Reviews* 1999 Issue 3.
11. Rigotti NA, Munafò MR and Stead LF. Interventions for smoking cessation in hospitalised patients. *Cochrane Database of Systematic Reviews* 2007 Issue 3.
12. Silagy C, Lancaster T, Stead LF, Mant D and Fowler G. Nicotine replacement therapy for smoking cessation. *Cochrane Database of Systematic Reviews* 2004 Issue 3.
13. Stead LF and Hughes J. Lobeline for smoking cessation. *Cochrane Database of Systematic Reviews* 1997 Issue 3.
14. Stead LF and Lancaster T. Group behaviour therapy programmes for smoking cessation. *Cochrane Database of Systematic Reviews* 2005 Issue 2.
15. White A, Rampes H, and Campbell JL. Acupuncture and related interventions for smoking cessation. *Cochrane Database of Systematic Reviews* 2006 Issue 1.
16. The Joanna Briggs Institute. Systematic reviews - the review process, Levels of evidence. Accessed on-line 2006 <http://www.joannabriggs.edu.au/pubs/approach.php>
17. Pearson A, Wiechula R, Court A, Lockwood C. The JBI Model of Evidence-Based Healthcare. *Int J of Evidence-Based Healthcare* 2005; 3(8):207-215.



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This *Best Practice* information sheet presents the best available evidence on this topic. Implications for practice are made with an expectation that health professionals will utilise this evidence with consideration of their context, their client's preference and their clinical judgement.<sup>17</sup>