

# Smoking Cessation Facts

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## Abstract

Intervention will only be effective if there are systems in place to assess and follow-up patients who want to quit smoking. Smoking has been identified as one of the most significant causes of avoidable death and disease. Despite the increase in public knowledge, and the push for smoke exposure reduction, the prevalence of smoking continues to represent a threat to the health and well being of active and passive smokers alike. Programs that encourage smokers to quit have been described as effective tools in promoting health and reducing the burden of disease related to smoking. This brief review focuses on the forms of drug therapy that assist cessation, these treatments should be coordinated with the general and specific support and counselling strategies that are also of proven benefit.

## INTRODUCTION

More intervention research is needed to evaluate the effectiveness of other cessation methods such as acupuncture and hypnotherapy. Tobacco dependence meets the criteria of a drug dependence disorder.<sup>1</sup> In most tobacco users, tolerance develops as well as a characteristic withdrawal syndrome and an inability to control future use.<sup>2</sup> Tobacco dependence warrants medical treatment in the same way as any other dependence disorder or other chronic disease.

Although many smokers succeed in quitting on their own, this is usually after several attempts. Over 90% of unaided quit attempts are not successful.<sup>2, 3</sup> Use of appropriate pharmacotherapies could double or triple cessation rates. In India the tobacco is used in the form of patch, gutkha and cigars etc.

## WHAT'S BAD ABOUT SMOKING

The use of tobacco is associated with a myriad of problems. It is addicting and it fosters a physical and perhaps a psychological dependence. Milligram-for-milligram, nicotine (a major chemical in tobacco) is several times more addicting than heroin. It is associated with cancers of the lips, mouth, throat, larynx (voicebox), esophagus, lungs, stomach, pancreas, kidneys, bladder and uterine cervix. It damages lung and bronchial (airway) tissues directly as well as impairing their properties of self-cleansing and repair, thereby altering the dynamics and efficiency of breathing. It predisposes to atherosclerotic coronary and peripheral artery disease, angina (chest pains referable to the heart) and myocardial infarctions (heart attacks). It raises your blood

pressure. It is a risk factor for osteoporosis (reduction in bone density). It can raise your susceptibility to developing peptic ulcers. If you are pregnant, it raises the risk of spontaneous abortion (miscarriage), preterm birth, low birth weight, and perinatal death. It is associated with premature aging (wrinkling) of the skin. It irritates your eyes and burns your throat and lungs. It confers an offensive odor to your hair, skin, breath, clothing and home furnishings. It stains your teeth and fingers. It can burn your skin, your clothing and your furniture. It is a fire hazard, especially when associated with drinking alcoholic beverages. It can reduce your tolerance for exercise and your overall general fitness. It is expensive. It is often offensive and potentially harmful to those around you; it can increase the incidence of asthma, pneumonia, and ear and upper respiratory infections in your nonsmoking spouse and children exposed to your smoke in the house. Some of these effects are immediate, and some are short-term, occurring in days to months. Still others are insidious in their onset and development, taking years of daily use, during which the damage is slow, yet continuous and inexorable. How the above can affect your trombone playing is obvious, especially as you develop reduced exercise tolerance and chronic obstructive lung diseases (measurable reduction in the efficiency of air exchange in the earlier stages, and chronic bronchitis and emphysema in the later stages of smoking).

## NEUROBIOLOGY OF SMOKING

The great majority of regular smokers are dependent on cigarette smoking, and not simply addicted to nicotine.<sup>8</sup> Smoking is highly contextual and associated with certain

rituals. These start with the opening of a packet, followed by the lighting process and then the sight and smell of smoke. After inhaling smoke from a modern cigarette, arterial nicotine levels increase markedly within 15 seconds.<sup>9</sup> This bolus of nicotine activates the brain-reward system by increasing dopamine release.<sup>10</sup> This brain reward system is a common pathway for pleasurable activities (sexual activity, eating) and most drugs of addiction.<sup>11</sup>

This peak in plasma nicotine level, and the transient activation of the reward system, is followed by a gradual fall in nicotine levels into a state of withdrawal<sup>12</sup> that is, in turn, relieved by the next cigarette. Dependence arises from the temporal association of the rituals and sensory inputs with the repeated stimulation and relief of withdrawal.<sup>13</sup> This required association explains why nicotine replacement therapy (NRT) products, that deliver nicotine slowly and do not produce high plasma nicotine levels, have minimal addictive potential.<sup>14</sup>

### THE PHARMACIST'S ROLE IN THE NEW SMOKING CESSATION SERVICES

Pharmacists have been shown to play an important role in smoking cessation,<sup>15, 17</sup> through their opportunistic contact with people who are in good health as well those who are ill, their ability to advise people about their smoking behaviour and their expert knowledge of the role that medicines can play in improving health and reducing illness.

Opportunistic advice Pharmacists should opportunistically ask customers if they smoke (there are many appropriate triggers such as customers purchasing cough medicines, smokers' toothpaste, pregnancy tests, folic acid, etc) and where appropriate offer advice to smokers to stop.<sup>18</sup>

Intermediate and specialist smoking cessation interventions The recently published updated smoking cessation guidelines<sup>19</sup> highlight the role of the pharmacist in delivering intermediate and specialist smoking cessation interventions. By combining data from two recent randomised trials in the UK, the guidelines indicated a positive effect of a structured package of behavioural support and NRT provided by pharmacists, compared with unstructured care. Community pharmacy personnel therefore have the potential to make a significant contribution to national smoking cessation rates.<sup>20</sup>

### ADVICE TO QUIT SMOKING

Interventions using multiple providers from different disciplines were markedly more effective than when no provider was involved. This further indicates that healthcare

workers from a range of disciplines can effectively promote smoking cessation.

### TREATMENT FORMATS

#### SELF-HELP TREATMENT

Self-help strategies may include written materials, audio or videotape, computer programs and telephone hotlines. Materials can be tailored to particular populations such as different ages or ethnic groups, or to individual smoker characteristics.

#### NICOTINE REPLACEMENT THERAPY

Nicotine replacement therapy (NRT) is available in gum, transdermal patches, intranasal spray, inhaler devices and sublingual tablet. The total duration of treatment was examined and the use of patches beyond eight weeks was no more effective than stopping treatment at eight weeks. Gum was found to be least effective in the hospital setting. The results for patches were more consistent between settings suggesting that patches may be more suitable in the hospital setting.

Furthermore, support from healthcare workers was found to increase the effectiveness of NRT in promoting smoking cessation. Increasing the intensity of support improved the effect of both nicotine patches and gum.

#### OTHER MEDICATIONS

A range of anxiolytic and anti-depressant medications has been tested for effectiveness in smoking cessation. Of these, only bupropion was found to be effective when compared with placebo or NRT.

### FOLLOW-UP ASSESSMENT AND PROCEDURES

#### MOTIVATIONAL STRATEGIES

When planning and applying smoking cessation interventions the role of personal motivation should be considered. Motivational strategies for quitting include concepts such as relevance, risks, rewards and repetition.

#### RELAPSE PREVENTION

Minimal strategies include congratulations, encouragement and engaging the patient in discussion that focuses on the positive aspects of smoking cessation. Problem solving with regard to any adverse effects of cessation such as weight gain and prolonged withdrawal symptoms should also be undertaken.

### SPECIFIC POPULATIONS AND GROUPS

#### HOSPITALISED PATIENTS

Hospitalised patients present with both additional smoking related risks that may interfere with recovery, and opportunities to quit with the increased availability of clinicians and interventions. Hospital based interventions are effective at helping patients to quit smoking.

#### PATIENTS WITH MENTAL HEALTH DISORDERS

Nicotine withdrawal may exacerbate a patients co-morbid condition and this risk must be considered when planning smoking cessation strategies. These patients also have a higher risk of relapse.

#### WEIGHT GAIN

There is some evidence to suggest strict dieting and other attempts to prevent weight gain will undermine the attempt to quit smoking. However, the use of NRT gum will delay the onset of weight gain.

#### MULTIFACETED APPROACH

Assisting patients to quit smoking is complex and requires a systematic and multifaceted approach. The benefits of promoting smoking cessation particularly amongst hospital in-patients are well recognised not only for the individual concerned but the whole community.

There are a range of interventions and strategy alternatives that are supported by quality research-based evidence. Although they may be effective in isolation, a program of multiple interventions including appropriate pharmacotherapy with advice and support tailored to the individual, are more likely to achieve success

These interventions can only be effectively applied if there are systems in place to screen, assess and follow up patients who wish to quit smoking.

Figure 1

Recommendations for smoking cessation intervention
<ul style="list-style-type: none"><li>• <b>Screening for tobacco use</b><ul style="list-style-type: none"><li>◦ All patients should be asked if they use tobacco and have their smoking status documented</li></ul></li><li>• <b>Treatment formats</b><ul style="list-style-type: none"><li>◦ All patients who use tobacco should be offered smoking cessation advice by their physician</li></ul></li><li>• All healthcare disciplines should offer advice/interventions to patients that smoke as resources allow</li><li>• Individual counselling and group therapy are equally effective methods of promoting smoking cessation</li><li>• Where patients choose self help programmes, tailored support should also be offered</li><li>• Multiple interventions should be utilised when resources permit</li><li>• Patients should be offered Nicotine Replacement Therapy (NRT) as a first line treatment to assist in smoking cessation</li><li>• Decisions about which form of NRT should be used must be determined by patient need/preference, tolerance, and cost considerations. Patches are more effective in hospital settings</li><li>• NRT patches need only be worn during waking hours (16hrs/day) and treatment with patches for longer than eight weeks does not increase the chance of quitting</li><li>• Where NRT gum is used, 4mg gum should be offered to highly dependent smokers and 2mg gum to low dependency smokers</li><li>• NRT should be supported with advice about other interventions regarding smoking cessation</li><li>• <b>Bupropion is a viable alternative where NRT has failed</b> (In Ireland bupropion is licensed for use in smoking cessation. It works directly on the brain pathways involved in addiction and withdrawal)</li><li>• Where weight gain is a particular concern the clinician may recommend NRT gum</li></ul>

### CONSENSUS-BASED CONCLUSIONS

The pharmacist has an important role to play in smoking cessation in a number of ways: through opportunistic advice, through intermediate interventions (delivering behavioural support and pharmacological treatment), In addition to recommendations based on research evidence, there are a number of recommendations, listed below, arising from reviews derived from expert opinion:

- Clinical screening systems should be expanded to include smoking status in vital signs to assist in assessment and documentation
- Continuity of abstinence should be assessed regularly throughout and on completion of treatment
- Patients not willing to undertake a smoking cessation programme at initial contact should be provided with motivational advice
- If the patient has relapsed, further intervention should be offered
- Ex-smokers no longer actively in a smoking

cessation program should have the positive benefits of that decision reinforced and should be assisted with any residual problems related to smoking cessation

### References

1. Henningfield JE, Fant RV. Tobacco use as drug addiction: the scientific foundation. *Nicotine Tob. Res.* 1999; 1: S31-5.
2. US Department of Health and Human Services. Reducing Tobacco Use. A report of the Surgeon General. Atlanta: US Department of Health and Human Services Centers for Disease Control and Prevention, Office on Smoking and Health; 2000.
3. Fiore MC, Jorenby DE, Baker TB, Kenford SL. Tobacco dependence and the nicotine patch. Clinical guidelines for effective use. *JAMA* 1992; 268: 2687-94.
4. Hurt RD. New medications for nicotine dependence treatment. *Nicotine Tob. Res.* 1999; 1: S175-9; discussion S207-10.
5. Fiore MC, Bailey WC, Cohen SJ et al. Treating Tobacco Use and Dependence: Clinical Practice Guideline. Rockville, MD: US Department of Health and Human Services; 2000.
6. West R, McNeill A, Raw M. Smoking cessation guidelines for health professionals: an update. *Thorax* 2000; 55: 987-99.
7. Joseph AM, Norman SM, Ferry LH et al. The safety of transdermal nicotine as an aid to smoking cessation inpatients with cardiac disease. *New Engl. J. Med.* 1996; 335: 1792-1798.
8. Balfour DJ, Wright AE, Benwell ME, Birrell CE. The putative role of extra-synaptic dopamine in the neurobiology of nicotine dependence. *Behav Brain Res* 2000; 113: 73-83.
9. Stauffer HP, Riedwyl H. Interaction and pH dependence of effects of nicotine and carbon monoxide in cigarette smoke inhalation experiments with rats. *Agents Actions* 1977; 5-6: 579-588.
10. Zhou FM, Liang Y, Dani JA. Endogenous nicotinic cholinergic activity regulates dopamine release in the striatum. *Nat Neurosci* 2001; 4: 1224-1229.
11. Tomkins DM, Sellers EM. Addiction and the brain: the role of neurotransmitters in the cause and treatment of drug dependence. *CMAJ* 2001; 164: 817-821.
12. Pontieri FE, Tanda G, Orzi G, et al. Effects of nicotine on the nucleus accumbens and similarity to those of addictive drugs. *Nature* 1996; 382: 255-257.
13. Silagy C, Lancaster T, Stead L, et al. Nicotine replacement therapy for smoking cessation (Cochrane Review). In: *The Cochrane Library*, Issue 4, 2001. Oxford: Update Software
14. West R, Hajek P, Foulds J, et al. A comparison of the abuse liability and dependence potential of nicotine patch, gum, spray and inhaler. *Psychopharmacology (Berl)* 2000; 149: 198-202.
15. Council guidance: Advising on how to stop smoking - guidelines on smoking cessation advice in the pharmacy. *Pharm J* 1994;252:816.
16. Anderson C. Smoking: simple advice is good advice. *Pharm J* 1998;260:710.
17. Raw M, McNeill AD, West R. Smoking cessation guidelines for health professionals. A guide to effective smoking cessation interventions for the healthcare system. *Thorax* 1999;53 (Suppl 5[1]):S1-19.
18. Pharmacy Healthcare Scheme. Pharmacists. Can you do more to help smokers stop. London: PHS; 2000
19. West R, McNeill A, Raw M. Smoking cessation guidelines for health professionals. An update. *Thorax* 2000; 55:987-9.
20. Sinclair HK, Bond CM, Lennox AS, Silcock J, Winfield AJ, Donan PT. Training pharmacists and pharmacy assistants in the stage-of-change model of smoking cessation: a randomised controlled trial in Scotland. *Tobacco Control* 1998; 7:253-61.

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