List of chapters available at tobaccoinaustralia.org.au

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Smoking cessation

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Introduction

To cease smoking is the easiest thing I ever did; I ought to know because I’ve done it a thousand times.

Mark Twain

Most Australian smokers regret having started smoking\(^1\) and have made at least one attempt to quit.\(^2,3\)

Successful cessation may take several years, most former smokers having progressed through a number of attempts and relapses before attaining long term abstinence.\(^4\) While the majority of Australian ever-smokers who have quit report doing so without the use of services or pharmacological aids,\(^2\) clinical studies indicate that the most effective cessation interventions combine behavioural support with drug treatment.\(^5-8\)
References


7.1 Health and other benefits of quitting

A substantial body of research has established that quitting smoking has immediate as well as long-term health benefits for men and women of all ages, reducing risks for diseases caused by smoking and improving health in general.1–4

The strongest evidence for this comes from a landmark 50-year follow-up of 34,000 British male doctors first studied in 1951.5–7 Many participants quit as the evidence on smoking and health accumulated from the 1950s onwards, providing a natural experiment demonstrating the impact of number of years smoking on health and eventual mortality. The study showed just how hazardous tobacco is and estimated that almost two-thirds of persistent smokers were killed by their smoking. Among those who quit, the greatest benefit was seen in those who quit earliest in life.7 Quitting at age 50 halved the risk of smoking-related death, but cessation by age 30 avoided almost all of the excess risk. Stopping at age 60, 50, 40 or 30 resulted in gains, respectively, of about 3, 6, 9 or 10 years of life expectancy.7,8

Changes in disease risk following cessation can be measured in different ways.

A common measure is relative risk, where the likelihood of developing or dying of disease in a population of former smokers is compared to either current or never smokers. At a population level, relative risk represents the fraction of disease attributable to smoking. However this measure is influenced by the rates of disease in the reference population, which should be taken into account when examining the influence of cessation on disease risk.

Another measure is absolute risk, where the actual rates of disease in former smokers are compared to those of current or never smokers. Rates can be directly compared, or the excess rate of disease caused by smoking in smokers can be calculated as can the excess disease rate in former smokers. Another measure is cumulative risk of disease, which enables the cumulative risk for those who quit at different ages to be compared to that of continuing smokers.

A more complete discussion of changes in risk following cessation can be found in a handbook published in 2007 by the International Agency for Research in Cancer.3 In general, the risk of disease is lower in former smokers than in otherwise similar current smokers. Smoking results in both acute and chronic changes to the body and progression towards disease. Cessation results in reversal of acute changes and slowing of disease progression and provides the potential for damage reversal.1

Many harmful effects of smoking are arrested or begin to decline as soon as a person stops smoking.12 Many disease risks in former smokers continue to decrease with prolonged abstinence, compared to continued smoking. The risk for some health effects decreases more rapidly than for others, and improvement may continue for years after quitting. Some disease risks return to the level of never smokers after a long period of abstinence, but others do not, even after 20 years of abstinence.1

The extent of damage to health and risk for smoking-related disease is related to how much the person has smoked and for how long.3 For some health effects, for example inflammation of the lung, the reversal process is not yet well understood.3

However, while some damage may be irreversible or less reversible, there are substantial benefits to be gained from quitting at any age, regardless of smoking history.12 Benefits accrue to persons both with and without smoking-related disease.1

---

Health problems that may be temporarily exacerbated by quitting

While there is no question of the overall long-term benefits of cessation, quitting is associated with a number of bothersome short-term problems such as mouth ulcers and cold symptoms, weight gain and constipation.

Mouth ulcers and colds

There is evidence that smokers and users of smokeless tobacco are less likely to develop aphthous stomatitis (common mouth ulcers). Individuals commonly report a short-term increase in mouth ulcers and cold symptoms on quitting smoking.

Depression

Many smokers appear to have an increase in depressed mood and associated negative affect as part of nicotine withdrawal, but for the majority of people who quit this is temporary. Smokers with a history of depression tend to report higher levels of nicotine dependence and experience more severe and prolonged withdrawal episodes, including greater negative mood. Among smokers with a history of depression, around 30% who stop smoking will develop a new episode of major depression. The risk remains high for at least six months.

Quitting and weight gain

While smoking cessation usually results in some level of weight gain, there is disagreement about the extent and how long it lasts.

Smokers’ average weight is about 3 to 4 kg less than that of non-smokers. Smoking appears to attenuate weight gain over time, in part due to increasing metabolic rate. The difference in weight between smokers and non-smokers is more marked in older long-term smokers while the average weight of younger smokers is similar. The weight difference, however, is further complicated by the finding that despite their lower weight and body mass index (BMI), smokers have a greater waist-to-hip ratio than non-smokers. Increased waist circumference is a stronger predictor of cardiovascular disease than BMI.

When smokers quit, the majority experience some weight gain. Estimates of weight gain associated with cessation vary depending on the sample, study design and follow-up period. Most excess weight gain occurs in the first year after cessation, after which the rate of weight gain slows. One study found that increase in body weight may continue for longer. Estimates of the mean weight gain in people continuously abstinent for a year are about 5 to 6 kg. Individual experience of weight change after quitting is quite broad, ranging from weight loss to a minority gaining over 10 kg. Increase in waist circumference per kilogram gained is smaller in people who quit than in continuing smokers, indicating that recent ex-smokers gain less visceral fat.

Limited research suggests that some of the weight gained during the first few years after quitting may be lost with continued abstinence, however more research is needed to resolve this issue. Large cross-sectional studies show that long-term former smokers have a mean waist-to-hip ratio and a mean BMI similar to or approaching that of people who have never smoked.

Reasons for the association between smoking cessation and weight gain are not fully understood. Predictors of weight gain include younger age, lower socio-economic status and heavier smoking, with some influence of underlying genetic factors. Weight gain after smoking cessation is related to a transient increase in food intake and to changes in metabolic rate. There is some evidence that smoking and obesity are independently associated with specific food cravings and mood states.
The health benefits of smoking cessation far outweigh the health risk from extra body weight, unless the weight gain is extraordinarily large.\textsuperscript{1} Despite this, fear of weight gain is a significant factor in discouraging quitting and provoking relapse in smokers.\textsuperscript{26,44-52} (See Chapter 3, Section 3.29 for further information on the health effects of smoking in conjunction with and compared with those associated with obesity, and Section 7.8.3 for further information on managing weight gain.)

### Immediate improvements in wellbeing and functioning

Upon cessation, the nicotine and carbon monoxide levels in the body decline rapidly. Nicotine levels drop to very low levels within a few hours, and the main metabolites of nicotine are largely eliminated within a week.\textsuperscript{1,3,53} After 24 hours the level of carbon monoxide in the blood has decreased substantially.\textsuperscript{1} After a year blood pressure returns to normal levels (this means it generally stabilises at whatever the person’s new blood pressure is) and small airway function improves, with further improvements after six months.\textsuperscript{54} After two months, improvements can be seen in blood viscosity, blood flow to the limbs and blood levels of high-density cholesterol.\textsuperscript{55} After two months, improvements can be seen in blood viscosity, blood flow to the limbs and blood levels of high-density cholesterol.\textsuperscript{1,55} Within six months the immune system improves greatly. Within a few months the cilia in the lungs and airways improve at sweeping mucus and debris from the lungs (as long as irreversible damage has not taken place).\textsuperscript{56} Lung function improves and the presence and severity of respiratory symptoms reduces.\textsuperscript{56} Rates of respiratory infections such as bronchitis and pneumonia also decrease, compared to continued smoking.\textsuperscript{1}

### Short to medium-term reductions in health risks following quitting

#### 7.1.4.1 Problems during pregnancy

It is extremely dangerous for a woman to smoke during pregnancy. (Refer to Chapter 3, Section 3.7 for a more detailed discussion of health effects, and Section 7.11 for a more detailed discussion of interventions aimed at pregnant women and their partners.) The US Surgeon General has stated that ‘smoking is probably the most important modifiable cause of poor pregnancy outcome among women in the United States’.\textsuperscript{1} Stopping smoking before or during pregnancy is important and has benefits for both the baby and the mother.\textsuperscript{59} Encouraging women to quit before they become pregnant or early in pregnancy is important because the critical period may be quite early.\textsuperscript{20} Although the effect of cutting down on the numerous health risks to the foetus is not well studied,\textsuperscript{59} there is no solid evidence that cutting down significantly reduces the risks to the foetus.\textsuperscript{1,60} Women who stop smoking either before becoming pregnant or in the first three to four months of pregnancy have infants with a similar birthweight to those infants born to women who have never smoked.\textsuperscript{1,51} Women who stop smoking any time up to the 30th week of pregnancy have infants with higher birthweights than those who smoke throughout pregnancy. Reducing the number of cigarettes smoked, instead of quitting completely, does not appear to benefit the birthweight of the foetus.\textsuperscript{1} Low birthweight infants have a higher risk of illness, death and developing diseases in childhood and adulthood.\textsuperscript{1,12} Women who quit smoking before or during pregnancy reduce their risk of pregnancy complications, including preterm premature rupture of membranes and preterm delivery (birth at less than 37 weeks gestation).\textsuperscript{1,10} Smoking cessation reduces the risk of infant death.\textsuperscript{58}
7.1.4.2
Diseases for which the risk quickly declines

Heart disease

Smoking cessation reduces the risk of cardiovascular disease and death for male and female smokers of all ages with or without heart disease.¹ There are immediate and long-term benefits.⁶¹ After one year the increased risk halves and after 15 years the rate is similar to that of a non-smoker.¹ Quitting helps to improve peripheral vascular tone⁶⁴ and to prevent atherosclerosis (the narrowing and hardening of the arteries due to build-up of plaque on the artery walls) advancing to heart disease and stroke.²³⁶³ Smoking is a known risk factor for sudden cardiac death (SCD),² and quitting smoking results in a significant reduction in SCD risk.⁶⁶

Stroke

There is a marked reduction in risk within two to five years of quitting.¹ After 15 years the risk of stroke is the same as a non-smoker.¹

Oral health

Stopping smoking can reduce the risk of oral diseases associated with smoking including cancer, and improve the health of the mouth, gums and teeth.⁶²⁻⁶⁹ Stopping smoking reduces the risk of leukoplakia, and after one to five years about half of leukoplakia disappears.⁶⁸ Cessation reduces the risk of developing periodontitis, slows down the progress of existing disease, and quite quickly improves wound healing.²³⁷¹⁻⁷³ Following cessation, gum colour gradually returns to normal⁶⁸ and so-called ‘smoker’s palate’ can disappear.²³⁶⁸ Stopping smoking improves the success rate of dental implants.⁶⁹ Smoking cessation may be associated with relatively rapid improvement in periodontal health in young adults.²³

7.1.5
Medium to long-term health benefits of quitting

Successful cessation appears to stop the progressive increase in the use of health services associated with continued smoking within a few years.⁷⁴

Specific long-term health benefits include:

- Lung cancer. Quitting is beneficial for lung cancer risk.⁷⁵ Quitting at age 30 reduces the risk of lung cancer by several times compared to a lifetime smoker. Even quitting at 50 more than halves the risk over the next 25 years compared to continued smoking.²⁶ The absolute annual risk of developing or dying from lung cancer does not decrease, but by stopping smoking the much greater increase in risk that would result from continuing to smoke is avoided.³

- Chronic obstructive pulmonary disease (COPD). Smoking cessation remains the only proven strategy for reducing the disease-causing processes leading to COPD.⁴ Cessation reduces decline in lung function.⁷⁷ In smokers without COPD, stopping smoking improves lung function by about 5% within a few months of cessation. The accelerated decline in lung function in smokers stops within five years of smoking cessation, returning to the far slower rates of decline that naturally occur with ageing.¹ ¹ Existing emphysematous damage to lung tissue caused by smoking is permanent ¹ however cessation slows the progression of COPD.³ Symptoms of COPD will be less likely in the short and long term.¹ In people diagnosed with COPD, stopping smoking reduces the rate of lung function decline, and decreases the risk of hospitalisation for COPD.¹⁵⁶,⁷⁸

- Other cancers. Smoking cessation is the only proven strategy for reducing the disease-causing processes leading to cancer.¹ The risks of cancers of the mouth, throat, larynx, oesophagus, stomach, bladder, kidneys,
pancreas and cervix are reduced after quitting compared to continued smoking, and continue to decrease over time.1,3 The risk of pancreatic, oral and cervical cancers quite quickly become similar to people who have never smoked, but the risks for the other cancers remain higher than never-smokers even after 15 to 20 years.1,3

- Peripheral vascular disease. Quitting slows down the build-up of plaque on artery walls, so that the risk of the disease is substantially reduced. For those who already have the disease, amputations are less likely.1,29
- Blindness. Cataract development and macular degeneration risks and progression are reduced.2,53
- Male erectile dysfunction is reduced when smokers quit.2,53
- Female fertility. Missed and painful periods are reduced after quitting, as is the risk of delayed conception and early menopause.20,80 The higher risk of heart disease and stroke among women smokers who use the contraceptive pill is reduced.81

Overall health and quality of life improve, with some evidence that heavier smokers report greater improvement in quality of life after quitting and report being happier now than when they were smoking.1,2,6–45

7.1.6
Cutting down: are there health benefits?

Cutting down the number of cigarettes smoked each day is a common strategy used by smokers to reduce harm, to move towards quitting, or to save money.86–89 However, research shows no noticeable improvement in health outcomes or lifespan among smokers who are able to cut down on a long-term basis.4, 90–92 This is largely because smokers primarily seek a consistent level of nicotine. Those who cut down therefore tend to smoke the remaining cigarettes harder by taking more and larger puffs, and holding each puff longer. Thus they do not reduce their intake of toxins as much as the reduction in the number of cigarettes suggests.87,93

7.1.7
Other benefits of quitting

There are other benefits of quitting smoking. Financial savings for a pack-a-day smoker are about $5000 per year (2012 prices).94 Smokers who quit reduce their likelihood of financial stress and are likely to enhance their material wellbeing.95 As more public and private places become smokefree, ex-smokers avoid the inconvenience of having to find somewhere to smoke. Quitting avoids further smoking-related damage to skin, and slows the development of wrinkles.96 Life insurance is often cheaper,97 the risk of smoking-related fires is reduced96,98 and people who quit have fewer sick days.2

7.1.8
Population beliefs about the benefits of quitting

There are limited data on population beliefs of the benefits of smoking cessation. There is a strong belief among smokers that stopping smoking will improve their health.90,107 Evidence from Victorian surveys show that smokers mention saving money (57%), feeling healthier (55%) and breathing and fitness (31%) as particular advantages of quitting.92 Quitting protects the health of pets and smokers do perceive this as a benefit of quitting.108
References


Section: 7.1.8

Date of last update: 24 April 2012
Chapter 7: Smoking cessation


94. NSW Retail Tobacco Traders’ Association. The Australian Retail Tobacconist; 83 Cigarette price lists. 1–4. 2010. Catalogue information available from:


97. Lane B. Age, job and sex hold key to your cost of insurance: The West Australian, (Perth) 1999:Monday 17 May 45


Section: 7.1.8

Date of last update: 24 April 2012
7.2 Quitting activity

7.2.1 Population prevalence of ex-smokers, quit proportions

In the 2010 National Drug Strategy Household Survey of Australians aged 14 years and over, just under one-quarter (24.1%) of the population were estimated to be ex-smokers and well over half (57.8%) had never smoked. The number of people smoking daily decreased from 2.9 million in 2007 to 2.8 million in 2010.\(^1\)

Table 7.2.1 shows a small decline in the percentage of ex-smokers since 2001, suggesting that increases in the percentage of ‘never’ smokers rather than increases in the number of ‘ex-smokers’ might have been most important in reducing the proportion of current smokers. However it should be noted that the proportion of ex-smokers would also be declining due to mortality among the generation born prior to 1930, many of whom were smokers as young adults but who quit over subsequent decades.

The final column of Table 7.2.1 also sets out the proportion of ever smokers who have quit. A change in definition of ex-smokers in 2001 makes it difficult to be certain, but it appears that the proportion of ever smokers who have quit was more than one-third higher in 2010 than it was in 1991 two decades earlier and it still increasing though perhaps not quite as great a rate as between 2001 and 2004.

7.2.2 Population trends in intention to quit

Another index of quitting potential is obtained by asking smokers about their intention to make a quit attempt in the future. In 1983–84 approximately 25% of Victorian smokers said that they were very likely to quit within the next three months.\(^7\) Data from 2005 indicated that 54% of Victorian smokers were intending to quit within the next six months.\(^8\) This is consistent with international data that also suggest that many smokers are in some form of transition. Most smokers who plan to reduce their smoking see it as a step towards quitting completely.\(^11\)

As smoking rates decline, some people have argued that a greater proportion of the remaining smokers are likely to be ‘hardcore’ and that ‘hardcore’ smokers are less able to quit because they are highly dependent and/or they are unwilling

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Table 7.2.1
Proportion of never smokers, ex-smokers and current smokers, Australians aged 14 years plus, 1991–2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Never</th>
<th>Ex-smokers</th>
<th>Current smokers</th>
<th>Quit proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>49</td>
<td>21.4</td>
<td>29.5</td>
<td>42.0</td>
</tr>
<tr>
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<td>29.1</td>
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<td>2004</td>
<td>52.9</td>
<td>26.4</td>
<td>20.6</td>
<td>56.2</td>
</tr>
<tr>
<td>2007</td>
<td>55.4</td>
<td>25.1</td>
<td>19.4</td>
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</tr>
<tr>
<td>2010</td>
<td>57.8</td>
<td>24.1</td>
<td>18.1</td>
<td>57.1</td>
</tr>
</tbody>
</table>


* From 2001 the definition of ex-smoker was ‘ever smoked more than 100 cigarettes but now no longer smoke’. This includes people who have only ever smoked less than daily.

---

Figure 7.2.1
Proportion of never smokers and proportion of ever smokers who have quit, Australians aged 14 years plus, 2001–10

Sources: Australian Institute of Health and Welfare, National Drug Strategy Household Surveys 2001,\(^6\) 2004,\(^7\) 2007\(^8\) and 2010\(^9\)
However measures of physical dependence in the Australian population do not appear to uphold this theory. In Victoria, the mean number of cigarettes smoked per day (a proxy measure of nicotine dependence) among daily smokers and the percentage of heavy smokers in the Victorian smoking population (defined as smoking at least 25 cigarettes per day) significantly declined between 1998 and 2007. Australia-wide statistics show that the mean number of cigarettes smoked per week similarly declined between 1998 and 2007, though did slightly increase in 2010. (See Chapter 2, Section 2.3 for further details.) Australian studies indicate that the proportion of smokers with hardcore attributes (unable or unwilling to quit) is small. A 2001 Australian survey found that only 8% of smokers reported being happy to continue smoking with no intention of ever quitting. A 2006 New South Wales survey, using a restricted definition of hardcore incorporating measures of nicotine dependence, age, and lack of quitting intent and activity, classified 6% of smokers as hardcore.

A review of the US smoking population reported a similar finding. Authors concluded that there was little evidence that the population of smokers as a whole is hardening, but sub-groups who have more difficulty quitting may be becoming a larger fraction of the remaining smoking population. However, cessation rates have not decreased and most smokers are susceptible to quitting.

### 7.2.3 Population trends in quit attempts and success in quitting

Overall quit rates in the population are a function of the percentage of smokers who make an attempt to quit, and the success rate among those who tried to quit.

Different strategies exist for measuring quit attempts; each has its own limitations and current estimates of the amount of quitting activity vary considerably. One study has raised an issue around the definition of a quit attempt, as many surveys require that the attempt lasts at least 24 hours. The authors suggest this may underestimate the prevalence of attempts in studies that are measuring the effects of tobacco-control interventions.

In a 2010 national survey of smokers aged 14 years or older, 77% of the respondents who had reported smoking in the previous 12 months said they had tried to change their smoking behaviour in the past year. Twenty-nine per cent reported they had tried to quit without success, 19% had given up smoking for more than one month and 38% tried to reduce the amount smoked per day.

One Australian study of smokers between 2002 and 2009 found that 40% had tried to quit and, of these, about 23% remained abstinent for at least a month. Low socio-economic smokers were less likely to be interested in quitting and less likely to make a quit attempt.

The Victorian annual surveys on smoking status have monitored attempts of current smokers to quit in the previous 12 months, and proportions that have ever made a quit attempt. The percentage of regular smokers who have ever made a quit attempt was 81% in 2010 and a similar proportion in 2005. The proportion of regular smokers who had made multiple (three or more) attempts to quit increased from 36% of regular smokers in 1998 to 49% in 2010. While these statistics show a very high level of quitting activity among smokers, the rate of successful quitting is low because of the high relapse rate. In 2010, approximately 77% of current smokers reported having previously attempted to quit and 66% of current smokers could be classified as unsuccessful quitters.

One international study of smokers from high-income counties aimed to accurately document the amount of quitting, length of quit attempts and prevalence of plans and serious thought about quitting among smokers. It found that smokers think a great deal about stopping and make many unsuccessful quit attempts. Although most attempts end rapidly, the majority of smokers succeed in staying quit for more than one month, with around one-third stopping for more than six months. The results also found that quit attempts made in the past year and lifetime attempts appear to be under-reported and that fewer than 10% of smokers have never tried to quit. This evidence shows that there is a large amount of unsuccessful quitting activity and that even a small increase in the success rate would have significant effects on prevalence, highlighting the challenge of helping smokers to stay quit in the longer term.
Although success in quitting is clearly difficult for many, even the small percentage of smokers who quit, when seen at a population level, represents substantial progress. Evaluation of the National Tobacco Campaign showed a decline in smoking prevalence of 1.4% in the first six months of the campaign, which represented about 190,000 fewer smokers across the country.\textsuperscript{22}
References

7.3 Theories about smoking and quitting

There is no definition of addiction that is universally accepted but in general addiction refers to physiological and psychological dependency on a drug. Many social, cultural and economic factors contribute to the development, maintenance and change of health behaviour patterns.\(^1\) Some researchers have suggested that a broader conceptualisation of addiction is needed. This involves a model in which addiction is understood as a syndrome with multiple opportunistic expressions, such as smoking.\(^1\) Interventions based on theory or theoretical constructs are more effective than those not using theory.\(^1\)

The determinants of smoking are some mix of biological, psychological and social/cultural factors. Theories of smoking and smoking cessation differ in their conceptualisations of the relative importance and interrelationships between these three aspects, with some variation in how they deal with the psychological factors.

7.3.1 Cognitive–behavioural theories

The most influential theories in tobacco control and public health are ones that can be broadly conceptualised as cognitive–behavioural. These theories often have separate sub-theories that theorise the relationships between cognitive aspects and factors influencing conditioned, reactive behaviours. One subset, expectancy value theories, focuses on rational appraisals of costs and benefits. These are purely or largely cognitive in focus and include such theories as the theory of planned behaviour,\(^3\) the health beliefs model,\(^4\) the rational addiction model,\(^5\) and the transtheoretical model.\(^6\)

A second set of theories, of which the social cognitive theory of Bandura\(^7\) is best known, try to incorporate other factors, but focus on context.

A third set of theories, broadly conceptualised as self-regulatory theories, focus on what volitional processes act to inhibit or constrain affective reactions and impulse to act on affective inputs. These include Leventhal’s perceptual motor theory,\(^8\) which has not been applied to smoking as much as it could have, and more recently the hugely influential PRIME theory of West\(^2\) and temporal self-regulation theory.\(^9\) These theories focus on ways in which people manage more basic conditioned and innate reactions, including emotional reactions, to substances.

Overall, most of the evidence for the effectiveness of non-pharmacological approaches is that various cognitive–behavioural interventions are helpful. They are the basis of Quitline callback protocols and of most publicly available cessation courses.

7.3.2 Behavioural theories

Behavioural theories focus on how people learn to behave in particular ways. Behaviourists believe people learn to behave through mechanisms such as conditioning and positive and negative reinforcement. They respond to stimuli in their environment and establish an association or linkage between two events. In the context of smoking, a person learns to associate smoking with other feelings and events (e.g. being in a stressful situation or having a coffee) and these continue to ‘cue’ their smoking behaviour. Behavioural modification approaches to smoking cessation are underpinned by these theories. In addition to highlighting the negative consequences of smoking, behavioural approaches to cessation focus on educating the individual smoker to extinguish learned responses, to reward themselves for abstinence and to draw greater attention to the immediate and benefits of quitting. Most studies of behavioural interventions for smoking cessation report moderate success in quitting at six months.\(^11\) (See Section 7.13.)
Psychodynamic theories

Psychodynamic theories assume that unconscious forces of which they are unaware determine a person’s behaviour. The hidden motives for our behaviour reflect our instinctive biological drives and our early experiences, particularly the way in which our parents treated us. The theories focus on the psychosexual stages of development first described by Sigmund Freud and postulate that problems at any stage of development can result in the child becoming stuck at a stage. If this happens traces of that stage will remain in their behaviour as an adult. Smoking is viewed as a fixation at the oral stage. Criticisms of the psychodynamic approach include its qualitative methods, lack of objectivity in interpretation and the reliance on theoretical constructs that are difficult to prove. This theory underlies psychoanalytic individual counselling approaches to smoking cessation intervention. Reviews of psychological interventions for smoking cessation have found that therapists draw on a variety of psychological techniques rather than a distinctive theoretical model, and that there is therefore little evidence about the relative effectiveness of different approaches. There is some evidence for the efficacy of psychodynamic psychotherapy for substance-related disorders, with outcome related to the competent delivery of therapeutic techniques and to the development of a therapeutic alliance. (See Section 7.15.3 for further information on individual counselling.)

Physiological models of addiction

Physiological models of addiction focus on the physical dependence on psychoactive substances that cross the blood–brain barrier once ingested, temporarily altering the chemical patterns of the brain. Even taken in low quantities, nicotine is a potent chemical. It causes a range of physiological changes and creates dependency, which in turn is reinforced by unpleasant sensations upon withdrawal. (See Chapter 6, Section 6.2 for further information on addiction.)

The implication for smoking cessation is that an individual smoker needs to break his/her addiction to nicotine, highlighting the role of pharmacotherapies in smoking cessation. (See Section 7.16 for further information on pharmacotherapies.)

Sociological theories

Sociological theories relate to social learning that encourages patterns of use in the person’s family, peer group or sub-culture. Cultural and social norms, variations in drug use patterns, and values and behaviours of parents, siblings, friends and role models affect drug use. A major implication for cessation within this model is the need to address a person’s smoking within the context of his or her family, cultural and social environment.

Smoking and quitting as issues of communication and commercial and social marketing

Smoking is very much a communication issue, related to the encouragement to smoke and normalisation of smoking in particular through commercial and social marketing. There is a causal relationship between uptake of smoking in children and exposure to smoking in the home environment, around peers and through tobacco advertising. (See Chapter 5, sections 5.7, 5.8, 5.15 and 5.16 for further information.) Later in life, taking up smoking is also influenced by tobacco promotion in environments popular with young people. (See Chapter 5, Section 5.17 for further information.) Research shows that tobacco advertising, in its various guises, is associated with an increase in overall tobacco consumption and that it may remain in a community’s collective memory.
for many years even after being banned. Regulating advertising and promotion can reduce both prevalence and initiation of smoking. (See Chapter 11, Section 11.1 for further information.)

Quitting is also influenced by the communication of messages that raise awareness of smoking-related health risks and of the benefits of stopping smoking. Anti-smoking social marketing campaigns have played a significant role in changing attitudes towards smoking, increasing quitting attempts and leading to a downward trend in smoking prevalence. The ways in which campaign communication works include by highlighting smoking as an important community health issue, raising the importance of quitting on a person's agenda, changing the social norms regarding smoking and giving a focus and direction to the quitting activity that is naturally occurring among smokers. (See Chapter 14 for further information.)

### 7.3.7 Eclectic, ecological models

Eclectic models of behaviour maintain that no one theory can fully explain a person's behaviour; instead they borrow from many different theories. Psychosexual and psychosocial stages of development, love and acceptance and self-actualisation as well as behavioural and sociological concepts are all influential within this model. Changing an individual's smoking behaviour in this context may involve combining a psychodynamic perspective with more active interventions such as in cognitive–behavioural therapy. (See Section 7.15.3 for further information on individual counselling.)

Ecological models centre on the relationship between the developing individual and four expanding levels of the changing environment, from home and family to the broader cultural context. Within this model, health promotion interventions such as smoking cessation should not only be targeted at individuals but should also affect interpersonal, organisational and environmental factors influencing health behaviour. Further evaluation of this model is warranted.¹

### 7.3.8 Religious and Eastern philosophical views about smoking as a compulsive behaviour

The Mormon Church (of Jesus Christ and the Latter Day Saints) and the Seventh Day Adventist Church have been active for many years in encouraging both members and the public more generally to give up smoking—see [http://en.wikipedia.org/wiki/Religious_views_on_smoking](http://en.wikipedia.org/wiki/Religious_views_on_smoking) and [http://adventist.org/beliefs/statements/main-stat23.html](http://adventist.org/beliefs/statements/main-stat23.html) for further details. Indeed the lower incidence of cancer and heart disease among Seventh Day Adventists, who generally do not smoke or drink, provided evidence that helped to consolidate the case that implicated smoking as a cause of lung cancer and cardiovascular disease.¹⁴ Apart from these examples, the involvement of religious authorities in public health campaigns for tobacco control is a relatively recent phenomenon.¹⁵ There is little evidence that religious belief or affiliation has a major impact except in the case of religions with very strong sanctions against tobacco use. However, in areas where religion plays a very prominent role in society, such as in Mormon-dominated Utah in the US, where the prevalence of current smoking (daily or less than daily) is only 9.1% —see [www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/index.htm](http://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/index.htm), and in countries such as Malaysia and Thailand,¹⁵ it can be important as part of an integrated set of programs and policies for tobacco control.

Eastern philosophy includes the various belief systems of Asia, including Buddhism, Hinduism, Confucianism and Islam. The distinction between the religious and the secular tends to be less in Eastern philosophy than in Western religions and the same philosophical school often contains both religious and philosophical elements. The inner world of a human being and his or her ability to control and develop it is of the highest value. Spirituality, virtue, and meditation as a means of establishing control over emotions and life as a journey are key concepts.¹⁶ Most religions, including Islam and Buddhism, have religious principles that forbid or discourage the use of addictive substances.¹⁵ For example, some Islamic scholars have pronounced smoking as 'haram' (forbidden), while others
see it as only 'makruh' (advised against) and most learned monks in Thailand see tobacco use, because it is harmful and addictive, as antithetical to Buddhist concepts. As part of Eastern philosophical views a range of techniques, including an approach called mindfulness, is suggested to assist motivation, reduce mood disturbance and overcome cravings. (See Section 7.8.4 for further information.)
References


What finally prompts smokers to attempt to quit?

When asked about the factors that motivate them to consider quitting, smokers most frequently mention the effect of smoking on their health and fitness and the cost of cigarettes. In a national survey conducted in mid- to late-2010 44% of smokers mentioned cost.¹ The desire to improve fitness (25%), pressure from family and friends (27%) and worry about smoking affecting the health of others (18%) are also frequently mentioned.¹

There is much less information about what motivates young smokers to attempt to quit, with some evidence that illness, concern about future health, concern about fitness and physical appearance, the suffering or death of a loved one, image, the smell of cigarettes, cost and a request from a boyfriend or girlfriend are all factors that can prompt a quit attempt.²–⁴

Population-level studies from a number of countries show that intentions to quit, past quit attempts, longer duration of past attempts, more negative attitudes about smoking, motivation, less nicotine dependence, younger age and receiving advice to quit from a health professional are all predictive of attempting to quit.⁵–⁹ Higher confidence in quitting may be predictive of making a quit attempt but gender, age, marital status and education level do not appear to consistently relate to quit attempts.⁵ Self-identity in terms of smoking and of quitting may also play a role in explaining intention to quit and predicting actual attempts to quit.¹⁰

Having a negative opinion of smoking and having concerns about the effect of smoking on health are highly predictive of thinking about quitting and making a quit attempt.⁵,¹¹ This provides a strong rationale for interventions such as restrictions on the promotion of tobacco products and for mass media campaigns and health warnings that explain the health risks of smoking as clearly and as concretely as possible.

While tobacco-control policy and cultural norms about smoking shape people’s attitudes and beliefs about smoking in a general way, the more immediate prompt to quit is often something quite particular and personal.¹² Developing a serious illness, the death of a person perceived to be like oneself, becoming pregnant, a child becoming ill and smoking being related to that illness, and children expressing concern about parental smoking are all common triggers. So are seeing a TV advertisement that helps one imagine such events, or experiencing an increase in the price of cigarettes.

Developing a serious illness

Health concerns are a major motivator for smoking cessation, whether experienced personally or through a friend or family member.¹³,¹⁴,¹⁵ Many smokers hospitalised with cardiovascular disease report being prepared to quit smoking and attempting to quit.¹⁶,¹⁷ Attending an emergency department has been found to encourage a quit attempt in adult smokers, particularly among those who attributed their visit to a smoking-related problem and who were admitted to hospital.¹⁸ Evidence suggests that while motivation and interest in smoking cessation greatly increase following cancer diagnosis,¹⁹,²⁰ only around half of patients are interested in taking part in a smoking cessation program.²¹ Limited evidence suggests that those with stroke/transient ischaemic attack do not necessarily associate their illness with smoking and it does not necessarily prompt a quit attempt.²²

Advice from health professional

In a national survey, 15% of smokers responded that advice from their doctor was a factor that motivated them to consider quitting.¹ Interventions related to healthcare providers and systems have been shown to improve smoking cessation among people who visit them. Even brief advice from a health professional to quit smoking increases quit rates among patients compared to those not receiving such advice by one to three percentage points.²³,²⁴ (See Section 7.10 for further information.)
7.4.3  Becoming pregnant

Women are more likely to quit smoking during pregnancy than at any other time of life as they are concerned not only about their own health, but also the health of their baby. They are also likely to experience higher levels of social and family support for quitting and they have greater contact with the healthcare system. In a national survey, 5% of smokers responded that being pregnant or planning to start a family were factors that motivated them to consider quitting. 1 (See Section 7.11 for further information on smoking and pregnancy.)

7.4.4  Concern for children

There is evidence that concern about the impact of smoking on their children is a reason for many parents to quit smoking. Discussion of smoking by paediatricians with mothers can be effective in encouraging quitting attempts. Apart from concerns about the effects of secondhand smoke, at least one study has found that ‘setting an example’ for children can be an important reason for quitting.

7.4.5  Seeing an anti-smoking commercial

Both local and international evidence support the positive effect of anti-smoking mass media advertising in encouraging smoking cessation and helping smokers remain quit. Such campaigns are effective across education levels and different racial groups. (See Chapter 9, Section 9.8.1 for further information.) Anti-smoking commercials work at a number of levels. Over the long term they increase awareness about and understanding of the health effects of smoking, which helps to shape beliefs and attitudes about smoking and contributes to the decision to quit. In the short term, seeing an anti-smoking commercial—particularly one that effectively conveys the health effects of smoking at a visceral level or one that evokes a strong emotional response and a sense of personal identification with a character suffering the tragedy of suffering a smoking-related disease—can bring forward or prompt an immediate decision to quit. Such advertisements can also prompt individuals to take immediate action such as calling a quitline or purchasing an anti-smoking medication, both of which are likely to firm up what may have been a passing impulse into a serious quit attempt. It is not surprising, then, that increasing the frequency of such advertising accelerates the decline of smoking.

7.4.6  Experiencing an increase in the price of cigarettes

Price increases have been consistently shown to prompt quitting attempts among adults. Increase in price appears to prompt quit attempts among all socio-economic status groups, with a significantly greater effect among those on low incomes. Smokers with financial stress are more likely than others to be interested in quitting, although they tend to be less successful in their attempts. Given that tax increases have an immediate effect on the cost of tobacco products across the entire population, it is not surprising that increases leading to an immediate reduction in affordability of tobacco products have been found to be the most significant of a range of policy measures in achieving reductions in smoking prevalence measurable in the short run. (See Chapter 13, Section 13.5 for further information.)


31. Woodward A. The Australian National Tobacco Campaign. Tobacco Control 2003;12(suppl 2):i0. Available from: http://tobaccocontrol.bmj.com/content/12/suppl_2/i0.short


Chapter 7: Smoking cessation

7.5

What we know about how smokers are persuaded to attempt to quit

Many smokers appear to believe that a rational, unambiguous desire to quit is needed before it is worthwhile trying, and that short-term impulses to act are not sufficient. Helping smokers to overcome their ambivalence about quitting is crucial to increasing quit attempts.

7.5.1

Personalisation of risk

Several studies have examined the accuracy of smokers’ risk perceptions, and have generally found that many smokers are unrealistically optimistic about their personal health risks. It has been difficult to assess risk perception data, as answers often reflect level of concern rather than probability, and apparent underestimations or overestimations of risk depend on the way in which risk judgements are assessed. Nevertheless, smokers show a clear tendency to believe that they are not as much at risk as other smokers of becoming addicted or suffering health effects. Those who judged that their own risk of developing lung cancer was less than the objective risk were more likely to accept myths associated with smoking, overestimate the number of lung cancers that are cured, and be less likely to quit. While the risk of lung cancer is well understood and while smokers consistently acknowledge that smoking increases other health risks, they often judge the size of these increases to be smaller and less well established than do non-smokers or than scientific knowledge would justify. Countering beliefs that minimise risk may facilitate increased quitting. For example providing global coronary heart disease risk estimation to adults appears to improve the accuracy of their risk perception and may increase the intention of those at medium to high risk to initiate prevention actions such as quitting smoking. There is some evidence that encouraging smokers to think and worry more about their smoking behaviour, rather than focusing on their beliefs about the risks involved, may be effective in encouraging them to try to quit. A study that combined a simulated and personalised experience of a heart attack with motivational interviewing to encourage quitting found the approach to be feasible and worthy of further investigation.

7.5.2

Addressing self-exempting beliefs

Smokers widely accept that smoking is bad for them, yet continue to do it. A high proportion of smokers hold various rationalisations that seem to act as a shield against facing the reality of the harms caused by smoking and allow them to avoid engaging in the task of quitting. For example there is evidence that use of dietary supplements may create illusory invulnerability in smokers and discourage changes in their smoking behaviour.

Four categories of these beliefs have been identified:

- Skeptic beliefs: ‘Lots of doctors and nurses, smoke, so it cannot be all that harmful’, ‘More lung cancer is caused by such things as air pollution, petrol and diesel fumes than smoking’.
- Bulletproof beliefs: ‘You can overcome the harms of smoking by doing things like eating healthy food and exercising regularly’, ‘I think I would have to smoke a lot more than I do to put my health at risk’.
- ‘Worth it’ beliefs: ‘You have got to die of something, so why not enjoy yourself and smoke’, ‘I would rather live a shorter life and enjoy it than a longer one where I would be deprived of the pleasure of smoking’.
- Jungle beliefs: ‘Everything causes cancer these days’, ‘It is dangerous to walk across the street’.

Acceptance of each of the four sets of beliefs was found to relate to less progress towards quitting, however some are more important than others. ‘Worth it’ beliefs in particular were more prevalent among smokers not planning to quit. Attributes that favour fewer tendencies to hold self-exempting beliefs include higher knowledge of the
hazards of smoking and being able to recall at least one anti-smoking commercial. There is inconclusive evidence as to how important countering self-exempting beliefs is in facilitating increased quitting.

7.5.3 Bringing quitting forward to today’s agenda

A person’s day-to-day actions are largely determined by the existence of an unwritten personal agenda with items on it implicitly ranked for importance/urgency and grouped along the following lines: today, tomorrow, sometime soon, if I ever get the chance, when I eventually get around to it. For intentions to become action they must at least make it to today’s agenda. Behaviours such as quitting, which require action over many days and which are difficult, require resources and reinforcements that are external to the individual. Most smokers ‘intend’ to quit (see Section 7.7.2) but for most smokers for much of the time quitting is not on their daily agenda. Agenda setting theory predicts that when an issue like tobacco smoking is frequently and prominently presented in the community it will be seen as important and placed on the daily agenda, therefore increasing the likelihood of quitting as a behavioural response. (See Chapter 14, Section 14.5.1.)
References


How smokers go about quitting

In simple terms, quitting smoking has two major components: making an attempt and maintaining cessation once quit. These two tasks do not necessarily have the same predictors. For example, nicotine dependence is the most important predictor of smoking cessation, whereas motivational factors are much more important in prompting an attempt to quit.¹

Planned versus spontaneous

Tobacco dependence guidelines for health professionals promote the idea of planning quit attempts in advance, and such planning is widely thought to be important for success.²⁻⁶ Reported planning may be more likely among those who think they are more addicted, and those who plan may be more likely to use a quit aid, particularly pharmacotherapy.⁷ However, unplanned or spontaneous quit attempts are common and they can be a successful route to cessation.²⁻⁸ Some findings suggest that spontaneous attempts may have a greater chance of long-term success than those that are planned.⁶ Discussion about planned versus unplanned attempts is further complicated by the difficulty in clearly distinguishing between the two approaches. Reported unplanned attempts may often involve elements of planning and delay by quitters in order to access cessation support.⁹

There are implications for theories on the process of quitting and the nature of the advice and support offered by health professionals.⁷ These findings suggest the need for a greater focus on the changeable nature of motivation⁴ and highlight the need for smoking cessation services to offer flexible and adaptable support that can be used readily by potential quitters.¹⁰

Stages of change

For most people, changing from being a smoker to a non-smoker is a complex and difficult journey rather than single event. There are several stage-based theories of behaviour. One widely used way of describing this process is the 'stages of change' or transtheoretical model (TTM) of Prochaska and DiClemente.¹¹ It proposes that smokers move through a discrete series of motivational stages before they quit successfully. In brief, the core stage definitions used are:

1. Precontemplation, during which a smoker is not thinking about quitting in the next six months.
2. Contemplation, when a smoker begins to think seriously about quitting in the next six months.
3. Preparation, when a quit attempt is planned within the next 30 days.
4. Action, when a quit attempt is made lasting for at least 24 hours.
5. Maintenance, when the person becomes a non-smoker for at least six months.

Inherent in the TTM and related conceptualisations is that a smoker may go back to earlier stages or cycle through a number of times before permanently quitting.²⁻¹¹ According to this model, interventions to help people stop smoking should be tailored to their stage of readiness to quit and designed to move them forward through subsequent stages to eventual success.¹¹ The TTM, or modifications of it, has been used in structuring or evaluating cessation programs and media campaigns. For example, the Smoking Cessation Guidelines for Australian General Practice instruct GPs to identify a patient's stage of readiness to change in order to tailor information.⁵,¹⁶
7.6.1.2 Criticisms of stages of change and other conceptualisations

This model, as applied to smoking cessation, has many critics. Criticisms include that it does not satisfy the criteria required of a valid stage model. Nevertheless it remains widely used to understand cessation because it draws attention to the challenges in getting smokers interested in quitting, not just in implementing attempts. A major problem with the model is that the definitions of the stages are arbitrary, based either on timeframes of intention or length of time quit. The exception is the transition between preparation and action, which occurs at an important milestone—when a quit attempt is made. The other stage classifications are unlikely to be optimal, and alternatives have been proposed. For example, pre-quitting, it may be more useful to just use simplified categories of not interested, open to the possibility and actively planning. Post-quitting, there is no consensus on what categories, if any, should be considered, but there is some evidence that smokers experience the first month or so, when strong cravings to smoke occur at least daily, differently from the subsequent period when cravings are less common.

In terms of the application of the stages of change approach to cessation interventions, one review found that stage-based self-help interventions (expert systems and/or tailored materials) and individual counselling are neither more nor less effective than their non-staged-based equivalents. However, providing these forms of practical support to those trying to quit appears to be more productive than not intervening at all. The evidence is not clear for other types of staged intervention, including telephone counselling, interactive computer programs and training of health professionals or other supporters. The evidence does not support the restriction of quitting advice and encouragement only to those smokers perceived to be in the preparation and action stages.

7.6.2 Abrupt versus gradual

Two methods of quitting involve either abruptly stopping smoking (‘cold turkey’) or gradually reducing the number of cigarettes smoked per day before stopping completely (‘cutting down’). When cutting down, the number of cigarettes per day may be reduced in a scheduled or unscheduled way, or the first cigarette of the day is delayed for longer and longer. Both cutting down and cold turkey methods can be done with or without medication. Evidence suggests that cold turkey is more common than cutting down.

Studies comparing the efficacy of abrupt versus gradual stopping have found overall that both methods produce comparable quit rates at six months whether or not pharmacotherapy, behavioural support or self-help therapy are used. One large study of smokers quitting on their own found that those who used the cold turkey method were almost twice as likely to stop for at least a month than those who used a cutting down method. However, because the findings are based on personal choice in a naturalistic setting, it is not possible to conclude that the results were due to quitting methods. The authors suggest, with caution, that the cold turkey method may be the better method for smokers intending to quit on their own, but that this advice does not apply to structured programs involving cutting down strategies. Other evidence suggests that for smokers who have no strong preference for either method, abrupt and gradual produce similar results. However those who prefer and use the abrupt method are more likely to quit than those preferring and using the gradual method, in particular when they have low motivation and confidence.

There is evidence that among smokers who want to stop gradually in the near future, gradual cessation with nicotine pre-treatment does not produce higher quit rates than abrupt cessation. One liability of gradual reduction may be that it allows smokers to delay their quit date. Delays in quitting once a quit attempt is underway or quitting after a planned quit date may predict less success in quitting.

Smoking reduction may be a viable treatment approach if proven to increase the rates of long-term abstinence from smoking. There is some evidence that smoking reduction approaches using pharmacotherapy alone or combined with behavioural interventions significantly increases long-term smoking abstinence for smokers not ready to make a quit attempt. Further research investigating which method of reduction before quitting is the most effective and which categories of smokers benefit most from each method is warranted.
suggests that smoking reduction in current smokers is associated with reduced levels of nicotine dependence but further study would be needed to determine the implications of this for future smoking cessation.\(^{11}\)

### 7.6.3 Unassisted versus mediated

Behavioural and pharmacological treatments have been shown to improve smoking cessation rates, but treatments are under-utilised.\(^{32}\) Most people who have quit do so without quitting aids and professional support even when pharmacotherapy is available.\(^{31,34}\) The role of cessation assistance in helping form a desire to quit appears to be poorly understood by most smokers.\(^{35}\) Long-term success rates (six to 12 months) of people attempting to quit on their own are around 3–5%.\(^{36}\) (See sections 7.13, 7.14, 7.15 and 7.16 for further information on quitting assistance.)

Smokers who perceive that quitting aids are helpful are more likely to try to quit and to use assistance.\(^{37}\) There is some international evidence that being older, female, more nicotine dependent, more educated and wealthier is related to use of assistance to quit.\(^{32,38}\) Survey data from New South Wales shows that (prior to subsidisation of nicotine replacement therapy on the Pharmaceutical Benefits Scheme) use of nicotine replacement therapy, health professional advice, natural therapy and prescribed medication were higher among older smokers and those from low socio-economic groups, while quitline use was higher among the middle age group.\(^{35}\)

Use of quitting medications and support services has become more common over the past decade.\(^{33,39,40}\) There appears to be an increase in use of support, especially among more dependent smokers. A survey of Australian smokers from 2002 to 2009 found that use of prescription medication to quit smoking increased with the addition of varenicline to the Pharmaceutical Benefits Scheme in 2008. Among smokers who tried to quit, use of help rose gradually from 37% in 2002 to almost 59% in 2009 (including 52% using pharmacotherapy and 15% using behavioural forms of support).\(^{41}\) In 2007 and 2008 in Australia more than 44% of smokers reported using quit smoking medications in the last year and more than 10% of smokers reported using a quitline.\(^{42}\)
References


Factors that predict success or failure in quit attempts

Factors that influence the success or failure of quit attempts differ from one person to another, and can be sufficient to prevent or delay quit attempts, or to lead to relapse. These may take several forms, including:

- physiological (e.g. level of nicotine dependence, withdrawal symptoms, weight gain)
- behavioural (e.g. slip-ups, pattern of smoking)
- physical or social (e.g. living or working with smokers, having smoking friends, home or workplace subject to smokefree policies or seeing tobacco products displayed)
- psychological or emotional/affective (e.g. stress, depression, anxiety, fear of weight gain, psychiatric disorders)
- cognitive (e.g. knowledge, self-exempting beliefs, perceived disadvantages, motivation, self-efficacy)
- barriers to access to interventions (e.g. affordable quitting medications, treatment programs)
- social context or life circumstances that may result in the smoker giving quitting a low priority (e.g. poverty, social isolation, lack of perceived safety, social norms).

Adult population level studies from a number of countries suggest that, of all these, nicotine dependence (quantified through measures such as numbers of cigarettes smoked per day) is the factor most consistently predictive of success or failure in quitting. Social smoking cues and a recently failed quit attempt are also important predictors.

There appears to be little association between gender, marital status, age, evaluations of smoking and quitting and success in quit attempts. The evidence is inconsistent regarding the relationship between successful quitting and income, education level, smoking restrictions at home, quitting history, desire to quit, and confidence.

For young women, there is evidence that lifestyle and life-stage factors are determinants of smoking behaviour. For this group, recent illicit drug use and high-risk drinking appear to be related to relapse, while marriage or being in a successful relationship and moderate and high physical activity levels are associated with successful quitting.

Some of the factors mentioned are examined in more detail below.

Personal characteristics that predict failure in quit attempts

While factors associated with quitting vary somewhat from one study to the next, there are some reasonably consistent findings. The focus of most studies has been on a range of individual psychological and demographic factors associated with success or failure in quitting. There is evidence of a relationship between people’s cessation-related experiences and satisfaction with stopping smoking at different points during the process. Evidence shows that post-quitting beliefs, experiences and expectations change at different rates dependent on duration of abstinence. Lower abstinence self-efficacy and higher frequency of urges to smoke appear to predict subsequent relapse, as do deficits in impulse control. The role of menstrual cycle phase and quit date has also been examined. Limited research suggests that the personality trait of sensation seeking influences the effective use of NRT and smoking cessation strategies, with higher sensation seeking predicting lower likelihood of successful quitting.

Some particular characteristics are outlined below.
7.7.1.1 Duration of smoking

Several overseas studies indicate a trend for smokers who start smoking at a later age to be more likely to quit. Following this finding, it has been proposed that interventions that at least delay the onset of smoking by adolescents may increase the likelihood of quitting, however there is no longitudinal evidence to show that such an approach is effective. Also, contrary to these studies, an Australian survey found that smokers who started smoking before the age of 15 were twice as likely to have quit than those who had their first cigarette at 15 years or older.

While younger smokers may be more likely to make a quit attempt, people of older ages may be more likely to succeed. However the evidence is inconsistent.

7.7.1.2 Level of dependence (heaviness, time to first cigarette)

Smokers with a higher level of nicotine dependence are less likely to make an attempt to quit and also find it harder to quit. This may reflect more severe withdrawal symptoms, more pronounced neuro-adaptation (changes to the brain from nicotine exposure), a greater constitutional need for nicotine, a more highly learned and deeply ingrained habit, or possibly a physical or social environment that discourages staying stopped (i.e. one with more cues and opportunities to smoke). There is also evidence that more dependent smokers experience greater negative affect and craving pre- and post-quit regardless of their cessation status and that these factors are associated with relapse. Getting up to smoke during the night is an indicator of nicotine dependence. There is some evidence that night smokers who report significant sleep disturbance are at particular risk of relapse, but more research is needed to substantiate this relationship. Experience from the Californian Quitline suggests dependent smokers often require numerous attempts to quit, and therefore those who are unsuccessful on any one attempt should be encouraged to try again as soon as is practical.

See Chapter 6 for further information on addiction to tobacco and measures of nicotine dependence.

7.7.1.3 Severity of withdrawal symptoms

One of the main motives for continued smoking appears to be the relief of the nicotine withdrawal syndrome. Withdrawal symptoms are discussed more fully in Chapter 6.

The average pattern for withdrawal symptoms is described as being most intense in the first week and lasting two to four weeks after quitting. However, withdrawal symptoms can be highly variable, both across persons and over time. In some people symptoms can be chaotic; they may fall and rise, or they may not decline for a number of weeks. In one study tracking withdrawal symptoms in real time, reports of recent smoking, exposure to someone smoking and stress were all associated with worse cravings and greater withdrawal symptoms and negative affect (unpleasant moods) in the weeks after quitting, although individual responses varied greatly. Although withdrawal is not short-lived, prolonged withdrawal states over six months do not appear to occur with cigarette cessation. Relapse is related to greater severity of symptoms, greater day-to-day symptom volatility, increases in symptoms over time, and a greater degree of symptom relief associated with lapses to smoking.

Urges to smoke or cravings are core components of withdrawal and powerful predictors of relapse. They are clearly related to nicotine dependence, as they are typically most intense within the first two days after quitting and nicotine replacement products reduce their severity. Cravings appear to be related to negative affect. However, urges to smoke can also be triggered by cues associated with smoking, even, in some cases, months or years after quitting.
7.7.1.4  

**Genetics?**

As research on human genetics has progressed, it is now clear that smoking is under some degree of genetic influence. Beginning with the observation that concordance rates are higher in monozygotic compared to dizygotic twins for both persistent smoking and for successful quitting, research has identified several genes associated with nicotine metabolism and neurotransmitter pathways. Limited research has found that those able to change smoking behaviour in a general practice setting are likely to have a similar genetic profile to those able to change this behaviour in clinical trials. However, the evidence is inconsistent, with some results suggesting that the establishment of regular heavy smoking might abolish associations between genetic determinants of nicotine dependence and the probability of successful smoking cessation. This is a new and underdeveloped field, and further research is needed to clarify the contribution of individual genes and their combined effect in interaction with environmental influences.

Some research has investigated the response of smokers with specific genotypes to various pharmacotherapies. The area of pharmagenetics research is still in its initial stages. It may have the potential to yield genetic markers to help match individual smokers to the most likely effective treatment; however, nicotine dependence is a complex trait with multiple genetic and environmental components. It would require extensive further research with uncertain practical outcomes.

There is some evidence that attributing smoking to genetic factors is associated with lower levels of perceived control over smoking but not lower quit rates, but further research would be needed to determine if personalised genetic feedback has the same outcome.

7.7.1.5  

**History of previous failed quit attempts?**

Research indicates that previous attempts at quitting, and the recency and duration of quit attempts predicts making another quit attempt. Smokers who have made recent attempts to quit are more likely to try again, and those whose previous attempts have lasted longer are more likely to successfully stop. Smokers who relapse are more likely to reduce consumption compared to those not making a quit attempt.

7.7.1.6  

**Low confidence, poor self-efficacy?**

Self-efficacy is the belief or confidence that one has the capacity to perform a behaviour, and that the action will achieve its desired outcome. Self-efficacy theory proposes that it underpins motivation and is a requirement for behaviour change, along with having actual skills, knowledge and opportunity.

According to theory developed by social psychologist Albert Bandura, behaviour change has a number of phases, each affected by efficacy beliefs. In the context of smoking cessation, these would include considering quitting, motivating oneself to stop smoking, persevering with the change, being vulnerable to relapse, recovering after a setback, and adjusting to and maintaining a non-smoker lifestyle. Self-efficacy judgements and expectations appear to be influenced by the different tasks involved in smoking cessation.

In general, high self-efficacy is a predictor of success at smoking cessation in the short to medium term. There is some evidence however that self-efficacy may be less influential than expected, and that many studies may have overestimated the relationship by failing to appropriately control for smoking behaviour at the time of self-efficacy assessment. The predictive power of a person’s self-efficacy beliefs may be limited by their understanding of the challenges facing them, or influenced by the phase of change they are involved in at the time of measuring self-efficacy. For example, if a person bases their self-efficacy beliefs on their confidence at resisting temptations to smoke immediately after quitting, but does not take into account the need to adjust to a non-smoking lifestyle in
the longer term, then their self-efficacy may not have as much value for predicting long-term success.\textsuperscript{52, 65–67} Also, self-efficacy beliefs based on past quitting experience may be better informed than pre-quitting expectations.\textsuperscript{63} Self-efficacy is reinforced by success,\textsuperscript{19} but tends to go down following a lapse after quitting.\textsuperscript{68} Some researchers have suggested that further investigation is warranted into the notion of self-efficacy as a reflection of recent smoking behaviour change rather than just as a cause.\textsuperscript{69} Evidence suggests that drops in self-efficacy are associated with progression from one lapse to the next.\textsuperscript{70}

In one study, self-efficacy for quitting tended to be lower in people from low socio-economic background.\textsuperscript{71}

\subsection*{7.7.1.7}

\section*{Concern about weight gain}

Fear of weight gain is a significant factor in discouraging quitting and provoking relapse in smokers.\textsuperscript{5, 72-80} Some evidence suggests that weight gain is a more significant concern for younger women.\textsuperscript{81} Concerns about weight when trying to quit appear to be associated with higher body mass index, intention to quit, more previous quit attempts and less support for quitting.\textsuperscript{82} One measure that has been developed specifically for smoking-related weight concerns is the smoking-related weight and eating episodes test (SWEET).\textsuperscript{83}

(See Section 7.1.2 for further information on the effects of cessation on weight. See Chapter 3, Section 3.29 for information on the health effects of smoking in conjunction with and compared with the health effects of obesity.)

\subsection*{7.7.1.8}

\section*{Disturbances of mood}

Negative affect is a core component of withdrawal and a predictor of urge to smoke and relapse.\textsuperscript{84, 85, 31} Negative affect appears to be associated with craving,\textsuperscript{31, 66} with limited evidence of gender differences in the relationship between negative affect and smoking behaviour.\textsuperscript{90} Compared to sustained quitters, those who relapse are more likely to report symptoms of emotional distress\textsuperscript{25} and negative mood.\textsuperscript{13} There is evidence that smoking may decrease happiness and stopping may increase it.\textsuperscript{41} Research also suggests that anhedonia (an affective dimension related to the inability to experience pleasure) is associated with poor smoking cessation outcomes.\textsuperscript{93} For those who have quit smoking, perception of an improvement in post-quitting experiences—such as the capacity to enjoy life's simple pleasures, ability to calm down when stressed or upset and ability to control negative emotions—increase over time but at different rates.\textsuperscript{14}

\section*{Stress and negative affect}

Smokers frequently see smoking as a way of managing stress. However, they have different opinions on how smoking relates to stress.\textsuperscript{96} Smoking is commonly perceived to affect mood such as promoting relaxation, calmness or ease.\textsuperscript{90} It may be used as a distraction from problems, or as a public demonstration that the smoker is under stress.\textsuperscript{90}

Reviews of research have tried to determine whether nicotine genuinely improves mood or merely relieves withdrawal symptoms. In this research, often a distinction is made between stress from an external source, which tests coping ability, and negative affect, which describes unpleasant moods such as sadness, irritability, anxiety, frustration, anger, contempt, disgust, guilt, fear and nervousness.\textsuperscript{38, 91} The findings on the relationship between negative affect, stress and smoking have been mixed and suggest a complex association.\textsuperscript{38, 92}

Smokers report more stress and negative affect relative to non-smokers.\textsuperscript{91, 93, 94} A national study in Australia found that daily smokers reported higher levels of psychological stress than non-daily smokers, who in turn reported higher stress than non-smokers.\textsuperscript{93} It is possible that smoking itself, withdrawal symptoms or a combination of the two create a higher level of stress. However, smokers also smoke in response to negative life events and laboratory stressors so the idea that ‘smoking causes stress’ may not entirely explain the relationship between the two.\textsuperscript{91}
The strongest evidence for an effect of stress and negative affect on smoking is for withdrawal escape, although a number of other mechanisms are being investigated.\textsuperscript{91} Withdrawal symptoms include urges to smoke and worsened mood states such as irritability, anger, frustration, anxiety and depressive symptoms.\textsuperscript{10,96} These may appear within two hours of last smoking, depending on the individual.\textsuperscript{3,9,29} The daily mood patterns of smokers show a normal pattern during smoking, but a worsening mood pattern between cigarettes.\textsuperscript{3,8} A further variant on the withdrawal escape theory posits that after repeated experiences of alleviating these withdrawal mood symptoms with smoking, negative affect may become a cue for smoking even when it occurs independently of nicotine withdrawal.\textsuperscript{91}

Despite smokers commonly citing relief from negative affect as a motive for smoking, real-time studies have found little correlation between affect and smoking behaviour during regular smoking.\textsuperscript{18} However, during smoking cessation there appears a strong connection between stress, negative affect and lapses to smoking, particularly first lapses.\textsuperscript{14,18,20} Furthermore, lapses appear to mostly result in increases in negative affect, particularly guilt and discouragement and a decrease in self-efficacy.\textsuperscript{31,34} Evidence also suggests that smokers with more financial stress are more likely to relapse.\textsuperscript{90,90}

Quitting generally results in lower stress and negative affect over time. Although smokers usually experience an increase in stress and negative affect in the weeks after they quit, these symptoms diminish over time to levels lower than when they smoked.\textsuperscript{3,91,90}

### Depression

Smoking and depression often co-occur. Compared to non-smokers, smokers report more depressive symptoms, more frequent and severe episodes of depression and higher rates of suicidal ideation and suicide.\textsuperscript{92} Having a history of depression, in itself, does not seem to substantially jeopardise successful quitting.\textsuperscript{101–105} However, one study suggests that that among smokers with a history of depression, those who have an increase in depressive symptoms after quitting are more likely to relapse to smoking.\textsuperscript{90} Recommendations for co-management of depression and nicotine dependence include integrated cognitive–behavioural treatments and use of antidepressant medication while quitting, to help control depressive symptoms and reduce the risk of recurrence of depression.\textsuperscript{107,108} Chemicals in cigarettes can affect the metabolism of certain antidepressant medications, and dose levels may need adjusting after quitting.\textsuperscript{109} (See Section 7.12 for further information on how best to encourage and support smoking cessation among those suffering from depression.)

### Anxiety

Evidence suggests that anxiety sensitivity is associated with nicotine withdrawal symptom severity\textsuperscript{110} and increased risk of early smoking lapse, but is not associated with smoking relapse during the first two weeks of quitting.\textsuperscript{111} (See Section 7.12 for further information.)

### 7.7.2 External factors that predict failure in quit attempts

External factors that increase the difficulty of staying stopped include ‘cues’ to smoke in a smoker’s environment. Cue reactivity is increasingly being studied.\textsuperscript{112–116} Point-of-purchase cigarette displays act as cues to smoke, even among those not explicitly intending to buy cigarettes and those trying to avoid smoking.\textsuperscript{117} Research shows that smokers respond to smoking stimuli with increased craving but that they also respond to environmental contexts where cigarette cues are normally present but are not.\textsuperscript{118} Social temptation situations appear to affect cessation outcomes but further research would increase understanding of the effect of situational temptations.\textsuperscript{119}
7.7.2.1
Social factors

Factors related to smoking in the social environment influence abstinence from smoking. There is a positive association between social support and cessation and some research findings suggest that the perception of social support (negative or positive) provided to smokers trying to quit is an important factor in success and is influenced by the relationship with the supporter. Partner influence on smoking persistence and behaviour change is significant. Evidence shows that quitting is made more difficult if a smoker’s social environment is filled with smokers and alcohol use is also related to relapse. Limited evidence suggests that the temptation to smoke caused by the smell of other people’s smoke is only related to relapse as part of a general urge to smoke.

7.7.2.2
Depictions of smoking in popular culture

Incidental promotions of tobacco, such as in movies, continue to influence the normalisation of smoking and act as cues to smoke. (See Chapter 11 for further information on tobacco advertising and promotion.)

7.7.2.3
Remaining tobacco marketing

Exposure to tobacco advertising can reduce current smokers’ motivation to quit and bring attention to tobacco products, which may result in former smokers resuming smoking. (See Chapter 11, Section 11.1.) Tobacco advertising may remain in a community’s collective memory for many years after it has been severely restricted with many individual smokers reporting that they have recently seen such advertising even though it had been banned for some years in their jurisdiction.
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How can relapse be prevented?

The research base for the effectiveness of relapse prevention interventions is limited, although evidence suggests that there are various smoking interventions that can support both smoking cessation and relapse prevention efforts. A 2009 Cochrane review of relapse prevention interventions indicates that there is insufficient evidence to support the use of any specific behavioural intervention for smokers who have successfully quit for a short time to avoid relapse. The verdict is strongest for interventions focusing on identifying and resolving tempting situations, as most studies were concerned with these. There is little research available regarding other behavioural approaches. Extended treatment with varenicline may prevent relapse but extended treatment with bupropion is unlikely to have a clinically important effect. The review reported a lack of studies with extended treatment with nicotine replacement therapy. Another review found that self-help materials appeared to prevent relapse in initially unaided quitters, and found positive results for the use of pharmacotherapies but no definitive evidence regarding behavioural support.

Some findings suggest that social support has an influence on relapse. Limited evidence indicates that a high percentage of partners are willing to help their partner who smokes and are interested in learning ways to help. However a review of interventions designed to enhance partner support for smokers in cessation programs found that no conclusions could be made about the impact of partner support on outcomes. Both positive and negative support appears to have importance in the early phase of quitting, but it is the continued minimisation of negative support that seems to best predict maintenance of non-smoking.

Relapse is common, especially in the immediate post-quitting period, but also over the longer term. Smoking for many people can be regarded as a chronic relapsing disorder, and many smokers may need repeated assistance over the course of their lifetime.

There is emerging evidence that while the desire to smoke for the enjoyment it provides can deter quit attempts, it does not influence the likelihood of relapse. Cue-driven impulses to smoke, the need for nicotine, adverse moods and beliefs about the benefits are important in relapse. Relapse prevention needs attention to all these factors.

In observing patterns of smoking that occur after quitting, some studies distinguish between a lapse (or slip, or slip-up) and full relapse. A lapse has been variously defined as at least a puff, or one or more cigarettes, which may be followed by renewed abstinence or evolve into a relapse. A relapse refers to a return to regular daily smoking, and generally means that a quit attempt has failed. Most lapses lead to relapses; one study found that 88% of those who lapsed went on to relapse. It is common for there to be a period of intermittent smoking before full relapse occurs. Evidence indicates the dynamic nature of lapse responses during smoking cessation, and suggests that drops in self-efficacy are associated with progression from one lapse to the next.

Most lapses and relapses occur in the days or weeks just after stopping, so that most intervention that does occur needs to be during these early days or part of the process of preparation to quit. Establishing early abstinence appears to be crucial to establishing longer term abstinence. To date, most work has focused on skills-based approaches to identify situations where relapse risk is highest (e.g. socialising with smokers while consuming alcohol) then to develop and rehearse strategies to deal with them in advance. Such situations vary from person to person, but represent an ‘Achilles heel’ for that individual. Extended telephone contact or booster sessions with counsellors, GPs or other support sources have been used extensively and these have been found to have some modest effect on increasing long-term cessation. There is some evidence that extended (20-week) cognitive–behavioural therapy may help smokers to maintain abstinence in the longer term.

One way to conceptualise the challenge of relapse prevention is to see it as three distinct tasks in becoming a non-smoker:

- To stop smoking (i.e. make a quit attempt).
- To learn to deal with cravings and other withdrawal symptoms without relapsing.
- To learn to enjoy and value a smokefree lifestyle, which involves facing old smoking situations without cigarettes, finding new behaviours to substitute for the benefits of smoking, realising that many previously perceived benefits of smoking were illusory, and adopting a new non-smoker self-image.
This ‘3Ts’ approach serves to focus more attention on the third task, which typically comes to the fore a month or so after the quit date, when cravings occur less often than daily, and the person’s vigilance and need for coping starts to decline. The challenge then is for the person to integrate a new, non-smoking way of being in the world into their daily functioning.

For some smokers, focusing on their inability to change is a barrier to quitting. Strategies aimed at helping these smokers include encouraging openness to the possibility of change, breaking down quitting into manageable steps, reframing past failures as learning experiences, subsidising and encouraging the use of quitting aids without overstating their benefit, and encouraging personal responsibility for change.

One issue raised by a review of relapse prevention practice in UK stop smoking services is a lack of shared understanding of what relapse prevention actually means or knowledge of the evidence base of the interventions used within healthcare systems.

Some approaches for which there is information are outlined below.

### 7.8.1 Keeping motivation top of mind

Motivation seems an obvious factor in quitting. There is considerable evidence that some self-report measures of motivational factors are predictive of making quit attempts, but, at least when assessed before the person quits, are not predictive of the success of attempts. A smoker needs to be motivated to prompt action to stop smoking but this is not sufficient on its own to maintain cessation. It seems likely that this is because the determinants of motivation differ from before to after a quit attempt. Before an attempt, thinking about the pros and cons of quitting and making estimates of the outcome of the attempt does influence decision-making and thus stimulates trying. However, once the person has actually quit, the main determinants of motivation are the experiences they are having, something people are poor at estimating in advance.

The key difficulty of motivation in the context of overcoming addiction is that there are counteracting urges and motivations to keep smoking. One framework is to view quitting as a triumph of rationality over transient desires that are distorted by conditioning associated with dependence. For most smokers, getting to the point of really wanting to quit presents a formidable challenge, and there is a strong argument for encouraging and assisting smokers to quit even though they may not have resolved all doubts before making a decision to quit.

Smokers themselves often see their own strength of motivation or will power as being the key to successful quitting, with the implication that they are inadequate if they seek help from others or fail. From an observer’s point of view, successful quitters are often seen as better motivated, while those who relapse are less motivated. However such an analysis does not help understand what motivation to quit is all about. There is no one simple concept of motivation: it is a multidimensional concept.

Different theories have been applied to smoking cessation that together have a number of elements that can be used to describe motivation. In simple terms motivation is directed action. Motivation requires goals that are pursued and energy, wanting, drive or activity in order to overcome obstacles to achieving these goals. Motivation to quit and stay quit is characterised by ambivalence and conflict, which ebbs and flows as negative thoughts about smoking compete with urges to smoke. Working to resolve this ambivalence may be helped by intrinsic and extrinsic sources of input: intrapersonal inputs or rewards such as self-efficacy (belief that one can quit), self-competence, better health, and being a better role model, or environmental inputs or rewards such as money and social approval. In the self-regulation model, motivation refers to maintaining an optimal state or system balance: if people feel good or neutral then they will maintain their behaviour. Smoking cessation usually results in temporary unpleasant moods, so it is necessary to use coping resources to avoid returning to smoking. Feedback loops on how behaviour affects mood is an important motivational mechanism: negative affect (unpleasant moods) predicts relapse, but effective coping to decrease negative affect helps maintain cessation.

**Motivational interviewing** is a set of counselling techniques that aim to help motivate smokers to quit, sometimes organised around the stages of change of the transtheoretical model (see Section 7.6), but applicable to any theory of behaviour change that posits a motivational component. The strategies used in motivational interviewing involve
asking questions of the smokers to get them to review relevant personal facts about the negative consequences of smoking, weigh the pros and cons of quitting, and think about strategies for overcoming obstacles to quitting. It aims to enhance smokers’ sense of self-efficacy, commitment to quitting and problem-solving skills while acknowledging the challenges inherent in quitting. Motivation for change vacillates over time, and addressing this vacillation is crucial for enabling behavioural change. The process helps smokers clarify the need and process for change and supports them in achieving their goal.\textsuperscript{24,25} Evidence as to the effectiveness of current motivational interviewing smoking cessation approaches suggests that they may be effective for adolescents and adults in increasing behaviour change related to smoking, including reducing cigarette consumption, reducing exposure of children to secondhand smoke and adopting household smoking bans.\textsuperscript{21,22} There is very little research available regarding other approaches. The authors conclude that until more evidence becomes available it may be more efficient to focus resources on supporting the initial cessation attempt rather than on additional relapse prevention efforts.\textsuperscript{30}

### 7.8.2

#### Anticipating and avoiding triggers (stress and mood changes, social pressure and alcohol)

The evidence is strongest for interventions focusing on identifying and resolving tempting situations, as most studies appear to be concerned with these.\textsuperscript{2} Findings support better outcomes among people who use more active coping strategies to deal with urges to smoke.\textsuperscript{31,32} There is limited evidence that motivation to remain abstinent affects an individual smoker’s reaction to cues to smoke.\textsuperscript{31}

#### 7.8.2.1

##### Temporary changes in routine

On the basis of classical conditioning theory, many smoking cessation support services suggest temporary changes in routine as a strategy to lessen the links with smoking.

#### 7.8.2.2

##### Dealing with stress and mood disturbance

Given the association between capacity to control negative affect following cessation and risk of long-term relapse, strategies to enhance impulse control and control of negative emotions without the use of cigarettes may help to reduce relapse.\textsuperscript{24} One study found that the inclusion of a mood-management tool in an internet-based cessation intervention increased quitting outcomes.\textsuperscript{35} There is evidence that compared to continuing smokers, successful quitters report improved wellbeing and happiness, which could be used to motivate those attempting to quit.\textsuperscript{34,37}

### 7.8.3

#### Managing transitory negative effects and weight gain

Nicotine replacement products and bupropion appear to postpone a portion of weight gain until their use stops, with the possibility of a modest long-term effect.\textsuperscript{38–41} Nicotine gum may have the potential to reduce weight gain in the long term if higher doses are used properly, more often.\textsuperscript{42} There is no evidence that varenicline significantly reduces weight gain after quitting.\textsuperscript{41} Other pharmacological interventions have shown initial weight gain reduction, but this was not maintained in the longer term.\textsuperscript{41} Advice to attenuate weight gain includes engaging in physical activity, having a healthy diet and limiting alcohol consumption.\textsuperscript{39,40,41–47} Weight control advice does not appear to reduce weight gain and may reduce abstinence from smoking.\textsuperscript{41} Studies on simultaneous quitting and dieting to prevent weight gain have produced mixed results: some found that it undermined the attempt to quit smoking,
while others reported similar or higher rates of success for smoking cessation in specific populations.\(^{46}\) One study suggests that a self-control strength model, where self-regulation relies on limited strength that is depleted with use, may explain why dieting undermines cessation attempts, but the research is inconsistent.\(^{48}\) Exercise does not appear to reduce short-term weight gain, but may result in longer-term weight benefits.\(^{49}\) Combining an exercise program with a comprehensive cessation program does not appear to significantly increase quitting rates or affect weight gain.\(^{50}\) Individualised interventions, weight management programs, very low calorie diets and cognitive–behavioural therapy may be effective and not reduce abstinence.\(^{40,41,50–52}\) One study suggests that for weight-concerned female smokers, success in changing eating behaviour may increase self-efficacy for quitting smoking.\(^{53}\) Overall it appears that there is no evidence that combining smoking treatment and behavioural weight control produces any harm and significant evidence of short-term (less than three months) benefit for both abstinence and weight control. However there is no evidence of long-term effectiveness.\(^{54}\)

### 7.8.4

#### Managing cravings

The management of cravings, typically most intense within the first few days after quitting, is complicated by the high variability in symptoms across individuals and time, as well as by the lack of an absolute symptom threshold for response.\(^{55}\) Investigating how smokers react to the discomfort of nicotine withdrawal and quitting smoking may have important treatment implications.\(^{56}\) Limited research supports the use of exercise to help decrease cravings to smoke.\(^{57}\)

#### 7.8.4.1

##### Constructive self-talk

Limited research suggests that smokers trying to quit who focus constructively on future rewards and who give more importance to rewards that are certain are more likely to stay stopped.\(^{58}\)

#### 7.8.4.2

##### Medication to reduce cravings and other withdrawal symptoms

The development and introduction of drug therapies has provided much-needed assistance for smokers trying to quit, particularly for more dependent smokers, and are effective for increasing smoking abstinence rates, at least in the short term.\(^{59,60}\) However, while nicotine replacement products and bupropion (discussed later in this chapter) reduce the severity of cravings and other withdrawal symptoms, they do not appear to affect whether symptoms get better or worse over time, day-to-day variability in symptoms or size of acute changes in symptoms associated with lapses to smoking.\(^{61}\) Nevertheless, there is evidence of positive results for the use of nicotine replacement therapy, bupropion and varenicline in relapse prevention,\(^{62}\) although there is substantial relapse to smoking after treatment courses are finished.\(^{21}\) Health economic analyses of the pharmacotherapy relapse prevention interventions suggest they are highly cost effective.\(^{21,63}\) (See Section 7.16 for information on pharmacotherapies.)
A note on mindfulness and relaxation

While not for everyone, techniques commonly used by those who practise yoga or meditation can be effective in keeping motivation top of mind, reducing mood disturbance and overcoming cravings.

One approach, called mindfulness, is a method of awareness and introspection that involves a conscious attempt to focus attention on the present moment, taking note of thoughts and feelings without judging or acting on them. It includes a focus on compassionate self-talk and self-acceptance as a means of dealing with issues. One part of this approach is defusing negative or unpleasant thoughts rather than trying to get rid of them, the idea being that if a person faces these with openness, the thoughts will eventually lose their control and cease to paralyse. Mindfulness strategies for managing nicotine cravings involve present-moment, nonjudgmental awareness of cravings without acting on them, compared to suppressing cravings, which involves pushing them out of awareness. Limited research suggests that a low level of mindfulness may be an important predictor of vulnerability to relapse among adult smokers preparing to quit, and that mindfulness-based interventions may assist cessation. Mindfulness techniques may not initially reduce urges to smoke but may change the response to the urge. Other findings suggest that not all individuals benefit from the approach and that, for example, anxiety-sensitive people who use suppression may cope better with cravings, at least initially.

There is some evidence that brief guided relaxation can reduce the strength of desire to smoke and some withdrawal symptoms.
References


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Approaches to increasing the proportion of ever smokers who have quit

Success rates among those attempting to quit are currently low, with fewer than 10% of smokers who make an attempt in any given year succeeding. A key question in tobacco control is how best to maximise the proportion of ever smokers who have quit: whether it is better to focus on increasing success rates among those who are attempting to quit or whether it would be more effective to increase the percentage of smokers trying.

There is some evidence of the value in shifting the focus from the ‘quality’ of smokers’ quit attempts to the ‘quantity’ of those attempts.\textsuperscript{1} Data from California indicate that smokers on average tried 12 to 14 times before quitting for good: 12 if they used cessation aids, and 14 if they did not. These figures have stayed fairly constant since data collection began in the early 1990s, even though the availability of cessation aids has increased. The implication is that quitting aids reduce the overall number of attempts that are needed but that most smokers still have to make multiple attempts, with or without these aids. The research concluded that—while ideally, all quit attempts would involve a cessation aid, counselling or some other form of assistance—the real key to speeding up the process is to encourage smokers to keep on trying.\textsuperscript{2, 3}

Continuation of current policies

Expert scientific bodies have concluded that success in smoking cessation at the population level is a product of a comprehensive tobacco-control approach. This includes a combination of:\textsuperscript{4–7}

- real and effective price increases
- sustained, research-based mass media campaigns
- bans on tobacco advertising and promotion
- inclusion of prominent health warnings on packs and efforts to ensure the warnings remain salient
- smokefree public environments
- making evidence-based cessation support readily available and promoting its use to smokers
- ensuring that smokers receive encouragement and appropriate support to quit in all healthcare settings and other public institutions such as prisons.

Reduced barriers to use of cessation programs and pharmacotherapies

Evidence-based smoking cessation treatments are underutilised. To increase demand for such treatments requires that smokers know about what is available and have access to them.\textsuperscript{8} There is evidence that many smokers are unaware of the full range of methods to quit smoking and that many use non-evidence-based approaches.\textsuperscript{9} Limited evidence also shows that current smokers may be less trusting of information sources such as health professionals or the Internet than are non-smokers,\textsuperscript{10} which may contribute to lack of use of treatments. A consumer-centred approach to this issue involves understanding and addressing smokers’ needs and concerns about treatment and communicating effectively with them about the nature and value of treatments.\textsuperscript{11} Approaches to increasing the likelihood with which smokers use cessation medications may be more successful if they address expectations smokers have about their effectiveness and desirability.\textsuperscript{12} Viewing tobacco dependence as a chronic disease, and not just a habit that can be broken with willpower, is suggested by some researchers as integral to encouraging and promoting the use of effective cessation treatments to smokers.\textsuperscript{13}
An integrated, comprehensive systems approach to cessation treatment and policy may help improve population quit rates. Treatment policies suggested in the literature include:

- expanding cessation treatment coverage and provider reimbursement
- mandating adequate funding for the use and promotion of evidence-based, state-sponsored quitlines
- supporting healthcare system changes to prompt and guide tobacco treatment
- supporting and promoting evidence-based treatment via the Internet
- improving individually tailored approaches and the long-term effectiveness of evidence-based treatments.

Studies from the US modelling the impact of smoking cessation treatment policies on adult quit rates have found that implementing any policy in isolation could increase quit rates from a baseline rate of 4.3% to between 4.5% and 6%. By implementing policies in combination, the quit rate would be increased even more substantially.

One suggested way to increase the use of available smoking cessation treatment is to give more financial support through healthcare systems on a par with other medical and behavioural disorders. Higher out-of-pocket expense has been associated with a lower probability of a smoker using any smoking cessation medication. There is evidence that providing access to subsidised pharmacotherapy can increase usage of quit treatments and increase the proportion of quit attempts that are successful. International research examining the long-term effects of reimbursement of smoking cessation support found that it appears to be cost-effective from a healthcare perspective. Evidence suggests that lower socio-economic status (SES) smokers are more addicted and may benefit from more intensive support to successfully quit, highlighting the importance of providing ready access to pharmacotherapies complemented by evidence-based behavioural support.

7.9.2.1

**Availability and price of nicotine replacement therapy**

UK evidence found that making non-prescription nicotine replacement therapy (NRT) smoking cessation medicines reimbursable leads to a large increase in utilisation, but does not have an impact on the number of smokers making quit attempts. There is evidence that adding free NRT to a smoking cessation program may increase numbers in the program and short-term quit rates, but not long-term rates. One study examining the impact of reduced cost NRT and a period of familiarisation with a wide range of products found no difference in quit rates at six months compared to no familiarisation.

7.9.2.2

**Subsidy of prescribed medicines**

As mentioned above, there is evidence from the UK that making prescription smoking cessation medicines reimbursable leads to greater use, but does not affect the number of smokers making quit attempts.

7.9.3

**Building knowledge about and skills in quitting: population-wide education versus clinical and other one-to-one approaches**

Most smokers attempt to quit on their own even though effective support methods exist. Building knowledge about and skills in quitting may play an important role in increasing successful cessation. Research suggests that smokers may be unaware of and underestimate the benefits of what is available. Other evidence has shown that the use of a decision aid aimed to motivate smokers to use effective cessation treatments can have a positive effect on knowledge of and attitude towards the methods, confidence about being able to quit and quit attempts but does not affect actual usage.
To increase successful cessation at a population level it is important to understand more about the use of cessation methods by smokers and their helpfulness in the real world.\textsuperscript{24} There is evidence that going cold turkey, NRT and gradual reduction before quitting are commonly used by smokers and perceived as being very helpful, while advice from health professionals, though commonly used, is less helpful. Prescribed medication has lower use but high helpfulness.\textsuperscript{28}

### 7.9.3.1

**Intensity of intervention**

An important aspect of quitting is the treatment structure or level of intensity of the interventions given to help each individual smoker to quit. Measures of intensity include the length of time of each contact, total amount of contact time, and number of person-to-person sessions. Cessation rates tend to increase with extended contacts and with the number of treatment formats (different types of counselling and educational interventions).\textsuperscript{4, 29} Low intensity interventions typically offered in Australia include brief advice from a doctor or other health professional and the Quitline service, although these interventions have the potential to be more intense depending on the time and depth of information and counselling provided. In Australia, there are three types of high intensity interventions. These are the Quitline program of callbacks for smokers during their quit period, group programs that have multiple sessions, and individual counselling involving multiple sessions with a doctor, nurse or psychologist. The effectiveness of all levels of interventions is improved by concurrent use of proven quitting medications.\textsuperscript{30–33}

As a general rule, the more intense the intervention, the greater the likelihood of success of cessation for any individual.\textsuperscript{4, 32–34} However, higher intensity interventions are usually more costly (to the individual, government or other funder) and less likely to be available to all smokers. Therefore there will be a cost–benefit ratio for each individual method and level of intervention.

Evidence indicates that lower SES smokers are more addicted and are more likely to need more intensive support to be able to quit successfully.\textsuperscript{35} (See Sections 7.14 and 7.15 for further information)

### 7.9.3.2

**Cost–effectiveness of smoking cessations (Shared content with Chapter 17)**

There are two broad aspects to the question of costs and effectiveness of smoking interventions at the population level:

- the cost–effectiveness analysis of smoking cessation compared to other public health or medical interventions
- the cost–effectiveness analysis of different approaches or levels of intensity to smoking cessation.

Both aspects are complex to estimate and information is scarce for Australia. The value of smoking cessation in comparison to other health interventions is clearly demonstrated in studies from around the world that can be extrapolated to Australia.\textsuperscript{36} Interventions that promote cessation of smoking typically cost between hundreds of dollars and several thousand dollars per life year saved, while other medical interventions more typically cost tens of thousands of dollars, making smoking cessation therapies one of the most cost-effective health interventions.\textsuperscript{37}

In Australia, consulting firm Applied Economics prepared a report for the Commonwealth Department of Health and Ageing in 2003 that compared public health programs to reduce tobacco consumption, coronary heart disease, HIV/AIDS, measles and Hib-related diseases, and road trauma. For tobacco, it was concluded that for government, there was a saving of $2 for every $1 spent on tobacco-control campaigns. Based on very conservative assumptions (e.g. that Quit Campaigns were responsible for only 10\% of the reduction in tobacco use) the estimated present value of overall social benefits was $8.6 billion, compared to costs of $176 million.\textsuperscript{38}

The cost–effectiveness of differing approaches to smoking cessation has never been estimated for Australia, but overseas research suggests the costs per life year saved vary from a few hundred dollars for media campaigns to several thousand dollars for intensive interventions by health workers.\textsuperscript{39} One study found general practitioner (GP)
training plus free quitting medication training or a combination of this approach with GP remuneration to be cost-effective, but GP training and remuneration alone to not be effective. The actual values depend on success rates and smoker characteristics. Since more intense interventions are more often used by more dependent smokers and those with other problems that make quitting harder, these estimates may overestimate the costs of more intensive approaches were they to be used by ordinary smokers. Even cross-country studies that show significant variation in cost-effectiveness of different smoking cessation medications have found results to be favourable compared to other common preventive pharmacotherapies.

Another issue is whether children rather than adults should be the target for intervention.

There are several reasons for a broader focus, rather than concentrating on smoking prevention. School-based educational programs have generally proved to be ineffective, however children are positively affected by campaigns aimed at the whole community. Smoking cessation campaigns can reduce smoking among young people, by direct influence through exposure to the campaign, and by indirect influence through parents quitting and through the effects of making the home smokefree. In addition, a focus on cessation will bring much faster returns. Mortality from tobacco use over the next 50 years will be affected much more by the number of adults who quit than by the number of adolescents who start.

7.9.4 A middle way: population education plus system-wide minimal interventions combined with tailored but low-cost, high-reach services

One of the key categories of tobacco control is interventions designed to directly influence tobacco users and potential users, such as education campaigns, product warnings and provision of stop smoking services. The 2004–09 National Tobacco Strategy highlighted a comprehensive approach to tobacco control in Australia that included population education through increased promotion of Quit and Smokefree messages in combination with improved quality of and access to services and treatment for smokers and tailoring of messages and services to ensure access by disadvantaged groups.

What combination of approaches to smoking cessation is likely to lead to the greatest reduction of smoking for the least cost at a population level?

Australia’s National Preventative Health Strategy and National Tobacco Strategy envisage a three-level approach:

- Effective population-wide education via the continuation of anti-tobacco mass media campaigns, pack warnings and other information dissemination to influence tobacco users and potential users.
- The implementation of policies to increase health-system-wide minimal cessation interventions such as requiring all healthcare organisations and professionals to offer cessation advice and brief support as part of routine care, further promotion of the national Quitline number and the development and marketing of stop-smoking treatments that are more appealing to smokers trying to quit. Even small effects of such treatments are clinically significant. A combination of services, health professional training, referral arrangements, remuneration and subsidies has the capacity to provide evidence-based services and treatments for those who want assistance or are likely to benefit.
- The provision of tailored but high-reach cessation services for particular high-risk groups delivered through the Quitline or through computer technologies and through commonly used health services and community networks including social clubs, schools and workplaces. This includes, for example, training of Indigenous health workers and other health professionals working in Aboriginal and Torres Strait Islander health services, building the capacity of local health services, and ensuring access to information, treatment and services for those with mental health problems.
References for Section 7.9


Role of health professional practices

Smoking cessation, nutrition, obesity, excess alcohol use and physical activity are increasingly seen as essential targets for general practice, hospital and community health services as part of efforts to reduce or manage preventable 'lifestyle' health problems. Interventions related to healthcare providers and systems have been shown to improve smoking cessation among people who visit them. Even brief advice from a health professional to quit smoking increases quit rates among patients compared to those not receiving such advice by one to three percentage points.2,3

Reviews show a small benefit of intensive advice and follow-up visits.2,3 Interventions with more than one component, such as those that combine two or more of the elements of the 5As (see below) increase quit rates in primary care settings.2 Primary care provider cessation interventions can assist smokers with alcohol, drug or mental disorders.4 The delivery of smoking cessation intervention to an individual smoker by more than one type of health professional has the potential to increase quitting and readiness to quit.5 Advice from physicians may have a positive impact on the attitudes, knowledge, intentions to smoke and quitting behaviours of adolescents.4

Some doctors or other health professionals may have the opportunity to provide more intensive interventions for smokers or to refer them, if appropriate, to specialist services. (See Section 7.10.8.) There are several effective group and individual programs including Fresh Start (see Section 7.15.1.1) and Smokescreen.2,6 Quitline provides a readily accessible specialist service to which health professionals can refer their patients. (See Section 7.14.1.)

Health professionals and healthcare facilities need to take more advantage of opportunities to provide advice to smokers.10-11 For health professionals and clinics, factors positively associated with providing cessation intervention and counselling include having a belief that it is their role, perceived self-efficacy to provide counselling, knowledge of community cessation resources and the patient-centeredness of the organisation.10,12 Barriers referred to by healthcare providers include lack of reimbursement, lack of training and lack of resources for follow-up.13,14 Systems for routinely documenting smoking behaviour and intervention positively influence the effectiveness of practice.15-17 A clinic screening and recording system to identify whether or not a person smokes significantly increases intervention and cessation rates but not necessarily the prescription of cessation medication.13,18 Additional research is warranted to more fully understand the effects of using electronic medical records on health professional and patient behaviour.19

There is limited evidence regarding the influence of financial payment for intervention on the behaviour of providers20 or of reimbursing cessation services for the outcome they achieve. One article discussing the potential risks of adopting a 'payment by results'22 system suggests a number of issues and problems, including:

- that a certain proportion of smokers who try to stop would have managed to do so by themselves, so not every successful quitter from a service can be attributed to that service
- providers may ‘cherry-pick’ easy cases to maximise income
- the use of other evidence-based smoking cessation interventions that are extremely cost-effective may be discouraged and over-claiming of successes may be encouraged as there is no way of ensuring that smokers are truthful and there is an incentive on the practitioner to report success.

Suggestions for addressing these risks include providers only being paid for successes that are above a threshold that might be expected if no intervention were delivered and that providers be accredited before delivering services.21

There is evidence that the non-smoking status of the health professional positively influences their cessation intervention.21,22 General practitioners who smoke are less likely to ask patients about their smoking and provide cessation advice.24
7.10.1 General medical practices

About 85% of Australians visit a general practitioner (GP) at least once a year. This provides an excellent opportunity for promoting smoking cessation. GPs are seen as credible and authoritative on health issues, and their advice is seen as appropriate and acceptable. There is also good evidence that even very brief intervention can be effective in prompting quitting.

Time pressure makes it realistic for most GPs to spend only limited time with most smokers (i.e. a few minutes), which can be incorporated into routine consultations. One widely researched approach that enables this is called the ‘5As’ and has been the basis for recommendations for best practice in the US, UK and New Zealand. The Smoking Cessation Guidelines for Australian General Practice based on this approach were developed after extensive reviews of the evidence. The guidelines have been updated to incorporate new evidence.

The recommended procedure is:

1. **Ask.** The first step in helping smokers to quit is to identify them. A system for recording the current and previous smoking status of every client (except children) can help quitting by itself, as it signals to smokers that it is important, and almost doubles the rate of clinician intervention, and results in higher cessation. The system used needs to be integrated into the usual record keeping of the practice.

2. **Assess.** Assessing a smoker’s readiness to change is important. One framework for doing this is outlined in Section 7.6.1.1. Asking, ‘How do you feel about your smoking at the moment?’ will often be enough to begin such an assessment. For those considering quitting, it is also important to assess level of nicotine dependence. The most widely used approach is the Fagerström Test for Nicotine Dependence in either its full form or one of several shorter versions.

3. **Advise.** All smokers should be advised of the importance of quitting in a way that is clear, unambiguous, supportive and non-confrontational, for example: ‘Stopping smoking is the most important thing you can do to protect your health now and in the future’. GPs can link this advice to the individual health concerns of the client.

4. **Assist.** The assistance provided should be related to the smoker’s readiness to change. For example, concrete help to smokers interested in quitting might involve assistance by the GP if time and expertise permit, by other trained practice staff, or by referral to specialised assistance from the Quitline.

5. **Arrange follow-up.** Following up those who commit to making a quit attempt can help to keep them on track. A phone call or appointment after one week and one month can provide valuable encouragement, advice on relapse prevention, slip-ups or other issues encountered. The Quitline provides such ongoing support to all who want it. At future consultations, GPs should congratulate those who successfully quit and encourage those who have relapsed to try again, using the 5As process. For those not ready to quit, the issue of smoking needs to be raised regularly at future consultations.

The guidelines can be easily adapted for use by doctors in other settings such as specialist clinics or hospitals or by other health professions. In particular the approach is likely to be useful for:

- nurses and midwives, whether working in a community setting, hospital, medical or mental health service
- dentists and dental hygienists: smoking is a significant contributor to oral disease
- pharmacists and pharmacy assistants
- drug and alcohol workers: smoking is much more common among their clients, and contributes to poor health outcomes
- psychologists, especially if working in clinical settings
- physiotherapists and other allied health professionals.

The use of a stepped intervention is possible and effective in a range of clinical practice conditions, but the approach may be less likely to succeed in patients who are ambivalent or who have broader psychosocial problems and who may need more intensive support.

Despite the inclusion of the 5As in a number of national guidelines, their application in practice is not always complete. Factors associated with this include workload, perceived lack of remuneration, patients’ characteristics
and the smoking status of the GP. Few patients visit their doctor with smoking addiction as their main complaint and brief visits are taken up with other problems. Many clinics also do not have systems in place that can be used to efficiently apply the 5As in full, but there is some evidence that large healthcare settings can increase cessation interventions by building on an existing electronic health record platform. The combined use of self-auditing, feedback and education can improve GP management of smoking cessation. Suggested changes to clinical practice to improve tobacco treatment implementation in clinical settings include portraying proven treatments as best care, being ready to deliver the right treatment at the right time, fitting tobacco treatment into clinical team workflows and making every encounter with a patient an opportunity to intervene. The use of computer-based interventions alone or in combination with practitioner-delivered advice has been shown to assist the participation of general medical practices in tobacco control.

7.10.1.1

Role of GP practice nurses

Practice nurses are an addition to general practice settings in Australia. Relatively little is known about their attitudes and beliefs regarding smoking cessation intervention. One UK survey showed positive attitudes overall and highlighted the importance of training in increasing nurses’ enthusiasm about giving cessation advice and perceiving such advice to be effective. An Australian trial is in progress to evaluate the uptake and effectiveness of a flexible package of smoking cessation support provided primarily by practice nurses and tailored to meet the needs of diverse patients.

7.10.1.2

Community pharmacists

Pharmacies supply cessation products to a large number of customers and there are opportunities for providing sound advice and support. Pharmacies have potential as health promotion agencies as they are the most accessible healthcare services in the community and are visited by both healthy and sick people. Few published studies have assessed the efficacy, effectiveness or cost-effectiveness of pharmacies in smoking cessation. Those published do suggest that trained community pharmacists can deliver cessation interventions and help smokers to quit, and that a counselling and record-keeping program delivered in this setting can be effective. Pharmacist counselling involving more than one session, combined with NRT, can be effective but many participants do not complete follow-up sessions. While specialist-led group services appear to have higher quit rates than one-to-one services provided by pharmacies, the pharmacy services treat many more smokers and both are cost-effective.

Pharmacists report a number of barriers to providing cessation intervention, including fear of negative reaction from customers, their perception of a customer’s willingness to discuss smoking, the length of the relationship with the customer, perceived lack of demand and lack of confidence by the pharmacist.

Pharmacy assistants handle many of the smoking cessation enquiries in pharmacies and there are courses available to help them gain the expertise and skills needed to provide relevant and useful advice to help their customers in a quit attempt.

7.10.1.3

Community dental practices

Smoking is a significant contributor to oral disease, including cancer, and cessation is an important element of the treatment of periodontal diseases. Smoking prevention and cessation intervention by oral health professionals is effective, but there is insufficient evidence available to assess its cost-effectiveness or to adequately compare different forms of intervention.
Tobacco use prevention and cessation guidelines have been developed for dental settings. They involve a level of care model based on the 5As, with brief intervention, motivational interviewing and more intensive plans involving pharmacotherapy. However, implementation of such guidelines is poor. The most prevalent of the 5As activities are ‘asking’, ‘advising’ and ‘assessing’, with ‘assisting’ and ‘arranging’ being less frequent. Dentists are willing to receive training on smoking cessation interventions, and including training during an academic dental program increases the use of smoking cessation practices within the dental team.

Barriers to providing cessation interventions in dental settings include lack of time, financial considerations, concern about a patient’s interest and resistance and of losing patients, too little training, perceived lack of relevance and experience, lack of knowledge about where to refer the patient for further support and forgetting. Willingness to intervene is related to periodontal treatment and the presence of smoking-related disease. Some research does reveal a lack of knowledge of dental school faculty, staff and students on the negative health effects associated with smoking and lack of confidence in addressing smoking behaviour. Further research is needed to better understand the factors that affect guideline implementation and to find effective ways to influence those factors.

Dental hygienists see their patients regularly and there are opportunities for helping them to quit smoking. However, recommended smoking cessation interventions are not always provided, with hygienists reporting lack of comfort and confidence in addressing smoking with their patients.

Measures to promote the involvement of dental professionals in smoking prevention and cessation include increased education on the effects of smoking on oral health, brief intervention training, structured advice protocols and greater involvement by dentists, dental nurses and hygienists with patients without acute oral complaints.

7.10.1.4 Other health professional practices

There is limited research related to the efficacy and effectiveness of smoking cessation interventions in other health professional practices. Available information highlights interest in, and opportunities for increased and improved involvement by, many healthcare providers. One small study within podiatrist consultations, for example, showed that providing routine advice to smokers could be significantly improved within budgets and without prolonging clinics.

Smoking cessation intervention by optometrists is relevant given the association of smoking and eye diseases. Evidence suggests that optometrists currently provide limited cessation support for patients, with barriers to more active involvement being similar to other health professions. However, they do show interest in receiving training in brief intervention.

Cessation as a therapy goal in physiotherapy practices is consistent with the profession’s definition and aims to promote health and wellness. One review indicates that advice can be readily integrated into physical therapy practice and used to encourage and support smoking cessation. Lack of resources and time are key barriers. Therapists’ preparedness and self-efficacy regarding smoking cessation need to be increased.

7.10.1.5 Practitioners of alternative medicine

Practitioners of alternative medicine who incorporate smoking cessation into their treatments include hypnotherapists and acupuncturists. To date, there is no clear evidence to support the use of hypnotherapy, acupuncture or related treatments in their own right as quitting aids. Treatment may be more helpful when practitioners combine acupuncture or hypnotherapy with counselling or skills training. (See Section 7.18 for information on unproven remedies.)
7.10.2

Role of specialist medical and dental practice settings

Specialist medical and dental practices have an important role to play in smoking cessation interventions. For example, discussion of smoking by paediatricians with mothers can be effective in encouraging quitting attempts.\(^{85}\) Evidence suggests that progress in many relevant specialist areas is limited.

In patients with cardiovascular disease, the benefits of smoking cessation are extremely significant. Australian guidelines recommend that advice on smoking, nutrition, alcohol, physical activity and body weight should be part of routine management of hypertension for all patients, regardless of drug therapy. Smoking cessation is recommended to reduce overall cardiovascular risk.\(^{86}\) However, cardiac health professionals, including lipidologists and cardiologists, need to do more effective smoking prevention intervention for cardiovascular patients.\(^{87,88}\) Surveys assessing the knowledge, interest and attitudes of cardiologists regarding smoking cessation assistance to their patients highlight a lack of commitment to this preventive practice.\(^{89}\) Cardiologists do not always consider themselves the most appropriate person for intervention, but many do not refer smoking patients to cessation specialists or teams for assistance.\(^{89}\) Reasons for cessation being overlooked may include that the advent of effective high-tech interventions for cardiovascular diseases has drawn attention away from secondary prevention. Some professionals cite a lack of time or lack of training in smoking cessation counselling.\(^{90}\) Cardiac rehabilitation health professionals report finding it difficult to work with smokers directly due to the group situation and because patients often deny the dangers of smoking and are reluctant to discuss their smoking or relapse because of the stigma attached to smoking after a cardiac event. They also report feelings of frustration and failure and lack of confidence in dealing with this health issue.\(^{91}\)

When doctors provide simple, brief advice about quitting smoking, the likelihood that patients will quit and remain non-smokers 12 months later is increased. US data suggest that smoking cessation is more cost-effective than other preventive cardiology measures.\(^{90}\)

Other relevant settings where limited evidence indicates that there is a need and potential for brief cessation interventions to be more fully integrated in routine practice include gynaecological practice,\(^{92}\) paediatric practice,\(^{93,94}\) periodontal practice,\(^{95}\) plastic and reconstructive surgery\(^{96}\) and paediatric dental practice.\(^{97}\) Many of the findings stress the need for further research to highlight and address clinical barriers to providing cessation interventions and training to enhance specialists’ knowledge, skills and confidence.

7.10.3

Training health professionals

There is evidence that training clinicians in smoking cessation methods may increase cessation rates.\(^{1,20}\) Training health professionals increases the number of people identified as smokers and advised to quit, especially if prompts and reminders are used.\(^{98–101}\) Health professionals report that training increases their knowledge, skills and confidence and that they are more likely to practise smoking-related interventions.\(^{104,105,106}\) Research shows that medical students retain skills learned and increase and improve their involvement in cessation interventions.\(^{107–110}\) However the inclusion of standardised tobacco curricula in medical schools varies. Information from a number of countries indicates that part of the reason for doctors not being more actively involved in tobacco use treatment may lie with the lack of emphasis on tobacco in their medical school education.\(^{111–113}\) There is evidence of some increase in the extent of teaching on tobacco in medical schools worldwide over the last decade, but further improvement is required.\(^{111,114}\)

Most postgraduate health professional training programs incorporate the 5As approach, stage of change, motivational interviewing and pharmacotherapies and commonly refer to clinical practice guidelines.\(^{115}\) While face-to-face training is predominant, programs are also available online.\(^{115}\) There is a lack of evidence on what educational methods are the most effective in training.\(^{115}\) Not all practising health professionals access cessation intervention training; they report lack of interest, time pressures and competing priorities as major barriers. Overall, smoking cessation education programs for health professionals remain fairly ‘ad hoc’ and there is a lack of a systematic organised approach to ensure availability and consistency in most countries.\(^{115}\)
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The systematic, extensive and tailored program developed by Quit Victoria is an example of comprehensive, sustained, Australian health professional training for a range of settings. The program includes face-to-face training and e-learning modules that are accessed by health professionals from across Australia and internationally.

7.10.4
Referral to specialist smoking cessation services

Specialist smoking cessation services include telephone quitlines, cessation specialists within practices or healthcare centres, group quit courses and individual counsellors. Referral to specialist services is a way of addressing some of the barriers to intervention, including time constraints, reported by a wide range of health professionals. Brief cessation training and technical assistance increases referral by health providers to specialist smoking cessation services.

Clinical practice guidelines for smoking cessation intervention emphasise the utility, efficacy and reach of telephone quitlines. While relatively few smokers are connected to quitlines from faxed referrals, the process may reach populations who traditionally have less access to cessation support. There is evidence that GPs referring smokers to an evidence-based quitline service increases smoking cessation, mainly because referred patients receive more external help than patients receiving equivalent assistance within clinics. However, acceptance of opportunistic referral within a GP setting may be less acceptable to patients. There is some evidence that referral of surgical patients to a quitline for post-discharge help is acceptable to patients and inexpensive. Take-up rates improve when the quitline initiates the contact with the patient.

Few studies have examined ways to promote referral to quitlines by health professionals. One trial using a direct mail campaign to a range of health professionals increased their awareness of the service and future intention to use the referral process. Another project implemented a care coordination program that increased quitline referrals by providers.

7.10.5
Biomedical risk assessment

Giving smokers a biomedical risk assessment of their smoking is a possible strategy for increasing cessation rates. This involves demonstrating the effects of smoking (e.g. through measurement of lung function, exhaled carbon monoxide, arterial ultrasounds, lung cancer screening or genetic susceptibility to lung cancer). The quality of studies is mixed and there is little evidence about the effectiveness of most types of biomedical tests. The use of lung age feedback following lung function measurement has shown significant benefit particularly for patients with high lung age. However the approach may undermine motivation in smokers with normal lung age. Limited evidence shows that people who are referred to a physician because of an abnormal lung cancer screening report more smoking cessation. One trial currently underway is assessing the impact of communicating a risk of developing Crohn’s disease, a risk that is reduced by stopping smoking.

7.10.6
Healthcare services

There are many opportunities to implement smoking cessation interventions in hospitals with the potential for significant benefits to patients, including intervention with smoking parents when a child is admitted. Smokers may be more open to help and may find it easier to quit in a situation where smoking is restricted or prohibited. Despite a number of reviews of hospital studies there is an absence of clear evidence as to what is needed in areas of screening, methods of intervention, effectiveness among patient sub-groups, referral strategies, and translating

For further details see http://www.quit.org.au/resource-centre/training/training-for-health-professionals
research to practice.\textsuperscript{132,133} It is evident, however, that without the development of supportive systems, the use of routine effective cessation interventions by all healthcare services is unlikely.\textsuperscript{134}

7.10.6.1

Emergency department and in-patient care (includes role of hospital nurses)

The role of emergency departments (ED) in cessation intervention has received little attention, but has significant potential to encourage quit attempts.\textsuperscript{135} Tailored interventions in EDs can be effective in prompting initial quit attempts and ED patients are interested in quitting and in receiving support.\textsuperscript{135–138} High intensity behavioural interventions that start during a hospital stay and include follow-up support for at least a month are effective, regardless of the reason for being admitted to hospital.\textsuperscript{139} Adding NRT to the counselling may further increase cessation rates.\textsuperscript{140} Education programs can be successful for patients with cardiovascular disease\textsuperscript{141} and chronic obstructive pulmonary disease.\textsuperscript{142}

Nurses are the largest healthcare workforce and are involved in nearly all levels of hospital care. Guidelines for clinical care in some countries recommend that every nurse should consult their patients about smoking.\textsuperscript{143} Nurses can be effective in delivering tobacco cessation interventions, but lack of appropriate knowledge and/or skill presents a major problem for implementation.\textsuperscript{144} Advice and support from nursing staff increases the likelihood of quitting, with outcomes being less evident when interventions are brief and provided by nurses whose main role is not health promotion or smoking cessation. Limited evidence suggests that interventions by nurses are more effective with cardiovascular patients.\textsuperscript{145,146}

It may be possible to increase hospital smoking cessation delivery, particularly the provision of NRT, by using a multi-strategic intervention including education of health professionals.\textsuperscript{147,148} Further research is warranted.

7.10.6.2

Surgical care

Smoking causes a range of adverse surgical outcomes.\textsuperscript{149} (Link to Chapter 3.15.1) Even short-term smoking cessation prior to surgery may help reduce the risk of postoperative complications.\textsuperscript{149–153} Patients who smoke should be encouraged to stop smoking at least six to eight weeks before surgery. In the short term, smoking should not be permitted in the 12 hours before surgery.\textsuperscript{154}

Patients facing surgery are interested in quitting and believe their physicians have an important role in their cessation attempts.\textsuperscript{155,156} Smokers may benefit from an intensive cessation program one month before surgery, and it may help long-term cessation.\textsuperscript{157–160} However patients are not always well informed about the immediate benefits of quitting to their surgery outcomes.\textsuperscript{155}

Barriers to cessation intervention in surgical care include perceived lack of time for training and intervention and lack of knowledge about referral options such as to quitline services for patients.\textsuperscript{155} Clinicians also report lack of organisational support, perceived patient objection, lack of systems to identify smokers, perceived inability to change care practices, perceived lack of efficacy of interventions and the cost of providing care as barriers.\textsuperscript{161} Patients may not have enough pre-operative contact with the hospital to maximise smoking cessation intervention.\textsuperscript{162}

A number of small trials have examined ways to increase the efficacy and effectiveness of cessation intervention before and after surgery. Using computer-based assessment may increase the accuracy of assessing smoking status in pre-operative clinics and encourage cessation.\textsuperscript{163} Combining GP referral to surgery with referral to smoking cessation support increases cessation referral but there is a need for new strategies to promote cooperation between GPs and surgical departments.\textsuperscript{164} Clinicians are able to effectively facilitate the use of a quitline by surgical patients,\textsuperscript{163} and comprehensive interventions incorporating brief advice, counselling, self-help materials, NRT and referral support from a quitline are effective six months post-discharge.\textsuperscript{161}
7.10.6.3

Outpatient care

Outpatient settings offer important opportunities to provide cessation intervention and relapse prevention to smokers, particularly given the evidence that for hospital-initiated programs to be effective they need to continue post-discharge. Smoking cessation intervention by nurses in non-hospitalised patients has benefit,\textsuperscript{145} and programs during rehabilitation are effective\textsuperscript{164} and interventions offered by surgeons in outpatient clinics can be effective.\textsuperscript{165} Studies have found some effectiveness of telephone support following an intensive group program in hospital,\textsuperscript{166} of an interactive voice response system to continue support\textsuperscript{167} and of the continued use of NRT following discharge from hospital.\textsuperscript{168} One study found an internet program for smoking cessation during and after inpatient rehabilitation treatment to be effective.\textsuperscript{169}
References


Tobacco in Australia: Facts and Issues


Section: 7.10.6.3
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Smoking cessation and pregnancy

Stopping smoking before or during pregnancy is clearly an important and worthwhile goal, as smoking is one of the few potentially preventable factors associated with low birthweight, preterm birth and perinatal death. Women are more likely to quit smoking during pregnancy than at any other time of life as they are concerned not only about their own health, but also the health of their baby. They are also likely to experience higher levels of social and family support for quitting and they have greater contact with the healthcare system.

Health risks of smoking during pregnancy and the benefits of quitting

The harmful effects of smoking on the health of women and their babies are covered in Chapter 3, sections 3.7 and 3.9, Chapter 4, Section 4.11 and Chapter 9, Section 9.5. The benefits of quitting during pregnancy are outlined in Section 7.1.4.1.

Rates of smoking during pregnancy

In 2008, about 16% of Australian women smoked during pregnancy. See Chapter 1, Section 1.10. Evidence suggests that actual smoking rates during pregnancy may be higher than reported. False reporting of smoking may be higher among women considered lower risk (higher education level, income and use of prenatal care and lower drug use). Almost 73% of women who smoke in their first pregnancy will also smoke in their second and future pregnancies.

Smoking during pregnancy and social disadvantage

(See also Chapter 1, Section 1.10 and Chapter 9, Section 9.5)

Smoking during pregnancy is more common among women without partners, who have a low income and who are socially disadvantaged. Women who are less educated, women with a psychiatric disorder and women with Aboriginal or Torres Strait Islander backgrounds are more likely to smoke during pregnancy. Likelihood of smoking during pregnancy decreases with maternal age. Not attending prenatal classes and experiencing stressful events before or during pregnancy are associated with smoking. Women with a substance use disorder in pregnancy are more likely to smoke. Some women with characteristics consistent with the risk factors associated with smoking may be taking up smoking during pregnancy or in the early postpartum period.

Predictors of failure to quit during and post pregnancy

Around 20 to 30% of women quit after they become pregnant, but about half relapse within six months of their delivery, especially if their partner smokes or they live with other smokers. Within a year around 70% take up smoking again. Intention to smoke during pregnancy is linked to how positively a woman feels about her smoking, her perception of the opinion of others and her appraisal of how much control she has over her behaviour and how difficult or easy she sees quitting. Women who continue to smoke in pregnancy generally have a low income,
are not first-time mothers, do not have a partner, have low levels of social support, have limited education and are more likely to feel criticised by society.\textsuperscript{1}

Successful quitting has been linked to women understanding the health benefits to themselves and their baby, having their child’s health as a strong motivator, insisting on a smokefree home and environment, strong social support, changing their attitude to smoking from comfort to disgust and seeing quitting as a lifelong change.\textsuperscript{16,17}

Factors that predict relapse during and post pregnancy are similar to those linked to not quitting at all.\textsuperscript{18} Relapse often relates to the woman’s differing motivations when pregnant and after birth.\textsuperscript{19,20} For some pregnant women quitting is more a suspension of habit than a commitment for permanent change post birth.\textsuperscript{21}

Relapse is predicted by being highly addicted, depending heavily on cigarettes to manage stress, having insufficient resources for coping with childrearing, being exposed to secondhand smoke, having easy social access to cigarettes, having low self-esteem and having smoking-related weight concerns.\textsuperscript{17,22–24}

There are also psychological associations. Depressed women are more likely to smoke during pregnancy.\textsuperscript{1} Women who experience postpartum depressive symptoms may be more likely to relapse.\textsuperscript{25} High levels of stress and depressive symptoms may be related to taking up smoking during and post pregnancy.\textsuperscript{14}

### 7.11.4 Factors that must be addressed in reducing smoking during and post pregnancy

Understanding and addressing the factors that increase smoking relapse risk is critical. Health professionals have an important role in identifying women as being at high or low risk of relapse during pregnancy, at birth (hospital care) and in the early postpartum weeks (maternal and child healthcare) and tailoring support. This includes encouraging and supporting partners to be smokefree and establishing smokefree environments at home and around their children.\textsuperscript{26}

A greater understanding of gender relations and how tobacco use is integrated in spousal and parental roles may help in developing more effective approaches.\textsuperscript{27}

Addressing mental health factors such as maternal mood, stressful life events and postpartum depression may be important to successful smoking cessation during and post pregnancy.\textsuperscript{1,28} There is some evidence that maternal smoking during pregnancy predicts parenting stress in infancy.\textsuperscript{29} Further research is warranted into the relationship between depressive symptoms and smoking. Screening and treatment of these symptoms during pregnancy and postpartum is a possible method of reducing continued smoking, relapse and uptake for some women.\textsuperscript{14,25,28,30}

One study suggests that pregnant women with high levels of depressive symptoms may benefit from a depression-focused treatment in terms of improved smoking abstinence and depressive symptoms.\textsuperscript{31}

Further research is needed to develop suitable interventions for pregnant smokers with substance use disorders.\textsuperscript{13,32} They may have higher rates of smoking, be heavier smokers and be less likely to quit during pregnancy. Not quitting may be associated with depression, anxiety and lower self-worth in this group.\textsuperscript{33} Opioid-dependent pregnant women show a particularly high prevalence of smoking and are at greater risk for additional adverse health effects for themselves and their babies.\textsuperscript{34}

There is some evidence that smoking during pregnancy is related to having interpersonal difficulties, poorer adaptive functioning and engaging in problematic health behaviours.\textsuperscript{35} Understanding more about the behavioural factors that are associated with persistent smoking may inform the development of targeted interventions for a sub-group of women.

Concern about weight gain following cessation can be a barrier to successful quitting and should be addressed.\textsuperscript{36,24}

Several myths need to be discounted in informing women of the risks of smoking during pregnancy. The idea that nicotine withdrawal during smoking cessation is more stressful to the foetus than continued smoking is not supported by evidence and should not be given as advice.\textsuperscript{37,38}
Interventions for reducing smoking during and post pregnancy

Multifaceted smoking cessation interventions are effective at reducing the number of women who smoke while pregnant by approximately 6% overall.\(^1\)

Considerations when reviewing interventions for pregnant women include the limited data for some types of interventions and outcomes and variation in the quality of studies. Studies carried out in one setting may not be applicable in other contexts. Criticisms of cessation programs for pregnant women include lack of health promotion theory and knowledge, not taking into account the views of women and their caregivers and lack of process evaluation.\(^1\)

Current interventions are typically individually based approaches and include cognitive behaviour and motivational interviewing, advice based on stages of change, offering incentives, providing information about health effects of smoking and medications.\(^1\) Reasons for behavioural interventions not being as effective with some pregnant women are that the intervention itself cannot change the environmental factors that increase the risk of smoking. It also may be seen as judgmental, may alienate women and is unable to change generational patterns.\(^1\) Evidence does suggest, however, that there are no negative psychological impacts from behavioural interventions and women feel positive that 'someone cared'.\(^1\)

Research shows that brief (5–15 minutes) quitting advice from health professionals and counselling, combined with pregnancy tailored self-help material provided in the course of routine prenatal care, produces quit rates that are higher than those achieved with usual care.\(^3\) Smoking cessation programs in pregnancy appear to reduce smoking, low birthweight and preterm birth, but no effect has been detected for very low birthweight or perinatal mortality.\(^1\)

Studies suggest that tailoring advice to the individual is important and that the length of individual sessions may be influential.\(^8\) More intensive and comprehensive interventions reduce the odds of continued smoking.\(^6,41\) Providing a tailored women-held pregnancy record book may have some effect on quitting.\(^42\) In neonatal intensive care settings, there is evidence that interventions that support mother-infant bonding during a newborn's hospitalisation are associated with reduced rates of smoking relapse and prolonged duration of breastfeeding during the first eight weeks postpartum.\(^43\)

Many Australian quitlines provide support tailored for pregnant women through a free callback service. The support is available during pregnancy and postpartum. Pro-active telephone counselling is effective in increasing smoking cessation rates when used as a sole intervention or when complementing programs started in hospital. Repeated telephone support for up to 12 weeks is more effective than a single telephone counselling session.\(^44\) Pregnant and postpartum women are less likely to use telephone support if they have to initiate the contact.\(^45\)

Relapse prevention interventions during pregnancy and in the postpartum period are extremely important for maternal and child health. As discussed previously, smokefree home status is significantly associated with parents’ smoking status.\(^46\) There is a short-term increase in the proportion of smokefree homes following birth\(^47\) but it may be temporary. Comprehensive interventions that emphasise the effects of secondhand smoke on the family and encourage smokefree home environments, and that increase the motivation and confidence of family members to stay stopped, could reduce relapse rates.\(^22\) Studies examining interventions to encourage smokefree homes are limited. There is mixed evidence of the effectiveness of counselling, counselling plus other interventions such as written materials and telephone support, individually adapted smokefree home policies and postpartum lifestyle interventions.\(^40,48\)

Debate continues over smoking reduction in pregnancy. Australian guidelines state that the practice of ‘cutting down’ (sometimes called ‘harm reduction’) on the number or strength of cigarettes smoked is not supported by evidence that it provides any protection the foetus and is not recommended. Women should be informed of this and complete abstinence should be recommended and encouraged.\(^8\) There is evidence that to improve birthweight, consumption needs to be reduced to fewer than eight per day, with the greatest birthweight gains found if consumption is reduced from very early in pregnancy.\(^5\) Further research is warranted as to the effectiveness of encouraging reduction as a first goal for some women towards cessation in the longer term.
An approach that warrants further investigation involves applying a pre-conception counselling model, designed to reduce the risk of alcohol-exposed pregnancy, to smokers. Pharmacotherapy can be provided safely at this time. There is some evidence that structured physical activity may complement cessation support, however more trials are needed to confirm the efficacy of this approach. While incentives and competitions have not been shown to enhance long-term cessation rates, several controlled studies have shown promising results with pregnant smokers. Larger trials are in progress.

There is increasing interest in, but limited trials of, interventions focusing on the partners of pregnant women.

### 7.11.5.1 Role of nicotine replacement therapy

Nicotine replacement therapy (NRT) can be used by pregnant and breastfeeding mothers, however the risks and benefits should be explained by those providing the product and the clinician supervising the pregnancy should be consulted. Behaviour modification therapy should always be the first method tried for smoking cessation in pregnant women. NRT should be considered when a pregnant woman is otherwise unable to quit, and when the likelihood and benefits of cessation outweigh the risks of NRT and potential continued smoking. If NRT use is recommended, intermittent-use forms are preferred.

Data on the safety and efficacy of NRT during pregnancy are limited and inconsistent. Studies have shown a decreased risk for low birthweight and preterm delivery compared to continued smoking and NRT does not appear to increase the risk for malformations, but further information is needed.

The effectiveness of NRT for pregnant women is unclear, with trials varying in type of NRT and dosage used. There is evidence that pregnant women are reluctant to use NRT although one trial found they were supportive of being offered NRT as part of cessation advice.

### 7.11.5.2 Role of treating health professionals

Health professionals and healthcare settings are in an excellent position to take advantage of a pregnant woman's motivation to quit and they should encourage and assist both parents to stop smoking. The Cochrane review of interventions for promoting smoking cessation during pregnancy states that 'attention to smoking behaviour together with support for smoking cessation and relapse prevention needs to be as routine a part of antenatal care as the measurement of blood pressure'. This continues to be a key recommendation of guidelines for treating tobacco use and dependence.

If possible, interventions that provide information and services for smokers should be integrated into existing services dealing with sexual, reproductive and child health.

The most obvious point to initiate intervention is in early pregnancy, when women begin their contact with the midwife, GP or obstetrician and other health professionals who will monitor their pregnancy health, birth and postnatal care. Health professionals involved with pregnant women and their families at any stage of pregnancy and postpartum should educate them about the risks of smoking and secondhand smoke, ask about tobacco use and encourage and support their efforts to stop smoking.

These opportunities to intervene remain underutilised. Research suggests that the number of pregnant women being advised of the risks of smoking and given advice to stop by antenatal health professionals ranges from 40–60% of cases. Midwives tend to deliver interventions at a higher rate than doctors. A number of projects have demonstrated mixed results from midwife-initiated interventions.

While asking about smoking status during consultations and encouraging and supporting quitting is part of national guidelines in a number of countries, including Australia, some health professionals continue to find...
discussion of smoking behaviour with pregnant women difficult. Studies suggest a number of common issues relating to the effective delivery of interventions to stop smoking in pregnancy and following childbirth.

Pregnant women are still not routinely asked about their smoking by each of their health professionals. Reasons given include concerns about damaging the relationship with the pregnant woman, time constraints and differences between professional groups.

Pregnant women report some dissatisfaction with what is provided to them and the clarity of the advice. The advice and recommendations given by health professionals vary regarding the offer of cessation counselling, self-help materials, information about NRT and referral to other specialist services. Some advice is contradictory, particularly regarding the recommendation of quitting smoking versus cutting down. The manner in which information is provided is important and may affect a woman’s willingness to consider stopping smoking.

Other barriers to effective interventions by health professionals include self-perceptions of limited skills and knowledge about smoking cessation; lack of time, staffing and educational materials; and pessimism about the effectiveness of what they do provide. Record-keeping practices are inconsistent. Implementing clinic systems designed to increase the assessment and documentation of tobacco use almost doubles the rate at which clinicians intervene with their patients who smoke and results in higher rates of smoking cessation.

Given the time and resource constraints on most health professionals and antenatal services, the brief intervention '5As' approach discussed in Section 7.10 is a workable, minimal approach for these settings. It has been implemented in a number of antenatal services locally and statewide and is an integral part of the National Smokefree Pregnancy Project in Australia. The approach entails integrating a record of 5As interventions into medical records of pregnancy as part of routine practice, training health workers, raising the issues in early consultations, providing printed information on smoking and pregnancy, reviewing quitting intentions and discussing action at each subsequent consultation. In the antenatal setting, there is opportunity for following up with women who initially may be unsure about quitting or not ready, to encourage further change. Because women who conceal their smoking may be those considered at lower risk, health professionals need to follow up or they may go undetected.

Intervention should provide positive, non-judgemental encouragement to quit, which addresses women’s concerns about stopping smoking, with referral to the Quitline or other services able to provide tailored support for pregnant women. Partner smoking status can also be addressed and referral to extra support provided to encourage them to quit as well.

7.11.5.3

Specialist smoking cessation services for pregnant women

There is limited research focusing on the use of specialist smoking cessation services and courses (apart from quitline services) for pregnant women. A specialised service or course may be more likely to understand the needs of pregnant women who continue to smoke, but referral to such services from antenatal health professionals is an issue. Major barriers to pregnant women accessing such services and courses include problems with transport and childcare for other children, lack of time and a disbelief that they would help. Offering flexible home visits and providing intensive multisession treatment delivered by well-trained staff can be beneficial.
References


Section: 7.11.5.3

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Chapter 7: Smoking cessation

7.12

Smoking and mental health

Mental illness is a diagnosis that involves a large degree of judgement that is strongly influenced by social, political and cultural values. The lack of consensus on classification and diagnosis in psychiatry and the fact that a large proportion of people with mental illness are not hospitalised and do not receive specialist care has important implications for research in this area, including research attempting to estimate the prevalence of smoking among different patient groups. One Australian review of the literature on smoking and mental illness suggests that much of the research in this area is limited in scope and quality and conclusions that can be drawn are broad and directionnal rather than specific and prescriptive.

One way to describe different types of mental illness is to divide them into those that occur infrequently in the community (low prevalence) and those that are more common (high prevalence). Low prevalence mental illnesses include psychotic disorders, the most common of which is schizophrenia (47% of all cases of psychotic illness). Twelve-month prevalence of psychotic disorders is estimated to be 4.5 cases per 1000 of the population. High prevalence mental illnesses include anxiety (14% prevalence in the last year) and affective disorders including depression (6% prevalence in the last year).

The Australian National Survey of Mental Health and Wellbeing (2007) found a 12-month prevalence of any disorder of 20% of Australians aged 16–85 and a lifetime prevalence of 45%. Anxiety disorders were responsible for 14.4%, affective (mood) disorders for 6.2% and substance use disorders for 5.1% of the total.

The physical health of people with mental illness is, in general, worse than that of people without mental illness. Mental disorders are more common among people with diabetes, asthma, heart disease, stroke, cancer and arthritis than among those without them (28% compared with 18%). People with serious mental illness have higher than average rates of cardiovascular disease and lung cancer and those with schizophrenia have higher than normal rates of chronic obstructive lung disease.

7.12.1

Excess smoking rates among those who report mental health problems

People living with mental illness have been considered as a priority group because their smoking rates are higher than those of the general population. They include a significant percentage of the smokers in the community.

In Australia, between 35% and 40% of adult smokers have a mental health disorder and it is estimated that more than 42% of all cigarettes are smoked by people with mental illness. One Australian study of people living with psychotic disorders found that 73% of males and 56% of females were smokers, with 50% smoking 20 or more cigarettes per day. Smoking rates appear to be higher than those of the general population for people with panic disorder, post traumatic stress disorder (PTSD), agoraphobia and major depression, although the relationship may be less clear for PTSD as some studies appear to have drawn predominantly on sub-populations where smoking is common. There is evidence that the association between poor mental health and smoking in young women is bidirectional.

Data from the 1997 and 2007 Australian National Survey of Mental Health and Wellbeing indicate that affective disorders and psychological distress are more common among smokers than non-smokers and the prevalence of these disorders did not appear to change in smokers between the years.

The evidence regarding the relationship between smoking and anxiety disorder is mixed with some data indicating that current smokers have twice the prevalence of anxiety disorders than never smokers in Australia. Adults with anxiety disorders appear to be over-represented among smokers, are less likely to stop daily smoking and on average smoke for longer, exposing them to greater risk of tobacco-related harm. US studies among people with anxiety disorders indicate that smoking rates range from 31.5% for people with social phobia to 54.6% for people with generalised anxiety disorder.
International data also show high smoking rates among those with mental illness. US studies\textsuperscript{22,23} estimated that nicotine-dependent individuals with a comorbid psychiatric disorder made up 7.1% of the population yet consumed 34.2% of all cigarettes. A European study found that smokers consumed more antidepressant drugs and tranquilisers than non-smokers.\textsuperscript{24} Another study in the US found that adults with serious psychological distress were more likely to be current smokers and to smoke heavily, and less likely to quit than those without serious psychological distress.\textsuperscript{25} Limited data suggest that smoking appears highly prevalent among adolescents with diagnoses of mental illness.\textsuperscript{26} One international review of 42 studies in 20 nations found an average smoking prevalence among people with schizophrenia of 62%.\textsuperscript{27} but several issues regarding this review have been highlighted in a more recent literature review.\textsuperscript{1}

Among smokers in the general Australian population the average number of cigarettes smoked has been reported as 14.7 cigarettes per day.\textsuperscript{4} Among smokers with severe mental illness, studies indicate average daily smoking of 30.4 cigarettes, with a range of 5–80 per day.\textsuperscript{28,29} Heavy smoking and high nicotine dependence levels have been found among smokers with schizophrenia,\textsuperscript{30} with some evidence that they demonstrate more intense cigarette puffing, which is associated with greater nicotine intake.\textsuperscript{31} Evidence suggests that major depression may be a risk factor for progression of nicotine dependence as measured by reduction in the time to first cigarette after waking.\textsuperscript{32}

Poverty is often a further consequence of smoking, with those living on welfare benefits spending up to a third of their income on cigarettes. As a result they have little for food, recreation, transport, clothing or healthcare.\textsuperscript{33,34}

Tobacco use also complicates psychiatric treatment. Components in tobacco smoke accelerate the metabolism of some antidepressant and antipsychotic medications, resulting in lowered blood levels and probably reduced therapeutic benefit.\textsuperscript{35} Studies have revealed higher hospitalisation rates, higher medication doses and more severe psychiatric symptoms among patients with schizophrenia who smoke than among those who do not. Though the mechanism is unclear, tobacco use, including adolescent smoking, appears to be one of the predictors of future suicidal behaviour.\textsuperscript{1,26,35,36}

For further information on smoking, ill-health, financial stress and smoking-related poverty among people with a mental illness see Chapter 9, Section 9.6.4.

\subsection*{7.12.2}
\textbf{Smoking prevalence over time among those with mental health problems}

There is little data available on smoking prevalence over time for people with mental health problems. There have been substantial declines in general population smoking rates over the last 20 years\textsuperscript{37} and the Australian Bureau of Statistics Survey of Mental Health indicates smoking has declined roughly equally between 1997 and 2007 among those who have and those who have not suffered mental health problems over the past year.\textsuperscript{38} However, the second survey of Australians suffering serious psychotic illness conducted in 2010 (12 years after the first survey in 1997–98) found no reduction in the prevalence of smoking among this population.\textsuperscript{1}

\subsection*{7.12.3}
\textbf{Why those with mental health problems smoke more}

People with mental illness use tobacco for the same reasons as the general population. However they have some of these risk factors to a greater degree compared to the general population as well as additional factors that contribute to the higher prevalence of smoking. These include:

\begin{itemize}
\item the historical and environmental context: many mental health institutions had and continue to have a strong smoking culture and have at best condoned and at worst encouraged smoking, with cigarettes used by staff to build rapport, calm, reward or punish clients\textsuperscript{1,36,39,40}
\item for patients with schizophrenia, self-medication to relieve cognitive or negative symptoms of the illness or to relieve side effects of medication\textsuperscript{40}
\end{itemize}
Chapter 7: Smoking cessation

Section 7.12.4

Barriers to be overcome when quitting

Barriers to quitting for those with mental health problems include misperceptions regarding the safety of stopping smoking, levels of nicotine dependence and withdrawal, degree of participation in programs, perceptions that those with mental illness are not motivated to quit, socio-economic factors and systematic barriers to quitting in mental healthcare settings.
One of the barriers to quitting for people with mental health problems appears to be a belief within mental health settings that quitting smoking interferes with recovery from mental illness, eliminates a coping strategy and leads to decompensation in mental health functioning. While some studies have shown that some symptoms of psychiatric disorders may be exacerbated by nicotine withdrawal, quitting does not seem to generally worsen mental illness. Evidence has been accumulating that both smoking reduction and abstinence among people with stable mental illness does not adversely affect psychiatric functioning. There is evidence that smoking cessation does not exacerbate depression, anxiety or PTSD symptoms or lead to psychiatric hospitalisation or increased use of alcohol or illicit drugs. Lifetime history of major depression does not appear to be an independent risk factor for failure in smoking cessation treatment. A number of studies have found that smoking cessation improved depression and anxiety symptoms and positive and negative symptoms. One Australian study also found that quitting was not reliably associated with the precipitation or exacerbation of depression and that quitting smoking actually improved mood among both depressed and non-depressed clients. There is also some evidence that smoking cessation might be beneficial for some suicide prevention efforts.

Another barrier is related to the commonly held false belief that people with mental illness do not want to quit and therefore are not offered encouragement and support to do so. Smokers with mental health disorders are motivated to quit smoking, although those with psychotic disorders may be less motivated than those with depression. Studies involving patients recruited from outpatient and inpatient psychiatric settings suggest that they are about as likely as the general population to want to quit smoking. In British surveys, around half of smokers with mental illness have expressed an interest in quitting when asked. In the US, 20–25% of smokers report that they intend to quit smoking in the next 30 days, and another 40% say they intend to do so in the next six months. One Victorian study of consumers at a psychiatric disability rehabilitation and support service found that while smoking rates were almost four times higher than the general population, interest in quitting and cutting down was also high.

Data showing heavy smoking rates indicate that nicotine dependence in this group is high (see Section 7.12.1). Level of dependence is a factor that predicts likelihood of successful quitting (see Section 7.7.2.2). Major depression appears to be a risk factor for progression of nicotine dependence as measured by reduction in the time to first cigarette.

Nicotine withdrawal may be more difficult for people with schizophrenia. While fewer studies have examined this area, it appears that any difficulties associated with smoking cessation are not related to increased psychotic symptoms. There is evidence that smokers with current mood disorders and anxiety disorders are more likely to experience tobacco withdrawal symptoms and withdrawal-related symptoms or relapse.

Limited evidence suggests that smokers with attention deficit hyperactivity disorder (ADHD), and ADHD females in particular, experience greater withdrawal severity during early abstinence, independent of effects on ADHD symptoms and that smoking abstinence affects impulsive behaviour. There is some evidence that acutely administered Ritalin®, a drug commonly prescribed for behavioural problems associated with ADHD, increases smoking for ADHD smokers.

There is some evidence that those with personality disorders are more likely to prematurely drop out of a psychological treatment program for smoking cessation.

One Australian study of smoking behaviours among institutionalised psychiatric populations found systematic barriers to quitting, including cigarettes being the currency by which economic, social and political exchange took place and complex processes of reinforcement to smoke. Once entered into, escape from the smoking culture of the settings appeared to be extremely difficult for clients and staff.

People with psychotic illness report a range of symptoms, some of which are associated with other mental disorders, such as depression and anxiety. Some of these symptoms may be associated with difficulties in working through a quit attempt or accessing support to quit for this group. For example, there is evidence that depressed mood and poor concentration are frequently associated with psychotic illness, with an Australian national survey reporting that one-quarter of people currently report each of these symptoms (26.4%, 24.5% and 23.4% respectively). Most people (90.4%) reported deterioration of functioning after illness onset. Nearly one-quarter (22.4%) of people reported feeling socially isolated and lonely. Two-thirds (68.6%) had not attended any social programs and a similar proportion (69.4%) had not attended any recreational activities. Just over half (56.4%) of people with psychotic illness reported receiving no or minimal support from any source.
7.12.5

Interventions for reducing smoking for those with a mental health problem

Many smokers with mental health want to quit smoking. One study of former smokers with serious mental illness found that their reasons for quitting were health concerns (73%), cost (71%), advice from a doctor (54%) and advice from others (64%). The main methods the participants cited as enabling them to quit were social support from family and friends (58%), direction from a doctor (46%), use of NRT (31%) and the advice of friend who had quit (23%).

Interventions do need to take into account issues concerning safety of quitting for people with mental illness. The body of evidence regarding quitting and symptom exacerbation allays safety concerns but the risk of this occurring implies symptoms should be monitored during cessation, especially for people with a history of depression and anxiety. Smokers also need higher doses of some antipsychotic medications, and so levels may need to be adjusted after cutting down or quitting. Potential interactions of bupropion and NRT with current medication also need to be considered. There is limited and conflicting evidence regarding the relationship between antipsychotic medication and cigarette smoking, with some researchers questioning suggestions that first-generation antipsychotics may increase smoking and decrease the ability to stop, while second-generation psychotics have the opposite effect.

There is evidence that smoking cessation treatments can benefit adults with mental health problems. For example, with a stepped-care intervention tailored to depressed smokers' readiness to quit, a 25% abstinence rate at 18-month follow-up was achieved—a rate significantly higher than that in the group that received usual care (advice to quit and referrals for help doing so) and similar to cessation rates in the general population. However, progress in the development of cessation treatments for people with mental health problems has been slow, in part because smokers with a current mental health and addictive disorder have been excluded from most smoking cessation trials. Recommended treatments for tobacco dependence in smokers with mental illness reflect those for the general population and include clinician advice to quit and referral, individual and group counselling, use of quitlines and appropriate quitting medications.

There is some evidence that more flexible, open-ended, combination approaches of pharmacotherapy and counselling may be more successful for those with a mental health problem and that the number of sessions attended increases likelihood of success. Given the evidence that current mood disorder and anxiety disorder is related to increased withdrawal symptoms, this group may benefit from longer and/or more intensive treatment to help them to cope. Some findings suggest that information on recent or lifetime psychiatric disorders may help clinicians gauge risk of relapse and suggest dependence motives that are particularly relevant to patients.

A pilot study of people with psychiatric disorders in Western Australia showed that, as with the general population, heavily dependent smokers have less success in quitting, unaided cessation rates are low and more intensive intervention achieves somewhat higher success, so long as symptoms are controlled. In a larger study of smokers with mental illness in New South Wales, participants received eight-weekly individual counselling sessions and extended access to NRT. Nineteen per cent of those who attended all sessions were abstinent at 12 months, compared to 7% of a comparison group who received self-help materials and usual care. The four-year follow-up of the study indicated that smokers with a psychotic disorder are capable of long-term change in their smoking, and that although continuous abstinence is rare, lengthy periods are not uncommon. This study suggests that longer, more flexible interventions are needed that address the fluctuating course of smoking cessation for this group.

Another Australian tailored group program intervention for people living with mental illness found at 12 months that 21.3% of those who attended at least 10 sessions reported they were not smoking, cigarette consumption among those who did not quit had significantly decreased and motivation to quit was high, with 83.9% wanting to try again.
Inpatients with mental health disorders appear to be no less motivated to stop smoking than those without mental health disorders and their use of NRT during hospitalisation is similar. This study concluded that the low provision of post-discharge NRT may have contributed to the poor cessation outcomes.

There is evidence, from a small study of community-based interventions made up of quitline counselling and NRT and a group-based intervention, that a combination of both can be effective in reducing tobacco use and improving health and mental health functioning.

Monetary incentives may be a useful approach for promoting short-term cessation in adult smokers with ADHD, although the evidence is limited. Limited evidence suggests that, along with other strategies, ADHD medication may be used to aid smoking withdrawal and cessation in smokers with ADHD.

Some researchers have suggested that individuals with post traumatic stress disorder (PTSD) and other psychopathology may have unique motivations for quitting smoking that could be usefully explored within smoking cessation programs. One study found that among smokers with military-related PTSD, integrating smoking cessation treatment into mental healthcare compared with referral to specialised cessation treatment resulted in greater prolonged abstinence.

While the research is extremely limited, there is some evidence that motivational interviewing may be a useful cessation intervention for adolescents with disorders such as depression and anxiety.

SANE Victoria and Quit SA, in collaboration with the Tobacco and Mental Illness project in South Australia, have each developed resources to help long-term psychiatric clients to quit, and resources for carers and mental health workers to use as well as a group program for smoking cessation. Similar programs have been run in other states. All state and territory Quitline services adhere to protocols for tailoring assistance to callers with mental illness. As well as training Quitline counsellors in the special issues for people with mental illness, they coordinate intervention with the person’s healthcare professionals.

### 7.12.5.1

**Cessation assistance for those with low prevalence severe mental illnesses**

Low prevalence mental illnesses include schizophrenia, other psychotic disorders and bipolar disorder. Low prevalence disorders are more likely to be considered severe mental illness. While people with severe mental illness smoke at greater rates and are more nicotine dependent than people in the general population, they are motivated to quit smoking. An Australian survey found that just over one-quarter (27.3%) of people living with psychotic illness and currently smoking had never tried to stop, however 31% had made an effort to stop smoking within the past year.

A proportion of people with severe mental illness do quit smoking sometimes without support or intervention. There is some evidence that treatments that work in the general population also work for those with severe mental illness and appear approximately equally effective, however one review found that there are few studies focusing on cessation for those with severe mental illness. Recommendations for treatment from limited studies include increasing and prolonging the treatment period, using a combination of psycho-education and cognitive–behavioural techniques and any drug treatment that helps to control and/or reduce relapse and the occurrence of baseline psychiatric symptoms.

One pilot study indicated that electronic decision supports may facilitate motivation to quit smoking and use of cessation treatment among people with severe mental illness. A four-year follow-up of an Australian intervention trial for regular smokers with psychotic disorder recommends that clinicians address and monitor smoking during treatment of people with psychosis, emphasising potential lifestyle and harm reduction benefits with a view to eventual smoking cessation. Another study suggests that smoking cessation interventions for patients following a first psychotic episode should consider sex differences and comorbidity with alcohol and cannabis use. There is a lack of evidence regarding smoking cessation interventions focused on smokers with bipolar disorder.
Schizophrenia

Rates of cessation for smokers with schizophrenia are half those for the general population, partly because of their lower motivation to quit, fewer cessation attempts, increased level of nicotine dependence and reduced access to treatments. Evidence shows, however, that increased rates of cessation occur with combinations of medication, psychosocial interventions and integration of treatment into overall care plans to reduce the risk of relapse. Nicotine replacement therapy (NRT) is effective, although less than in the general population, and combination NRT and bupropion are effective in abstinence and reduction. Evidence from studies focusing on smokers with schizophrenia suggests that bupropion increases abstinence rates without jeopardising their mental state and may also reduce the amount these patients smoke. The evidence regarding other pharmacological therapies and psychosocial approaches is limited with one study suggesting that in patients with schizophrenia, smoking status should be included in the assessment of agitation and NRT included in the treatment of those who are smokers.

One small investigation demonstrated that use of varenicline may lessen abstinence-induced adverse outcomes and appeared to be well-tolerated in smokers with schizophrenia. Specialised group therapy plus NRT appears to be effective and antipsychotics may improve abstinence with such treatment. Patients should be monitored to avoid adverse medication interactions and to monitor antipsychotic medication in particular as cigarette consumption reduces. Cigarette smoking can have a clinically significant impact on the metabolism of some medications: in particular it increases the metabolism of some commonly used antipsychotic medications such as olanzapine, clozapine, haloperidol and amitriptyline and so clients taking such medications should be advised to monitor for increased medication side effects following smoking cessation in consultation with their doctor.

There is some evidence that contingent reinforcement with money may also help, although it is uncertain whether the benefits are maintained long term.

Research that may help to increase knowledge and understanding of smoking and cessation for patients with schizophrenia includes investigating the effect of dopamine partial agonists on nicotine dependency, investigating the relationship between nicotine and schizophrenia-associated cognitive deficits, evaluating task persistence as a contributing factor to difficulty quitting smoking and investigating ways to extinguish the reactivity to smoke caused by personalised smoking environments in smokers with schizophrenia.

A key factor is providing smokers with schizophrenia the same opportunities as smokers in the general population to try to quit, to enable them to benefit from the self-efficacy aspects of attempt experiences, medication monitoring and peer and caregiver support.

7.12.6

Role of health professionals and health settings

The impact of smoking on the health of their patients is often overlooked by medical and mental health professionals. Smoking is often not investigated or recorded as a standard part of psychiatric assessment, and inclusion of smoking cessation in treatment planning is inconsistent. This may be partly due to the beliefs held by some mental health workers that smoking is one of the few pleasures clients have, that smoking is thought to be a way to decrease stress and relax, that those with mental illness are not motivated to quit, or that smoking is perceived as having remote effects and is the lowest priority concern for patients with acute psychiatric symptoms.

One Australian survey of nurse managers in psychiatric settings suggests that though there is strong support for the provision of nicotine dependence treatment, this support appears qualified by perceived patient readiness to quit and that care may be being provided selectively rather than systematically. An earlier survey of mental health nurses highlighted a strong smoking reinforcement environment. Another survey found that nurses who smoked were less likely to agree that healthcare facilities should promote a healthy environment. Participants, particularly those who smoked, supported the individual’s right to smoke. Nurses believed they had appropriate skills to deliver the anti-smoking message effectively. Those nurses who smoked perceived that their smoking status assisted in facilitating interactions with consumers.

International evidence suggests that support for inpatient smokers by staff is likely to be severely compromised by low levels of knowledge and awareness of tobacco dependence. Studies suggest that nurses and clinicians who
smoke are less likely to encourage their clients to stop smoking and that clinicians believe that motivation is the most important determinant of successful quitting. US research found that mental healthcare community-based providers who were health professionals rather than paraprofessionals and who had greater confidence and more experience working in the mental health field were more likely to engage their clients in tobacco-related interventions.

As with other health professionals, mental health workers should routinely offer people with mental illness advice and support to quit using the 5As framework. Given that many of their clients are highly dependent, and are more likely to mix with peers who smoke, more intensive interventions should always be considered if possible. This might involve NRT or other pharmacological help to assist quitting, plus referral to a group program tailored to the needs of people living with mental illness, other specialised individual counselling or the Quitline. The integration of cessation treatment into existing care by health professionals results in greater engagement, greater use of cessation pharmacotherapy and increased likelihood of abstinence.

An important part of providing smoking cessation support for those with mental health disorders is for mental health services to develop policy on relevant aspects of tobacco, covering smokefree environments, collecting information about smoking status and quitting intentions on admission, including cessation in care plans where appropriate, and continuing support on discharge. Such a comprehensive approach requires leadership from management, staff training and a consistent approach across services. An audit of the prevalence of recorded nicotine dependence treatment in an Australian psychiatric hospital found that the setting did not conform to current clinical practice guidelines, despite nicotine dependence being the most commonly diagnosed psychiatric disorder. Documentation of smoking status most frequently occurred on the admission form (28.8%) and the diagnoses summary (41.6%). Documentation of nicotine dependence was not found in any record, and recording of any nicotine dependence treatment was negligible. The rate of recorded smoking status on discharge summaries was 6%. Another Australian study of public psychiatric inpatient units found reports of instances of inpatients beginning to smoke during their admission (36%) and staff providing cigarettes to patients to smoke when patients’ supply was expended (39%). The study found that only 50% of respondents reported that all patients were assessed for smoking status and that there was a positive relationship between staff adhering to smoking restrictions and assessing smoking status of patients. The study suggests that failure of psychiatric services to provide smoking care is systematic and not related to particular types of services.

Complex factors appear to shape tobacco-control practices in the mental health field, and evidence highlights the need to see practice change as a matter that extends beyond the individual. One Australian survey of mental health workers found that many believe it is important to address tobacco use with their patients as part of routine care, but that significant changes to policy and practice within mental health services are required. Some psychiatric services have become smokefree and there is evidence that hospitalisation in a smokefree environment is associated with increases in patients’ expectancies about quitting and staying a non-smoker, and on cigarette consumption.

Psychiatric hospitals in the US that voluntarily adopted such bans have documented little-to-no disturbance in patients’ behaviour and time savings for staff members. There is evidence from smoking bans in inpatient wards in the US that consumers require community support to maintain the smoking cessation achieved while hospitalised. One study found that 76% of smokers discharged after a period of psychiatric hospitalisation in a smokefree ward returned to smoking on the day of discharge and 100% returned to smoking within three months. However 48% of smokers were abstinent for 24 hours and these smokers were almost seven times more likely to make a subsequent quit attempt. The concern expressed in this study was that more community support was needed to help patients remain smokefree.

There is a critical need to engage healthcare providers, policy-makers and mental health advocates in the effort to increase access to:

- evidence-based tobacco treatment for smokers with mental health disorders
- smokefree environments for mental health treatment
- training for clinicians in cessation treatment
- systems for routinely identifying patients who smoke, advising cessation and providing treatment or referral.
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Section: 7.12.7

7.12.7

Smoking and depression

Depressive (or affective or mood) disorders are the second most common type of mental illness to affect Australians and have been classified as the number one cause of disability worldwide.\(^{126}\) Depression is characterized by two or more weeks of symptoms that can include lowered mood, loss of pleasure and interest in activities, reduced self-esteem and self-confidence, inability to concentrate, disturbed sleep and appetite and thoughts of self-harm. Depression differs from unhappiness by its severity, persistence, duration and feature of lowered mood.\(^{126}\)

7.12.7.1 Excess smoking rates among those who report depression and excess depression among smokers

Relatively few studies have assessed the difference in smoking rates between depressed and non-depressed populations. A 2008 review\(^1\) concluded that smoking is generally more common in people with depression than in the general population, with the increase in prevalence over the general population likely to be moderate. Instead, research has tended to document increased rates of depression among smokers compared to nonsmokers. In Australia, experience of a depressive disorder within the last 12 months is nearly three times more common among current smokers compared to never smokers (12% vs 4.5%).\(^{127}\) Lifetime rates of major depressive disorder (MDD) among smokers seeking face-to-face treatment of nicotine dependence have been quoted as being between 22% and 61% compared to 17% in the general population.\(^{128}\) Compared to non-smokers, smokers report more depressive symptoms, more frequent and severe episodes of depression, and higher rates of both suicidal ideation and suicide.\(^{16}\)

7.12.7.2

The impact of depression on quitting

Smokers with a history of major depressive disorder (MDD) tend to smoke more and report higher levels of nicotine dependence,\(^{129,130}\) and experience more severe and prolonged nicotine withdrawal episodes, including greater dysphoria and negative mood.\(^{131,132}\) Depression is also related to psychosocial characteristics that make it more difficult to stop smoking, for example, lower self-esteem and self-efficacy for quitting, and greater likelihood of unemployment, poorer social support networks and poorer physical health.\(^{133}\) Despite this, meta-analyses suggest that a lifetime history of MDD, in itself, does not predict failure to quit smoking.\(^{56,134}\) However, depressive symptoms and reports of current depression among those seeking smoking cessation treatment are associated with lower abstinence rates\(^{128,135}\) and among smokers with MDD history, those who experience increased depressive symptoms during a quit attempt are more likely to fail.\(^{128}\) It is encouraging that lifetime quit rates for individuals with a history of MDD have been reported as high as 38% in US representative samples, compared to 42% for people who had never had a mental illness\(^22\) which suggests that people with depression are almost just as likely to quit for good.

7.12.7.3

The impact of quitting on depressive symptoms

The question of whether smoking cessation exacerbates or improves depressive symptoms is an important clinical issue. People with a history of depression (compared to those with no history of depression) are more likely to experience future episodes of depression, but whether smoking cessation increases the risk of depressive relapse is not clear. Several studies have suggested that stopping smoking does increase the likelihood of recurrence of major depressive disorder (MDD) among those with a past history of depression,\(^ {15,136}\) however others have found no such association.\(^ {54,57,58,137–139}\) A 2007 review\(^ {40}\) of seven studies, all randomised controlled trials of medication versus placebo for smoking cessation which made post-hoc comparisons of the incidence of MDD in abstinent versus non-abstinent smokers, was unable to draw a definitive conclusion due to significant methodological limitations of the studies, namely failure to control for other variables that could have affected both smoking cessation and depression outcomes eg age, sex, severity and type of past MDD.
Studies that have examined the pattern of change in depressive symptoms within individuals (rather than between groups of individuals) overcome some of the methodological limitations. Two such studies of smokers receiving smoking cessation treatment found significant heterogeneity in individuals’ depressive symptoms following quitting with some people reporting improvements, and others deterioration, in mood. Notably, both studies found that smoking abstinence was associated with improved mood. Another Australian study in a quitline setting also found that quitting smoking improved mood among both depressed and non-depressed clients.

In their 2008 review Ragg & Ahmed concluded that it is likely that some people will find that their mood improves with quitting while others will find that it deteriorates following quitting. They stated that the population risk of developing depression after quitting is uncertain but is probably either unchanged or changed only slightly and recommended that people with a history of depression be encouraged to quit, as the risk of continuing to smoke is far greater than any possible risk of quitting, and recommended that smokers with a history of depression who attempt to quit be monitored by their doctor.

7.12.7.4

Effectiveness of interventions for reducing smoking for those with depression

Progress in the development of cessation treatments for people with mental health problems has been slow in part because smokers with a current mental health and addictive disorder have been excluded from most smoking cessation trials. Recommended treatments for tobacco dependence in smokers with mental illness reflect those for the general population and include clinician advice to quit and referral, individual and group counselling, use of quitlines, and appropriate quitting medications. A systematic review of eight randomised controlled trials of psychological and/or pharmacological smoking cessation treatments with people with severe mental illness concluded that treatments that work in the general population also work for those with mental illness and appear approximately equally effective.

Gierisch et al., (2010) conducted a systematic review of randomised controlled trials that tested smoking cessation interventions for smokers with depression. Only 16 trials were identified, encompassing 1756 smokers with depression. Only three trials included smokers with current depression and so the findings best apply to smokers with a history of depression. Meta-analysis found a small, positive effect for adding mood management counselling to smoking cessation interventions. Meta-analysis did not find support for anti-depressants, but the authors conceded that they were underpowered to detect differences. In the general population there exists considerable evidence for the effectiveness of both bupropion and nortriptyline in reducing smokers’ cravings and increasing cessation success. Trials of NRT were too varied to be analysed quantitatively but the findings suggested support for the use of NRT with depressed smokers. The authors concluded that more research with smokers with depression, especially current depression, is required. Hall et al (2009) have conducted research with currently depressed smokers including a stepped-care intervention tailored to depressed smokers’ readiness to quit, and achieved a 25% abstinence rate at 18-month follow-up—a rate significantly higher than that in the group that received usual care (advice to quit and referrals for help doing so) and similar to cessation rates in the general population.

7.12.7.5

Cessation assistance for those with depression

Given the high rates of depression among smokers (e.g. one in four smokers who called the California Smokers Helpline met criteria for current depression, cessation services should be able to routinely tailor their service for smokers with a history of depression. Integrated cognitive behavioural treatments for smoking cessation and depression can help increase smokers’ awareness of the extent to which they use cigarettes to control their mood. They can also build smokers’ confidence to manage their mood while quitting by encouraging them to try (and ideally institute as lifestyle changes) strategies that simultaneously target smoking cessation and mood, eg. relaxation, exercise, scheduling pleasant activities, mindfulness. In addition, integrated treatment can provide smokers with tools to monitor their mood which can be especially useful during withdrawal where symptoms can sometimes mimic depression. Collaborative care with the smoker’s doctor is also strongly recommended as
this allows for prescription of medications that dually act to aid smoking cessation and alleviate depression as well as advice regarding nicotine replacement therapies, monitoring of depressive symptoms throughout the quit attempt, and where necessary adjustment of medications affected by smoking cessation. An uncontrolled trial of quitline-doctor co-management of smoking cessation and depression found it workable, valued by smokers and that it increased the probability of quit attempts among currently depressed smokers. In this case co-management was initiated either by fax-referral to Quitline by a doctor or by Quitline identifying a client with depression and sending them a fax-referral form to take to their doctor.

For further information on smoking, ill-health, financial stress and smoking-related poverty among people with a mental illness see Chapter 9, Section 9.6.4.
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Cessation assistance: self-help

There are many types of self-help materials that deliver behavioural methods of quitting. These include brochures, books, videotapes, CDs, audiotapes, reactive telephone lines and internet-based information. Cessation interventions delivered by generic self-help materials (stand alone or in combination with other support) marginally increase abstinence rates relative to no intervention. There is little evidence that using multiple types of self-help without any interactive support significantly enhances cessation outcomes. Personalised materials may be more effective than standard materials. Self-help materials do have the potential to reach more people than through more intensive approaches.

Printed materials

Providing smokers with information on the harmful effects of smoking and methods of quitting has been a basic approach for over 20 years. In Australia currently the most widely distributed resource is the booklet Quit Because You Can (often called the ‘Quit Book’), written by Quit Victoria with Commonwealth funding. In 2010, 335,000 copies were printed for state and territory use. The content is evidence based and covers issues on preparing to quit through to coping with setbacks after quitting. The Quit Book was evaluated in 1997 as part of the National Tobacco Campaign. Of those who received it after calling the Quitline, 100% found it easy to understand (very or somewhat), 95% found it helpful, and 93% said they would recommend it to friends. This booklet has been regularly updated since 1997 and was redeveloped in 2007.

An additional resource, Choosing the Best Way to Quit, was also developed in 2007 and provides an overview of evidence-based information on quitting. The booklet is designed to help smokers choose the most effective approach to quitting, which suits their individual needs. It recommends that for most people the best way to quit is to:

- get some coaching (from the Quitline, Quit Pack, group courses, the Internet or individual counselling), and
- use quitting medications (NRT or prescribed medications).

Evidence suggests these two forms of help have additive benefits.

These two resources form the central part of a pack of free print materials sent to Quitline callers on request. The Quit Book is also distributed through a range of health professional settings. Supplementary print materials can also be included in the ‘Quit Pack’ to tailor information to Quitline caller needs. Examples include specific information for women, parents, adolescents, people living with illnesses such as diabetes, asthma, or mental illness, and people wanting to help a family member or friend who smokes. Information is available on nicotine replacement products or other quitting medications and on other aspects of quitting, smoking and health. Some print resources are available in a range of languages other than English. A Victorian survey in 2010 found that 44% of respondents who received a Quit Pack had read it all, 81% had read at least half, 82% found it somewhat or very easy to understand, relevant and helpful and 94% would recommend it to friends or family members.

There is some evidence that distributing a self-help cessation intervention (Quit Kit) at a national level may be successful in terms of uptake, triggering quit attempts and helping cessation.

Other self-help print materials are available, produced by a range of independent non-profit organisations and those with a commercial interest. The quality of the information these self-help materials contain varies from the excellent to the inadequate and misleading, and care needs to be taken in their selection and use. In most cases (but not all) the research base for the resource is limited, and so any claims (especially excessive claims) for success should be treated sceptically unless they are fully validated.
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Section: 7.13.2

Internet-based resources: not tailored or interactive

Many internet sites have been established to help smokers quit. As with other areas, they vary in quality and credibility from those that are comprehensive and well researched to sites set up by tobacco manufacturers. There is a scarcity of good research and evaluation to establish their effectiveness. There is some evidence that people using the Internet for smoking cessation information often do not link to research-based sites, which may reduce the potential impact of the Internet as an effective cessation tool.

A major advantage of the Internet over printed material is the potential for interactivity and tailoring information to individual needs.

Many state and territory based Quit organisations in Australia have their own websites, as does the Commonwealth Department of Health and Ageing (www.quitnow.info.au, which links to Quit organisations). Some non-government tobacco-control groups also have a strong internet presence including sections dedicated to cessation. Manufacturers of smoking cessation products often have internet sites to inform and support the users of their products; these sites may also provide general quitting information.

Another potential opportunity provided by the Internet is to target specific groups such as young people, who are mostly very familiar with information technology. OxyGen (www.OxyGen.org.au) is an Australian tobacco education website that aims to inform young people about smoking. It is a tri-state initiative of Quit Victoria, Quit South Australia and the Smarter than Smoking Program in Western Australia. The most recent redevelopment was funded by the Department of Health and Ageing.

Sites such as YouTube may provide opportunities for disseminating cessation information. Limited findings highlight the need for videos containing evidence-based practices and for further research to determine whether such videos influence knowledge, attitudes and behaviour regarding quitting smoking.

Section: 7.13.3

Other electronic resources

Some small projects have focused on the acceptability of using computerised smoking awareness education in health settings tailored to cultural backgrounds and literacy levels.
References


7.14 Cessation assistance: high reach, tailored or interactive

7.14.1 Quitlines and callback services

The Quitline is a specialised telephone information and counselling service for people interested in smoking cessation. Quitlines have become a core smoking cessation resource in many countries. They can be effective in helping smokers quit, can help smokers access the most appropriate assistance, can provide one-off or extended support, can be tailored, and are accessible and low cost for the callers. Cessation counselling provided via Australian quitlines involves providing evidence-based information in a single call (reactive) as well as repeated calls from trained counsellors (proactive).

A comprehensive review of telephone counselling services throughout the world concluded that multiple sessions were more effective than single sessions. Some studies show that offering free nicotine replacement therapy (NRT) and proactive quitline support results in higher quit rates and similar costs. Research continues as to the efficacy and cost-effectiveness of reactive versus proactive services and on the benefit of providing NRT in addition to counselling. Further research is needed to guide future directions for quitlines, particularly in areas of quality control, cost-efficiency, linkage with web-based interventions and emerging communication technologies, integration with healthcare systems and pharmacotherapy and encouraging and responding to more smokers and a wider range of smokers.

In Australia each state and territory funds the service within its own jurisdiction. All of the quitlines have a common telephone number (13 7848 – 13 QUIT). Administrative arrangements for the service vary from state to state: some operate from within the state alcohol and drug treatment services and others are based in non-government health organisations contracted to provide the service. All services operate to an agreed set of national minimum standards for such things as the range of services provided, response times for calls, data collection, and the training and qualifications of counsellors. There are also agreed protocols for supporting callers with special needs, such as pregnant smokers, those with mental illness, young people and those from Aboriginal and culturally and linguistically diverse communities. From the beginning of July 2009 to the end of June 2011 there were 185 800 calls to the Quitline throughout Australia.

A significant advantage of the Quitline is that it provides equity of access in regard to income, different languages and location. For the price of a local landline telephone call, Quitline provides access to confidential advice, support, courses, self-help resources and telephone counselling for smokers who want to quit. All calls to the Quitline are answered 24 hours a day. In some states and territories counsellors are available 24 hours a day, while in others they are available during the day and evenings, and will return calls to out-of-hours callers during counselling hours. The qualifications and experience of Quitline counsellors ensure that they understand smoking cessation issues and methods and can deliver a supportive and non-judgemental service consistent with national standards and protocols. They must be non- or ex-smokers and usually have tertiary qualifications in psychology, counselling or related fields, followed by induction training in smoking cessation issues and methods, with regular updates. Counsellors systematically record information on smoking history and previous quit attempts. They encourage smokers to set a quit date, and to maximise success by considering evidence-based methods as well as their individual preferences and past history of quitting. They assist callers to deal with issues such as withdrawal symptoms. Callers are encouraged to participate in a program of callbacks.

The effectiveness of the Australian Quitline service has been evaluated in several studies including in 1997/98, after its first year of national promotion as part of the National Tobacco Campaign. Callers rated the Quitline positively: 97% said it was either very or somewhat friendly, 86% helpful, and 82% said they would recommend it to friends. When callers were followed up for 12 months, 29% were found to be quit (point prevalence) although only 6% had been continuously quit over that time.
Evaluations of the South Australian and Victorian services show that in South Australia, 88% of the callers sampled had made a quit attempt since their initial call to the Quitline. Of those who had made a quit attempt, 38% were ‘stopped’ (had ceased smoking) at six-month follow-up. At the 12-month follow up, 96% said they had made a quit attempt, and 38% were stopped at the time of interview. Assuming that those who could not be contacted for follow-up were all smokers, the conservative quit rate estimate would be 20%. In the 2010 Victorian evaluation, 81% of callers were very satisfied and 15% somewhat satisfied with the service received from an advisor; 95% of callers said they would recommend the service to a friend and 89% said they would use the service again in the future if necessary. It is probable that these relatively high rates of cessation reflect the value of the Quitline’s assistance, but callers are also likely to be more motivated and prepared than other smokers.

An important aspect of the Quitline operation is the proactive callback service. Callers who are intending to quit are encouraged to participate in the program, with the aim of increasing the success rate and reducing relapse over a period of about 12 weeks from the quit date. Once a smoker sets a quit date, a quitline counsellor calls at agreed times to provide information, assistance to deal with barriers, and generally provide encouragement and practical support. Calls are typically scheduled closer together soon after the quit date and then are more widely spaced as the client progresses towards maintenance of their new non-smoker status.

Evaluation of the South Australian callback service at 12-month follow-up showed a higher point prevalence quit rate (47%) than callers who chose not to have the callback service (37%). A similar pattern was found in Victoria, where the benefit was found to be predominantly due to relapse prevention. The findings from these evaluations are in line with a comprehensive review of proactive telephone counselling, which found that it significantly improved quitting outcomes.

The Quitline has also developed a variety of programs for special purposes, varying from state to state and year to year depending on needs and funding. Examples include programs for people living with mental illness (especially depression), prisoners, pregnant women and partners, and cancer patients.

### 7.14.2

**Internet, emails, phone messages, other electronic**

Internet-based programs have the potential to reach large numbers of smokers at relatively low cost and provide great flexibility for time of use. Although smokers may still be slightly less likely to use the Internet than non-smokers, they do have a high level of interest in web-based cessation information and support and find it an acceptable method.

A good example of a site designed to tailor information to individual needs is the Quit Coach (www.quitcoach.org.au). This is a tailored, internet-delivered smoking cessation advice program supported by Quit Victoria and available as part of the websites of Quit Victoria and the Commonwealth’s National Tobacco Campaign. It has been developed to appeal to smokers interested in quitting who do not want the direct personal contact of the Quitline. In order to tailor information to individual smokers, users begin by answering a series of questions about their smoking and quitting experience, background information, self-efficacy, pros and cons of smoking, habitual smoking situations, and stage of change. This information is used to provide relevant advice to support smokers through the process of quitting. Although the internet version has not yet been fully evaluated, the content was developed from an earlier automated system of generating letters that were mailed to smokers after an initial call to the Quitline. That system was found to increase cessation outcomes, especially by preventing relapse.

Most users of the Quit Coach use it to make a quit attempt and, for those who continue to use the Quit Coach, to help them stay quit. However the majority of users only visit the site once. The site successfully targets people who are moderately addicted, with users being more likely to be female and younger than smokers in general and quitline callers.

There is increasing research being conducted as to the effectiveness of web-based smoking cessation interventions. The evidence is inconsistent, but does suggest that the use of interactive quitting tools on a website is related to increased cessation, especially if information is more personalised, intensive and appropriately tailored and users are frequently contacted. There is weaker association between cessation and one-to-one messaging with other members of the on-line community. Evidence suggests that the degree of user engagement with the program
affects the outcome and that engagement is influenced by where the message comes from, how tailored it is and the timing.  

The content, quality and usability of cessation websites vary greatly. Some programs are intensive and provide a number of different contacts to users, and others are more static. Many websites sell cessation-related products but do not provide evidence-based treatment. Smoking cessation videos can be found on YouTube but a minority of these are evidence-based and more research is needed to understand the utility of YouTube as a cessation resource. Cessation websites have improved since they started to appear but common issues include lack of adherence to evidence-based tobacco treatment guidelines, inaccurate information about pharmacotherapy and sites not taking full advantage of the interactive and tailoring capabilities of the Internet. Some programs combine internet (email, web pages) and mobile phone (interactive voice responses, text/SMS) technology, with promising results. Other approaches include using a personal digital assistant (PDA) or an individualised hand-held computer delivered treatment (CDT) to help maintain cessation following a quit attempt, with further research being needed. This is an emerging area of research and more studies are warranted into the effectiveness of web-based cessation interventions. One review has identified a number of current methodological issues and suggestions for future research, including isolating the specific effect of the web and of the content of particular web-based programs, small sample sizes, lack of information about participants, lack of comparison with no treatment groups, lack of control for NRT use, high loss to follow-up and lack of information about missing data. Future issues to be addressed include developing strategies to overcome barriers to use and encourage repeated use, finding methods of promoting web-based programs to a wider range of smokers and developing research to understand how to maximise the interactive capabilities of the Internet. One study is evaluating the effect of having healthcare providers refer patients to an interactive cessation website by providing the smoker's email. This enables the delivery of automated emails that provide cessation information and encourage the patient to use the website. Another has suggested that increasing understanding of the persuasive features of web-based behaviour change interventions may help to improve the engagement of users.

Rapidly developing mobile phone technologies, for example mobile phone text messaging/SMS, video messaging and iPhone applications, offer opportunities to engage with smokers wanting to quit, particularly younger adults. The evidence as to the effect of SMS and video messaging on long-term cessation is inconsistent, however some short-term results are positive. More rigorous studies are warranted. There is evidence that current iPhone apps for smoking cessation have rarely been developed around evidence-based practices, and usually do not adhere to established guidelines.

### 7.14.3 Recruiting smokers to high-efficacy, low-cost services

The overall impact of smoking cessation interventions in reducing smoking prevalence is a product of reach and efficacy. Use of support services such as the Quitline continues to be low relative to their potential. Strategies that recruit more smokers to high-efficacy, low-cost services are needed.

Demand for these services is largely a function of how much they are promoted. Mass media campaigns can effectively promote evidence-based quitlines. In Australia, the national Quitline number was promoted through all National Tobacco Campaign advertising beginning in 1997, including on the end frame of campaign television advertisements. From the onset of the advertising, a causal relationship between campaign television advertising and quitline calls was apparent. See Chapter 14 for further information on social marketing campaigns. Campaigns may also promote web-based programs or encourage smokers to use SMS to access support. For example, use of the Quit Coach is related to anti-smoking advertising and there is potential for it to be promoted further as a resource for those who have already quit and those who are uncertain.

Placement of the Quitline number on cigarette packaging is another promotional method that increases awareness of the service and increases the proportion of new callers.

Direct telemarketing of the Quitline service in Australia to smokers has also been trialled with some success. A study in New South Wales found that such cold calling was acceptable to many smokers, especially if it offered
subsidised nicotine replacement products as well as the current range of services. There is evidence that this approach can increase the proportion of smokers using quitline support at a reasonable cost and recruit smokers currently under-represented in quitline populations, and that proactive telephone counselling of cold-called smokers initially increases cessation.

Understanding and addressing the barriers to use of the Quitline by smokers may help to more effectively develop strategies to increase calls, however, more research is warranted to address this issue. Barriers to using services include lack of knowledge about the service, people preferring to quit without support and a belief that the service would not be helpful to them personally.

Enhancing referral links between health professionals, healthcare systems and the quitlines may increase the use of proactive telephone support by smokers. However, some evidence suggests that the actual enrolment rates into quitline services from faxed referrals is low. There is some evidence that a pay-for-performance program increases referral to quitline services.

Quitlines offer population access to cessation support, but very few also offer pharmacotherapy. Some studies have found that the addition of free NRT to a quitline is a cost-effective strategy that increases calls and may increase cessation rates.

Many people search for smoking cessation information online. Online advertising has potential to increase access to evidence-based web and quitline support. Research suggests that compared to traditional recruitment approaches such as billboards, television and radio advertisements, outdoor advertising, direct mail and health professional referral, online advertisements recruits a higher percentage of males, young adults, minority groups, those with lower education levels and more highly addicted smokers.
References


Cessation assistance: low reach, intensive

Smokers who are motivated may seek help from more intensive cessation support, such as individual counselling or group courses. More intensive cessation support may be relevant for particular sub-groups of smokers. Cost can be a major factor affecting the utilisation of intensive cessation assistance.¹

7.15.1

Group quit courses and cessation clinics

Group programs represent a significant increase in intensity from self-help and internet interventions. Evidence shows that group therapy is no more effective than a similar intensity of individual counselling but is better than self-help. There is limited evidence that attending more sessions and adding other forms of treatment, such as nicotine replacement therapy (NRT), adds extra benefit.² Courses that include strategies to increase cognitive and behavioural skills and avoid relapse appear to be more effective.³

In recent years there has been a decline in demand for group courses, possibly due to a greater range of quitting methods becoming available. One difficulty faced by group courses is ensuring they are accessible to people in rural and regional areas, and that they are conducted regularly so they are available at times when smokers are motivated to quit. They are more costly to run compared to other, less intense interventions. Despite these issues they have a role to play, such as for those who have particular needs or who have tried other methods and failed.

Quit organisations in Australia most commonly conduct the Fresh Start cessation course or variants of it. The courses are run in many settings, such as workplaces, prisons, the community and health centres. The group course is led by an experienced educator, and typically has eight sessions of 60–90 minutes over a four-week period. The course is designed for smokers who want to quit, cut down or learn to manage their smoking.

Participants may be required to pay to take part, depending on the setting. The early sessions cover understanding smoking and quitting, planning to quit and methods. Participants are encouraged to then set a quit date. Subsequent sessions support participants through making a quit attempt, dealing with withdrawal, problem solving for situations where tempted to smoke, lapses, and other issues in becoming a non-smoker. To help overcome the barrier of difficulty attending eight sessions, the Fresh Start Short Course was developed by Quit Victoria. It includes the same content as the longer Fresh Start course, but run in two sessions of three hours duration. Sessions are 2–3 weeks apart, with Quitline support between sessions.

Evaluation of the Fresh Start courses has found quit rates at one year of 23% (18% of the original sample).⁴ Evidence shows that such multi-session group programs are about twice as effective as self-help alone.³ However there have been relatively few trials that compare such programs with other forms of help. This may be partly because groups take considerable time and effort, while other, less demanding methods are now much more readily available and popular.

Group cessation courses have been offered by other commercial and community organisations. As a rule, these have not been well evaluated, so it is difficult to comment on their effectiveness. Programs claiming novel methods should be treated with caution until proven to work.

7.15.2

Workplace-based interventions

The workplace has the potential to reach large numbers of smokers to encourage smoking cessation. Studies show that workplace interventions for individual smokers, including groups, individual counselling and NRT, increase cessation rates compared to no treatment or minimal intervention. Self-help materials are less effective, as are programs applied to the workplace as a whole.⁵ These results are consistent with other settings. There is limited evidence that participation in workplace programs can be increased by competitions and incentives but lack of evidence regarding their cost-effectiveness.⁶
### 7.15.3 Peer support

The research into the effectiveness of peer or social support in assisting quitting is limited and the area itself is complex. In this context assistance ranges from general support to those trying to quit from friends, family and colleagues to more structured social support. Researchers have looked at both structural and functional aspects of support. Structural support is the existence of family/friends and other social networks and functional support deals with the quality of those relationships. Another relevant element to cessation is the smoking behaviour within an individual’s social environment. Most research has focused on the possible influences of the smoking behaviour of family and friends and of the quality of support provided by family and friends. The results are inconsistent with a wide range of variables affecting outcomes. There is some evidence that non-smokers are very willing to seek help for smokers.

Focusing on the support of another individual or 'buddy' may be more practical and effective. Some limited studies have found that use of a 'buddy' can help people quit, but the findings are again inconsistent. A pilot study of a workplace-based website offering training to employees to encourage smokers to quit and to use effective methods found the approach feasible and well accepted.

Internet-based social support groups can connect widely dispersed groups of people trying to quit smoking, are highly accessible and involve little cost. However, there is very limited research into this use of web-based support. One small study of the role of peer email support as part of a college smoking cessation website did show positive outcomes in terms of abstinence and reduction of smoking. Another study of an online cessation support group found that peer responses to new users were rapid and therefore may be beneficial to smokers needing immediate support and suggested that the approach may be helpful for relapse prevention.

Further good quality research is required to establish the effect of peer support on cessation especially as most interventions for smokers recommend its use.

### 7.15.4 Individual counselling

The number of people seeking individual counselling for smoking cessation has always been low. A review of the evidence on individual counselling concludes that it is more effective than minimal behavioural intervention, although the evidence available to date is insufficient to show that more intense counselling is superior to brief counselling. There is little evidence about the relative effectiveness of different psychological approaches.

More sessions or longer sessions may improve quit rates, but the rates seem to plateau after 90 minutes or total counselling time. Helpful components of counselling include problem solving to help develop a plan and overcome barriers to quitting and providing social support as part of treatment. Combining counselling with quitting medications is more effective than either component alone. Motivational interviewing is a directive, patient-centred style of counselling designed to help people to explore and resolve ambivalence about behaviour change. It forms the basis of cessation assistance in some individual counselling. The evidence suggests that motivational interviewing may assist smokers to quit compared to brief advice or usual care, and is effective when delivered by primary care physicians in sessions longer than 20 minutes.

### 7.15.5 Residential treatments

There are very few residential treatment centres for smoking cessation and very limited research as to their effectiveness and cost-effectiveness. Residential treatment may have an impact on psychosocial factors such as perceived stress, partner support and self-efficacy, all of which are associated with successful cessation. There is some evidence that residential treatment increases the likelihood of cessation at six months compared to outpatient treatment for those with higher nicotine dependence.
References


Pharmacotherapies

The development and introduction of drug therapies has provided much-needed assistance for those trying to quit, particularly for more dependent smokers. A substantial body of research has demonstrated the effectiveness of such therapies for increasing smoking abstinence rates, at least in the short term.\(^1,2\)

First-line treatments for smoking cessation include nicotine replacement therapy (NRT), bupropion and varenicline. NRT, bupropion and varenicline all provide therapeutic effects in assisting with smoking cessation.\(^3,4\)

Few studies have been published directly comparing the effectiveness of available drug therapies.\(^5\) A number of pharmacotherapies have been or are being studied for their effectiveness in smoking cessation.\(^2,6–8\)

Five forms of NRT are available in Australia: chewing gum, transdermal (skin) patch, lozenge, mini lozenge, inhaler and sublingual tablet. Nicotine nasal spray is available in other countries, but not permitted for sale in Australia. The gum and lozenge come in 4 mg and 2 mg doses, while the inhaler and tablet come in the 2 mg dose only. Sets of patches come in three sizes: the 24-hour patch has dosages of 21 mg, 14 mg and 7 mg, and the 16-hour patch has dosages of 15 mg, 10 mg and 5 mg. Nicotine chewing gum first became available on prescription in Australia in 1984, followed by the patch in 1993.\(^3\) The 2 mg gum became available over-the-counter without prescription in pharmacies in 1988, and the 4 mg gum and patches in late 1997.\(^10,11\) The nicotine inhaler, lozenges and sublingual tablets were introduced as over-the-counter products in 1999, 2002 and 2003 respectively.\(^12–14\) In 2005, NRT products started to appear in supermarkets. Direct advertising to the public of NRT began in 1998, which markedly increased sales.\(^11,15\) Nicotine patches were listed on the Repatriation Pharmaceutical Benefits Schedule in August 1994 and December 1995 and then made available under the Pharmaceutical Benefits Scheme for Indigenous smokers from 2009.\(^16,17\) Availability was extended to all smokers in January 2011—see Section 7.16.1.6 for further details on products listed.\(^18\)

Bupropion (Zyban SR\(^*\) and Prexaton \(^*\)) and varenicline (Champix\(^*\)) are scheduled S4 in Australia so that they are available only on prescription.\(^1\)

As of February 2012, the dispensed price for subsidised medicines was $5.80 for pensioners and beneficiaries and $35.40 for other patients.\(^11\)

Choice of pharmacotherapy should take into account potential adverse effects as well as benefits.\(^2\) When pharmacotherapy combinations or dosages beyond those contained in consumer product information are used, medical supervision is necessary.

Surveys in the US, UK, Canada and Australia show that the self-reported use of any stop smoking medication has increased significantly over the 2000s. The most-used medication is NRT, with use of varenicline increasing significantly. Greater use of any medication is related to being female, white, and having a higher education level.\(^19,20\)

Figure 7.16.1 shows the annual total number of prescriptions for each of the available anti-smoking medications and in total in Australia from 2001 to 2011. There is evidence that the majority of smokers using stop-smoking medications do not complete the recommended eight weeks of treatment.\(^21\) Reasons for premature

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discontinuation of medication include relapse back to smoking, reported side effects and the perception that the medication has worked for the user and is no longer needed. Smokers may have unreasonable expectations of how effective stop-smoking medications are likely to be for them.

7.16.1 Nicotine replacement therapy

Nicotine is the drug in tobacco that causes addiction, and is released from tobacco when it is smoked, chewed or sucked. It is the decrease in nicotine levels that is mainly responsible for withdrawal symptoms after stopping smoking. Nicotine replacement therapy (NRT) replaces some of the nicotine in the blood previously obtained from cigarettes, but without the many thousands of other chemicals produced when tobacco is smoked, which are largely responsible for tobacco-related disease. Hence NRT has been thought of as ‘clean nicotine’.

NRT products are either sustained dosing formulations or acute dosing formulations. There are different advantages and disadvantages associated with each form of NRT. Nicotine patches, the most popular choice, are simple to use and the compliance rate tends to be higher than other NRT products. However, patches deliver nicotine more slowly than other products and may not adequately protect against increased cravings from smoking-related stimuli. Users of the oral products (or acute dosing forms) have greater control over the amount and timing of the dose, and these products are better suited to respond to sudden increases in cravings. However, some users only use acute NRT in response to cravings, and under-dosing is a common problem with the use of these products.

Nicotine delivered via a mouth spray (not available in Australia) is absorbed faster than nicotine delivered via gum or lozenge. Small pilot studies have indicated interest from smokers in the use of nicotine-containing products to reduce the harmfullness of smoking.

7.16.1.1 Mechanisms and pharmacokinetics of NRT

At least three main mechanisms of action by which NRT may assist smoking cessation have been proposed, although evidence for them is not conclusive. First, NRT decreases the intensity of cravings and withdrawal symptoms, enabling people to better function while dealing with the social and psychological aspects of their dependence. NRT does not completely eliminate all withdrawal symptoms because the available delivery systems do not replicate the rapid and high levels of nicotine that result from smoking a cigarette. Second, it may reduce the reinforcing effects of tobacco-delivered nicotine. Third, it may provide some of the effects for which the smoker previously relied on cigarettes, such as sustaining desirable mood, coping with stressful situations and maintaining concentration. The nicotine inhaler is designed to mimic the hand-to-mouth ritual of smoking.

7.16.1.2 Combination therapy

In 2006, the Therapeutic Goods Administration (TGA) approved combination therapy for the concurrent use of the 15 mg 16-hour patch with 2 mg gum. Evidence suggests combination therapy is better than the use of a single product alone. Precisely how smokers benefit from combination therapy is not clear. Factors may include a higher percentage of nicotine substitution, better relief of cravings by having constant levels of nicotine from the patch plus faster acting ‘rescue’ medication for sudden intense cravings, and the sensory effects of different types of products. Trials have also shown benefit from combining the nicotine patch and lozenge.
7.16.1.3  
**Efficacy and effectiveness of NRT**

The benefit of NRT has been proven in both efficacy and effectiveness studies.\(^3\) Research indicates that NRT increases the rate of long-term quitting by 50–70%,\(^2\) although trials with industry funding tend to show higher success rates than those independently funded.\(^3\) Studies with long-term follow-up have found that the impact of a single course of NRT persists over time, with NRT users about twice as likely to not be smoking four years later than those who quit without using NRT.\(^7\) NRT works with or without additional counselling, however counselling does further increase the odds of success.\(^3\) Smokers making self-initiated quit attempts without formal behavioural support have lower long-term success rates, but the relative effect of NRT is similar to other settings, offering significant improvement over unaided quitting.\(^5\) All forms of NRT appear to be about as effective as each other, but research is limited on some products.\(^5\) Some evidence suggests that dosage and speed of delivery has an impact on outcomes.\(^5\) The nicotine nasal spray may be slightly more effective than the standard dose patch or the short-term gum.\(^3\) Alternative delivery systems of NRT designed to improve effectiveness are being investigated.\(^4\)

The 4 mg nicotine lozenge appears to reduce the weight gain that may occur after quitting but does not have a lasting effect beyond its use.\(^3\)\(^5\)

The manufacturer’s recommended period of use for NRT products varies between eight and 16 weeks, often with provision for a gradual reduction of dosage levels to avoid withdrawal effects at the end of the period.\(^5\) However, research indicates that eight weeks of patch use is as effective as longer courses, and there is no evidence that tapered therapy is better than simply stopping after using the higher dose.\(^3\) Highly dependent smokers who still have cravings and withdrawal symptoms eight weeks after quitting may benefit from longer use.\(^7\)\(^5\)\(^5\)\(^5\) Short courses of NRT, for example four weeks, may not be effective in the long term.\(^5\) Continued use of NRT and tobacco during a lapse or relapse does not appear harmful and could enhance quitting outcomes.\(^5\)

The widespread availability and promotion of NRT products has led to increased use, however there are concerns that use of the products in the community appears to be more haphazard and less effective than among participants in research trials. A study in New South Wales found that more than 40% of people who had used NRT in their most recent quit attempt had no instruction from a doctor or pharmacist on how to use the product, 61% used it for less than two weeks, and in about one-third, use was concurrent with smoking.\(^2\) Research suggests that many smokers are misinformed about the health risks of NRT, which makes them less likely to use the product or use it correctly.\(^7\)\(^4\)\(^6\) Smokers tend to use less than the recommended dose or not complete the full course of treatment.\(^7\)\(^5\)\(^5\) Treatment adherence has been found to significantly increase abstinence rates.\(^7\) Approaches to increase smokers’ willingness to use, and correct use of, NRT include addressing their expectations of its effectiveness, explaining clearly how it works, tailoring treatment plans and addressing barriers to use.\(^7\) Providing accurate safety information may increase a smoker’s willingness to use NRT as part of their quit attempt. The literacy levels of smoking cessation product packaging instructions are above the reading levels recommended to ensure maximum comprehension.\(^7\) Improving this element of cessation medication may help smokers use these products more effectively. There is some evidence that enabling sampling of the products prior to use may result in more realistic choice of NRT and better compliance by smokers.\(^6\)

The use of NRT for a reason other than quitting, including temporary abstinence or reducing consumption, appears to be common. Such usage is associated with higher education level, heavier smoking, no intention to quit, no quit attempts in the past year and the type and availability of the product used. These patterns of use may help to explain why significant benefits of NRT use are not easily detected in population studies.\(^6\)

7.16.1.4  
**Safety of NRT**

In general NRT is considered to be safe for most users. Discontinuation because of adverse reactions is relatively low.\(^2\) Using NRT to quit is always safer than continuing to smoke.\(^5\) When used as directed, users of NRT typically absorb a lower daily dose of nicotine than they would get from smoking a pack of cigarettes per day.\(^5\)\(^5\) While there has been
concern about the potential for symptoms of nicotine overdose, studies of higher dose products and combination of NRT products have found no evidence of harm from moderate increases in nicotine intake.\textsuperscript{63, 65, 66} Further, research suggests that using acute delivery NRT products (i.e. the oral products) alongside smoking does not appear to increase average nicotine levels, although smoking while using the nicotine patch does.\textsuperscript{13} Smoking while using NRT does not significantly increase the risk of a heart attack or other cardiovascular events.\textsuperscript{5, 54} No serious adverse effects have been reported in studies of concomitant smoking and NRT use, although one study reported that nausea and vomiting were more common in the active than the placebo group.\textsuperscript{25, 65} Other potential symptoms of nicotine overdose include pallor, sweating, tachycardia, agitation and a number of less common symptoms.\textsuperscript{54}

All NRT products have a low addictive potential.\textsuperscript{67} Addictive potential is strongly influenced by speed and method of delivery of nicotine.\textsuperscript{53, 66} When smoking a cigarette, peak blood nicotine levels are achieved within seconds, taking only 10–19 seconds for nicotine absorbed from the lungs to reach the brain, after which time it declines rapidly.\textsuperscript{63} In contrast, it can take over 30 minutes to reach the peak blood nicotine level when using oral forms of NRT,\textsuperscript{12, 13, 53, 69} with effects of nicotine evident within 15–20 minutes.\textsuperscript{25} When using the patch, it takes four to nine hours (depending on the patch) to reach peak blood nicotine level, but then it stays constant while wearing the patch.\textsuperscript{54}

Findings suggest that few people use nicotine replacement products on a long-term basis.\textsuperscript{2} Prolonged use of NRT is related to the speed of nicotine delivery, with prevalence one year after commencing use ranging from 2% for patches to 13% for nasal spray, with oral products intermediate.\textsuperscript{55} Although nicotine is not entirely without risk, prolonged use of NRT is far less harmful than continuing to smoke.\textsuperscript{25, 53, 65}

No serious side effects of either short or long-term NRT use have been reported over the 20 years it has been in use.\textsuperscript{52} The most common side effects of the patch are skin rashes where it is applied and sleep disturbance. Common side effects for the oral products include irritation of the mouth or throat, headaches, hiccups, indigestion, nausea and coughing.\textsuperscript{5, 14, 31, 64, 70} These are relatively minor for most users, and NRT products are generally rated as safe compared to other medications.\textsuperscript{5, 55}

NRT can be used by smokers aged 12–17 years, and by pregnant or breastfeeding mothers to help them quit, preferably under their doctor’s supervision.\textsuperscript{53, 71} There is little risk associated with NRT use, except for pregnant women, for whom there may be a risk to the foetus, and people with acute cardiovascular disease.\textsuperscript{44, 71} NRT is safe to use as a cessation aid in people with stable heart conditions, including angina and previous heart attack.\textsuperscript{5, 61} Nicotine does have some effects on the cardiovascular system, such as increased heart rate and blood pressure, however it is not the major cause of increased cardiac risk due to smoking.\textsuperscript{63} Further research would enable a more complete assessment of the impact of the use of NRT in postoperative coronary artery bypass graft surgery.\textsuperscript{71}

Many smokers believe that nicotine causes cancer, since it is equated with tobacco, but this is not correct.\textsuperscript{63, 71} There is some evidence that it may accelerate growth of tumours once established, but it is the other carcinogens in tobacco smoke that are responsible for tobacco-related cancers.\textsuperscript{74, 75}

7.16.1.5

Using NRT to reduce or reduce to quit

Many smokers find it very difficult to stop using tobacco abruptly even using NRT. In 2007, the TGA approved the use of the ‘cut down and stop method’, where smokers using NRT (inhaler, lozenge or gum) reduce the amount they smoke over a six-week period before stopping completely. Research suggests that the addition of this method to the approved uses of NRT may increase the numbers of smokers who quit altogether.\textsuperscript{25} Use of the NRT patch and gum before quitting has been found to increase quit rates compared to starting the patch on quit day.\textsuperscript{65, 74, 77} One study found using nicotine gum for a month before quitting did not improve quit rates at 12 months.\textsuperscript{78} More research is warranted to resolve the issue. Findings from the UK suggest that the introduction of the ‘cut down and stop method’ licence for some NRT products has very limited impact on actual NRT use.\textsuperscript{79} While using the nicotine gum or inhaler can help smokers cut down the number of cigarettes they smoke\textsuperscript{49} and their intake of carbon monoxide, there is insufficient evidence of a long-term benefit to recommend this in place of quitting altogether.\textsuperscript{55}

There has been discussion about offering NRT to smokers not wanting to quit but who are interested in reducing their level of smoking. The rationale is that once reduced, they may decide to quit altogether. Research is limited but trials indicate that NRT can achieve sustained smoking abstinence in this group. However, most trials also provided some type of behavioural support.\textsuperscript{71, 82}
Section: 7.16.1.6

Scheduling and subsidy of NRT

NRT products (gum, lozenges, patch, sub-lingual tablet only) are available from pharmacies and some supermarkets and do not require a prescription.

Subsidised nicotine patches have also been available since 1994 to patients eligible for repatriation benefits and to Indigenous patients since January 2009. Access to access nicotine patches under the Pharmaceutical Benefits Scheme (PBS) was extended to all smokers in February 2011. A condition for the discount is that the smoker agrees to some form of counselling. If a patient is unsuccessful in quitting using nicotine patches, they are able to access other smoking cessation therapies on the Pharmaceutical Benefits Scheme (bupropion and varenicline) during that 12-month period.

As of January 2012, the following strengths and brands of nicotine patches were available on the PBS and/or RBS.

Table 7.16.1

Nicotine replacement products available under benefits schemes in Australia

<table>
<thead>
<tr>
<th>Strength and configuration</th>
<th>Registered brand names</th>
<th>Manufacturer</th>
<th>Authority requirement</th>
<th>Number in pack</th>
<th>Date listed on the Repatriation Benefits Schedule</th>
<th>Date listed on the Pharmaceutical Benefits Schedule</th>
<th>PBS code</th>
</tr>
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<tr>
<td>16-hour patches</td>
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<tr>
<td>15 mgs per 16 hours</td>
<td>Nicorette Patches®</td>
<td>Johnson &amp; Johnson Pacific Pty Limited</td>
<td>Patients who have indicated that they are ready to cease smoking and who have entered a support and counselling program. Note Studies have shown that successful therapy with this drug is enhanced by patient participation in a support and counselling program. Nicotine dependence in an Aboriginal or a Torres Strait Islander person as the sole PBS-subsidised therapy. Only 2 courses of PBS-subsidised nicotine replacement therapy will be authorised per year. No applications for increased maximum quantities and/or repeats will be authorised. Benefit is improved if used in conjunction with a comprehensive support and counselling program. Short-term sole PBS-subsidised therapy as an aid to achieving abstinence in a patient who has indicated they are ready to cease smoking and who has entered a comprehensive support and counselling program. Details of the program must be specified in the initial authority application; Note A maximum of 12 weeks of PBS-subsidised nicotine replacement therapy will be authorised per year. No applications for increased maximum quantities and/or repeats will be authorised.</td>
<td>1 pack of 7, max 2, 2 repeats</td>
<td>Dec 1995</td>
<td>1 Dec 2008 for Indigenous Australians</td>
<td>4578Y</td>
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<tr>
<td>10 mgs per 16 hours</td>
<td>Nicorette Patches®</td>
<td>Johnson &amp; Johnson Pacific Pty Limited</td>
<td>Patients who have indicated that they are ready to cease smoking and who have entered a support and counselling program. Note Studies have shown that successful therapy with this drug is enhanced by patient participation in a support and counselling program.</td>
<td>1 pack of 28 max 1 pack, 2 repeats</td>
<td>1 Feb 2011 for all other Australians</td>
<td>9198D</td>
<td></td>
</tr>
<tr>
<td>5 mgs per 16 hours</td>
<td>Nicorette Patches®</td>
<td>Johnson &amp; Johnson Pacific Pty Limited</td>
<td>As above</td>
<td>2 sets of 7, 0 repeats</td>
<td>Dec 1995</td>
<td>9198D</td>
<td></td>
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</table>

Note: Studies have shown that successful therapy with this drug is enhanced by patient participation in a support and counselling program.
<table>
<thead>
<tr>
<th>Strength and configuration</th>
<th>Registered brand names</th>
<th>Manufacturer</th>
<th>Authority requirement</th>
<th>Number in pack</th>
<th>Date listed on the Repatriation Benefits Schedule</th>
<th>Date listed on the Pharmaceutical Benefits Schedule</th>
<th>PBS code</th>
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<tr>
<td>24-hour patches</td>
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<tr>
<td>21 mg per 24 hours</td>
<td>Nicotinell</td>
<td>Novartis Consumer Health Australasia Pty Ltd</td>
<td>Short-term sole PBS-subsidised therapy as an aid to achieving abstinence in a patient who has indicated they are ready to cease smoking and who has entered a comprehensive support and counselling program. Details of the program must be specified in the initial authority application; Note No applications for increased maximum quantities will be authorised. Applications for increased repeats, up to a maximum of 2, may be authorised. A maximum of 12 weeks of PBS-subsidised nicotine replacement therapy will be authorised per year.</td>
<td>28 patches, 0 repeats</td>
<td>1 Feb 2011</td>
<td></td>
<td>34140</td>
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<td></td>
<td>Nicotinell</td>
<td>Novartis Consumer Health Australasia Pty Ltd</td>
<td>Nicotine dependence in an Aboriginal or a Torres Strait Islander person as the sole PBS-subsidised therapy. Note Only 2 courses of PBS-subsidised nicotine replacement therapy will be authorised per year. No applications for increased maximum quantities and/or repeats will be authorised. Benefit is improved if used in conjunction with a comprehensive support and counselling program.</td>
<td>28 patches, 2 repeats</td>
<td>1 Feb 2011</td>
<td>Extended to Aboriginal and Torres Strait Islander population from November 2011</td>
<td>5572F</td>
</tr>
<tr>
<td></td>
<td>Nicotine CQ</td>
<td>Novartis Consumer Health Australasia Pty Ltd</td>
<td>Patients who have indicated that they are ready to cease smoking and who have entered a support and counselling program. Note Studies have shown that successful therapy with this drug is enhanced by patient participation in a support and counselling program.</td>
<td>2 packs x 7 patches, max 2, 2 repeats</td>
<td>Aug 94</td>
<td>Extended to Aboriginal and Torres Strait Islander population from Nov 2011</td>
<td>4573Q 5465P</td>
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<tr>
<td></td>
<td>Quit X®</td>
<td>Alphapharm Pty Limited</td>
<td>As above</td>
<td>2 packs x 7 patches, max 2, 2 repeats</td>
<td>Dec 95</td>
<td></td>
<td>4573Q</td>
</tr>
<tr>
<td></td>
<td>Nicotinell</td>
<td>GlaxoSmithKline Consumer Healthcare</td>
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<td>2 packs x 7</td>
<td>Aug 1994</td>
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<td>4572P</td>
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<tr>
<td></td>
<td>Quit X®</td>
<td>Alphapharm Pty Limited</td>
<td>As above</td>
<td>2 packs x 7</td>
<td>Dec 1995</td>
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Chapter 7: Smoking cessation

Section: 7.16.2.1

Date of last update: 26 March 2012

7.16.2

Bupropion and other anti-depressants

Bupropion is a non-nicotine medication that is approved for use as an aid to smoking cessation. It is sold under various brand names including Zyban SR®, Clorpax® and Bupropion-RL®. Originally developed as an antidepressant, early users reported that they had less urge to smoke, and further research demonstrated that it was useful as an aid to quitting. A number of other antidepressants have been or are under investigation for smoking cessation, however larger studies are needed to verify early results.²³,²⁴

7.16.2.1

Mechanisms and pharmacokinetics of bupropion

The active ingredient is bupropion hydrochloride, which is also present in certain antidepressant medicines. The tablets are ‘sustained release’ bupropion and the drug is slowly released into the body.²⁵ It is believed to act as an antagonist by blocking nicotine receptors in the brain and affecting the brain’s reward/pleasure system. It also relieves withdrawal symptoms and may reduce depressed mood.²³,⁶⁰–⁶⁸ Use of bupropion is associated with improved ability to resist cravings that result from ‘cues’ to smoke.⁶⁹ It is yet to be determined whether bupropion is superior to NRT in the prevention of depressive symptoms or relapse to depression.³¹ Bupropion appears to reduce the weight gain that occurs after quitting, but the effect does not last beyond treatment.⁶⁶
7.16.2.2

**Efficacy of bupropion**

Bupropion approximately doubles the odds of quitting success.\(^8\) It is comparably effective in different settings and with different levels of behavioural support, and in smokers with or without a history of depression.\(^9,10\) There is some evidence that positive beliefs and attitudes about bupropion are associated with being positive about quitting, better compliance and potentially better outcome.\(^11\)

7.16.2.3

**Use of bupropion in Australia**

Bupropion was introduced into Australia in 2000 and listed on the PBS in February 2001, sold as 30 x 150 mg tablets (code 8465M), since February 2001 and 90 x 150 mg tablets (code 8710K), since February 2004.

It is available only on prescription, and one course per year is subsidised under the Pharmaceutical Benefits Scheme on condition that users participate in a comprehensive counselling program such as with the Quitline service or their GP. Since changes to the authority conditions in 2004, smokers wishing to use bupropion must visit a doctor for the initial 30-tablet prescription, and then make a second visit to receive the second prescription for the remaining 90 tablets.

7.16.2.4

**Adverse events associated with bupropion**

The most common side effects are sleeping difficulties, dry mouth, headache, dizziness, anxiety and nausea.\(^8,9\) A small number of allergic reactions to bupropion have been reported, including skin rashes or breathlessness, and, less frequently, fever, muscle and joint pain.\(^12,13\) Overdosing can cause serious side effects, including vomiting in children, rapid heartbeat in teenagers and adults and seizures. Other effects of overdose include lethargy, confusion and tremors.\(^9\) The most serious side effect is a risk of seizure, estimated to occur in 1 in 1000 patients (0.1%).\(^8,14,9\)

Bupropion is contraindicated for smokers who are allergic to bupropion, who are pregnant or breastfeeding, who are less than 18 years of age, who have a history of seizures or eating disorders, who are taking monoamine oxidase inhibitors, who have any tumours of the central nervous system or severe liver disease, or who are undergoing abrupt withdrawal from alcohol or benzodiazepines.\(^9,14\)

Several other antidepressants have been investigated for efficacy in smoking cessation. Of these, nortriptyline has been found to double quit rates but has the potential for serious side effects including dry mouth, constipation, nausea, sedation and headaches, and a risk of arrhythmia in patients with cardiovascular disease. It can be dangerous to overdose.\(^9\) The efficacy of nortriptyline does not appear to be affected by a past history of depression. None of these other drugs are currently licensed for smoking cessation in Australia.

7.16.3

**Varenicline**

Varenicline (trade name Chantix® or Champix®) is derived from cystine, a similar drug that has been used to assist cessation in central and eastern European countries for several decades. The active ingredient is varenicline tartrate.\(^9\) The body of evidence regarding varenicline is growing and the indications are that this smoking cessation medication is an effective treatment in a broad range of tobacco users with medical, behavioural and diverse demographic characteristics.\(^9\)
7.16.3.1

Mechanisms and pharmacokinetics of varenicline

It is a partial agonist of nicotine receptors, maintaining moderate levels of dopamine to counteract withdrawal symptoms, and reducing the urge to smoke and negative moods. It also acts as an antagonist by blocking nicotine binding to specific receptors, which may reduce the rewarding effects of smoking in those who continue to smoke while taking the drug and reduce smoking cue response.96,97–100 Some evidence suggests that varenicline improves cognitive performance among highly dependent smokers using the medication to quit.101

7.16.3.2

Efficacy of varenicline

There is an increasing body of evidence regarding the efficacy and safety of varenicline as a smoking cessation medication. Trials have shown that smokers using varenicline are two to three times more likely to succeed at long-term cessation, compared to those using no medication.97,102 Lower doses are also beneficial while lessening the incidence of adverse events.102 Varenicline has been shown to be superior to bupropion and NRT.96,101–109 Further research is taking place to substantiate these results, to compare varenicline to NRT, and to test its efficacy and safety in smokers with a range of comorbidities and risk factors.97,102,110 Studies in a number and range of countries have shown that varenicline is well tolerated and can be regarded as a cost-effective cessation treatment in smokers willing to quit, including users of smokeless tobacco.105,110,112–123 Extended use of varenicline also appears to be effective although more evidence is needed to substantiate this.124,125 Some studies have shown compliance to be an issue.126 There is some evidence that varenicline is effective in cessation at 12 months even when compliance with the medication is not 100%.127 Limited analysis of data indicates that smokers using varenicline who have an initial delay in quitting have increased risk of relapse and may benefit from extended use of the medication.128

7.16.3.3

Use of varenicline in Australia

Varenicline was introduced into Australia as Champix® on 1 January 2008, as a prescription medicine available on the PBS to smokers enrolled in a counselling program.129 It is available in three different configurations:

- 56 x 1 mg tablets (code 5469W)
- 11 x 0.5 mg tablets and 14 x 1 mg tablets in the first pack and 28 x 1 mg tablets in the second pack (code 9128K)
- 112 x 1 mg tablets (code 9129L).

Varenicline is not suitable for pregnant women, children under 18 years of age, people with a mental illness or people allergic to varenicline tartrate.71,95 The manufacturers’ list of illnesses for which medical advice may be needed includes having a mental illness or a history of mental illness, kidney problems, haemodialysis treatment and repeated fits or convulsions.95 Caution is recommended when operating vehicles or heavy machinery.130

Data from a number of countries show that since being introduced, varenicline has become the second most used cessation medication, behind NRT, in Australia. Between 2006 and 2008 varenicline use rates increased from 0.0–14.5%. The findings suggest that varenicline did not simply gain market share at the expense of other medications, but led to an increase in smokers using evidence-based treatment.131

7.16.3.4

Adverse events associated with varenicline

Varenicline is well tolerated by most people who use it.135,97,101,130 The main side effect of varenicline is mild to moderate nausea, affecting about 3 out of 10 people.97,95
Other side effects include stomach or bowel problems (e.g. constipation, gas, dry mouth, vomiting, indigestion), headache, dizziness, sleeping problems, unusual dreams, feeling tired, increased appetite and changes in taste.\textsuperscript{95} These side effects are usually mild to moderate and fade with time.\textsuperscript{95,97,101,102} Side effects usually occur in the first week of taking the medicine.\textsuperscript{95} There is some evidence of adverse gastrointestinal effects when varenicline is used at maintenance dose.\textsuperscript{102}

Varenicline may cause other, less common side effects.\textsuperscript{95} Some people have reported changes in mood or behaviour when they start taking the medication. These may include depression, agitation, aggression, thoughts of self-harm, self-harm, thinking about suicide, suicidal behaviour and hallucinations.\textsuperscript{95,97} Symptoms can occur in people with no known history of mental illness. However causality has still not been established.\textsuperscript{96} Much of the effects reported may be associated with nicotine withdrawal rather than being causal.\textsuperscript{92,109} Serious side effects are rare and estimated to affect up to 1 in 1000 people (0.1%).\textsuperscript{95} Very serious side effects that require urgent medical attention or hospitalisation may affect up to 1 in 10 000 people (0.01%).\textsuperscript{95}

Overdosing on varenicline may cause serious side effects. Safety warnings have been issued and manufacturers have revised their labelling.\textsuperscript{95}

There is an increasing amount of research examining and assessing the efficacy, side effects and safety of varenicline,\textsuperscript{133,134} including studies related a range of conditions such as mental health,\textsuperscript{135–150} liver disease,\textsuperscript{131,132} coronary heart disease\textsuperscript{153,154} and diabetes.\textsuperscript{195}

### 7.16.4 Vaccines

Anti-nicotine vaccination is an approach for which several companies are conducting trials.\textsuperscript{2,156,157} Three vaccines are in an advanced stage of clinical evaluation (as of 2011) and are expected to appear on the market in the US between 2011 and 2012.\textsuperscript{158} The trial vaccines promote proliferation of nicotine specific antibodies that bind to nicotine in the bloodstream and reduce its uptake in the brain, thus reducing the rewards of smoking and leading to smoking cessation.\textsuperscript{159,160} The strength of the immune system response varies among individuals, with early results indicating that subjects with high anti-nicotine antibody levels demonstrate higher quit rates.\textsuperscript{161–165} There is evidence to support the role of immunologic interventions in future tobacco cessation strategies although care must be taken in assessing the independence of the studies.\textsuperscript{2,156} The results from research examining whether a nicotine vaccine can assist relapse prevention are mixed.\textsuperscript{2,169}

### 7.16.5 Combination treatments

#### 7.16.5.1 Drug combinations

Combining approved medications is an approach to improving cessation outcomes. Combination of the patch and gum in Australia is discussed in Section 7.16.1.2. The purpose of NRT combination is to increase nicotine levels and delivery to better match a specific smoker’s needs. NRT combinations have been shown to be more effective than single type use.\textsuperscript{39,170}

Alternatively, drugs with different mechanisms and pharmacokinetics may be combined. Most of these are yet to be approved but early trials have shown some promise.\textsuperscript{7} A number of large clinical trials have evaluated the use of bupropion and different forms of NRT. This combination may be more effective than either medication on its own in the short term, but long-term data are limited.\textsuperscript{7} Other trials have focused on combining NRT with nortriptyline, NRT with varenicline, NRT with bupropion, NRT with rimonabant and varenicline with bupropion.\textsuperscript{2,171–173} Some limited preliminary work has been conducted related to weight gain, combining naltrexone and bupropion.\textsuperscript{174}
Results to date are inconclusive. Apart from the need for more extensive studies to clarify results, safety issues and cost-effectiveness of such approaches are important factors to be considered.

7.16.5.2

Drug plus non-drug therapies

There is evidence that quit rates are highest when NRT or another approved pharmacotherapy is combined with more intensive behavioural support, such as the Quitline callback program, group courses or counselling with other trained health professionals. As a general rule, the more intensive the intervention, the better the outcomes, with long-term quit rates reaching as high as 15–20% compared to the 3–5% success rates for unassisted quitting. This may be in part because medication adherence is improved with counselling.

There is limited evidence that combining structured exercise with NRT assists cessation and delays weight gain in women smokers.

7.16.6

Other less commonly used pharmacotherapies

The second-line medications clonidine and nortriptyline are frequently used in some countries, but have not been approved for smoking cessation in most countries. Cystine is a nicotine receptor partial agonist and has demonstrated some efficacy in studies but there is insufficient evidence for its use in smoking cessation. Some researchers are supportive of further investigation of the product, which is inexpensive to produce.

Silver acetate was marketed in the 1970s and 1980s as smoking deterrents or aversion therapy, because it produced an unpleasant taste when smoking. There is no evidence to support its use but it has been suggested more recently that combining its use with NRT warrants further investigation.

7.16.7

Other treatments under investigation

Many pharmaceutical companies and research institutions are investigating the potential for developing smoking cessation products that interfere with mechanisms involved in nicotine addiction. Several monoamine oxidase inhibitors are under investigation for smoking cessation. This class of drug is thought to stabilise dopamine levels in the brain and possibly reducing nicotine withdrawal symptoms. Evotec AG and Selegiline are under investigation.

Drugs that target the cannabinoid receptor system have also been investigated. Rimonabant is used predominantly for treating obesity, but it was thought it would also be useful for smoking cessation, particularly for smokers most concerned about weight gain. Early clinical trials suggested a benefit for long-term smoking cessation and reduction of weight gain, especially in overweight or obese individuals. However, increased psychiatric side effects appeared in clinical trials. In October 2008 the manufacturer discontinued development of the drug.

Other drug classes under experimental investigation include dopamine D3 receptor antagonists. A pilot study based on evidence that glutamate transmission plays an important role in relapse examined a cysteine pro-drug, N-acetylcysteine (NAC) and concluded the results were encouraging. Methoxsalen is a medication that has been trialled. It blocks the enzyme that breaks down nicotine in the body, slowing elimination, thus postponing the onset of withdrawal symptoms and presumably making cessation easier.

Other drugs for which further research has been suggested include topiramate, an anticonvulsant medication that may be effective as a treatment for alcohol and cocaine addiction, and naltrexone, used to successfully
treat opioid and alcohol dependence. Further investigation of any nicotine addiction protective effect of progesterone in females has been suggested. New research focusing on pharmacogenetics is emerging, based on the discovery of genetic properties influencing the pharmacokinetics and pharmacodynamics of nicotine. Genetic-based methods may be useful in predicting response to pharmacotherapy for sub-groups of smokers and assist the personalisation of treatments. However, if these methods are found to be effective, there may be barriers to its clinical application that will need to be addressed. One review suggests caution in the interpretation of much of the existing literature and discusses implications for the design of future studies.

Medical devices such as the electronic cigarette, which aims to satisfy habitual tactile cravings, have been investigated. Research is limited and results inconclusive.

### 7.16.8 
**Effects of dispensing arrangements and subsidies**

Several trials have examined the impact of promoting free or heavily subsidised NRT through telephone counselling services. Overall, they found that such programs increased the number of callers to the quitlines, in some cases quite dramatically, and most found that access to free NRT improved long-term quit rates. One US study also reported that the majority of recipients of their program were from disadvantaged groups, such as people who were non-white, foreign born or living in low-income neighbourhoods. There appears to be no clear relationship between the number of free patches sent to smokers and smoking outcomes although further research may be warranted. One study, involving a personalised letter from GPs to patients who smoke, encouraging them to quit and offering free NRT, increased the number of smokers making a supported quit attempt.

### 7.16.9 
**Non-pharmacological products of possible usefulness**

One small trial of a nicotine-free inhalator suggests some benefit for smokers who have a higher behavioural connection to the handing and manipulation of their cigarettes.

### 7.16.10 
**Methodological and ethical issues in smoking cessation trials**

The issue of who is conducting trials of cessation treatments is important. Pharmacotherapy trials funded by the pharmaceutical industry and producing significant results may receive more scientific attention than negative trials, resulting in an overestimation of effectiveness. Industry-sponsored trials of NRT have been shown to report statistically significant results compared with non-industry trials, with a possible explanation being more resources available and higher treatment compliance by participants. Another review however, found no association with source of funding.

There has been considerable argument regarding the ‘effectiveness’ in contrast to the ‘efficacy’ of cessation medications in real world situations and questioning of the quality of the evidence and influences on outcomes. One review of the quality of 12 studies examining the effectiveness of over-the-counter NRT (OTCNRT) identified several methodological limitations, including lack of assessment of the effect of providing free NRT, level of addictiveness and level of personal interaction with the provider, lack of blinding assessment and insufficient follow-up. It concluded that the benefits of OTCNRT compared to unaided smoking cessation have not been shown convincingly. Many studies suggest otherwise. Methodological explanations suggested for outcome inconsistency between treatment trials, retrospective case–control studies and prospective population studies for NRT include that participants are more likely to remember and report failed cessation attempts that are more memorable (e.g. have cost them money).
Selection bias and provision of additional support are methodological issues. Randomised controlled trials that enrol highly motivated smokers who are carefully followed up and who receive higher intensity behavioural support than is usually provided may report higher cessation rates than would occur in general population use of the medications. Participants may also self-select their cessation method in uncontrolled studies. More dependent smokers may be more likely to use some form of treatment, but with less success, and this may artificially lower success rates. Smokers’ subjective responses to information about the level of nicotine in NRT may also have some effect on outcomes. It may be that the effectiveness versus efficacy issue is unlikely to be resolved even with further secondary analyses of non-randomised comparisons, because of sensitivity, specificity and selection bias problems.

The clinical significance of the size of effects of some cessation treatments has been raised as an issue as it can influence decisions about licensing and subsidising medications.

Understanding the extent to which smokers’ compliance with directions for using and taking smoking cessation medications affects outcomes is an important methodological consideration. For example, one trial showed that good adherence to varenicline was associated with a twofold increase in six-month quit rates compared with poor adherence.

Expectations of pharmacotherapy by trial participants and intention to quit may be methodological issues. A consideration in double blind, placebo-controlled randomised trials is the degree to which participants correctly guess their actual treatment and whether this affects outcomes. Limited findings suggest, for example, that with respect to bupropion, the role of perceived treatment on cessation may differ for light smokers compared to heavy smokers. Further investigation would shed more light on these issues.

Some researchers have suggested that better statistical methods for addressing missing data need to be adopted in cessation studies.

Concerns in smoking cessation trials relate to whether it is ethical to assign participants to a non-active control condition if the health behaviour being studies is serious, if validated treatment is available or if there is a risk of harm if treatment is not given. Further study to inform this question may be warranted.
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Financial incentives

Incentives and competitions have not been shown to enhance long-term cessation rates, with early success tapering off once incentives are no longer offered. Some have been shown to improve short-term quit rates. This may be because a smoker’s internal motivation and readiness to quit need to be sufficiently high for relatively modest incentives to be effective. One type of competition, ‘Quit and Win’ did appear to increase quit rates among participants at local and regional levels but the population impact seems relatively low. The quality of evaluations of Quit and Win programs varies greatly. One outcome of giving rewards for participation and compliance may be greater numbers of people making a quit attempt. Worksite-based incentives and competitions when combined with additional cessation interventions may be more effective.
References

Unproven remedies

Acupuncture involves treatment by applying needles or surgical staples to the skin of the ear or other parts of the body. Related treatments include acupressure, laser therapy, and electrostimulation. To date, there is no clear evidence to support the use of acupuncture or related treatments in their own right as a quitting aid.\(^1\) It may be more effective when combined with counselling or skills training.\(^1,2\) Very limited studies have suggested that acupuncture may lessen withdrawal symptoms and weaken response to smoking cues.\(^3,4\) More quality research is needed to determine if daily or sustained acupuncture has a benefit.

The aim of hypnotherapy for supporting quitting is to put suggestions in people's non-conscious mind to weaken the desire to smoke, or strengthen their will to stop, or improve their ability to carry through a treatment program.\(^5\) The effectiveness of hypnosis has been poorly studied, with studies producing conflicting results. It has not been shown that hypnotherapy itself increases long-term quitting rates,\(^5-7\) although counselling or other treatments that accompany it can be helpful to some smokers.\(^5\)

Filters and filter blocking products (such as drops) are used to help people gradually reduce the amount of smoke they inhale from each cigarette. However, some smokers may compensate for the drop in nicotine by inhaling the smoke more deeply or smoking more cigarettes. There is not enough evidence to recommend these products as quitting aids.\(^9-11\)

Other methods and products are often marketed as quitting aids, such as homeopathic cures, potions, lobeline, glucose tablets, magnets, lasers, smokeless cigarettes and motivational secrets. Some have not been found to help quitting and many have not been studied.\(^9,11-13\)

In the United States, the Food and Drug Administration banned the sale of a number of such products in 1993. It is not known if the Therapeutic Goods Administration has ever taken such action in Australia.

Aversion methods include rapid smoking, covert sensitisation (smoking while imagining unpleasant associations), smoke holding, electric shocks, silver acetate or pairing smoking or urges to smoke with other unpleasant methods or products. More research is needed to determine if rapid smoking has a benefit, although it can have serious side effects.\(^14\) There is no evidence to support the other methods.\(^15,14\)

There is some evidence that exercise may help to reduce withdrawal symptoms and cravings.\(^16\) It is also recommended as one way of reducing the weight gain that occurs when quitting.\(^15\) However, more research is needed to show if exercise can increase the chance of quitting.\(^17\)

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Chapter 7: Smoking cessation

7.19

Interventions for particular groups

Every smoker is different, but there are some groups that share social, cultural and personal characteristics to a sufficient degree to justify the development of different or targeted evidence-based approaches to smoking cessation. These include groups with very high smoking rates, with disproportionate tobacco-related health disparities, where special barriers and less access to cessation treatment exist, or where current mainstream approaches are less successful. They are also groups where the research as to most effective approaches is often limited.\(^1,2\)

Smoking rates remain very high among those who are both socially excluded and socio-economically disadvantaged.\(^3\) Some population-level interventions are effective in reducing smoking among disadvantaged groups, however there is very limited published research on the most effective smoking cessation strategies for highly disadvantaged groups.\(^4\) Findings regarding the outcomes for behavioural interventions, though inconsistent, show some promise.\(^5\) An Australian study of disadvantaged smokers attending social and community service organisations highlights their interest in quitting and the importance of overcoming barriers, including increasing their knowledge and use of evidence-based cessation strategies and support services.\(^6\)

Some groups that have received particular attention in state and national tobacco strategies are described below.

7.19.1

Aboriginal peoples and Torres Strait Islanders

Indigenous people’s smoking prevalence is higher than for other Australian adult smokers\(^6-8\) and is a significant factor in their poorer health status and lower life expectancy.\(^9,10\) An additional issue is the high rate of smoking among health workers in Aboriginal and Torres Strait Islander health services,\(^11-13\) which have a key role to play in any intervention programs.\(^14,15\) These issues are covered in greater detail in Chapter 8. For further information on smoking, ill-health, financial stress and smoking-related poverty among Indigenous communities see Chapter 9, Section 9.6.9.

7.19.2 Smoking cessation for those in low socio-economic status occupations

The prevalence of smoking is significantly higher among lower socio-economic groups,\(^16\) particularly in groups facing multiple personal and social difficulties and challenges.\(^17,18\) They are more likely to have a higher level of nicotine dependence and overall they are less confident about their ability to quit and are less likely to intend to quit.\(^18\) Among people who have quit, blue collar workers and those with lower levels of income and education are likely to have smoked for longer periods of time prior to quitting.\(^19,20\)

Smoking has declined in all social groups over the last two decades. The smoking rate for the highest socio-economic group (highest quintile) has fallen dramatically, while the decline in smoking among the remaining 80% of the population has not been as marked.\(^16,17,21\)

There is limited evidence on effective strategies to increase access to smokers from lower socio-economic groups.\(^22\) Barriers to accessing services are important for smokers trying to quit, particularly in lower socio-economic groups, and an intervention that addresses social and psychological barriers to quitting is important.\(^2\) See Chapter 9 for further information on low socio-economic status occupations.

7.19.3

Smoking cessation for low SES lone and stay-at-home parents

Smoking rates among lone mothers are high. (See Chapter 1, Section 1.10.3.) Lone parenthood is associated with social and economic disadvantage and is discussed further in Chapter 9. Lone and stay-at-home low socio-economic status (SES) parents can face many challenges resulting from this lifestyle, including stress, loneliness,
depression and anxiety. Factors that may contribute to these emotional issues include divorce, lack of free time, anxiety about raising children on their own, social withdrawal, feeling out of control, exhaustion or lack of sleep and lack of feeling appreciated.

For lone mothers there is a strong association with smoking, partly explained by SES, age, living alone, mental health, proportion of friends who smoke and age of smoking initiation. There is evidence that suggests an independent effect of lone motherhood in Australia. Potential approaches to addressing smoking cessation with lone mothers include policies that improve their material conditions and social and personal circumstances and continuing with prevention programs for adolescents.

### 7.19.4 Serious health conditions

Health concerns are a major motivator for smoking cessation, whether experienced personally or through a friend or family member. Diagnosis of a smoking-related illness, especially if it results in a period of hospitalisation or intensive treatment, is a good opportunity to promote smoking cessation. Treatment of some health problems is substantially improved if patients stop smoking. For example, recovery from heart attack is improved, and the risk of recurrence reduced considerably when smokers quit. Cancer patients show reduced response to treatment if they continue to smoke, and have a higher rate of recurrence. Smoking is a serious problem after orthotopic liver transplantation and increases the risk for malignancy. The management and progression of many chronic and acute diseases, including diabetes, asthma, peripheral vascular disease and emphysema, is improved after quitting, and intervention is worthwhile. Smoking reduces the success rates of many surgical procedures—see Chapter 3, Section 3.15.1. It is recommended that patients undergoing elective surgery be advised to stop smoking six to eight or more weeks prior to admission to reduce adverse outcomes and improve wound healing, although more research is needed to confirm the long-term benefits.

There has been a vigorous debate in the medical profession about the ethics, economics, and health effects of refusing some hospital treatments for patients who fail to stop smoking. There is a strong case for providing high-intensity behavioural intervention with at least one month follow-up support to all smokers admitted to hospital, regardless of admitting diagnosis. Interventions provided by nurses in a hospital setting, particularly nurses whose main role is health promotion or smoking cessation, help people stop smoking. Evidence shows that it is possible to decrease tobacco use in cancer survivors and that oncology nurses play a pivotal role. For smokers receiving outpatient treatment, brief or intense interventions by their physician will increase quit rates, which may include referral of those interested in quitting to appropriate services. In hospital, clients are likely to be more open to help, and they are likely to find it easier to quit in a place where smoking is prohibited. At the very least, there is a need to actively manage those who are nicotine dependent by encouraging abstinence, providing nicotine replacement therapy (NRT) to manage withdrawal symptoms, or explaining the necessity of smoking offsite or in a designated area if available. More intensive programs are likely to have greatest success. For example, referral to the Quitline or in-house support staff for cessation may help improve outcomes, as may consideration of smoking status and intentions for discharge planning, and providing support for continued abstinence or encouragement to consider quitting in the future. New South Wales Health has developed a good example of a comprehensive policy approach for all inpatient facilities.

Current practice falls well short of potential. Evidence indicates that healthcare providers working with cancer survivors do not always use opportunities to advise them about the effects of smoking on their health and provide effective interventions. For example, there is limited knowledge about smoking cessation following stroke, but one study found that the majority of smokers continued to smoke five years after stroke and few recalled smoking cessation advice from their health professionals.

There is little in the literature about particular cessation interventions targeting smokers diagnosed with serious and chronic illnesses such as cardiovascular disease, chronic obstructive pulmonary disease, stroke/transient ischemic attack, diabetes, asthma and cancer.
7.19.4.1

**Cardiovascular disease**

For cardiovascular disease (CVD) patients there is evidence that successful quitting is related to higher income, fewer household smokers, having a partner and being a lighter smoker, implying the need for interventions that include family members and focus on methods for heavy smokers. Providing intensive smoking cessation programs for patients hospitalised for CVD increases abstinence, particularly for those undergoing coronary artery bypass graft. There is some evidence that intensive outpatient cessation intervention is effective for patients with peripheral vascular disease. While many smokers hospitalised with CVD report being prepared to quit smoking, many who do try do not use effective methods, highlighting the need for more advice to this group on best ways to stop smoking. Research suggests that varenicline may be effective for smoking cessation in smokers with CVD. Understanding the relationship between depressive symptoms often experienced by patients hospitalised for acute CVD and relapse following discharge may assist the development of more effective interventions. Limited evidence suggests that those with stroke/transient ischaemic attack do not necessarily associate their illness with smoking, that barriers to quitting include boredom and lack of social support and that they consider pharmacotherapy and vocational and rehabilitation programs positively as resources to assist quitting.

7.19.4.2

**Respiratory diseases**

Smoking is especially harmful to individuals with asthma. There is a significant association between asthma and early smoking. Research suggests that adolescents with asthma who smoke are more likely to be girls, have a relatively higher body mass index, be in higher school levels, use marijuana or alcohol, have minor to severe depressive symptoms, not live with both biological parents, be exposed to environmental tobacco smoke at home and have friends who smoke. Cessation interventions are more likely to assist this group if they address such psychosocial and environmental factors. Further research is warranted in this area.

For those with chronic obstructive pulmonary disease (COPD) there is evidence of the effectiveness of combining nicotine replacement therapy with an intensive, prolonged relapse prevention program incorporating psychosocial and pharmacotherapy approaches. Other effective approaches for those with COPD appear to be bupropion combined with counselling and an annual spirometry with a brief smoking cessation intervention followed by a personal letter from a doctor. Identified barriers to cessation include patient misinformation, levels of motivation, health beliefs and poor communication with health professionals. Another challenge with this group may be that many patients inaccurately report their smoking status, which hampers effective intervention, although the evidence is mixed. Some research suggests that varenicline may be an appropriate aid to maintaining abstinence in patients with COPD and heavier nicotine addiction.

7.19.4.3

**Cancer**

There is limited research regarding smoking consumption, smoking cessation interventions and relapse prevention strategies among cancer patients, with one systematic review finding that recent interventions in the last decade, which are a combination of non-pharmacological and pharmacological approaches, have resulted in an improvement in smoking cessation rates compared to usual care. One Victorian study showed some reduction in smoking behaviour and consumption in women smokers following breast cancer and highlighted the need for healthcare providers to use evidence-based cessation interventions in this group. Evidence does suggest that motivation and interest in smoking cessation greatly increase following cancer diagnosis and that this could be an effective time for cessation intervention. Some research, however, challenges the notion that patients with lung cancer usually quit smoking because of disease symptoms and suggests that spontaneous smoking cessation may be a presenting symptom of lung cancer. Patient age, gender and type of cancer may be important factors to consider when developing and implementing smoking cessation interventions for cancer patients. Evidence
suggests that older patients and those diagnosed with a non-tobacco-related cancer are more likely to quit.\textsuperscript{71}

Challenges for this group include long histories of smoking, pressure for immediate quitting, high levels of stress and distress, delayed relapse and medical contraindications to certain pharmacotherapies.\textsuperscript{71,72} Research with cancer patients shows mixed results, with evidence that the duration of time between cancer diagnosis and cessation treatment and stage of disease affects outcomes and patients with head and neck cancer have higher quit rates.\textsuperscript{73,74}

One study focusing on the potential for social network support for cancer patients highlights the challenges of this approach, including appropriate timing.\textsuperscript{71} Bupropion may have advantages for cancer patients, including low risk for nausea.\textsuperscript{74} Active smoking appears to be a clinically significant problem among adolescents and young adults with a history of cancer. Factors such as self-efficacy, social support, fear of recurrence, perceived vulnerability and depression appear to be associated with their smoking behaviour.\textsuperscript{75} Research suggests that educational and behavioural risk-counselling interventions are beneficial in reducing smoking risk among this group up to 12 months after intervention.\textsuperscript{75} Suggestions in the literature for additional research include testing tailored approaches and investigating the settings for delivery of interventions, including the involvement of families.\textsuperscript{67}

\subsection*{7.19.4.4 Diabetes}

Challenges for smoking cessation for people with diabetes include adolescent smoking, weight management issues and low motivation for quitting at the time of hospitalisation.\textsuperscript{50} Limited evidence shows that intensive, nurse-delivered cessation interventions for people with diabetes can be effective but further research is warranted.\textsuperscript{50} There is some evidence that lower education level is linked to smoking in young people with diabetes, suggesting a need for tailored interventions.\textsuperscript{76} One trial in progress is evaluating the effectiveness of an intensive smoking cessation intervention in diabetic patients in primary care.\textsuperscript{35} One program partnership that aimed to promote referrals to the quitline by diabetes educators resulted in an increase in the percentage of quitline calls from people with diabetes and the proportion of callers referred by healthcare providers.\textsuperscript{77}

\subsection*{7.19.4.5 HIV/AIDS}

Smoking rates among people living with HIV/AIDS are high and smoking is associated with many HIV-related adverse outcomes, including non-AIDS-defining cancers, cardiovascular disease and pulmonary disease.\textsuperscript{78} Data from the Australian HIV Futures 6 study show that 42.3\% of people living with HIV/AIDS smoke.\textsuperscript{79} Evidence shows that smoking adversely affects the health-related quality of life of people living with HIV/AIDS.\textsuperscript{78} Cessation may result in better disease management and increased length of survival.\textsuperscript{78} Many HIV-positive smokers are interested in quitting and have made quit attempts but there is high relapse. Attitudes about quitting and ability to stop smoking appear to be influenced by the complex range of social, economic, psychiatric and medical needs faced by HIV-positive people, disease progression and perceptions they have of the life impact of being HIV-positive.\textsuperscript{78,80,81} Diagnosis of HIV may be an effective time for intervention.\textsuperscript{78} The data are very limited but interventions for this group are potentially effective, can significantly decrease smoking rates and can be incorporated within busy HIV clinics.\textsuperscript{50,78,80,82,83} However, overseas data indicate that while health professionals working with patients living with HIV/AIDS agree on the importance of smoking, their cessation intervention levels are low.\textsuperscript{84} Future cessation interventions for HIV-infected smokers may be enhanced by the inclusion of medical adherence and depression as components of the program.\textsuperscript{4,105} Mobile phone and internet-based interventions may have potential for this group.\textsuperscript{86} Further research is warranted.\textsuperscript{50}

\subsection*{7.19.4.6 Young smokers with serious and chronic illnesses}

International evidence suggests that smoking rates among young people with serious or chronic illness vary but that they have comparable smoking rates to their healthy peers in the cases of asthma, post-treatment cancer and
diabetes and lower rates in other serious conditions.\textsuperscript{87} Little is known about factors contributing to smoking rates for this group or effective interventions and further research is warranted.\textsuperscript{87} One US study of adolescents living with HIV infection found that a larger proportion of participants with behaviourally acquired HIV reported tobacco/cigarette use (70\%) compared to those with perinatally acquired HIV (34\%).\textsuperscript{88}

### 7.19.5 Prisons

The prevalence of smoking in the prison population is far higher than among the general population,\textsuperscript{89,90} and tobacco use is commonly accepted as part of prison life.\textsuperscript{89} A national survey in 2009 found 81\% of prison entrants were current smokers and 74\% smoked daily.\textsuperscript{91} In New South Wales reported rates are between 79\% and 90\%.\textsuperscript{90,92-94}

The prison population is more likely to be from poorer backgrounds, have a history of mental illness and substance abuse, and be of Aboriginal or Torres Strait Islander background. All of these groups have much higher smoking prevalence than the general population.\textsuperscript{89,90,91}

Interest in quitting smoking among prisoners is high. In a Victorian survey, 50\% of prisoners wanted to address smoking, drinking, drugs and gambling.\textsuperscript{96} In a New South Wales survey, three-quarters of smokers reported a desire to quit, but only 58\% had an actual plan to give up.\textsuperscript{90} Among prisoners who relapsed in a pilot smoking cessation intervention, 95\% indicated that they were willing to try quitting again with the intervention.\textsuperscript{96} Barriers to quitting in this population include a strong smoking culture in prison; the role of tobacco as a \textit{de facto} currency; high levels of nicotine dependence; mental illness; limited access to nicotine replacement therapy and cessation programmes; boredom; and stressful events such as prison transfer, family and legal stressors. Further problems include a lack of evidence for best practice for smoking cessation in this group, confusion over the ownership of the problem between the health department and custodial authorities, and poor access by this group to smoking cessation programmes while outside the prison system.\textsuperscript{90,94,95,97}

In some Australian states, smoking cessation groups and telephone support from the Quitline have been provided in some prisons, with variable uptake. For example, New South Wales and Victoria have developed programs that focus on helping smokers make the decision to quit or to cut down and manage their smoking in smokefree locations.\textsuperscript{98} In Victoria, the program also makes nicotine replacement therapy available free of charge through a levy fund that has operated in Victoria’s public prisons since 1993 and Quit Victoria has produced a DVD, Quitting on the Inside, for use in prison settings. Some prisons also sell nicotine patches through prison canteens. However, the expectation that prisoners cover the cost of pharmacotherapies is unrealistic, considering that most inmates have little or no money.\textsuperscript{95} One study found positive outcomes from a prison cessation program that used positive deviance techniques and suggests that complementing structured and unstructured Quit programs in prisons with this approach could be beneficial.\textsuperscript{99}

In recent years, partial or total smoking bans in prisons have been introduced in Australia and other Western countries (see Chapter 15). Total smoking bans appear to have little impact on smoking by prisoners during or after their sentence, and so far they appear to be ineffective in assisting prisoners to quit.\textsuperscript{90,94} However, this does not detract from the health issues related to secondhand smoke, for both prisoners and staff.

For further information on smoking, ill-health, financial stress and smoking-related poverty among the prison population see Chapter 9, Section 9.6.7.

### 7.19.6 Clients of drug and alcohol treatment services

Smoking is far more prevalent in people with drug and alcohol problems than in the general population, whether their problems relate to alcohol,\textsuperscript{100} cannabis,\textsuperscript{101} heroin\textsuperscript{102} or cocaine.\textsuperscript{103} Most individuals presenting for treatment for substance use disorders smoke tobacco as well.\textsuperscript{105} Australian research shows that in this population smoking rates range from 68\textendash 98\%.\textsuperscript{100,104} One extensive US review highlights continuing extremely high smoking rates and
subsequent comorbid health risk for people with alcohol and drug use disorders, with rates being greatest among those enrolled in methadone maintenance and in-patient addiction treatment. 106

Many health risks for dual use of alcohol and tobacco are multiplicative rather than simply additive. For example, oesophageal cancer is postulated to increase among heavy alcohol users as a result of alcohol allowing tobacco toxins to penetrate more deeply to basal layers. 106 Similarly, there is evidence that smoking cannabis is a risk factor for many of the same illnesses as tobacco. 107–109 Cannabis poses some special problems for users since it is often mixed in cigarettes with tobacco, and 30% of smokers report recent use of cannabis compared to 7% of non-smokers, 10 potentially inducing double dependence as a result.

Clients of drug and alcohol services express interest in quitting when asked, but there appears to be a wide variation in readiness to seek help to do so. 110–112 This may be related to an individual's confidence in their ability to stop tobacco use at the same time as other drug use and highlights the importance of understanding sub-groups within this population in order to identify strategies to encourage and assist them to stop smoking. 113 Despite the apparent interest in quitting by drug and alcohol patients, a study of staff and management attitudes and practices in Australia found smoking received little systematic attention, with concerns about possible negative impact on other treatments, absence of policy and lack of training being major impediments. 114 A minority of managers even endorsed at least occasional smoking by staff with clients, and some facilities still permitted smoking inside. 115

International evidence suggests that substance abuse counsellors have limited knowledge of the smoking cessation medications available for those trying to quit and that their implementation of tobacco cessation guidelines is inconsistent. 116 Other barriers to smoking cessation intervention include staff attitudes about and use of tobacco, unfounded fears regarding tobacco policies, limited resources and some reliance on cigarettes to stabilise mood in their patients. 110,112 Factors promoting smoking cessation programs within substance abuse clinics include supportive systems and integration within other treatments, educating providers about the beneficial effects of cessation for their clients, staff training and encouraging and assisting staff to quit. 116 One study found that an intervention based on organisational change helped to shift the treatment system culture and increase tobacco services in a residential addiction treatment setting. 118

Rather than compromising the outcome of drug and alcohol treatments, there is evidence that smoking cessation does not interfere with, and may enhance, short-term abstinence, 111,118,119 including treatment outcomes for substance use disordered youth. 110,113 There is still some debate as to whether smoking cessation should be promoted simultaneously with or subsequent to treatment for other substances, with findings suggesting that patient preference should guide the decision. 110,112 Limited research is available on the most effective cessation approaches for this population, with evidence suggesting that the use of motivational interviewing, psychotherapy and pharmacotherapy can have positive outcomes. 110 Trials indicate that drug treatment clients can successfully quit smoking at rates similar to the general population when given access to an intensive intervention. 112 Some preliminary studies suggest that varenicline may promote smoking changes and concurrently help reduce heavy drinking in heavy drinkers, 113 and may have therapeutic value for smoking cessation in cocaine users maintained on methadone. 114 However, use of bupropion by abstinent alcoholic smokers does not appear to increase long-term smoking cessation. 115 There is some evidence that a contingency management approach can promote smoking reduction in more severe substance abusers, such as those in residential services and opioid-maintained patients. 114,117,118 A small study found that methadone users responded positively to a computer-based education program highlighting the hazards of smoking. 119

As with mental health and correctional services, public health experts have identified a need for policy and training initiatives to address past neglect of tobacco-control issues. 113,118 Systematic intervention around the 5As framework, tailored to the needs of client groups, would provide a good foundation for this work.

Future clinical research in this area and its translation into practice may be improved by recruiting and retaining a broader range of people with drug dependencies, particularly those who are not currently being reached through mainstream interventions, and by longer-term follow-up. 113 Research as to the role of social bonding around tobacco use and its normalisation in drug treatment settings may be useful in guiding future practice. 113
7.19.7  
**Culturally and linguistically diverse people**

Smoking rates vary substantially from one country to another, as does the type of tobacco used and policies to control its use. In Australia, average smoking rates in some culturally and linguistically diverse communities are lower than for the rest of the population, there is substantial quitting activity, and many leaders are aware of issues around tobacco control.

Overall it would seem that being an immigrant or speaking a language other than English is not a risk factor for smoking, but it has to be recognised that people in some cultural and linguistic communities do smoke at very high rates. (See Chapter 9, Section 9.6.2.)

Some smokers in culturally and linguistically diverse community groups in Australia may face extra barriers to stopping smoking, including lack of knowledge of the harm caused by smoking and secondhand smoke, lack of tobacco-control measures and norms in their culture of origin, low literacy in English, and lack of community leadership to promote smoking cessation.

The Quitline service provides access to many printed resources in a range of community languages, and callers can ask to have their call returned with an interpreter, in a range of languages other than English. Some culturally specific programs have been initiated by various organisations, mostly on a short-term basis, to attempt to address the issues discussed above. One New Zealand pilot study suggests that a language-specific home-, workplace- or clinic-based intervention is acceptable and effective in assisting cessation and establishing smokefree homes. An Australian study investigating the feasibility, acceptability and impact of a telephone support service for Arabic smokers initiated in primary medical care found the support acceptable but there were no significant abstinence differences compared to usual care at six or 12 months.

7.19.8  
**Younger smokers**

Information on smoking cessation among young smokers is limited. In a 2008 survey of school students aged 12–17 years, around 3% identified themselves as being ex-smokers, less than half of the number identified as current smokers. In the 2010 National Drug Strategy Household Survey, this proportion was somewhat lower, with 1.6% of students aged 12–17 years being ex-smokers compared to 3.3% of daily or weekly smokers. The survey also reported 3.4% of young people aged 18–19 years as ex-smokers compared to 15.2% of daily or weekly smokers. One Australian study of young people aged 14–16 years found that of current smokers, 64% wanted to stop smoking and 55% had tried to stop smoking in the past year. Another Australian study following young people aged 14–15 years over three years found that around a third of all smokers became ex-smokers in the course of each year. However, close to half of ex-smokers relapsed within 12 months, and the relapse rate was 70% for daily smokers. Female daily smokers were half as likely as males to quit smoking, and smokers with a parent who smoked daily were also half as likely to quit smoking. In other studies, factors that influenced the likelihood of quitting among young people included nicotine dependence, being older at smoking initiation, perceived peer and parental tolerance of smoking, resisting peer pressure to smoke, negative beliefs about the consequences of smoking, not having intentions to smoke in the future and smoking among social networks.

Adult cessation campaigns have been found to affect younger groups. Most focus in Australia’s national campaign to promote smoking cessation has been on the age 18–40 blue collar demographic, however the impact of such campaigns spreads to younger groups as well. For example, evaluation of the early National Tobacco Campaign media campaigns showed that adolescents learned as much, if not more, than the 18–40 years target group from the television advertisements, and the campaigns prompted changes in smoking behaviour.

Prevention and cessation are intertwined, but most of the effort with young people to date has focused on preventing uptake rather than promoting cessation. There are a number of issues around promoting cessation and providing support among young people, regardless of whether they are experimenting or have graduated to regular daily smoking.
There is scant evidence on what works best for younger smokers or the process by which they try to stop smoking. Challenges for research on this group include a number of methodological issues, recruiting sufficient numbers of participants, the potential effects of parental consent and high attrition in longitudinal studies. The perception of program facilitators by teenage participants may also influence outcomes. A review commissioned by the Department of Health and Ageing examined evidence relating to youth cessation, and reported on issues including interest in quitting, difficulty in quitting, cessation interventions in schools and healthcare settings, telephone approaches, computer and internet-based approaches, self-help approaches and pharmacological approaches. One Australian study for school-age young people entailed a whole-of-school approach that utilised school nurses in the delivery of cessation strategies. Reviews have concluded that programs designed to help teens have modest success compared to control conditions but that there is insufficient evidence available to judge effectiveness. Complex programs show most promise, including those tailored to the young person’s preparation for quitting and those focusing on motivational enhancement, cognitive behavioural techniques and social influence. One US study found benefit in adding physical activity to an adolescent cessation program, particularly among boys. Programs that are delivered in a context that is structured for youth, such as a school, and that extend for at least five sessions seem to be more effective than community-based and single session interventions. However there are many barriers to delivering such programs within schools. There is some evidence that specialist youth settings can be effective venues for the delivery of tailored cessation programs for young people. Many of the findings from the research are consistent with those found in the adult smoking cessation literature. A better understanding of what continued smoking and quitting represents for younger smokers and their beliefs about different cessation options would inform the development of effective interventions, but the research is limited. A broad range of factors appear to influence adolescent smoking lapse, including socialising with friends, cravings, social pressure, desire for a cigarette, abstinence–violation cognitions (okay to smoke occasionally, wanted to see what it was like) and negative emotions. Some findings suggest that while many younger smokers intend to quit smoking, they have negative attitudes towards most formal cessation approaches and their quit attempts are more likely to be unaided compared to adults. Personality traits and change in personality may influence likelihood of smoking and quitting. Quitting may be a much more stressful, uncomfortable and socially isolating experience for youth than research typically acknowledges. Young smokers may receive little active support from family and friends in their quit attempts. They may rationalise continuing to smoke by downplaying the health risks of smoking, emphasising the perceived health benefits such as stress relief, and thinking of smoking as a temporary, youthful activity that they would stop once they entered adulthood. Findings suggest that nicotine dependence, self-efficacy, resisting temptations to smoke, smoking status of friends, level of addiction and use of cannabis play a role in the course of adolescent cessation but some findings suggest that parental influence is limited, except for expected support. Although withdrawal symptoms may be uncomfortable for adolescent smokers trying to quit, they may not be the most important factors causing relapse. Proactive, personalised telephone counselling has been found to be effective for adolescent smoking cessation. Currently 4% of callers to the Victorian Quitline are under 18 years of age, and protocols for young callers have been developed as part of the set of national minimum standards. These recommend that services focus on the immediate harmful effects, issues of appearance and youth-specific reasons for smoking, such as rebellion or aspiring to adulthood. Recognising differences in patterns of smoking to that of adults, for example infrequent and situation-dependent smoking, is important, as is referring young people to youth-specific resources, especially internet sites.

Younger smokers can use some quitting medications. Neither bupropion nor varenicline are officially approved for use by smokers under 18. Children over 12 years of age can use NRT. When deciding whether or not to recommend NRT use by an adolescent (aged 12–18 years), an individual’s nicotine dependence, motivation to quit and willingness to accept counselling all need to be assessed. Counselling is considered to be of vital importance in this age group. At the present time there is little evidence as to the efficacy of the use of pharmacotherapies with younger smokers. As with adult smokers, health professionals play an important role in encouraging and assisting younger smokers to quit and paediatric-based interventions are feasible and effective. Practitioners’ perceived levels of confidence in helping young smokers to quit, their lack of clarity about what strategies should be used, their attitudes towards
safe use of NRT by young people, their concern for maintaining rapport with their adolescent patients and the health problem of the patient influence interventions in this setting.

Emerging interactive technologies, including web-based programs, mobile phone communications and electronic games, may offer potential for cessation intervention with younger smokers, but published tobacco-control literature to date is insufficient to assess their effectiveness. For further information see Section 7.14 and Chapter 5, Section 5.2x.) A New Zealand trial explored the use of mobile phones as a delivery medium for smoking cessation programs for young adults, of whom 36% were aged 16–19 years. Cessation rates among those receiving the text message intervention were about double those of the control group at six weeks follow-up, and reported quit rates at six months remained high. One study found that adolescent smokers most often used a discussion support group and other interactive components of an internet-based cessation program, and another found positive outcomes from a web-based contingency management program for young smokers.

One of the single most inexpensive actions a school can take to reduce smoking is to introduce and enforce a no-smoking policy for students, teachers and visitors. Similarly community youth services have a role in developing policy that addresses smoking by clients and staff, and encouraging and supporting smoking cessation, including use of routine brief intervention.

7.19.9

Older smokers

The greatest proportion of burden of disease due to smoking affects those aged 55–75 years. (See Chapter 1, Section 1.5.) Evidence suggests that older smokers tend to perceive themselves as being less vulnerable to the health effects of smoking, are less convinced or concerned about these health effects, believe that smoking has not affected their own health so far, are less confident about being able to quit, do not see any health benefit of quitting and are overall less willing to want to quit. Other findings suggest that many older smokers have tried unsuccessfully to quit many times and that high-risk older patients with comorbidities are highly motivated to quit and would benefit from effective assistance. Some research findings question the assumption that older smokers who have smoked for longer are more addicted and less likely to quit. Motivators that do appear to encourage older smokers to quit include increasing price of cigarettes, advice from a health professional and cheaper stop-smoking medications.

Research-based cessation interventions are efficacious for older adults but further research is warranted to determine if tailored interventions may be more effective. Approaches particularly need to address the underestimation by older smokers of the risks and actual damage caused by smoking, the cognitive factors that maintain their habit and are barriers to quitting and their misperceptions that there are no benefits of quitting. Older smokers appear to be significantly influenced by friends and family members, especially a spouse, and their attempts to quit are often unplanned.

Health professionals have an important role to play in educating older people about the health benefits of quitting and a range of opportunities exist in which to advise and assist older patients to stop smoking. (See Section 7.10.) Older adults tend to visit their health professionals more frequently, so there are many opportunities for intervention. They are able to quit at high rates when given effective advice and support by health professionals, including behavioural therapy and pharmacotherapy. Studies have found however, that health professionals may be less likely to promote smoking cessation to older patients. Health professionals identify a number of mistaken beliefs and perceived barriers to providing interventions to older smokers, including that they are unwilling to and would never be able to quit, that they would not respond positively to advice, that they know all the risks of continuing to smoke, that quitting would not have any great benefit, that it is wrong to take away something pleasurable in their life and that quitting might actually harm the patient’s health. They also report lack of organisational support and concerns about harming the health professional–patient relationship. There is some evidence that nurses who do not smoke are more likely to provide advice to quit.
Cigarette smoking may contribute to worse health outcomes for peri- and postmenopausal women and cessation may be particularly challenging for this group. (See Chapter 3, Section 3.6.1.3.) Further research is warranted in this area.26

There is evidence that transition into retirement represents a time when smokers are more likely to quit, suggesting that interventions could be developed to take greater advantage of this lifestyle change.26

### 7.19.10 Gay, lesbian and transgender

There is some evidence that smoking rates are higher among gay, lesbian and transgender people.207,208 In the 2010 National Drug Strategy Household Survey, about 34% of people identifying themselves as homosexual/bisexual were smokers.42 However, there is very little research available about smoking behaviour and the outcomes of cessation interventions in these groups. The roles of gender non-conformity, masculine self-consciousness and sexual orientation stress appear to be important influences on smoking behaviour in young gay men.208 Limited findings suggest that because of the relationships between smoking and other behaviours, cessation interventions for young gay men should be part of larger more holistic health and wellbeing programs.210 For young lesbian and bisexual women, addressing experiences of gay-related stress, internalised homophobia and emotional distress are important factors to consider in developing effective cessation interventions.208 There is some international evidence that sexual and gender minority persons may be less positive about public and private smokefree environments, highlighting a need to examine ways to increase their support.211 The influence of environments that encourage tobacco use for gay men is an issue to be considered in cessation interventions for this group.212

### 7.19.11 Other minority groups

Those who are homeless have high smoking prevalence. (See Chapter 1 Section 1.10.4 and Chapter 9 Section 9.6.6.) There is little research into tobacco use patterns or the effectiveness of cessation interventions for those who are homeless. Although motivated to stop smoking, homeless smokers are faced with unique social and environmental barriers that make quitting more difficult and therefore flexible and innovative interventions are needed.213 One small study found that homeless adults preferred NRT as the method of assistance and were more likely to be ready to quit if they had tried previously and had social support for their attempt.214 Another focused on motivational interviewing approaches and found the intervention feasible, with promising results for NRT and counselling.213 One study also suggests that counselling plus pharmacotherapy approaches can be feasible and effective.215

People living in remote and very remote areas are about 1.7% times more likely to smoke than those living in major cities.142 Those who live in rural and remote areas face particular issues regarding smoking cessation. Living some distance from major population centres, country people often lack access to specialist medical and other health services. As recognised in the National Tobacco Strategy, availability of pharmaceutical treatments and free telephone and internet services providing advice and assistance to quit are therefore very important for Australian smokers living in rural and remote areas.216 (See Chapter 9, Section 9.6.) The role of health professionals in rural and remote areas is important despite lack of services in many regions.217

Little information is available about current smoking rates among either active service personnel or veterans in Australia. Based on the relative incidence of smoking-related cancers, smoking rates among veterans of the Korean war are believed to be higher than those of the general population.218 (See Chapter 9, Section 9.6.8.) One US study of HIV-positive veterans suggests that neither having been in a military conflict nor the length of military service is significantly related to current smoking; for this group it is important to address social influence, underlying depression, use of alcohol and other drugs and awareness of the negative consequences of continued smoking.219

Research related to smokers who are hearing or sight impaired is scarce. Access to smoking cessation programs for those who are deaf is limited due to cultural, linguistic and geographic barriers. Internet-based interventions may
provide opportunities, but research is very limited. One pilot study of an interactive website has been positively evaluated, but further research is needed.\textsuperscript{20}

Little is known about the smoking rates of adults with intellectual disability or about effective interventions for this population. UK data suggest that those not using disability services are more likely to smoke.\textsuperscript{21} One limited study suggests that a mindfulness-based cessation program may be worth further investigation.\textsuperscript{22}
References


Section: 7.19.11

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7.20

National policy and progress in encouraging and supporting cessation

Australia has had significant successes in reducing the prevalence of and harm from tobacco use. Far fewer Australians are smoking and being exposed to secondhand smoke as a result of comprehensive public health approaches. The daily smoking rate among smokers aged 14 years and over has almost halved from 30.5% in 1988 to 15.9% in 2010.\(^1\)

However many smokers continue to smoke despite a strong regret that they ever started\(^2\) and numerous attempts to quit.\(^3\) Smoking rates continue to be unacceptably high, particularly among Aboriginal and Torres Strait Islander people, of whom about 45% smoked daily in 2008.\(^4\) (Refer to Chapter 8, Section 8.3.) Smoking rates among those with mental health problems and those in prison are also substantially higher than those in the general population. (See Chapter 1, Section 1.10.)

The prevalence of smoking is expected to continue to decline in Australia in response to the declining social acceptability of smoking and the effects of longstanding and strengthened policies that outlaw the promotion of tobacco products, increase knowledge of health effects and prevent tobacco products from becoming more affordable. Population-wide strategies such as these not only encourage attempts to quit but also reduce prompts to relapse. In recent years governments have also increasingly invested in services and treatments demonstrated to increase the likelihood of success of a single quit attempt. The need to institutionalise such efforts in Australia’s healthcare system has been set out in several important policy documents since 2004.

7.20.1

National Tobacco Strategy

The National Tobacco Strategy 2004–2009\(^5\) made the case for an integrated national strategy for improving the quality of, and access to, services and treatment for smokers as part of a comprehensive approach to reducing tobacco-related harm.

\[\text{A comprehensive national plan for treating tobacco dependence would enable coordination of policy and spending by programs covering public health, medical and pharmaceutical benefits, medical education, the development of general practice and continuing education of virtually all health professionals.}\]

Ideally, telephone call-back and internet services would be available to smokers from any part of the country and the benefits of Quitlines and other services would be vigorously promoted. Every smoker would be able to afford a clinically appropriate pharmacotherapy, and such treatments would be subsidised where the patient was also undertaking a behavioural support program. In all health care settings, general practitioners, community pharmacists, practice nurses, hospital nurses, specialists, dentists and other health professionals would be trained and supported to identify, encourage and support smokers to quit. GPs and other health professionals in all parts of the country would be able to refer patients to the Quitline. Identification and treatment of smokers would be national performance indicator for Australian hospitals.\(^5\)

A detailed paper outlining ideas and resources to advance this goal was published along with the strategy.\(^6\)

Since 2004, governments in Australia have increased funding for quitlines and the services offered by quitlines have expanded considerably in most states to include encouragement to remain quit provided by callback services, internet-based programs and contacts by text messaging. The National Tobacco Strategy 2004–2009 has been evaluated. Following consideration of the findings of the evaluation, a new National Tobacco Strategy is being developed.
Several other international and national documents are relevant to national policy related to smoking cessation. They include strategies to encourage and assist tobacco cessation as a key component of tobacco control.

### 7.20.2 Framework Convention on Tobacco Control

Australia is a full Party to the World Health Organization Framework Convention on Tobacco Control (WHO FCTC). Australia is thus legally bound to perform, in good faith, the full range of obligations set out in this treaty. Progress in tobacco control in Australia is now intimately connected with FCTC processes.

For the first time ever a global policy exists, set by a United Nations treaty, to support countries in developing treatment systems to help those addicted to tobacco to become tobacco free. One of the suggested implications for the future is that the guidelines challenge scientists and policy advocates to renew efforts to work with governments to develop and monitor effective tobacco dependence treatments systems.\(^7\)

In November 2010, the fourth Conference of the Parties (COP4) to the WHO FCTC adopted guidelines for the implementation of Article 14 (tobacco cessation and treatment) of the convention. Article 14 asks Parties to develop national guidelines and effective measures to encourage and assist tobacco cessation.\(^8\)

This involves:

- designing and implementing effective programs aimed at promoting tobacco in such locations as educational institutions, healthcare facilities, workplaces and sporting environments
- including diagnosis and treatment of tobacco dependence and cessation counselling services in national health and education programs, plans and strategies with the participation of health workers, community workers and social workers as appropriate
- establishing in healthcare facilities and rehabilitation centres programs for diagnosing, counselling, preventing and treating tobacco dependence
- facilitating accessibility and affordability for treatment of tobacco dependence including pharmaceutical products.

Few countries internationally have well-developed tobacco dependence treatment services and treatment for tobacco dependence is not yet a priority in most countries.\(^7\)

### 7.20.3 National Drug Strategy

The aim of the National Drug Strategy 2010–2015 is to build safe and healthy communities by minimising alcohol, tobacco and other drug-related health, social and economic harms among individuals, families and communities.

With respect to tobacco control the key elements of the strategy are to:

- prevent the uptake and/or delay the onset of use of tobacco
- reduce the use of tobacco
- support people to recover from dependence on tobacco
- manage and/or regulate the availability of tobacco
- reduce the adverse health, social and economic consequences of the use of tobacco.

The National Drug Strategy includes commitments to partnerships across sectors, consumer participation, building the evidence base, evidence-informed practice and innovation, monitoring performance and developing a skilled workforce that can deliver the strategy. Each of these has relevance for cessation strategies at a national level.\(^9\)
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Section: 7.20.4

National Preventative Health Strategy

The National Preventative Health Taskforce was established in April 2008 to develop the National Preventative Health Strategy, focusing initially on obesity, tobacco and excessive consumption of alcohol. The main report, Australia: the Healthiest Country by 2020, and the Technical Report No. 2 Tobacco Control in Australia: Making Smoking History set out several recommendations in relation to health system initiatives to encourage and support smoking cessation. In May 2010 the Australian Government set out its response to the taskforce report including proposed action on each of the recommendations in Taking Preventative Action—A Response to Australia: The Healthiest Country by 2020—The Report of the National Preventative Health Taskforce. The taskforce’s recommendations concerning support and assistance to smokers and are set out below together with the Government’s responses—refer pages 71 to 73.

Key action area 6

Ensure all smokers in contact with health services are encouraged and supported to quit, with particular efforts to reach pregnant women and those with chronic health problems

6.1 Ensure all state or territory funded healthcare services (general, maternity and psychiatric) are smoke-free, protecting staff, patients and visitors from exposure to second-hand smoke both indoors and on facility grounds.

6.2 Ensure all patients are routinely asked about their smoking status and supported to quit, both while being treated and post-discharge.

6.2.1 Include requirement in hospital accreditation procedures.

6.2.2 Include a requirement in service funding agreements and performance contracts with senior staff.

6.2.3 Provide training in institutional or health-service procedures for assessment and referral.

6.2.4 Provide training in smoking cessation in pre-service training and continuing professional education for all health workers.

The Commonwealth Government strongly supports the value of brief interventions for lifestyle-related risk factors, including smoking. The Commonwealth Government will consult the Safety and Quality Commission (which will be established permanently as part of the National Health and Hospitals Network) on these actions in the context of the Commission’s development of clinical safety and quality standards. The Commonwealth will raise this with the states and territories at the Australian Health Ministers’ Conference. As part of the National Smoke-Free Pregnancy Project, which received funding of $1.85 million (GST inclusive) over two years from the Commonwealth Government, midwives in 41 public hospitals were trained to conduct brief smoking cessation interventions for pregnant women and their partners at each visit.

6.3 Improve the quality and use of pharmacotherapies and services demonstrated to assist with smoking cessation.

The Commonwealth Government will task the Australian National Preventive Health Agency, in consultation with the Quitlines and other expert stakeholders, to bring together the evidence on best practice in this area and commission regular updates of best practice guidelines.

6.4 Increase availability of Quitline service.

Commonwealth Government officials will work with state and territory Quitline officials to conduct an evaluation and review of Quitline hours and services by 2012.
6.4.1 Ensure that Quitlines are resourced to respond to projected demand from media campaigns.

The Taskforce’s report notes that the Quitlines are currently under-utilised. Consistent with existing practice, the Commonwealth Government will keep state and territory governments and Quitlines informed as new social marketing campaigns are rolled out so that demand on services can be monitored and resourcing can be considered if necessary.

6.4.2 Fund the development and delivery of interactive smoking cessation services using approaches such as internet, mobile phone and web-enabled mobile devices.

The Commonwealth Government will task the Australian National Preventive Health Agency to investigate options in this area.

6.4.3 Establish special Quitline counselling services for pregnant women, including call-back services and feedback to treating obstetricians/GPs/ midwives.

6.4.4 Establish a group of counsellors within one or more Quitlines who would deal specifically with people needing to use interpreter services.

6.4.5 Establish a group of counsellors within one or more Quitlines who would deal specifically with people receiving specialist treatment for chronic health conditions (asthma, diabetes, arthritis, CVD etc), mental illness, providing call-back services and feedback to treating health professionals.

Quitlines are operated by states and territories. The Government will discuss these recommendations with states and territories through the Quit Group. The Australian National Preventive Health Agency will be tasked with reporting biennially on progress in this area as part of its report on the state of preventative health in Australia. In addition, from 1 July 2010, the National Pregnancy Telephone Counselling Helpline will refer callers seeking help with smoking to Quitlines.

6.5 Ensure that NRT is affordable for all those for whom it is clinically appropriate.

6.5.1 Investigate options for provision including through the Quitline and through the PBS.

6.5.2 Ensure availability of NRT and Quitline services for patients and clients of all state and territory health services.

The Government currently provides over $60 million annually in subsidies for smoking cessation aids under the Pharmaceutical Benefits Scheme (PBS). The smoking cessation aids Bupropion (Zyban) and Varenicline (Champix) are subsidised. Nicotine patches are also available on the PBS for Indigenous Australians and on the Repatriation PBS. The Pharmaceutical Benefits Advisory Committee has recommended the listing of nicotine patches on the PBS as an aid to smoking cessation for smokers more generally. The Government will consider this recommendation in due course. The Commonwealth will raise action 6.5.2 with the states and territories through the Australian Health Ministers’ Conference.

6.6 Explore whether financial incentives might be effective in helping people to quit or stay non-smokers.

6.6.1 Consider exempting from Fringe Benefits Tax employers who cover the costs of cessation therapies or who provide financial incentives to quit.

6.6.2 Trial incentive program for young Indigenous children to stay smokefree, remain at school, etc.

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i NRT was listed on the PBS in January 2011.
6.6.3 Trial projects that use incentive payments to help people to retain their resolve to stay stopped after quitting.

The Government does not support the proposed exemption from Fringe Benefits Tax for employers who cover the costs of cessation therapies or who provide financial incentives to quit.

The Government will task the Australian National Preventive Health Agency to keep the evidence on financial incentives for quitting smoking under review.

(Australian Government, Response to the national Preventative Health Taskforce, 2010, pages 71 to 73)

7.20.5 National Partnership Agreement on Public Health

In 2009 all governments in Australia signed an agreement articulating a shared commitment to address tobacco use, excessive use of alcohol and obesity in Australia. The National Partnership Agreement on Public Health extends from 1 July 2009 to 30 June 2015 and commits the Australian Government to provide $61 million over the period 2009–10 to 2012–13 in funds for social marketing to discourage smoking. It also provides $17.6 million for a National Preventive Health Agency and $13 million for a Research Fund from 2009–10 to 2012–13. Part of the brief of the agency is to advance the cessation initiatives in bold above in the Australian Government’s response to the taskforce report.
References


