

Chapter 1. Introduction to smoking cessation

Australia has made major progress in tobacco control, with population prevalence of smoking falling substantially since the 1960s. Daily smoking nearly halved from 24% in 1991 to 12.8% in 2013. While there has been a slowing in the rate of decline with little change in prevalence from 2013 to 2016 (12.2%),¹ Australia has one of the lowest smoking rates in the Organisation for Economic Cooperation and Development (OECD) countries.² In recent years, smoking rates have also fallen for Aboriginal and Torres Strait Islander peoples, but the prevalence remains unacceptably high.^{1,3,4} Australia has not met the National Tobacco Strategy 2012–18 target, which aimed to reduce the national smoking rate among Australian adults to 10% and halve the 2009 smoking rate for Aboriginal and Torres Strait Islander populations.⁵ Despite the decline in prevalence, smoking remains the behavioural risk factor responsible for the highest levels of preventable disease and premature death.^{6,7} The task of further reducing the number of Australians who are using tobacco requires a collaborative effort between government, health authorities, healthcare professionals and the community at large.

Australia is a signatory to the World Health Organization (WHO) Framework Convention on Tobacco Control, a worldwide effort to control the effects of tobacco smoking on human health.⁸ The framework commits governments to enacting a minimum set of policies proved to curb tobacco use, including:⁹

- a ban on tobacco advertising, promotion and sponsorship
- clear warning labels
- smoke-free policies
- higher prices and taxes on tobacco products
- access to, and availability of, smoking cessation services
- international cooperation in dealing with cigarette smuggling and cross-border advertising.

Australia was the first country to introduce the plain packaging of tobacco products⁹ in 2012; several other countries have since enacted tobacco plain packaging laws.

Tobacco control involves preventing uptake, supporting cessation and implementing harm-reduction strategies. Health professionals play a key role, and have a particular responsibility to assist all people who smoke to stop.^{10–12}

Supporting smoking cessation: A guide for health professionals is a practical, succinct and evidence-based resource for use by a wide range of healthcare professionals working in a variety of contexts. The recommendations are based on research evidence and informed by guidelines from other countries with similar populations.

This RACGP guideline seeks to encourage healthcare professionals to offer smoking cessation advice to all people who smoke, and the advice offered herein is consistent with the materials and support services provided through telephone Quitlines nationally.

It supports the momentum for smoking cessation gained through public health measures such as tax increases, restrictions on smoking in public places, changes to tobacco display and the introduction of plain packaging and the social marketing of smoking cessation. The guide also covers the ongoing debate around the role of tobacco harm-reduction strategies.

Since this guideline was first published in 2011, there have been developments in the science and practice of smoking cessation support. These include advances in our understanding of the neurobiology of nicotine addiction, new medicines (eg bupropion, varenicline), substantial changes in the use of nicotine replacement therapy (NRT), the emergence of nicotine-containing e-cigarettes and novel strategies (eg online and text-based cessation support programs). Smoking cessation medicines (ie bupropion, varenicline, NRT) have been listed on the Pharmaceutical Benefits Scheme (PBS) with special provision for Aboriginal and Torres Strait Islander peoples. To keep pace with these changes, the guidelines had minor updates in 2012 and 2014, and have been reviewed and updated in 2019.

Readers of this guide who want to know more about tobacco use and tobacco control measures, including summaries of what is known about the effectiveness of smoking cessation, can access the resource 'Tobacco in Australia' (www.tobaccoinaustralia.org.au/home.aspx).

Tobacco smoking: Scope of the problem

Prevalence and trends

- Globally, one in 10 deaths is caused by some form of tobacco use.¹³
- Tobacco use is attributable to more than eight million deaths each year worldwide. Of these deaths, approximately 1.2 million are non-smokers exposed to second-hand smoke.^{7,14,15}
- The mortality rate attributable to smoking is expected to rise to 10 million deaths per year by the 2020s or early 2030s, with 70% of those deaths occurring in developing countries.¹⁶
- In Australia, the prevalence of smoking is among the lowest of any OECD nation.²
- Rates of smoking daily among Aboriginal and Torres Strait Islander peoples are still more than three times that of non-Indigenous Australians.³ However, there has been a progressive decrease in daily smoking rates within Aboriginal and Torres Strait Islander populations, from 55% in 1994 to 45% in 2014–15.⁴
- Tobacco smoking accounted for almost a quarter (23%) of the health gap between Aboriginal and Torres Strait Islander peoples and non-Indigenous Australians.¹⁷

Key findings on tobacco from the 2016 National Drug Strategy Household Survey¹

- One in eight Australians smoke tobacco daily, while six in 10 have never smoked.
- Smoking rates have been on a long-term downward trend since 1991, but the daily smoking rate did not decline significantly over the most recent three-year period (ie 12.8% in 2013, 12.2% in 2016).
- Among people who smoke, three in 10 (28.5%) tried to quit but did not succeed, and about one in three (31%) do not intend to quit.
- Smoking rates are higher in remote areas of Australia (ie 13.6% in major cities, 23.8% in remote areas).

As a result of changes in public policy and changing community attitudes to tobacco, the status of tobacco smoking has shifted from a socially acceptable behaviour to an antisocial behaviour.¹⁸

Harms associated with smoking

Smoking causes a higher burden of disease than any other behavioural risk factor, representing 9.3% of the total burden of disease in 2015.^{6,19} The Australian Burden of Disease study estimated that 20,933 deaths were attributable directly to tobacco smoking in 2015,^{6,19} and smoking-related disease contributes as a comorbidity to many more.

In 2015, tobacco use contributed to the burden of disease for:⁶

- 41% of respiratory diseases
- 22.1% of cancers
- 11.5% of cardiovascular diseases
- 3.7% of endocrine disorders.

Tobacco smoking harms almost every organ of the body, causing a wide range of diseases and harming the health of those who smoke (Figure 1.1).^{7,20}

Exposure to second-hand smoke has been shown to damage the health of unborn babies, infants, children and adults, as follows:²⁰

- infants – sudden infant death syndrome (SIDS)
- children – asthma, impaired lung function, respiratory symptoms, middle ear disease
- adults – coronary heart disease, lung cancer, nasal irritation, stroke, reproductive effects in women, low birth-weight babies.

Quitting smoking has immediate and long-term benefits, reducing the risks for diseases caused by smoking and improving physical and mental health (Figure 1.2). If it occurs early enough, successfully quitting smoking can result in a difference of up to 10 years in life expectancy.²¹

Harms associated with smoking in pregnancy

Smoking has adverse effects in pregnancy, both for the mother and the developing fetus. As well as the serious long-term health consequences for the mother, tobacco smoking during pregnancy is the most common preventable risk factor for pregnancy complications. Smoking during pregnancy is associated with poorer perinatal outcomes, including:²²⁻²⁴

- low birthweight
- being small for gestational age
- pre-term birth
- perinatal death
- placental abruption
- SIDS
- cleft palate
- cleft lip
- childhood cancers.

1. EYES

- Cataracts, blindness (macular degeneration)
- Stinging, excessive tearing and blinking

2. BRAIN AND PSYCHE

- Stroke (cerebrovascular accident)
- Addiction/withdrawal
- Altered brain chemistry
- Anxiety about tobacco's health effects

3. HAIR

- Odour and discoloration

4. NOSE

- Cancer of nasal cavities and paranasal sinuses
- Chronic rhinosinusitis
- Impaired sense of smell

5. TEETH

- Periodontal disease (gum disease, gingivitis, periodontitis)
- Loose teeth, tooth loss
- Root-surface caries, plaque
- Discolouration and staining

6. MOUTH AND THROAT

- Cancer of lips, mouth, throat, larynx and pharynx
- Sore throat
- Impaired sense of taste
- Bad breath

7. EARS

- Hearing loss
- Ear infection

8. LUNGS

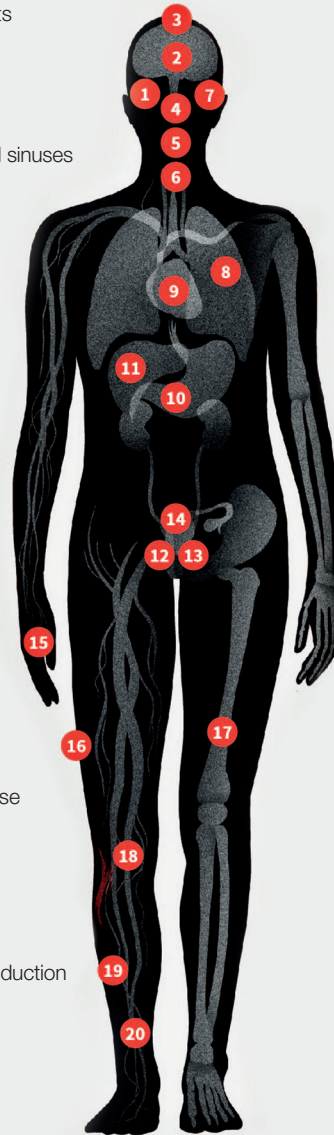
- Lung, bronchus and tracheal cancer
- Chronic obstructive pulmonary disease (COPD) and emphysema
- Chronic bronchitis
- Respiratory infection (influenza, pneumonia, tuberculosis)
- Shortness of breath, asthma
- Chronic cough, excessive sputum production

9. HEART

- Coronary thrombosis (heart attack)
- Atherosclerosis (damage and occlusion of coronary vasculature)

10. CHEST AND ABDOMEN

- Oesophageal cancer
- Gastric, colon and pancreatic cancer
- Abdominal aortic aneurysm
- Peptic ulcer (oesophagus, stomach, upper portion of small intestine)
- Possible increased risk of breast cancer

**11. LIVER**

- Liver cancer

12. MALE REPRODUCTION

- Infertility (sperm deformity, loss of motion, reduced number)
- Impotence
- Prostate cancer death

13. FEMALE REPRODUCTION

- Cervical and ovarian cancer
- Premature ovarian failure, early menopause
- Reduced fertility
- Painful menstruation

14. URINARY SYSTEM

- Bladder, kidney, and ureter cancer

15. HANDS

- Peripheral vascular disease, poor circulation (cold fingers)

16. SKIN

- Psoriasis
- Loss of skin tone, wrinkling, premature aging

17. SKELETAL SYSTEM

- Osteoporosis
- Hip fracture
- Susceptibility to back problems
- Bone marrow cancer
- Rheumatoid arthritis

18. WOUNDS AND SURGERY

- Impaired wound healing
- Poor post-surgical recovery
- Burns from cigarettes and from fires caused by cigarettes

19. LEGS AND FEET

- Peripheral vascular disease, cold feet, leg pain and gangrene
- Deep vein thrombosis

20. CIRCULATORY SYSTEM

- Buerger's disease (inflammation of arteries, veins and nerves in the legs)
- Acute myeloid leukaemia

21. IMMUNE SYSTEM

- Impaired resistance to infection
- Possible increased risk of allergic diseases

22. OTHER

- Diabetes
- Sudden death

Figure 1.1 Health effects of smoking

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Figure 1.2 The effects of quitting over time

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Smoking during pregnancy is associated with long-term health effects for the child, including:^{25,26}

- neurodevelopmental and behavioural problems
- obesity
- hypertension
- type 2 diabetes
- impaired lung function
- asthma
- wheezing.

While the rate of smoking during pregnancy in Australia is falling, of women who gave birth during 2017, approximately 10% continued to smoke some time during their pregnancy.²⁷

Effectiveness of treating tobacco dependence

Smoking cessation is cost and clinically effective, compared with other medical-preventive and disease-preventive measures such as treatment of hypertension and hypercholesterolaemia.²⁸⁻³² Along with childhood immunisation and aspirin use with high-risk adults, overall efforts to reduce tobacco smoking are among the most beneficial preventive interventions for human health.^{16,31,33,34} The cost per life year saved by smoking cessation interventions makes it one of the most cost-effective healthcare interventions.^{27,31}

Advice from health professionals, including doctors, nurses, pharmacists, psychologists, dentists and dental therapists, social workers, other allied health staff and smoking cessation specialists, helps those who smoke to quit.^{9,35-37} While spending more time (>10 minutes) advising those who smoke to quit yields higher abstinence rates than minimal advice,²¹ offering brief advice (as little as three minutes) has been shown to have clear benefits.^{9,38} On a population level, providing brief advice to most people who smoke is more effective and efficient than spending a long time with a few patients.^{37,39}

Advice-based help and pharmacotherapy can increase the rate of success of quit attempts, and their benefits are cumulative when they are used.²¹

The most effective way to quit is with advice and support from a health professional, combined with smoking cessation pharmacotherapy.⁹ People who smoke should at every opportunity be offered treatment that is customised to their needs and experience.

Quit attempts

Tobacco dependence is a chronic condition that typically requires repeated cessation treatment attempts and ongoing care.^{21,40} A minority of people who smoke achieve long-term abstinence on the first attempt to quit, while the majority cycle through multiple attempts with relapse and remission before achieving long-term or permanent abstinence.^{21,41} Multiple attempts over several years are not unusual; the average person aged 40 years who smokes will have made around 20 unsuccessful quit attempts (ie of 24-hour duration or more), most without any external help. The average person who smokes will make at least one failed attempt at quitting each year; some make a lot more and some people rarely try. Those who smoke can learn something from each quit attempt to help overcome tobacco dependence.^{41,42}

While people can succeed in quitting smoking without any assistance,⁴³ most have better results using some form of help.⁴¹ The decision to try to quit unassisted should be respected and supported;⁴⁴ however, those who smoke should be informed that making use of assistance (eg combination of behavioural support and pharmacotherapy) will increase their chances of quitting successfully. Offering support is especially important for people who smoke who have tried multiple times to quit without long-term success. Those who smoke who are more nicotine-dependent are more likely to need and seek treatment.⁴⁵

The role of health professionals

Health professionals from all disciplines can play an important role in supporting smoking cessation. All health professionals should systematically identify people who smoke and offer them advice and cessation treatment (or referral) at every opportunity.^{9,34–36,46}

Health professionals should aim to capitalise on moments in a patient's life when taking action about their tobacco use is particularly relevant:

- presenting with tobacco-related diseases
- during diagnosis or management of any condition where tobacco use affects treatment or outcomes
- during or after hospitalisation
- preparing for surgery, before and during pregnancy, and after the birth of a child.

In addition, there are visits where more detailed assessment and documentation of smoking should occur (eg new patient visits, routine check-ups).

There is a range of evidence-based strategies that can improve the implementation of effective smoking cessation intervention in the healthcare setting.^{47–50} Providing a systematic approach to smoking cessation is associated with higher levels of success.²¹ Routine enquiry through waiting room surveys^{46,51} or use of additional practice staff to provide counselling are associated with higher quit rates.³⁶

Where health professionals are not able to offer smoking cessation support or treatment within their own practice, they should refer patients who smoke for help elsewhere. In Australia, available options include Quitline, which provides free multi-session behavioural interventions, online programs (eg QuitCoach, www.quitcoach.org.au; iCanQuit, www.icanquit.com.au) and SMS programs

(eg QuitTxt, www.quitcoach.org.au/QuitTextInformation.aspx), and an emerging group of tobacco treatment specialists coordinated by the Australasian Professional Society on Alcohol & other Drugs (APSAD, www.apsad.org.au). In some states and territories, there are local programs provided by hospitals or community health facilities.

Barriers to providing smoking cessation advice

Barriers raised by health professionals to them engaging in greater efforts to provide smoking cessation advice include:^{52,53}

- a perception that smoking cessation is ineffective
- lack of time
- lack of smoking cessation skills
- reluctance to raise the issue because of perceived patient sensitivity about smoking
- perceived lack of patient motivation
- lack of confidence in providing smoking cessation advice.

Many of these barriers are based on incorrect assumptions or are barriers that can be overcome. Evidence in relation to these beliefs and barriers is presented in Table 1.1.

Table 1.1 Beliefs and barriers raised by health professionals to offering smoking cessation advice

Beliefs and barriers	Evidence to the contrary
Assistance with smoking cessation is not part of my role	Most patients think smoking cessation assistance is part of your clinical role ^{45,54}
I have counselled all my patients who smoke	Only 45–71% of people who smoke are counselled ^{55,56}
Those who smoke are not interested in quitting	Nearly all who smoke are interested in quitting, although some are temporarily put off by past failures. More than 40% of people who smoke make quit attempts each year and more think about it ⁴⁰
I routinely refer patients for smoking cessation assistance	Referrals to Quitline are low (10–25%) ⁵⁷
I am not effective at encouraging smoking cessation	Clinicians can achieve substantial quit rates over six to 12 months of 12–25%, which contribute to important public health benefits ^{9,58,59}
People who smoke will be offended by enquiry	Visit satisfaction is higher when smoking is addressed appropriately ^{55,60}
I do not have time to counsel those who smoke	Effective counselling or referral can take as little as a minute ²¹
Quitting smoking worsens mental illness	Quitting does not generally cause deterioration of mental illnesses (eg depression, schizophrenia, post-traumatic stress disorder), and is associated with improvements in mood ⁶¹

Interventions for smoking cessation

Brief intervention for smoking cessation

The Ask, Advise, Help structure for supporting smoking cessation is a brief intervention that can be provided by a wide range of health professionals working in a variety of settings. The brief intervention can be delivered in a short time, reducing one of the key barriers to health professionals providing smoking cessation advice.^{62–64} This three-step model, developed by Quit Victoria, offers patients best practice smoking cessation treatment by linking into multi-session behavioural interventions (eg Quitline) and encouraging the use of pharmacotherapy, as indicated. Three-step approaches for supporting smoking cessation have been used

for some time in the UK,⁶⁵ Canada^{66,67} and New Zealand.⁶⁸

The three-step brief intervention model (Figure 1.3) can be summarised as follows:

- **Ask** and record smoking status
- **Advise** all people who smoke to quit and on the most effective methods
- **Help** by offering to arrange referral, encourage use of behavioural intervention and use of evidence-based smoking cessation pharmacotherapy

Options for behavioural support include the Quitline (13 78 48) or a tobacco treatment specialist (www.apsad.org.au).

Recommendation 1 – All patients who smoke should be offered brief advice to quit smoking.
Strong recommendation, high certainty

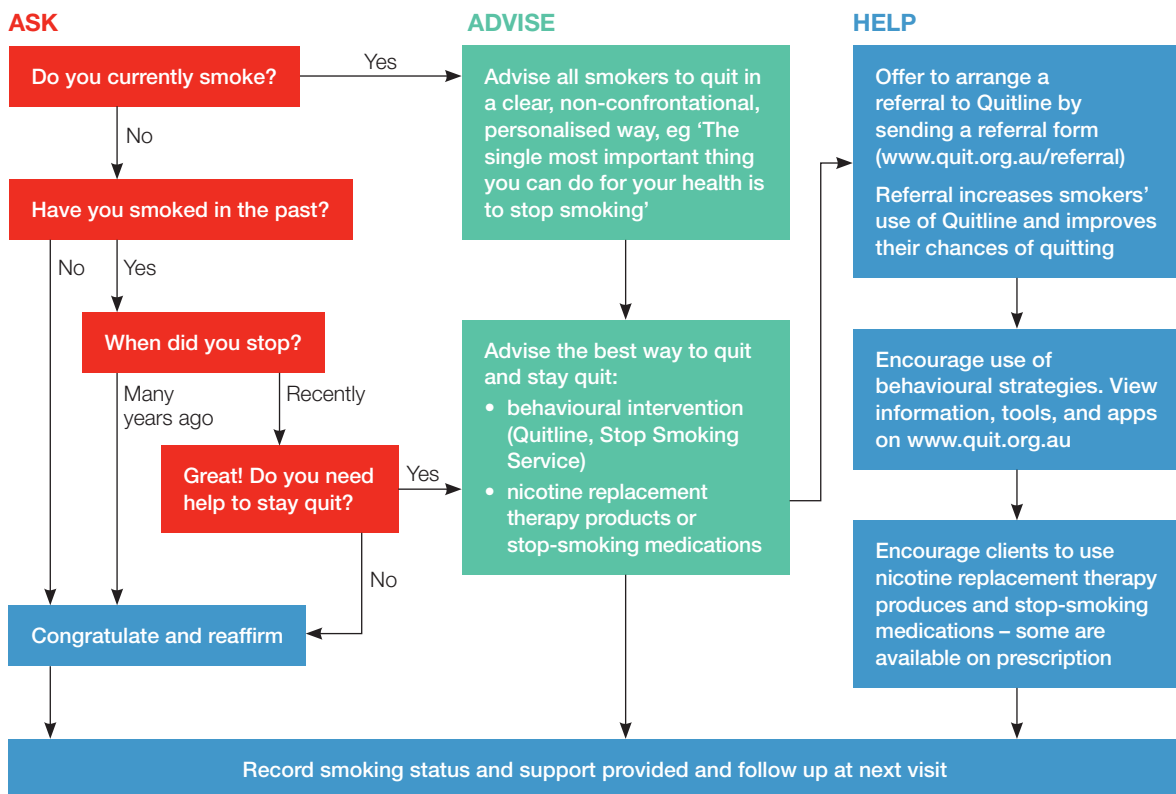


Figure 1.3 Three-step brief intervention – Ask, Advise, Help

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Comprehensive intervention for smoking cessation

Comprehensive support for quitting within the clinical service can be provided using the 5As structure:

- Ask
- Assess
- Advise
- Assist
- Arrange follow-up

The 5As approach (Figure 1.4) is applicable when health professionals are providing assistance personally or with help from other staff within the clinical service. It involves:

- identifying all patients who smoke
- assessing nicotine dependence and barriers to quitting
- advising them to quit
- offering quitting assistance
- arranging follow-up.

The approach is adopted in full or as a modified form in the majority of international smoking cessation guidelines.⁶⁹ Where possible, health professionals should maintain long-term and ongoing relationships with people who smoke in order to foster the person's motivation and confidence to attempt smoking cessation.

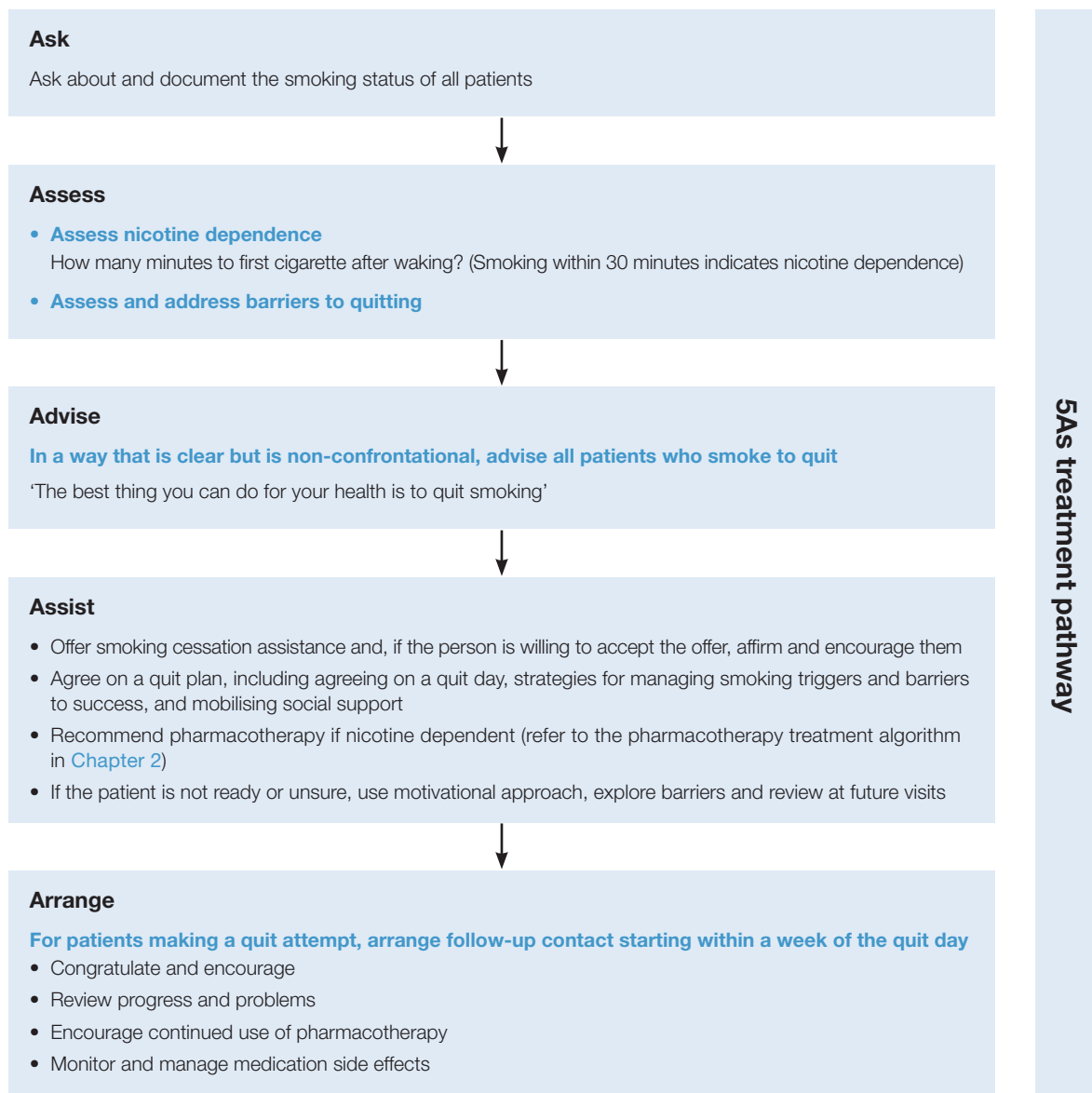


Figure 1.4 5As structure for smoking cessation

Ask all patients about smoking

Ask

Ask about and document the smoking status of all patients

Health professionals should ask all patients whether they smoke tobacco and their smoking status should be recorded. Implementing recording systems that document tobacco use almost doubles the rate at which clinicians intervene with patients who smoke, and results in higher rates of smoking cessation.²¹ For those patients known to smoke, health professionals should try to continue a conversation about their smoking at each visit, even if it is just an offer to discuss options and importance of action at a subsequent visit. It is important for health professionals to be non-judgemental when asking about smoking.

Recommendation 2 – A system for identifying all people who smoke and documenting tobacco use should be used in every practice or healthcare service. *Strong recommendation, high certainty*

Assess nicotine dependence and barriers to quitting

Assess

- **Assess nicotine dependence**

How many minutes to first cigarette after waking? (Smoking within 30 minutes indicates nicotine dependence)

- **Assess and address barriers to quitting**

Assess nicotine dependence

The majority of people who smoke are nicotine dependent, and smoking can be conceptualised as a chronic medical illness requiring ongoing care for these people.⁷⁰ As nicotine dependence is under-recognised by clinicians, routine assessment of nicotine dependence can help predict whether a person who smokes is likely to experience nicotine withdrawal on stopping smoking,^{71,72} and the intensity and type of support that may be required to assist quitting.

A quick assessment of nicotine dependence can be made by asking the person who smokes:⁷³

- 'How soon after waking do you have your first cigarette?'
- 'Have you had cravings for a cigarette, or urges to smoke and withdrawal symptoms (refer to '[Nicotine withdrawal symptoms](#)' for examples) when you have tried to quit?'

Smoking within 30 minutes of waking, smoking more than 10 cigarettes per day (although some nicotine-dependent people may not smoke daily) and a history of withdrawal symptoms in previous attempts to quit are all indicators of nicotine dependence.

Time to first cigarette is the most reliable single indicator of nicotine dependence. Since cigarettes per day became a measure of dependence, a combination of public health and clinical interventions have changed smoking habits in developed countries, making it a less robust indicator. As the number of cigarettes per day declines in countries with strong anti-smoking policies, and the fact that those who smoke underestimate their own consumption level, time to first cigarette has been widely accepted as a more reliable marker of dependence in most people who smoke.⁶⁴

Assess and address barriers to quitting

It is important for health professionals to be aware of the potential difficulties patients face when attempting to quit smoking, and identify and address any mistaken beliefs and attitudes about quitting at the time of the quit attempt (Table 1.2).^{74,75} Support could include providing treatment for withdrawal symptoms or mental health issues, or recommending physical activity and a healthy diet to minimise weight gain. It is also important to recognise the broader influence of social determinates on health behaviours and people's capacity to make health choices.

Table 1.2 Attitudes and barriers to quitting

Perceived barrier (mistaken beliefs and attitudes)	Evidence-based strategies to address barriers ⁷⁶⁻⁷⁸
<ul style="list-style-type: none"> I can quit at any time I am not addicted 	<ul style="list-style-type: none"> Ask about previous attempts to quit and success rates
<ul style="list-style-type: none"> Using cessation support is a sign of weakness Help is not necessary 	<ul style="list-style-type: none"> Reframe support Explain that nicotine withdrawal symptoms are reduced by treatment Highlight that unsupported quit rate is 3–5%, but substantially higher with assistance
<ul style="list-style-type: none"> Too addicted Too hard to quit Fear of failure 	<ul style="list-style-type: none"> Ask about previous quit attempts Explore pharmacotherapy used and offer options (eg combination therapy)
<ul style="list-style-type: none"> Too late to quit I might not benefit so why bother 	<ul style="list-style-type: none"> Benefits accrue at all ages, and are greater if cessation is achieved earlier: quitting at 30 years of age achieves similar life expectancy to those who do not smoke Provide evidence and feedback (eg spirometry, lung age, absolute risk score)
<ul style="list-style-type: none"> My health has not been affected by smoking You have to die of something I know someone who smoked heavily who has lived a long time 	<ul style="list-style-type: none"> State evidence that one in two people who continue to smoke after middle age will die prematurely of smoking-related disease Reframe: for example, chronic obstructive pulmonary disease (COPD) = smoker's lung
<ul style="list-style-type: none"> Not enough willpower No point in trying unless you want to To quit successfully, you really have to want to quit, then you will just do it 	<ul style="list-style-type: none"> Explore motivation and confidence Explore and encourage the use of effective strategies (eg Quitline, pharmacotherapy)
<ul style="list-style-type: none"> Cigarettes help me relax 	<ul style="list-style-type: none"> Suggest other relaxation strategies such as breathing techniques and progressive muscle relaxation
<ul style="list-style-type: none"> Fear of weight gain 	<ul style="list-style-type: none"> Average weight gain after smoking cessation is 2–4 kg; only about 10% of people have substantial weight gain (>13 kg) Suggest strategies to minimise weight gain: healthy diet; avoid high-fat and high-sugar foods and drinks; regular physical activity Point out that health benefits of quitting far exceed any adverse health effects of weight gain
<ul style="list-style-type: none"> Peer and social pressure 	<ul style="list-style-type: none"> Suggest avoidance of high-risk social situations early in the quit attempt For some people it can be helpful to rehearse how to say no to a cigarette offer

Nicotine withdrawal symptoms

Nicotine withdrawal symptoms commonly include craving for nicotine and onset of other symptoms. The *Diagnostic and statistical manual of mental disorders*, 5th edition (DSM-5) defines nicotine withdrawal as occurring:

after abrupt cessation of tobacco use, or reduction in the amount of tobacco used, followed within 24 hours by four or more of the following signs or symptoms:

- irritability, frustration, anger
- anxiety
- difficulty in concentration
- increased appetite
- restlessness
- depressed mood
- insomnia.⁷⁹

To meet the DSM-5 definition:

*these symptoms need to cause clinically significant distress or impairment in social, occupational or other important areas of functioning, and not be attributable to another medical condition or better explained by another mental disorder, including intoxication or withdrawal from another substance.*⁷⁹

Other nicotine withdrawal symptoms may include:⁸⁰

- craving for sweet or sugary foods
- constipation
- coughing
- dizziness
- dreaming/nightmares
- nausea
- mouth ulcers
- sore throat.

It is important to inform the person beginning a first or subsequent quit attempt that they may experience nicotine withdrawal symptoms when quitting.

Usually, nicotine withdrawal symptoms begin within 24 hours of the last cigarette and are strongest in the first week (but for some people only in the first 2–3 days). For most people, withdrawal symptoms decline steadily and can disappear after approximately 2–4 weeks.⁸⁰ Symptoms can occur for other reasons, so caution should be exercised in attributing them to nicotine withdrawal.

Nicotine withdrawal symptoms can be reframed as recovery symptoms.

Pharmacotherapies will reduce or completely prevent withdrawal symptoms.⁸¹

Urges to smoke and cravings for nicotine are elements of withdrawal, and are strong predictors of relapse.⁸¹ Providing strategies to manage withdrawal is an essential aspect of the healthcare professional's role:

- Quitline services offer a number of patient calls, especially in the first few weeks, to help and encourage those who smoke in a quit attempt to stay on track.
- Smoking cessation pharmacotherapies can prevent or reduce the severity of withdrawal symptoms.^{81,89}
- There is evidence that exercise can help reduce acute cravings and nicotine withdrawal for some people.⁸²

Advise all patients who smoke to quit

Advise

In a way that is clear but non-confrontational, advise all patients who smoke to quit

'The best thing you can do for your health is to quit smoking'

Health professionals should advise patients who smoke to quit and, where possible, personalise the advice and the benefits of quitting. Establishing rapport and asking permission to discuss smoking minimises any risk of harming the patient–healthcare professional relationship. In fact, asking patients who smoke if they would like help to quit can be appreciated and can strengthen the relationship.⁸³ Patients express greater visit satisfaction when smoking cessation is addressed.^{59,84}

Brief, repeated, positive reminders to quit by a range of health professionals can increase success rates.²¹

Recommendation 3 – Offer brief cessation advice in routine consultations and appointments, whenever possible. *Strong recommendation, high certainty*

Assist those who smoke to quit

Assist

- Offer smoking cessation assistance and, if the person is willing to accept the offer, affirm and encourage them
- Agree on a quit plan, including agreeing on a quit day, strategies for managing smoking triggers and barriers to success, and mobilising social support
- Recommend pharmacotherapy if nicotine dependent (refer to the pharmacotherapy treatment algorithm in [Chapter 2](#))
- If the patient is not ready or unsure, use motivational approach, explore barriers and review at future visits

The decision on what assistance to provide those who smoke and those who recently quit depends on:

- willingness to quit
- needs
- preferences
- suitability of available support
- capacity of the health professional and their service.

Assistance could include advice and support, referral, or a combination of these options. When capacity within the clinical service to provide behavioural support is limited, referral to Quitline can be useful in addition to providing support from within the practice, including advice on pharmacotherapy.

For people willing to make a quit attempt:

- help the person develop a quit plan, including
 - agreeing on a quit day
 - providing strategies for managing smoking triggers and barriers to success
 - mobilising social support

- recommend pharmacotherapy if the patient is dependent on nicotine (refer to the pharmacotherapy treatment algorithm in [Chapter 2](#)); consider strategies such as pre-cessation nicotine replacement, combination therapy
- discuss the importance of follow-up and behavioural support.

If the person is not ready to quit or unsure about quitting, use motivational approaches, explore barriers and review at future visits. For further details on smoking cessation strategies, refer to [Chapter 2, 'Pharmacotherapy for smoking cessation'](#), and [Chapter 3, 'Behavioural and advice-based support for smoking cessation'](#).

Motivational interviewing

Assistance from health professionals may include motivational interviewing, which is an evidence-based counselling technique based on a therapeutic partnership that acknowledges and explores a person's ambivalence about their smoking behaviour. Motivational interviewing requires more time than brief interventions. It allows the person who is trying to quit to clarify what goals are important to them and to organise their reasons in a way that supports actions. Motivational interviewing values patient autonomy and mutual respect, and uses open-ended questions, affirmations, reflection and summarising.⁸⁵⁻⁸⁷

For motivational interviewing strategies, refer to Chapter 3, 'Clinical interventions for tobacco use and dependence' and Table B1, page 58 in *Treating tobacco use and dependence: 2008 update* (www.tobaccoprogram.org/clientuploads/documents/Consumer%20Materials/Clinicians%20Systems%20Mat/2008-Guidelines.pdf).⁸⁸

Arrange follow-up

Arrange

For patients making a quit attempt, arrange follow-up contact starting within a week of the quit day

- Congratulate and encourage
- Review progress and problems
- Encourage continued use of pharmacotherapy
- Monitor and manage medication side effects

Follow-up visits to discuss progress and provide support have been shown to increase the likelihood of successful long-term abstinence.⁸⁹ Additional follow-up leads to further increases in smoking cessation rates when compared with no follow-up.⁸⁹

Encouragement can help maintain motivation, as can affirming the person's decision to quit and reinforcing the benefits (health, social, financial) of quitting and being someone who does not smoke. It is important to review progress and identify and seek to address problems. Examine any slips so that more effective coping strategies can be planned. Explain that slips are valuable learning experiences, not failures, and encourage them to keep trying. Neuropsychiatric symptoms (eg anxiety, agitation, poor sleep, low mood) can be features of nicotine withdrawal; it is important to identify these symptoms and offer support.⁸⁹ Behavioural disturbances and suicidal thoughts can also occasionally occur.⁸⁹

Many people who are trying to quit will discontinue the use of smoking cessation pharmacotherapy prematurely, or may need dosage adjustment. Hence, reviewing the use of medication is important:

- Is the patient taking the medication?
- Are they using it correctly?
- Are they experiencing any side effects?

If NRT is used and there are withdrawal symptoms, a larger dose or combination NRT may be required.⁸⁹

Discuss relapse prevention by offering support and help to identify and manage high-risk situations (eg drinking alcohol, emotional stress, social situations with others who smoke). Encourage the patient to enlist the support of family and friends. Encourage use of support services:

- Quitline – 13 78 48
- Online programs
 - QuitCoach (www.quitcoach.org.au)
 - iCanQuit (www.icanquit.com.au)
- SMS-based support – QuitTxT (www.quitcoach.org.au/QuitTextInformation.aspx)

Relapse in the first weeks after quitting is common and often related to nicotine withdrawal.⁸⁹ There is a later peak in relapse after discontinuation of smoking cessation medication.⁹⁰ Relapse can also be triggered by alcohol, stress and social situations. About 50% of those who quit smoking and who are still abstinent at 12 months will subsequently relapse.⁹¹ There is as yet no behavioural intervention, including behavioural support or skills training, that has been proven to prevent relapse.^{92,93} Advice, behavioural counselling and pharmacotherapy are recommended to treat symptoms of withdrawal, stress and weight gain.⁹⁴ Health professionals should offer ongoing support to all people who have made a quit attempt and need further help to remain smoke free.

Recommendation 4 – Offer follow-up to all people who are attempting to quit smoking.
Strong recommendation, high certainty

Tobacco dependence

Nicotine, which adversely affects the developing brain, is the main addictive chemical in tobacco smoke.^{20,95,96} Although nicotine is the main chemical making smoking addictive, it is responsible for very few of the harmful health effects of smoking. The harmful health effects of smoking are caused mainly by tar, oxidising chemicals, carbon monoxide and other constituents of tobacco smoke generated by the combustion of tobacco leaf.^{16,20,82}

Dependence on nicotine can develop quickly, especially in adolescents who smoke. Nicotine is one of the most highly addictive substances, perpetuating cigarette and other tobacco-product use, hindering smoking cessation efforts, increasing the risk of other substance use and addiction, and creating a number of adverse health consequences.^{98,99}

Dependence on smoking is a complex process. It requires a close link in time between the context in which smoking occurs, its rituals, the sensory stimuli of touch, taste and smell, and the extremely rapid delivery of nicotine to the brain that occurs when smoking a modern cigarette. Evidence suggests that psychosocial, biological and genetic factors all play a role in nicotine addiction.^{19,82,83}

When cigarette smoke is inhaled, the large surface area of the lungs enables nicotine to be rapidly absorbed into the pulmonary venous circulation and travel quickly to the brain through the bloodstream.¹⁰⁰ Nicotine in tobacco smoke reaches the brain's reward system within seconds of inhalation.¹⁰¹ The nicotine affects multiple types of nicotine receptors in the brain, especially the alpha-4 beta-2 ($\alpha 4\beta 2$) nicotinic acetylcholine receptor. Activation of this and other receptors triggers the release of dopamine and other neurotransmitters.¹⁰² This reward system is the common pathway for the experience of pleasure from many different social, physical and chemical stimulants, including other drugs of addiction (eg cocaine, opiates). As well as the activation of the reward system, the negative effects of nicotine withdrawal are important factors in the continuation of smoking.

Genetic factors play a role in the differing patterns of smoking behaviour and cessation. The degree of susceptibility to developing nicotine addiction and the ease or difficulty of quitting and sustaining abstinence have been reported from twin and adoption studies.¹⁰² This research shows a high degree of heritability of cigarette smoking (50–70%).¹⁰³ The finding points to an understanding of why people who smoke vary widely in their relationship to tobacco and ability to quit. Genetic factors have a substantial role in nicotine withdrawal symptoms, cigarette consumption, difficulty quitting and response to smoking cessation therapies.⁹⁰ However, a useful way to target treatment based on genetics has not yet been shown. The studies also indicate that there may be some people who smoke who never fully overcome their addiction, or who can never quit all nicotine use.⁶² For these people, a harm reduction strategy may be of help (refer to [Chapter 5, 'Discussion of harm reduction'](#)).

Effect of smoking abstinence on medications

Smoking tobacco can alter the metabolism of a number of medicines through pharmacokinetic and pharmacodynamic interactions. Therefore, monitoring the dosage reduction of certain medications will be required. Quit Victoria outlines drug interactions with smoking, detailing the impact of smoking cessation on drug dosages (Table 1.3, and www.quit.org.au/resources/general-practice/resources-general-practitioners).

Pharmacokinetic interactions are primarily due to substances in tobacco smoke, such as hydrocarbons or tar-like products that cause induction (speeding up) of some liver enzymes (CYP 1A2, in particular). Therefore, medicines metabolised by these enzymes are broken down faster and can result in reduced concentrations in the blood. When a person stops smoking, the enzyme activity returns to normal (slows down), which may result in increased levels of these medicines in the blood. Pharmacodynamic interactions owing to the stimulation effects of nicotine can reduce the effects of some medications, particularly benzodiazepines and methadone.

Table 1.3 Drug interactions with smoking

DRUG	NATURE OF INTERACTION WITH SMOKING Pharmacokinetic (PK) Pharmacodynamic (PD)	ACTION UPON CESSATION OF SMOKING	CLINICAL SIGNIFICANCE
Caffeine	PK: Increased clearance.	Advise to reduce caffeine by half.	High
Clozapine	PK: Increased clearance and decreased plasma concentrations.	Monitor trough plasma concentrations (if possible before stopping smoking and for two weeks after or sooner if adverse effects develop). Be alert for increased adverse effects. Reduce dose if clinically appropriate. Seek specialist advice from treating mental health practitioner.	High
Erlotinib	PK: Increased clearance and decreased plasma concentrations (around two-fold).	Reduce dose to initial starting dose if a patient stops smoking. Seek specialist advice. Nb. People who smoke should be encouraged to stop before therapy is initiated.	High
Irinotecan	PK: Increased clearance. Reduced exposure in people who smoke may lead to decreased haematological toxicity.	Seek specialist advice. Dosing should be closely monitored.	High
Theophylline	PK: Increased clearance and decreased half-life.	Monitor theophylline levels and reduce dose if clinically appropriate. Advise patient to monitor for signs of toxicity (e.g. palpitations, vomiting or nausea). Nb. It may take several weeks for enzyme induction to dissipate.	High
Chlorpromazine	PK: Decreased AUC and decreased plasma concentrations.	Be alert for increased adverse effects (e.g. dizziness, sedation, EPSE). Reduce dose if clinically appropriate.	Moderate
Insulin	Unclear: Possible decrease in insulin absorption secondary to peripheral vasoconstriction. Smoking may also increase insulin resistance.	Reduce dose if clinically appropriate. Advise patient to be alert for signs of hypoglycaemia and to test their BGLs more frequently.	Moderate
Methadone	Likely PK/PD: Nicotine affects the endogenous opioid system.	Be alert for signs of opioid toxicity. Reduce dose if clinically appropriate. Seek specialist advice. Nb. Methadone attenuates nicotine withdrawal.	Moderate
Olanzapine	PK: Increased clearance and decreased plasma concentrations.	Be alert for increased adverse effects (e.g. dizziness, sedation and hypotension). Reduce dose if clinically appropriate.	Moderate
Warfarin	PK: Increased clearance and decreased plasma concentrations.	Monitor INR closely. Reduce dose if clinically appropriate.	Moderate
Antiplatelet drugs (clopidogrel & prasugrel)	PK: Possible higher antiplatelet effect in people who smoke.	Seek specialist advice.	Low
Benzodiazepines	Likely PD: Central nervous system (CNS) stimulation by smoking. Nb. Results from pharmacokinetic studies are mixed.	Monitor for adverse effects (enhanced effect of benzodiazepines). Reduce dose if clinically appropriate.	Low
Beta Blockers	PD: Smoking opposes the beneficial effects of beta blockers on blood pressure and heart rate.	Monitor for adverse effects. Reduce dose if clinically appropriate.	Low
Haloperidol	PK: Decreased plasma concentrations.	Be alert for increased adverse effects (e.g. drowsiness, EPSE and hypotension). Reduce dose if clinically appropriate.	Low
Mirtazapine	PK: Decreased plasma concentrations.	Be alert for increased adverse effects (e.g. sedation). Reduce dose if clinically appropriate.	Low
Selective serotonin reuptake inhibitors (SSRIs)	PK: Decreased plasma concentrations. Nb. Best evidence for fluvoxamine, duloxetine and escitalopram.	Be alert for increased adverse effects (e.g. drowsiness and dizziness). Reduce dose if clinically appropriate.	Low
Tricyclic antidepressants	PK: Decreased plasma concentrations.	Be alert for increased adverse effects (e.g. sedation, dry mouth). Reduce dose if clinically appropriate.	Low

The most clinically significant interactions are provided here. For more information on any of the listed interactions, please refer to drug interactions references and literature at www.quit.org.au/psa-references

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