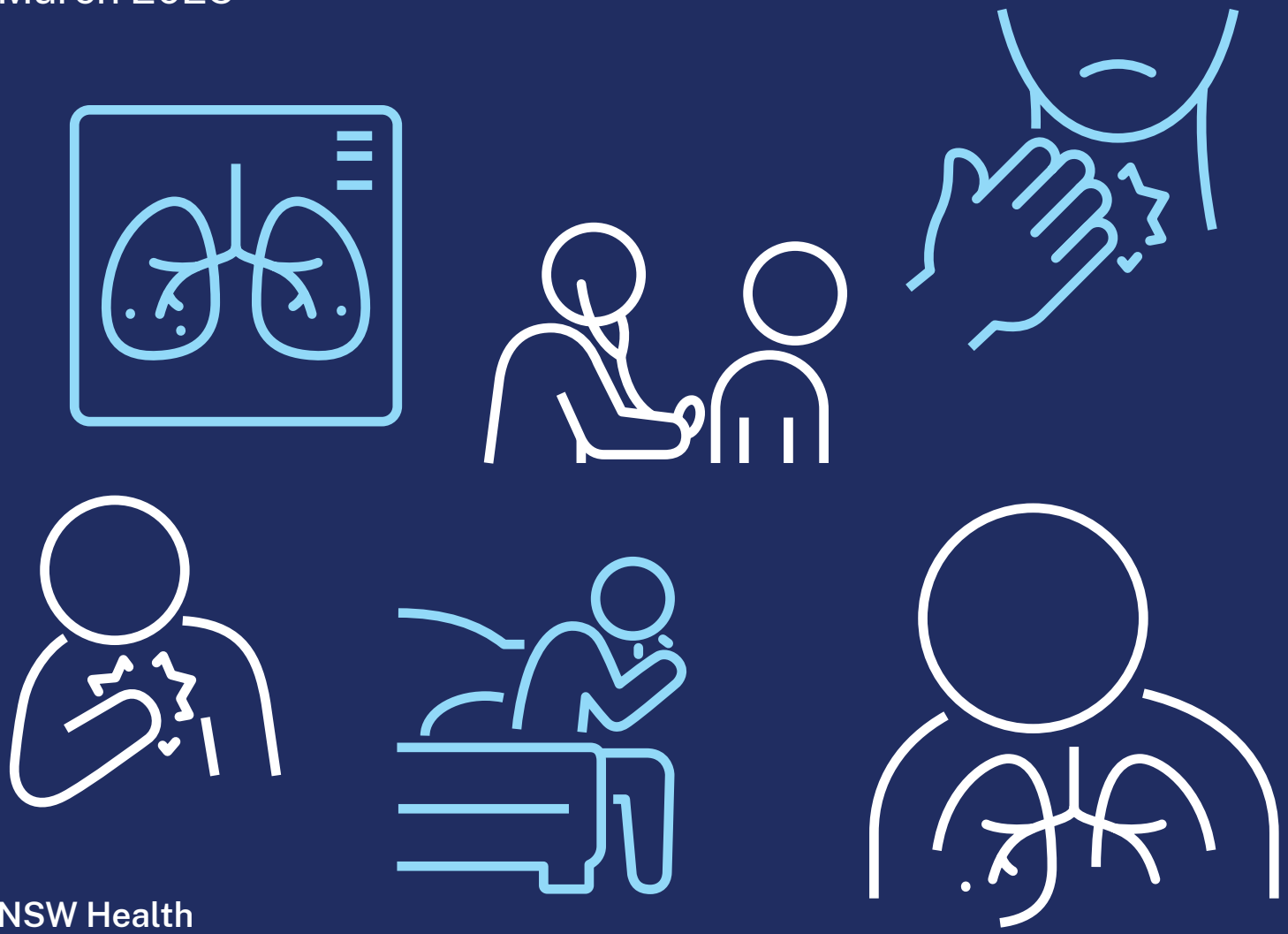
Managing Nicotine Dependence Guide

March 2025



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Contents

Key definitions

Term	Definition
Ask, Advise, Help Model	The 'Ask, Advise, Help' model is a brief intervention to support people who smoke/use e-cigarettes.
Cigarettes	Tobacco wrapped in a roll of paper.
e-Cigarette (also known as vape/s)	An e-cigarette is a battery-operated device that heats a liquid (also known as e-liquid) to produce an aerosol or vapour that the user inhales. E-cigarettes are also called e-cigs, vapes, electronic nicotine delivery systems, alternative nicotine delivery systems.
Inpatient settings	A physical location where admitted patients are accommodated or treated for their care and treatment.
Nicotine	Nicotine is a highly addictive chemical compound present in tobacco plants. All tobacco products contain nicotine, such as cigarettes, cigars, smokeless tobacco, hookah tobacco, and most e-cigarettes. Nicotine is what keeps people using tobacco products [1].
Nicotine dependence	Nicotine dependence is a disorder of regulation of nicotine use arising from repeated or continuous use of nicotine. The characteristic feature is a strong internal drive to use nicotine, which is manifested by impaired ability to control use, increasing priority given to use over other activities and persistence of use despite harm or negative consequences [2].
Nicotine replacement therapy (NRT)	Nicotine replacement therapy products are used to deliver nicotine and replace the nicotine from tobacco and e-cigarettes to reduce the severity of nicotine withdrawal symptoms.
Outpatient settings	Services provided to patients: • Who do not undergo a formal admission process • Who do not occupy a hospital bed, and • By a recognised clinical team of one of more practitioners within a hospital, community health service or multi-purpose service.
Pharmacotherapy	Pharmacotherapy defined as the treatment of a health condition using pharmaceutical products. Pharmacotherapy for managing nicotine dependence and smoking cessation includes nicotine replacement therapy and prescribed medications such as varenicline [3].
Tobacco	Tobacco is made by drying leaves from tobacco plants and is the main component of cigarettes.
Therapeutic Goods Administration (TGA)	Therapeutic Goods Administration is Australia's government authority responsible for evaluating, assessing, and monitoring products that are defined as therapeutic goods.
Smoke/smoking	Smoking relates to any ignited tobacco product or non-tobacco smoking product and includes smoking from a cigarette, pipe, water-pipe (such as shisha) or any other smoking device.
Women	This document refers to 'women' as the key client's accessing maternity care providers, however NSW Health acknowledges that people of diverse genders use maternity services and is respectful of every individual's experience and needs.

About This Guide

Purpose of the Guide

This Guide seeks to support NSW Health staff offering effective, evidence-based treatment for nicotine dependent patients, including behavioural interventions and pharmacotherapy where clinically appropriate. It is intended to be used by staff working in NSW Health facilities in both inpatient and outpatient settings, including those working in public and population health.

The Guide has been updated to respond to the increasing emergence of e-cigarette use and the Therapeutic Goods and Other Legislation Amendment (Vaping Reforms) Act 2024 that came into effect on 1 July 2024. For up-to-date information about these vaping reforms, see the Therapeutic Goods Administration (TGA) Vaping Hub.

The Guide also supports the NSW Smoke-free Health Care Policy which emphasises the important role of the health care sector in reducing health risks associated with tobacco and e-cigarette use by clients, staff and visitors to NSW Health facilities and aims to reduce the community's exposure to second-hand smoke and second-hand vape aerosol. The Policy means that all NSW Health buildings and grounds are smoke-free and vape-free except for designated outdoor smoking areas set up by the local health district.

This guide complements the NSW Health Guide to Support Young People to Quit E-Cigarettes which was developed for health professionals to effectively support young people to manage nicotine withdrawal and quit e-cigarettes.

How to use this Guide

The Guide is divided into three sections: background information, managing nicotine dependence and supporting patients to quit in inpatient settings, and supporting smoking/e-cigarette cessation in outpatient settings. It also includes key tools which can be printed and referred to for standalone advice.

Please note that the advice within this guide is not intended to be all inclusive and should be considered alongside specific patient needs and circumstances. If further advice is needed, staff should discuss this with a pharmacist and/or the treating physician.

Inpatient Settings

NSW Health Staff have an important opportunity to encourage and support patients manage nicotine dependence and smoking and e-cigarette cessation during episodes of care, including while the patient is admitted and upon discharge.

In inpatient settings, people who are nicotine dependent should be offered pharmacotherapy (e.g. nicotine replacement therapy (NRT)) and behavioural interventions where appropriate.

The NSW Medicines Formulary contains a list of pharmacotherapies available for managing nicotine dependence in the inpatient setting.

Outpatient Settings

In outpatient settings, the Ask, Advise, Help (AAH) smoking and e-cigarette brief intervention model should be used to support conversations about smoking/e-cigarette cessation.

Supporting priority populations

Addressing nicotine dependence with people from priority populations may require a comprehensive, holistic and trauma informed approach. This can include consideration of the physical, spiritual, cultural, emotional, and social wellbeing of the individual.

This is particularly important when providing support to Aboriginal people[1], who are at higher risk of using nicotine containing products Aboriginal people . Where appropriate, clinicians should offer Aboriginal people the opportunity to consult with an Aboriginal Health Worker or Practitioner that the person is comfortable with, or a culturally safe service, such as Aboriginal Quitline which can be accessed by calling Quitline and asking to speak to an Aboriginal Advisor.

It is important that support and interventions to quit smoking and e-cigarettes are self-determined and adopt a strength-based approach that ensures Aboriginal people feel supported in their progress to quit. A strengths-based approach acknowledges the strengths of Aboriginal people, their families, and their communities. It also recognises the cultural determinants of health that support Aboriginal people's holistic health and wellbeing, including self-determination, beliefs and knowledge and connection to culture, community and Country.

When working with people from a culturally and linguistically diverse ('CALD') background, support must be culturally responsive and linguistically suitable. This may include recognition of the significant impact that stigma, discrimination, and trauma have on their life, and using a professional interpreter and appropriate referral pathways where appropriate.

People who use alcohol and other drugs often have high rates and levels of nicotine dependence and as such they may find it more difficult to manage their nicotine dependence and quit smoking/e-cigarettes. People who use alcohol and other drugs may need a higher level of support and treatment over a longer period of time.

For further information on supporting priority populations please refer to relevant policy documents, including:

- NSW Aboriginal Health Plan 2024 –2023
- NSW Health Integrated Trauma Informed Care (ITIC) Framework: My story, my health, my future
- NSW Health Youth Health Framework 2017–24
- NSW LGBTIQ+ Health Strategy 2022–2027
- NSW Plan for Healthy Culturally and Linguistically Diverse Communities 2019–2023.

Supporting NSW Health employees to quit smoking/e-cigarettes

NSW Health is committed to promoting the health and well-being of all staff. In line with the NSW Smoke-free Health Care Policy, staff of Local Health Districts (LHD's), St Vincent's Health Network and Specialty Health Networks (SHN's) staff will be supported to manage their nicotine dependence and quit through access to brief cessation interventions and at least four weeks' supply of free NRT per year from their organisation, as clinically appropriate.

This information, including the specifics on how to access free NRT, should be included on the local Intranet as well as during new starter inductions.

[1] In this guide, Aboriginal and Torres Strait Islander people are referred to Aboriginal people in recognition that Aboriginal peoples were the original inhabitants of NSW.

Section 1:
Background Information

01

Epidemiology

For current and detailed information on smoking and e-cigarette prevalence in NSW visit HealthStats NSW at https://www.healthstats.nsw.gov.au/topic-overview/Smoking

Nicotine containing products in Australia

Cigarettes

The basic components of most cigarettes are tobacco, chemical additives, a filter, and paper wrapping. When the tobacco is burned, and the smoke is inhaled the smoker is exposed to over 7,000 chemicals.

Commercially packaged and rolled cigarettes have been the main form of tobacco used in NSW. Other popular forms of tobacco include cigars, pipe tobacco or clove cigarette. While cigarette smoking has declined in the past decades, other forms of tobacco are increasing in prevalence. This includes homegrown/illicit tobacco plants, illicit tobacco, and chop-chop (loose tobacco).

E-cigarettes

E-cigarettes are battery operated devices that heat a liquid to produce an aerosol that users inhale.

There has been a significant increase in e-cigarette use since 2020, particularly in young people [5]. The increase of e-cigarette use in young people has been driven by the appeal of flavoured products, ease of access and the perception that e-cigarettes are a safer alternative to smoking [6].

Liquids in e-cigarettes have been found to contain chemicals such as formaldehyde, heavy metals, solvents, and volatile compounds [7, 8]. Research has shown that most e-cigarettes contain nicotine, often in high concentrations and not listed accurately on the ingredients [9].

For further information on e-cigarettes refer to NSW Health: E-cigarettes (vapes)

Oral nicotine products

Oral nicotine products, including nicotine pouches and snus are a smokeless oral nicotine product. It is usually tucked under the lip to allow nicotine and sweeteners or flavourings to be absorbed into the bloodstream. Although the use of nicotine pouches is rapidly increasing worldwide largely due to their discreet nature and the absence of smoke or vapour, the impacts are similar to conventional oral tobacco products that are known to cause mouth and throat cancers. Some nicotine pouches have very high levels of nicotine.

Shisha

Shisha is a smoking device, also known as a nargila, argileh, hubble bubble, hookah, shisha or goza. Shisha is a popular cultural activity in some communities in Australia.

Traditionally, shisha use hot coals to heat tobacco. More recently, electronic shishas have been developed. These devices use a battery to heat a liquid into a vapour that users breathe in.

There is a common misconception that shisha is less harmful than cigarettes. Compared to a cigarette, in an average 45-minute shisha session, a person can inhale:

- 2-3 times the amount of nicotine
- About 10 times the amount of carbon monoxide
- 25 times the amount of tar
- Up to 50 times the amount of lead

For further information on shisha refer to Shisha No Thanks.

Bush Tobacco

Bush tobacco is a native Australian tobacco plant which contains nicotine. It is known by different names including Pitjuri and Mingkulpa. Bush tobacco is typically used in remote parts of Australia.

Bush tobacco plays a social and cultural role in Aboriginal communities, connecting people with community, culture, and land. Families and friends may gift each other bush tobacco as a sign of connection. Bush tobacco has been used as a medicine to treat insect bites, ringworm, and scabies [10].

For further information on bush tobacco refer to Tackling Indigenous Smoking: key facts about bush tobacco resources.

Dual-use and other tobacco products

The NSW Smoking and Health Surveys measure tobacco-related and e-cigarette knowledge, attitudes and behaviours among NSW adults. The 2023 Survey showed a large proportion of people who smoke also use other forms of nicotine or use other tobacco products other than just cigarettes. It also found:

- Almost one in three (31%) people who smoke use e-cigarettes either regularly or occasionally, this was a significant increase from 21% in 2021
- Seven in ten people (72%) who smoke use tailor-made or manufactured cigarettes, this was similar to 2021 (69%)
- 27% of people who smoke use roll-your-own cigarettes
- One in ten (11%) people who smoke use cigars
- Just over one in ten people who smoke (12%) use waterpipe or shisha [11].

For more information, refer to NSW Smoking and Health Survey.

Health effects of nicotine containing products

Health effects of nicotine

Nicotine is a highly addictive substance that has several health effects on the body, including but not limited to:

System	Effect of nicotine
Central nervous system	Short term effects include temporary feelings of relaxation and well-being, improved short term memory and improved concentration. Long term effects include mental health issues, mood and anxiety disorders, and depressive symptoms.
Cardiovascular system	Increased heart rate and blood pressure and peripheral vasoconstriction.
Endocrine system	Increased circulating catecholamines such as adrenaline and noradrenaline and increased cortisol level.
Metabolic system	Increased basal metabolic rate.
Gastrointestinal system	Decreased appetite and increased nausea.
Skeletal muscle	Decreased muscle tone.

Health effects of cigarettes and tobacco products

Smoking is the leading cause of preventable ill health and death in Australia [12]. Cigarettes and tobacco products are known to lead to the following problems:

- Respiratory diseases: smoking damages the lungs, leading to chronic obstructive pulmonary disease (COPD), chronic bronchitis, and emphysema. It also increases the risk of lung infections and worsens asthma.
- Cardiovascular disease: smoking contributes to heart disease, stroke, and peripheral artery disease by damaging blood vessels, increasing blood pressure, and reducing oxygen flow to the heart.
- Cancer: smoking is the leading cause of various cancers, including lung, throat, mouth, esophagus, pancreas, bladder, kidney, and cervical cancer.
- Reproductive effects: in women, smoking can cause fertility issues, complications during pregnancy, and increase the risk of preterm birth, low birth weight, and stillbirth. In men, it can lead to erectile dysfunction and reduced sperm quality.
- Gastrointestinal effects: smoking increases the risk of developing ulcers, acid reflux, and cancers of the stomach, liver, and pancreas.
- Bone health: smoking increases the risk of osteoporosis, leading to weaker bones and a higher chance of fractures
- Weakened immune system: smoking weakens the immune system, making the body more susceptible to infections and slowing the healing process.
- Vision effects: smoking is linked to a higher risk of cataracts, macular degeneration, and other vision problems that can lead to blindness [13].

Health effects of cigarettes and tobacco during pregnancy

Smoking during pregnancy is the most significant preventable cause of complications for pregnant women and their children, and is associated with preterm birth, low birth weight, babies who are small-for-gestational-age and perinatal death [14]. Smoking during pregnancy also increases the risk of a baby being born with birth defects, including cleft lip, cleft palate, or both [15]. Smoking can also cause premature rupture of the membranes (breaking of the amniotic sac before the onset of labour), placenta praevia (when the placenta is attached to the uterine wall close to or over the cervix) and placental abruption (premature separation of the placenta from the wall of the uterus) [16].

Health effects of e-cigarette use

E-cigarettes may expose users to chemicals and toxins that are harmful to health [7-9, 17]. Health harms associated with e-cigarettes include nicotine addiction, nicotine poisoning, throat irritation, breathlessness, cough, dizziness, headaches, nausea and lung damage [18, 19].

For young people, regular nicotine consumption can cause changes in brain development, impaired attention, learning and memory, and may worsen stress, depression and anxiety [20, 21]

Emerging research shows that e-cigarettes can cause changes to heart rate, blood pressure, arterial stiffness and other risk factors which can lead to negative cardiovascular outcomes, including kidney disease, stroke and heart attack [22, 23].

E-cigarettes can cause oral mucosal lesions, dental and gum damage, changes in the oral microbiome and changes at the cellular level of oral tissue. These may have long term oral health effects including increased risk of dental caries, gum disease and oral cancers. More research is needed to establish the relationship between the totality of harm and the use, including between tobacco and / or e-cigarettes, overtime [24].

Health effects of e-cigarette use during pregnancy

E-cigarettes are not safe for pregnant women. Nicotine from e-cigarettes passes easily from the mother to the fetus via the placenta in the same way as when tobacco is smoked. Nicotine from e-cigarettes may be associated with adverse pregnancy outcomes such as preterm birth, low birth weight, small for-gestational-age and perinatal death. E-cigarettes contain chemicals, flavours and additives that may not be suitable for pregnant women and their babies. [25-28].

Regular e-cigarette use may also be linked with adverse maternal outcomes, such as addiction, poisoning and acute nicotine toxicity [14].

E-cigarettes and nicotine poisoning

The liquid in e-cigarettes can be a high risk for poisoning due to high nicotine concentration and poor-quality packaging. A young child can die from very small amounts of nicotine [29].

Nicotine poisoning can occur if too much nicotine is inhaled, ingested, or absorbed through the skin, and can be fatal [30]. Common symptoms include vomiting, drowsiness and difficulty breathing.

The NSW Health e-cigarette child safety pamphlet provides advice to parents and families about the importance of child safety around e-cigarettes and highlights the risk of nicotine poisoning in children.

Health effects of shisha

Short term effects of smoking shisha include elevated heart rate and blood pressure and impaired lung function and exercise capacity. Shisha use can also lead to carbon monoxide poisoning.

In the long term, smoking shisha increases the risk of cardiovascular disease, chronic obstructive pulmonary disease, stroke, gum disease, male infertility, addiction to nicotine and premature labour and low birth weight in babies whose mothers use shisha. Shisha can also cause cancers, including of the lung, head and neck, oesophagus, stomach, urinary and bladder tract.

Infectious diseases such as herpes simplex virus, tuberculosis, hepatitis A and B, and respiratory infections can also spread through sharing shisha. While some shisha cafes provide new pipe mouth pieces for each patron, the hose is still shared and can transmit infection.

Second and third-hand exposure

Health effects of second-hand tobacco smoke

Second-hand smoke (also called passive smoke) is the combination of smoke emitted from the burning end of a cigarette or other tobacco product and smoke exhaled by a smoker.

For children, inhaling second-hand tobacco smoke is especially dangerous. Children's airways are smaller, and their immune systems are less developed, making them more likely to experience negative health consequences such as sudden infant death syndrome, bronchitis, pneumonia, and asthma.

In adults, breathing second-hand smoke can increase the risk of cardiovascular disease, stroke, lung cancer and other diseases. It can also exacerbate the effects of other illnesses such as asthma and bronchitis. Women exposed to second-hand smoke during pregnancy are more likely to have newborns with lower birth weight, increasing their risk of complications [31]

Health effects of third-hand tobacco smoke

Third-hand smoke refers to the residual nicotine and other chemicals left on the surface of objects and clothing after the second-hand smoke has cleared.

Third-hand smoke causes significant harm to infants and young children, because younger children are more likely to crawl on the floor and eat from their hands without washing them first, causing ingestion of toxins [32].

Third-hand smoke residue builds up on surfaces over time and is resistant to normal cleaning and cannot be eliminated by airing out rooms, opening windows, using fans or air conditioners, or confining smoking to only certain areas of a home.

Benefits of quitting nicotine products

Quitting smoking, e-cigarettes, and the use of other nicotine[2] products have significant health benefits. Immediate benefits start within hours of the last cigarette/e-cigarette and continue to accumulate over many years.

Smoking causes acute and chronic changes to the body and over time this can progress towards disease. Quitting smoking results in the reversal of these changes, the slowing of disease progression, and provides the potential for damage reversal.

Secondary benefits of quitting may include:

- Money previously spent on cigarettes and e-cigarettes is saved,
- Improved health for those around you (decreased second and thirdhand smoke and aerosol),

Although there is not a significant body of evidence on the long-term benefits of quitting e-cigarettes, shisha, and other nicotine products, the benefits are likely similar to quitting smoking.

[2] Nicotine Replacement Therapy is a different delivery mechanism to nicotine in e-cigarettes. The speed of delivery and safety of NRT is well established.

Timeline of health benefits from smoking cessation [33, 34]

Time since quitting smoking	Health benefits from smoking cessation
Within hours	• Heart rate will slow, and blood pressure will decrease
Within a day	• Almost all nicotine will be out of a person's blood stream • The level of carbon monoxide in a person's blood will drop to normal levels • Oxygen can more easily reach the heart and muscles
Within a week	• The lung's natural cleaning system will start to recover and improve • Taste and smell may improve
Within 2 months	• Coughing and wheezing will decrease • A person's immune system will begin its recovery, meaning their body will be better at fighting infection • A person's blood will be less thick and sticky and blood flow to hands and feet will improve
Within 6 months	• A person's lungs will work much better and produce less phlegm • A person is likely to feel less stressed than when they were smoking
After 1 year	• A person's lungs will be much healthier, and they will be breathing more easily than if they had kept smoking • A person's risk of cardiovascular disease and stroke will reduce by half
Within 2 to 5 years	• The risk of heart attack and stroke will be significantly lower and will continue to decrease gradually • For women, within five years, the risk of cervical cancer will be the same as someone who has never smoked
After 10 years	• A person's risk of lung cancer will drop by half • The risk of cancers of the mouth, throat, bladder, kidney, oesophagus, bladder and pancreases will be lower
After 15 years	• Risk of heart attack and stroke will be close to that of a person who has never smoked

Section 2:
Managing nicotine dependence and supporting patients to quit in inpatient settings

02

Nicotine dependence

Nicotine dependence

Nicotine dependence develops with repeated exposure to nicotine and is characterised by a diminished response to the same dose or where a greater dose is required to achieve similar effects [35].

Nicotine dependence is a chronic condition with physical and psychological features.

It includes a pattern of recurrent episodic or continuous use of nicotine with evidence of impaired regulation of nicotine use indicated by two or more of the following:

- Impaired control over nicotine use (i.e., onset, frequency, intensity, duration, termination, context)
- Increasing precedence of nicotine use over other aspects of life, including maintenance of health, and daily activities and responsibilities, such that nicotine use continues or escalates despite the occurrence of harm or negative consequences (e.g., repeated relationship disruption, occupational or scholastic consequences, negative impact on health)
- Physiological features indicative of neuroadaptation to the substance, including:
    1) **dependence.** Nicotine dependence develops with repeated exposure to nicotine and is characterised by a diminished response to the same dose or where a greater dose is required to achieve similar effects.
    2) **withdrawal.** Nicotine withdrawal symptoms following cessation or reduction in the use of nicotine.

The features of dependence are usually evident over a period of at least 12 months, but the diagnosis may be made if use is continuous (daily or almost daily) for at least 3 months.

Features of medium/high nicotine dependence can include:

- smoking/e-cigarette use within 30 minutes of waking in the morning
- reporting the first cigarette/or e-cigarette of the day to be the one most difficult to give up
- a history of withdrawal symptoms in past quit attempts
- smoking/e-cigarette use in places where it is not allowed.

For further information on nicotine dependence, please see Section 3: Nicotine dependence assessment tools.

Fluctuations in nicotine levels

Regular smoking/e-cigarette use causes fluctuations in nicotine levels in the body leading to cravings and withdrawal symptoms.

Smoking or e-cigarette use sends a ‘hit’ or bolus of nicotine to the brain and increases blood nicotine levels. As nicotine is rapidly metabolised, nicotine levels decline resulting in nicotine withdrawal including craving and irritability [36]. This pattern explains why individuals feel compelled to use nicotine frequently. Each use temporarily relieves withdrawal, reinforcing the behaviour and strengthening dependence.

Cue-driven cravings

Cue-driven cravings are an important aspect of nicotine dependence, distinct from the physical withdrawal symptoms. These cravings are triggered by environmental stimuli or situations associated with smoking or e-cigarette use. Common cues include:

- Specific times of days (e.g. after meals, with morning coffee)
- Social situations (e.g. being around others who smoke, drinking alcohol)
- Emotional states (e.g. stress, boredom, celebration)
- Physical locations (e.g. outdoor areas, designated smoking areas)
- Sensory experiences (e.g. smell of smoke, holding a cigarette or e-cigarette)

Managing cue-driven cravings is an important part of treatment for nicotine dependence. Strategies can include identifying and avoiding triggers when possible, developing coping mechanisms for unavoidable cues, using fast-acting forms of NRT to manage sudden cravings, engaging in behavioural interventions that address habit formation and psychological dependence [37]

Nicotine and stress

People who smoke or use e-cigarettes often think that they cannot manage stress without using these products. This can be a major barrier to quitting smoking and e-cigarettes.

People who smoke or use e-cigarettes often misattribute the relief that smoking or vaping provides as minimising their stress, however, this is often actually only relieving their withdrawal symptoms that they perceive as stress.

Nicotine withdrawal

People experience nicotine withdrawal in ways that can negatively impact their care in hospital.

Common symptoms of nicotine withdrawal:

- irritability, frustration, anger
- cravings
- anxiety
- mood changes (including low mood)
- difficulty concentrating
- insomnia or sleep difficulties
- restlessness
- appetite changes.

Other symptoms may include coughing/sore throat, feeling light-headed/dizzy, headache, mouth ulcers, constipation and nightmares. These symptoms can all occur for other reasons so caution should be exercised in attributing them to nicotine withdrawal if there are other concerning features.

Pharmacotherapy for nicotine dependence

Pharmacotherapy including NRT and prescribed medication can be used for nicotine dependence. Pharmacotherapy should be combined with behavioural interventions to be most effective. In certain circumstances behavioural interventions alone may be more appropriate than pharmacotherapy, for example, in people who are pregnant. Decisions on prescribed medications should be discussed with a suitably qualified health professional.

There are several first line options for the treatment of nicotine dependence and smoking cessation, whether from cigarettes or e-cigarettes. These include:

1. NRT (oral NRT and/or nicotine patch) *and* behavioural interventions
2. Varenicline *and* behavioural interventions *and* oral NRT if required for cue-driven cravings
3. Bupropion[3] *and* behavioural interventions *and* oral NRT if required for cue-driven cravings.

When considering pharmacotherapy options, clinicians should consult the NSW Medicines Formulary which contains a list of pharmacotherapies available for managing nicotine dependence in inpatient settings.

Managing nicotine dependence with NRT

NRT is a useful tool to manage withdrawal symptoms and its use for quitting smoking is well established. The evidence-base to guide the use of NRT for the cessation of e-cigarettes is still emerging.

NRT is a low-risk intervention that works by delivering controlled amounts of nicotine to the body and reducing withdrawal symptoms caused by nicotine dependence, whether from cigarettes or e-cigarettes.

Patients need to be provided with enough NRT to manage withdrawal symptoms while addressing the psychological component of nicotine dependence through behavioural interventions.

NRT is safe for use in individuals aged 12 years and over where no contraindications are present. Decisions around NRT use in adolescents (aged 12-17) should be discussed with a suitably qualified health professional [3, 38].

The table below provides information on the type, route, dose, frequency and maximum dose of NRT. The type and dose of NRT is determined by the patients' level of dependence.

See Tool 2 for further information.

[3] Bupropion is not included in the NSW Medicines Formulary. Approval to use bupropion is available via the Individual Patient Use pathway from the facility's local Drug and Therapeutics Committee

Type of NRT	Route of administration	Dose	Frequency	Maximum
Nicotine patch	Transdermal (patch applied to skin)	7mg, 14mg or 21mg	Daily	1 patch
	Directions for use: Apply to clean, hair-free, dry skin on the upper body (chest, rib cage, back, side of upper arm) and hold down for 20 seconds. Rotate to different parts of the body each time a new patch is used to avoid skin irritation [39].			
Gum	Oral	2mg or 4mg	1 piece of gum every 1-2 hours when the person has the urge to smoke.	12 pieces daily at 2mg
	Directions for use: Chew gum slowly, bite gum about 10 times, until tingling or bitter taste, then park gum between cheek and upper gum until tingling subsides, then chew again. Each piece usually lasts about 30 minutes [39].			
Lozenge	Oral	2mg or 4mg	1 lozenge every 1-2 hours when the person has the urge to smoke.	15 lozenges daily
	Directions for use: Let the lozenge dissolve in mouth without chewing or swallowing. It may take up to 30 minutes to dissolve completely [39].			
Spray	Oral	1mg spray	1-2 sprays every thirty minutes to one hour when the person has the urge to smoke.	4 sprays/hour for 16 hours OR
	Directions for use: Shake the pump before using. Hold breath while directing spray toward cheek or under tongue. Try not to swallow for a few seconds to allow the nicotine to be absorbed [39].			

Cut down to quit approach

The cut down to quit approach is an effective method to assist people who smoke and are unwilling or express an inability to stop smoking. It involves reducing the number or frequency of smoking/e-cigarette consumption over time, supported by NRT and behavioural interventions, before progressing to quitting altogether. Evidence suggests that gradually reducing smoking/e-cigarette consumption results in comparable quit rates to quitting abruptly without reducing consumption first [40]

Prescribed medications for managing nicotine dependence

Varenicline

Mechanism of action

Varenicline is a nicotinic receptor partial agonist drug for smoking cessation that relieves symptoms of craving and withdrawal [3].

Practice points

- There are two options for quitting with varenicline:
  - Fixed option: a person sets a date to stop smoking, Varenicline should start one or two weeks before this date
  - Flexible approach: when a person who smokes begins Varenicline, then quits smoking between day 8 and day 35 of treatment [3].
- Combining varenicline with oral NRT may improve quit rates.

Precautions

- Varenicline is not recommended for pregnant or breastfeeding women [39].
- Reduce dose for people with renal impairment (CrCl<30 mL/min) [39].

Bupropion

Mechanism of action

Bupropion is believed to act by inhibiting the neuronal reuptake of dopamine and noradrenaline [39]. Bupropion reduces the urge to smoke and reduces symptoms from nicotine withdrawal [3].

Practice points

- Bupropion should be started at least a week before a patient stops smoking,
- Bupropion may be combined with oral NRT [39].

Precautions

- Bupropion is not recommended for pregnant or breastfeeding women, or in those with renal or hepatic impairment [39].
- Bupropion is contraindicated in patients with seizures, eating disorders and those taking monoamine oxidase inhibitors [3].

Cytisine

From 1 October 2024, Cytisine was given interim approval as a schedule 3 (lower dose) and 4 medicine (prescription only) [41].

Mechanism of action

Cytisine is a partial agonist of nicotinic receptors drug that is used to reduce nicotine withdrawal [41].

Precautions

- Cytisine is not recommended in pregnant or breastfeeding women
- Cytisine is not recommended for individuals who have unstable angina, recent heart attack, irregular heart rhythms and stroke [41].

Second-line pharmacotherapies

If the above first-line pharmacotherapies are not effective, it is important to seek specialist support as second-line medications may be an option to effectively support patients to quit smoking.

Use of e-cigarettes to manage nicotine dependence and smoking cessation

There are proven safe and effective first-line options to help people quit smoking. Currently no e-cigarettes are approved or registered with the Australian Register of Therapeutic Goods (ARTG). Medicines that are not registered are known as 'unapproved' medicines. These products have not been assessed by the TGA for safety, quality, and efficacy.

From October 2024, e-cigarettes with or without nicotine are available for supply in pharmacy settings to patients 18 years or over without a prescription. Adolescents who wish to access these devices will still require a prescription. For up-to-date information see TGA Vaping Hub.

In NSW Health facilities, patients who are nicotine dependent, including those who use e-cigarettes, should be prescribed first line and best practice treatment options including approved pharmacotherapies and behavioural interventions.

If an admitting consultant has made an assessment and believes commencing or continuing an unapproved e-cigarette is in the patient's best interest, a drug and alcohol physician or psychiatrist must be consulted. This should be done after considering the risks, benefits and practicality of a patient needing to move to a designated area. This safeguard recognises the currently low-level evidence for e-cigarettes use as a smoking cessation aid, their unapproved status and their unknown harm profile.

According to the Smoke-free Environment Act 2000 and the NSW Health Smoke-free Health Care Policy all NSW Health Buildings and grounds are smoke-free and vape-free except for designated smoking areas set up by local health districts. This means e-cigarettes can only be used in outdoor designated smoking areas.

Managing nicotine dependence in inpatient settings

In inpatient settings, pharmacotherapy, including NRT and prescribed medications are an effective way to manage withdrawal while a person is hospitalised. While the goal of using pharmacotherapy in inpatient settings is to manage nicotine dependence, patients should be encouraged to remain quit following discharge by offering a referral to Quitline or a letter to their regular GP.

Quitline referral

Any patient who smokes/uses e-cigarettes should be offered to NSW Quitline for support as part of a discharge plan and information should be recorded in the patient's discharge summary.

To offer a referral to NSW Quitline, please see: Referrals to NSW Quitline or local guidelines.

Nicotine dependence whilst a patient is on leave from a hospital

When a patient goes on leave from a health facility, it is important to assist them to manage their nicotine dependence and support their ongoing quit attempts.

When a patient goes on leave, they should be:

- Reminded that even one cigarette/puff of an e-cigarette will trigger further cravings, and that the urge to smoke/use an e-cigarette is a symptom of withdrawal that will pass.
- Provided with information on ways of dealing with symptoms of withdrawal/nicotine cravings, including the use of NRT where appropriate.
- Encouraged to participate in alternative activities to smoking, e.g.: make a cup of tea, walk around the block.
- Encouraged to continue using NRT as prescribed

Discharge planning

When a patient is discharged from a NSW Health facility, it is important to equipt them to manage their nicotine dependence and support their ongoing quit attempts.

When a patient is discharged from a NSW Health facility they should be:

- Supplied with at least three days of the NRT product they have been using.
- Encouraged to see their GP for ongoing cessation support, including to discuss alternative pharmacotherapies if needed and to request a PBS script for NRT (if eligible).
- Provided with written information about the harms of smoking/e-cigarettes and benefits of quitting.
- Offered a referral to NSW Quitline, and/or to a cessation service provider or tobacco treatment specialist. Information on NSW Quitline and/or a cessation service provider should be included in the patients discharge summary.
- Provided with an opportunity to discuss ongoing smoking cessation upon discharge in their preferred language, if their preferred language is other than English, using an interpreter.

Smoking or using e-cigarettes on NSW Health facility grounds

Smoking or using e-cigarettes is only permitted in designated outdoor smoking areas on NSW Health facility grounds in accordance with the NSW Smoke Free Health Care Policy. Importantly, not all LHDs have smoking areas in place, and this should be confirmed locally.

These designated areas reduce occupational health and safety concerns for staff and reduces harms of smoke or aerosol for other patients.

Section 3:
Supporting smoking/ e-cigarette cessation in outpatient settings

03

Supporting smoking/e-cigarette cessation

In outpatient settings, the Ask, Advise, Help (AAH) smoking and e-cigarette brief intervention model should be used to support conversations around smoking/e-cigarette cessation.

Using the AAH model in outpatient settings includes providing information on cessation services such as NSW Quitline and smoking cessation pharmacotherapy.

Patients should be encouraged to speak to their GP about ongoing cessation support and the use of cessation pharmacotherapy.

For further information on the AAH model, please see Tool 1.

Supporting cessation in outpatient clinics

Outpatient clinics including oral health centres

All outpatient clinics should offer information on smoking/e-cigarette cessation. Multi-component interventions combining pharmacotherapy (varenicline, combination NRT) with behavioural interventions (delivered via NSW Quitline or at repeat clinic visits) increase abstinence rates in patients [42, 43].

Drug and alcohol services

People who use alcohol and drugs often have higher rates and levels of nicotine dependence and may find it more difficult to quit smoking/e-cigarettes. As such, they generally require more intensive and longer treatment to support their quit attempt. All people who attend drug and alcohol services should be offered information on smoking/e-cigarette cessation, and those with nicotine dependence will benefit from the involvement of health professionals to support smoking cessation.

Antenatal clinics

NSW Health PD2022_050 *Reducing the effects of smoking and vaping on pregnancy and newborn outcomes* outlines the minimum requirements for NSW Health services and clinical staff to provide evidence-based smoking and e-cigarette cessation support to people before, during and after pregnancy.

This policy includes routine offering of carbon monoxide (CO) monitoring to all women who identify as being a smoker or recent quitter before asking about their smoking status:

- At first pregnancy visit and at the 28 weeks' gestation visit
- At every healthy visit for women who are known to smoke or have recently quit (i.e., in the last 12 months).

Behavioural interventions are the recommended first-line treatment for quitting smoking/e-cigarettes. However, NRT may be considered when a pregnant woman is otherwise unable to quit and may 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 [44]. The clinician supervising the pregnancy should be consulted, and the clinician, the patient and anyone prescribing NRT should have a conversation to discuss any potential benefits, risks and expectations.

If NRT use is recommended for pregnant women, intermittent-use forms (such as gum or lozenges) are preferred over continuous-delivered nicotine (patches). This helps to avoid high levels of nicotine in the fetal circulation. Nicotine patches may be used if oral NRT is problematic (e.g., side effects), or if combination therapy is required. In this circumstance, a 16-hour patch should be used, or a 24-hour patch should be removed overnight [44].

During pregnancy, nicotine is metabolised more rapidly. As a result, NRT may be less effective in pregnant women, or more NRT might be required to adequately manage nicotine withdrawal in a pregnant woman than a person who is not pregnant [46].

Pre-admission clinics

All patients in pre-admission clinics should be asked about their smoking and e-cigarette use before a planned surgery or hospital stay.

If a patient does smoke or use e-cigarettes, they should be:

- Informed that quitting smoking and e-cigarettes reduces anaesthesia and surgical complications and improves wound healing post operatively.
- Supported to stop smoking at least two months before surgery, or as soon as possible. If this is not possible, patients should consider starting NRT a week prior to surgery to help manage withdrawal symptoms while in hospital.
- Offered a referral to NSW Quitline and be encouraged to complete a Quit Plan to prepare for their hospital admission and recovery.
- Encouraged to discuss smoking/e-cigarette cessation with their GP to understand the choices that are available to support them to quit.

Tools to support quitting

NSW Quitline (13 QUIT or 137848)

The NSW Quitline is a confidential telephone service that provides expert smoking and e-cigarette cessation information and counselling. Talking, even briefly with a professional Quitline advisor can increase a person's chance of quitting and staying quit.

Professional counsellors provide encouragement, resources and support to help people who smoke and/use e-cigarettes to achieve their quit goals. They are friendly, helpful, non-judgemental and can assist people at whatever stage they may be at in the quitting process.

The Quitline counsellors can also provide advice specific to young people or to family and friends of people who smoke or use e-cigarettes. They can also guide health professionals about the best evidence for quitting smoking and using e-cigarettes.

NSW Quitline offers:

- Regular calls to discuss progress.
- A Quit Kit containing helpful information about quitting - available to download in English, Arabic, Chinese (Cantonese and Mandarin) and Vietnamese.
- Aboriginal counsellors offer a tailored and culturally sensitive service for Aboriginal callers.
- Callers from culturally and linguistically diverse communities can talk to Quitline in their language, using the Translating and Interpreter Service or bilingual counsellors.
- A referral to Quitline is suitable for patients who are ready to quit and those who need support to get ready.
- Patients can also access the My QuitBuddy app. The app provides helpful tips and distractions to overcome cravings and tracking systems to chart your progress.

Referrals to NSW Quitline can be made at Quitline Referral.

Motivational interviewing

Motivational interviewing is a proven counselling technique that explores a patient's feelings about their smoking/e-cigarette use. It has been found to encourage quit attempts in those who smoke or use e-cigarettes if they are in the contemplative or pre-contemplative stages.

My Health Learning provides education on motivational interviewing. The training module is called *'Introduction to Motivational Interviewing'* and can be found at My Health Learning.

Behavioural interventions

Behavioural interventions include a range of tools and resources to help individuals quit smoking through tailored strategies. These include support from professional counsellors (such as NSW Quitline), motivational interviewing, and personalised quit plans. Behavioural interventions should be used as part of a wider quit plan [38]. Behavioural interventions can provide essential guidance and can encourage patients to identify and manage their triggers. They can also include tools like carbon monoxide (CO) monitoring which visibly tracks progress of an individual's quit attempt, motivating individuals to stay quit.

Carbon monoxide monitoring

Carbon monoxide (CO) monitoring helps assess the level of nicotine dependence and offers smokers visible, real-time evidence of the impact smoking has on their body. When used as part of an overall intervention, such as motivational interviewing and brief intervention, CO monitoring can be an effective tool to motivate and track individuals progress to quit smoking [47, 48]. CO monitors are not an effective tool for measuring e-cigarette use [48].

Nicotine dependence assessment tools

Assessment tools are helpful in establishing the level of nicotine dependence and are also useful in a community or research setting to track progress. Simply asking the 'Time to First Cigarette/e-cigarette' is the most useful short form assessment [49].

Short form screening tools

Time to First Cigarette/E-Cigarette

The Time to First Cigarette/E-Cigarette (TTFC or TTFEC) is a brief screening tool that enables a rapid assessment of the level of nicotine dependence an individual is experiencing.

To use TTFC/EC ask:

- How long after waking do you smoke a cigarette/ use an e-cigarette?

Cigarette/e-cigarette use within 30 minutes of waking (in the morning), experiencing withdrawal, and cravings are all markers of nicotine dependence [49].

Long form screening tools

The Fagerström Test for Nicotine Dependence

The Fagerström Test for Nicotine Dependence is a six-item self-report scale. The test assesses degree of urgency to restore nicotine threshold after night-time abstinence, and persistence to maintain nicotine levels during waking hours [50]. Fagerström Test for Nicotine Dependence is most effective for assessing smoking and does not have the same internal consistency as other tools (e.g. Hooked on Nicotine Checklist) for assessing dependence in e-cigarette users.

For more information on the Fagerström Test for Nicotine Dependence, please see appendix 1.

Hooked on Nicotine Checklist (HONC)

The Hooked on Nicotine Checklist (HONC) is a series of simple questions used to determine nicotine dependence and related loss of autonomy over cigarette use in young people. The HONC has also been modified to assess e-cigarette dependence: modified-Hooked on Nicotine Checklist (M-HONC) [50, 51].

For more information on HONC and M-HONC, please see appendix 2 and appendix 3.

Penn State E-Cigarette Dependence Index

The Penn State measure is a tool to estimate a young person's nicotine dependence, ranging from 'not dependent' through to 'high dependence'. It asks about a variety of aspects of nicotine dependence, including length of e-cigarette use sessions, night-time and morning use, cravings, and withdrawal symptoms.

For more information on the Penn State measure, please see appendix 4.

Tools for health professionals

04

Tool 1: Ask, Advise, Help (AAH) - a brief intervention to support people who smoke/use e-cigarettes.

The AAH model encourages a sensitive and empathetic approach to support discussion about smoking and e-cigarette cessation.

Ask

- **Ask** the person about cigarette/e-cigarette use (including dual use of e-cigarettes and cigarettes and other products e.g., shisha, nicotine pouches).
- **Ask** the person about nicotine dependence, record status, and identity the needs of the individual to tailor a support plan.

Advise

- **Advise** all people who smoke or use e-cigarettes to quit in a clear and supportive way without judgement.
- **Advise** harms of continued use and benefits of quitting.
- **Advise** best way to quit and stay quit:
  - Multi-session behavioural intervention such as NSW Quitline
  - Smoking cessation pharmacotherapy if required.

Help

- **Help** by offering referral to services such as NSW Quitline and the MyQuit Buddy app.
- **Help** by encouraging use of behavioural strategies:
  - Alternative dopamine reward: Instead of using a cigarette/e-cigarette, a person could carry a snack (nuts/flavoured gum) for a dopamine release
  - Rewards or incentives: Suggest the person set measurable goals to reduce or cease their cigarette/e-cigarette use including positive reinforcement (rewards or incentives) for periods of abstinence
  - Distraction: Suggest the person distract themselves by doing something else e.g., Play a video game, go for a walk, listen to music.
- **Help** by encouraging patient to use smoking cessation medication such as NRT and provide follow-up.

Tool 2: Quick guide to nicotine replacement therapy.

Tips for using NRT

- Patients need to be provided with enough oral NRT to manage cravings and withdrawal symptoms. The patient should be encouraged to request more oral NRT if withdrawal symptoms and/or cravings to smoke are not controlled. NRT use will likely decrease over time (weeks) as dependence decreases.
- Given the high nicotine content present in some e-cigarettes, it may not be possible to fully manage cravings and withdrawal symptoms with standard NRT doses.
  - For people who use e-cigarettes, NRT may help them taper the amount they use e-cigarettes and quit.
- It is better to use more NRT to control the urge to smoke than return to smoking.
- Work closely with the patient to determine an appropriate daily dosage of NRT that controls cravings and withdrawal symptoms. Some patients will require more than one patch or a combination of patch and oral NRT. Titrating up is dependent on response. Make sure the patient is using it correctly before up-titrating.
- For all forms of NRT, the recommended minimum usage is 8-12 weeks duration for quitting smoking. Longer duration of use increases the likelihood of success of quitting smoking.
- The below dosage chart is a guide and should be considered in the context of a person's individual circumstances and in consultation with a suitably qualified healthcare professional if required.

Dosage of NRT

Nicotine dependency: to estimate nicotine dependence level, ask "how long after waking do you smoke/use e-cigarettes?[4]"

Moderate dependence

- Smoking or vaping within 30 minutes of waking and/or
- Patient continues to experience withdrawal symptoms using intermittent forms of oral NRT

NRT Dose recommendations for patients with moderate dependence

NRT	Route of administration	Dose	Frequency	Maximum
Nicotine patch	Transdermal (patch applied to skin)	21mg/24 hour	Daily	1 patch
***AND/OR** PRN (as needed) medications for urges to smoke/vape*				
Gum	Oral	2mg	1 piece of gum every 1-2 hours	12 pieces daily
AND/OR				
Lozenge	Oral	2mg	1 lozenge every 1-2 hours when you have the urge to smoke.	15 lozenges daily
AND/OR				
Spray	Oral	1mg spray	1-2 sprays every thirty minutes to one hour when you have the urge to smoke.	4 sprays/hour for 16 hours **OR** 64 sprays daily

[4] For further information on tools for assessing nicotine dependence, please see "Screening tools".

High dependence

- Smokes or vapes within 30 minutes of waking and/or
- Patient continues to experience withdrawal symptoms using combination NRT with low dose oral forms of NRT

NRT Dose recommendations for patients with high dependence

NRT	Route of administration	Dose	Frequency	Maximum
Nicotine patch	Transdermal (patch applied to skin)	21mg/24 hour	Daily	1 patch
***AND/OR** PRN (as needed) medications for urges to smoke/vape*				
Gum	Oral	4mg	1 piece of gum every 1-2 hours	10 pieces daily
AND/OR				
Lozenge	Oral	4mg	1 lozenge every 1-2 hours when you have the urge to smoke.	15 lozenges daily
AND/OR				
Spray	Oral	1mg spray	1-2 sprays every thirty minutes to one hour when you have the urge to smoke.	4 sprays/hour for 16 hours **OR** 64 sprays daily

If patient continues to experience withdrawal symptoms and/or strong desire to smoke, discuss with a medical officer regarding **increasing NRT further.**

How to use NRT

NRT product	Directions for use
Nicotine patch	Apply to clean, hair-free, dry skin on the upper body (chest, rib cage, back, side of upper arm) and hold down for 20 seconds. Rotate to different parts of the body each time a new patch is used to avoid skin irritation.
Nicotine gum	Directions for use: Chew gum slowly, bite gum about 10 times, until tingling or bitter taste, then park gum between cheek and upper gum until tingling subsides, then chew again. Each piece usually lasts about 30 minutes.
Nicotine lozenge	Let the lozenge dissolve in mouth without chewing or swallowing. Continue to move the lozenge around the mouth every 5 minutes or so to continue to release the nicotine. Repeat the process for up to 30 minutes or until the lozenge is completely dissolved.
Mouth spray	Directions for use: Shake the pump before using. Hold breath while directing spray toward cheek or under tongue. Try not to swallow for a few seconds to allow the nicotine to be absorbed.

Contraindications for NRT

- Allergy to any components of the NRT
- Hemodynamically unstable patients currently hospitalised for myocardial infarction (heart attack), cerebral vascular accident (stroke), and/or severe arrhythmia/s
- Less than 12 years of age.

Precautions for NRT

- Recent myocardial infarction or stroke, unstable angina, severe arrhythmias, uncontrolled hypertension—while the risk of NRT is generally outweighed by risks of smoking cigarettes, use only if non-drug treatments fail and discuss with a doctor before prescribing. Dose adjustment may be required
- Dentures or dental caps—avoid use of gum
- Oropharyngeal, oesophageal, or gastric inflammation—may be worsened if nicotine is inhaled or used orally
- Asthma or chronic throat conditions—avoid inhaled nicotine or sprays
- Generalised skin disease, such as psoriasis or dermatitis —avoid patches on affected areas
- Phenylketonuria—avoid use of lozenge as it contains aspartame (metabolised to phenylalanine)
- Skin grafts – nicotine causes vasoconstriction

Troubleshooting issues with NRT

NRT product	Directions for use	
Nicotine patch	Skin rash where patch is applied	• Rotate location of patch daily • Use hydrocortisone 1% cream for skin irritation
	Patch doesn't stick/keeps falling off	• Make sure to apply 30 seconds of pressure to patch when applying • Use stretch adhesive tape over patch
	Vivid dreams or sleep disturbance	• Apply patch in morning • Remove patch before sleep
	Neuralgia (nerve pain)	• Change patch location • Reduce strength of patch
Oral NRT	Irritation of mouth or throat, headaches, hiccups, indigestion, nausea, and coughing.	• Check for correct use of oral product (e.g. spraying under tongue, not in mouth) or change to different oral product.

Tool 3: Tips for helping people stay smoke and e-cigarette-free

Talking to people about staying smoke and e-cigarette free

Many of the cues to smoke and/or use e-cigarettes are removed while the person is in hospital. Upon discharge, many people will encounter these cues again. People do better at remaining smoke-free if they have thought about how they will deal with these cues and high-risk situations.

It is a good opportunity while the person is still in hospital to work through some coping strategies that they can record in their Quit Plan. The person can also be referred to NSW Quitline on 13 7848 for follow up support and counselling.

Tips when talking with people about smoking/e-cigarettes and quitting.

- Focus on open-ended questions. Open-ended questions encourage the person to offer information. When asking these questions, express concern and interest, not criticism or judgement.
- Encourage the person to think about how quitting relates to their values.
- Listen to the reason the person gives for continuing or quitting smoking/e-cigarettes. Reflect on what they have said and restate their reason without passing comment or judgement.
- Encourage "change talk" that focuses on the reasons associated with positive change and discourage "sustain talk" that focuses on why a person can't make changes. If stress or anxiety are a trigger, recommend patient seek support through their General Practitioner, Headspace or NSW Mental Health Line (1800 011 511).
- Remind the person that lapses can occur and encourage them to consider what might have caused the lapse to prevent it from occurring again and continue with their quit plan.

Key questions to learn how the person feels about their smoking/e-cigarettes and quitting.

- How do you feel about your smoking/ e-cigarettes at the moment?
- Have you had any previous quit attempts, if so, what happened?
- Why is quitting smoking/e-cigarettes important to you?
- Have you considered cutting down to quit using NRT?
- Have you talked to your GP about medications to help you quit smoking/e-cigarettes?

Assisting a person to stay quit.

- Congratulate the person on remaining smoke/ vape-free while in hospital.
- Reinforce the benefits of quitting and of being a non-smoker/vaper. Personalise the benefits of quitting smoking/e-cigarettes.
  - For example, improvement of patient's illnesses, not exposing others to second-hand smoke.
- Help identify behaviours that give them pleasure and can be used instead of smoking or vaping.
- Suggest they keep some oral NRT (e.g. gum or lozenge) with them to help manage cravings.
- Recommend they reduce their caffeine intake, and limit alcohol intake in the first few weeks of quitting.
- Remind the person that even one puff of a cigarette or vape will increase their urge to smoke/vape, making relapse more likely.
- If the person is not ready to quit, suggest they cut down the amount they smoke/use e-cigarettes.

Behavioural strategies to overcome barriers to quitting

Behaviour strategies are practical methods designed to help individuals manage cravings and quit. The following strategies may be helpful to individuals when quitting smoking or e-cigarette use (NSW Health, 2024).

How to use NRT

Behavioural Strategies to overcome barriers to quitting	
Strategy 1: Alternative dopamine reward	This strategy is based on the brain's dopamine response. Nicotine increases the level of dopamine (e.g. the 'feel-good' chemical) in the brain. **Technique:** Instead of smoking or using an e-cigarette, encourage the person to carry a healthy snack (nuts, flavoured sugar free gum) for a dopamine release and to satisfy the craving.
Strategy 2: Think of yourself as someone who does not smoke/use e-cigarettes	This strategy is based on motivational interviewing, which can help people reframe their identify and behaviour. **Technique:** The individual should reinforce their non-smoking/vaping identity by saying statements such as "I am not a smoker/vaper" or "I don't smoke/vape", and role-playing situations where they may be tempted to smoke or use e-cigarettes, practicing how they would respond.
Strategy 3: Distraction	This strategy uses distraction to shift focus onto other stimulating activities. It is best practiced when there is no craving. **Technique:** Suggest the person distract themselves when a craving strikes by engaging in activities such as going for a walk, listening to music, talking on the phone. Advanced techniques might include using imagery to focus on something entirely different, like picturing a peaceful scene.
Strategy 4: Rewards or incentives	This strategy uses positive reinforcement to increase the likelihood of achieving and maintaining abstinence from smoking or e-cigarette use. **Technique:** Set measurable goals, such as abstaining from smoking/e-cigarette use for a week and offer rewards for meeting these milestones. Involving family and friends to help track and reward progress can further enhance motivation.
Strategy 5: Make a promise	This strategy is based on research showing that making a commitment to others increases accountability and the likelihood of success. **Technique:** Ask the individual to make a promise, either to themselves or a trusted person, to follow through with one or more of the strategies listed here or to not smoke or use e-cigarettes.

Advice and support to overcome barriers to quitting

Many people find the idea of quitting smoking/e-cigarettes frightening. Concerns or barriers to quitting are a reality for most people. Discussion of these concerns or barriers can be very helpful to assist people to overcome these and correct any misconceptions they may have.

Concern or barrier	Advice to overcome
Prolonged cravings or withdrawal symptoms	• Consider using NRT or approved pharmacotherapy. If already using NRT, consider if the dose is adequate or if there is a need for combination therapy.
Enjoyment of cigarettes/e-cigarette use	• Use motivational interviewing techniques to explore what the patient likes and doesn't like about smoking/e-cigarettes
Limited knowledge of effective treatment options	• Provide education and support for the range of treatment options available. • Provide patient with additional information from https://www.icanquit.com.au/
Smoking/ e-cigarettes use relieves stress	• Debunk the myth around smoking and stress (see section II: nicotine and stress) • Explore other ways of coping with stress including MyQuitBuddy, Smiling Mind app, Calm app and the Quit.org.au website
Fear of failure or relapse	• Ensure ongoing support and emphasise that most people who have quit successfully have tried multiple times before being successful • Help patients identify their cues and triggers that lead to smoking/e-cigarette use, and work with them to develop strategies to deal with these situations. • Refer patient to NSW Quitline (13 QUIT), to https://wwwicanquit.com.au or to the MyQuit Buddy App (link to My QuitBuddy App | Quit)
Flagging motivation or feelings of being deprived	• Reassure patient that these feelings are common. • Remind the patient that even one puff of a cigarette/e-cigarette will increase urge to smoke, making relapse more likely. • Recommend the patient sets measurable goals and uses positive reinforcement, including rewards and incentives for periods of abstinence.
Concern for weight gain	• Reassure patient that weight gain from smoking/e-cigarette cessation is usually modest (2-3kgs) and that their main focus should be on quitting. • Emphasise the importance of a healthy diet and lifestyle and discourage strict low kilojoule dieting. • Recommend starting or gradually increasing physical activity.
Lack of support	• Identify a trusted health professional patient to contact. • Help the patient identify sources of support, such as family and friends. • Refer patient to NSW Quitline (13 QUIT) or to https://www.icanquit.com.au/
Negative mood or depression not associated with withdrawal	• Refer the patient to their GP, Headspace (for ages 12-25) or the NSW Mental Health Line (1800 011 511).
Being around other tobacco or e-cigarette users	• Encourage patient to enlist support from friends and family members. • Encourage patient to tell people they spend time with who smoke/use e-cigarettes that they are quitting. Encourage patient to ask them for their support by not smoking/ using e-cigarettes around them, and not offering them cigarettes/e-cigarettes [52].

Tool 4: My Quit Plan

My Goals	Reasons to Quit	Triggers to Vape/Smoke
1. _____	1. _____	1. _____
2. _____	2. _____	2. _____
3. _____	3. _____	3. _____
4. _____	4. _____	4. _____

Quitting Aids	Quit Date	Strategies to Manage With
1. _____	1. _____	1. _____
2. _____	2. _____	2. _____
3. _____	3. _____	3. _____
4. _____	4. _____	4. _____

Quit Date

NSW Quitline: 13 QUIT (13 78 48)
https://www.icanquit.com.au

Tool 5: Quick guide to drug interactions with smoking cessation

Medication levels can vary if someone starts or stops smoking, or if they change how much they smoke. There is currently limited evidence regarding the interactions between nicotine e-cigarettes and various drugs.

- Cigarette smoking induces the activity of certain cytochrome P450 enzymes, particularly CYP1A2. These enzymes are involved in the metabolism of many medications.
- These effects are caused by components of tobacco smoke other than nicotine. There is some evidence that products that include. combustion/ heating nicotine e-cigarettes can affect drug levels. Hence, some nicotine e-cigarettes could, in theory, affect drug levels, depending on what other components are involved in that particular brand and type of e-cigarette.
- Standard nicotine replacement therapy does not change medication levels.
- Decreased CYP1A2 activity after smoking cessation increases the risk of adverse drug reactions thus requiring adjustment to the dose of some medications.
- CYP1A2 enzyme has a half-life of 36 hours, so dose adjustment needs to be made within 2-3 days of smoking cessation.
- The change in metabolism/drug dose can occur with anyone who is reducing smoking. Even low-dependence smokers may still need dose adjustment depending on the way they smoke (e.g. compensatory smoking – inhaling more deeply).
- Predicting the required adjustment to medication can be challenging – the table below is a guide. Therapeutic drug monitoring and consulting with a pharmacist should be used where possible [53].

If unsure, please access Electronic Therapeutic Guidelines or 'UpToDate' to understand the impact of smoking cessation on a patients medication.

An addiction specialist/ psychiatrist should be involved with adjusting doses of psychiatric medications.

Common Drugs Affected by Smoking Cessation

Drug	Effect of smoking cessation	If patient stops smoking, then:	Clinical importance
Benzodiazepines (e.g. diazepam, lorazepam, alprazolam)	Possible increased sedation due to loss of CNS stimulation by nicotine.	May need lower dose. May be more sedated if dose remains the same	Moderate
Beta blockers (e.g. propranolol, metoprolol)	Serum levels may rise, and effects enhanced.	May need lower dose.	Low
Chlorpromazine	Serum levels rise	May need lower dose	Moderate
Clopidogrel	Effectiveness is significantly reduced when smoker stops smoking	Recommend smoking cessation and consider alternative medications if patient stops smoking.	Moderate
Clozapine	Serum levels rise significantly	Closely monitor drug levels and reduce dose as required to avoid toxicity.	An average 50% dose reduction may be required, as adjusted by the psychiatrist.
Duloxetine	Serum levels may rise	May need lower dose	Moderate
Flecainide	Serum levels may rise	Monitor for side effects (e.g. dizziness, shortness of breath, arrhythmias). May need lower dose if clinically appropriate.	Low

Common Drugs Affected by Smoking Cessation (cont.)

Drug	Effect of smoking cessation	If patient stops smoking, then:	Clinical importance
Fluvoxamine	Serum levels may rise	May need lower dose	Moderate
Haloperidol	Serum levels may rise	Be alert for increased side effects. Consult psychiatrist as may need lower dose	Low
Heparin	Unclear though levels may rise	Monitor APTT and adjust dose if needed as may need lower dose	Low
Imipramine	Serum levels may rise	Monitor for side effects. May need lower dose	Low
Insulin	Possible increased subcutaneous absorption due to peripheral vasodilation after quitting. Smoking can also increase insulin resistance.	Advise patient to be alert for signs of hypoglycaemia and to test their blood. May need to reduce dose if clinically appropriate.	Moderate
Olanzapine	Serum levels rise significantly	Be alert for increased side effects (e.g. dizziness, sedation and hypotension). Consult a psychiatrist as dose reductions may be required if clinically appropriate.	High
Theophylline	Serum levels rise	Monitor theophylline levels and reduce dose if clinically appropriate. Advise patient to monitor for signs of toxicity (e.g. palpitations, vomiting, nausea). It may take several weeks for enzyme induction to dissipate.	Moderate
Warfarin	Serum levels increase by 15% on average	Monitor for side effects. Monitor INR closely. Reduce dose if clinically appropriate.	Moderate
Methadone	Serum level may rise	Monitor for signs of opioid toxicity (e.g. sedation, dizziness, respiratory depression, pinpoint pupils). Consult a specialist as dose reductions may be required if clinically appropriate. Methadone also attenuates (reduces) nicotine withdrawal.	Moderate

Resources and information for health professionals

05

- Cancer Council Victoria: Tobacco in Australia
  - Review of the major issues in smoking and health in Australia.
- Department of Health and Aged Care: Smoking and mental illness – a guide for health professionals
  - This resource provides information and practical guidance for health professionals to support people with a mental illness who want to quit smoking.
- Guide to Support Young People to Quit E-Cigarettes
  - Developed to support health professionals and others who work with young people to effectively address e-cigarette use, support young people to manage nicotine withdrawal, and assist young people in quitting e-cigarettes.
- KidsQuit smoking cessation e-learning
  - Sydney Children's Hospital Network - Interactive and educational tool to provide professionals with simple strategies for advising adolescents, parents and carers with smoking cessation advice and strategies.
- NSW Health: Tools for health professionals – Tobacco and smoking (nsw.gov.au)
  - This website contains information, guidelines and resources to assist health professionals to provide evidence-based management of nicotine dependence and smoking cessation for their clients/patients.
- Pharmaceutical Society of Australia: Professional practice guidelines for pharmacists: nicotine dependence support
  - These guidelines provide advice to pharmacists on the appropriate and effective processes, desired behaviours of good practice, how to fulfil professional responsibilities, and the expected outcomes when dispensing e-cigarette products.
- Quit
  - This website provides information on support, tools and resources for quitting smoking and e-cigarettes. It also has a specific section dedicated for health professionals with resources, education, training and guidelines.
- RACGP: Supporting smoking cessation: A guide for health professionals
  - This guideline was designed to be used by healthcare professionals who support people wishing to quit smoking.
- Shisha No Thanks
  - This website provides training, resources and information on the harms of shisha.
- Tackling Indigenous Smoking Resource and Information Centre
  - The Tackling Indigenous Smoking Resource and Information Centre brings together information and evidence for what works for tackling smoking in Aboriginal and Torres Strait Islander communities.
- Transcultural Mental Health Centre
  - Information on how to best provide care to CALD communities.
- Cancer Institute (Quit smoking | Cancer Institute NSW). Facts on smoking and cancer, along with support, tips and resources to help you quit.
- Quit.org.au (Quit Smoking & Vaping: Get Expert Cessation Tips & Help | Quit). This website provides support for individuals on their quitting journey
- MyQuit Buddy App (My QuitBuddy App | Quit). My QuitBuddy is an app that helps you get, and stay, smoke-free and vape-free. It provides helpful tips and distractions to overcome cravings and tracking systems to chart your progress.
- Pave App. Pave is an Australian app supporting young people while they quit.

Appendices

06

Appendix 1: The Fagerström Test for Nicotine Dependence

	PLEASE TICK (✓) ONE BOX FOR EACH QUESTION	
How soon after waking do you smoke your first cigarette?	Within 5 minutes 5-30 minutes 31-60 minutes	☐ 3 ☐ 2 ☐ 1
Do you find it difficult to refrain from smoking in places where it is forbidden? e.g. Church, Library, etc.	Yes No	☐ 1 ☐ 0
Which cigarette would you hate to give up?	The first in the morning Any other	☐ 1 ☐ 0
How many cigarettes a day do you smoke?	10 or less 11 – 20 21 – 30 31 or more	☐ 0 ☐ 1 ☐ 2 ☐ 3
Do you smoke more frequently in the morning?	Yes No	☐ 1 ☐ 0
Do you smoke even if you are sick in bed most of the day?	Yes No	☐ 1 ☐ 0
	Total Score	
SCORE	1- 2 = low dependence 3-4 = low to mod dependence	5 - 7= moderate dependence 8 + = high dependence

Add up the scores from the questionnaire.

- Score of 1-2: very low dependence
- Score 3-4: low dependence
- Score 5: moderate dependence
- Score 6-7: high dependence
- Score 8+: very high dependence

Appendix 2: Hooked on Nicotine Checklist (HONC) screening tool

The HONC is scored by counting the number of "YES" responses. A score zero indicates the person has a level of nicotine dependence and may have lost full autonomy or control of their use of cigarettes.

The HONC is recommended for use to assess dependence in young people.

Question	Yes	No
1) Have you ever tried to quit, but couldn't?		
2) Do you smoke now because it is really hard to quit?		
3) Have you ever felt like you were addicted to tobacco?		
4) Do you ever have strong cravings to smoke?		
5) Have you ever felt like you really needed a cigarette?		
6) Is it hard to keep from smoking in places where you are not supposed to, like school?		
When you tried to stop smoking (or, when you haven't used tobacco in a while...)		
7) did you find it hard to concentrate because you couldn't smoke?		
8) did you feel more irritable because you couldn't smoke?		
9) did you feel a strong need or urge to smoke?		
10) did you feel nervous, restless or anxious because you couldn't smoke?		

The HONC is scored by counting the number of "YES" responses. A score above zero indicates the person has a level of nicotine dependence and they may have lost full autonomy or control of their use of cigarettes.

The HONC is recommended for use to assess dependence in young people.

Appendix 3: Modified Hooked on Nicotine Checklist (M-HONC) screening tool

The M-HONC is scored by counting the number of "YES" responses. A score above zero indicates the person has a level of nicotine dependence and they may have lost full autonomy or control of their use of e-cigarettes.

The M-HONC is recommended for use to assess dependence in young people and for people who use e-cigarettes.

Question	Yes	No
1) Have you ever tried to stop vaping, but couldn't?		
2) Do you vape now because it is really hard to quit?		
3) Have you ever felt like you were addicted to vaping?		
4) Do you ever have strong cravings to vape?		
5) Have you ever felt like you really needed to vape cigarette?		
6) Is it hard to keep from smoking in places where you are not supposed to, like school?		
When you tried to stop smoking (or, when you haven't used tobacco in a while...)		
7) Did you find it hard to concentrate because you couldn't vape?		
8) Did you feel more irritable because you couldn't vape?		
9) Did you feel a strong need or urge to vape?		
10) Did you feel nervous, restless or anxious because you couldn't vape?		

The HONC is scored by counting the number of "YES" responses. A score above zero indicates the person has a level of nicotine dependence and they may have lost full autonomy or control of their use of cigarettes.

The HONC is recommended for use to assess dependence in young people.

Appendix 4: Hooked on Nicotine Checklist (HONC) screening tool

	Answer	Score
1. How many times per day do you usually use your electronic cigarette? (assume that one "time" consists of around 15 puffs or lasts around 10 minutes)		
Scoring: 0–4 times/day = 0, 5–9 = 1, 10–14 = 2, 15–19 = 3, 20–29 = 4, 30+ = 5		
2. On days that you can use your electronic cigarette freely, how soon after you wake up do you first use your electronic cigarette?		
Scoring: 0–5 mins = 5, 6–15 = 4, 16–30 = 3, 31–60 = 2, 61–120 = 1, 121+ = 0 = 5		
3. Do you sometimes awaken at night to use your electronic cigarette?		
Scoring: Yes = 1, No = 0		
4. If yes, how many nights per week do you typically awaken to use your electronic cigarette?		
Scoring: 0–1 nights = 0, 2–3 nights = 1, 4+ nights = 2		
5. Do you use an electronic cigarette now because it is really hard to quit (electronic cigarettes)?		
Scoring: Yes = 1, No = 0		
6. Do you ever have strong cravings to use an electronic cigarette?		
Scoring: Yes = 1, No = 0		
7. Over the past week, how strong have the urges to use an electronic cigarette been?		
Scoring: None/Slight = 0, Moderate/Strong= 1, Very Strong/Extremely Strong = 2		
8. Is it hard to keep from using an electronic cigarette in places where you are not supposed to?		
Scoring: Yes = 1, No = 0		
When you haven't used an electronic cigarette for a while or when you tried to stop using...		
9. Did you feel more irritable because you couldn't use an electronic cigarette?		
Scoring: Yes = 1, No = 0		
10. Did you feel nervous, restless, or anxious because you couldn't use an electronic cigarette?		
Scoring: Yes = 1, No = 0		
Total		

Total scoring	
0-3 = not dependent	4-8 = low dependence
9-12 = medium dependence	13+ = high dependence

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07

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