

Revised Guidelines for smoking cessation in New Zealand, 2021

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ABSTRACT

AIMS: To summarise the literature underpinning key recommendations made in the 2021 revision of the Ministry of Health's *New Zealand Guidelines for Helping People to Stop Smoking*.

METHODS: A comprehensive literature review of smoking cessation interventions was undertaken in July 2021. Recommendations were formulated from the findings of the literature review and expert advice.

RESULTS: Healthcare professionals should ask and briefly advise all people who smoke to stop smoking, regardless of whether they say they are ready to stop smoking or not. They should offer smoking cessation support, which includes both behavioural and pharmacological (e.g., nicotine replacement therapy, nortriptyline, bupropion or varenicline) interventions. The Guidelines also include advice around the use of vaping in smoking cessation. Recommendations are also formulated for priority populations of smokers: Māori, Pacific, pregnant women, and people with mental illness and other addictions.

CONCLUSIONS: The guidelines will assist healthcare professionals in providing evidence-based smoking cessation support to people who smoke. To be effective and equitable, the ABC model requires organisational commitment, integration into routine practice, and increased attention to the upstream determinants of smoking and quitting.

Helping people who smoke tobacco to quit is an important strategy towards achieving New Zealand's smokefree 2025 goal,¹ and in improving health equity. In 2021, the Ministry of Health published *The New Zealand Guidelines for Helping People to Stop Smoking: 2021 Update* to contribute to this high-priority strategy by providing health workers with the information they need to encourage people to stop smoking.¹ In this paper, we summarise the 2021 Guidelines and outline the process of developing them.

Methods

Guidelines development process

New Zealand's guidelines for stopping smoking were first published in 1999, with revisions in 2002, 2007 and 2013. The current (2021) update was prompted by substantial changes to the New Zealand tobacco environment; specifically, the increased availability and use of vaping devices (e-cigarettes), new evidence on the effectiveness of smoking cessation treatments, amendments to the Smokefree Environments and Regulated Products Act 1990, and the development of the Action Plan for Smokefree 2025.

Literature review

The guideline development process included an updated literature review (January 2014 to March

2021). We sought evidence on the following interventions: nicotine replacement therapy, pharmacotherapy, e-cigarettes and heat-not-burn products, alternative therapies (e.g., acupuncture, hypnosis), behaviour/psychosocial interventions, and community-led smoking cessation programmes. Population level interventions and oral tobacco products were excluded. Sources included the Cochrane Database of Systematic Reviews, PubMed and PsycINFO databases and the US Preventive Services Task Force report on Tobacco cessation² (N=45). Additional evidence from high-quality randomised control trials (RCTs) was sought where no meta-analyses or systematic reviews existed on a topic. Where available, we report long-term smoking abstinence rates; that is, verified continuous smoking abstinence over a period of at least 6-months from the stop-smoking date.

Findings

Key changes from previous guidelines

The basis for the 2021 Guidelines continues to be the ABC pathway (Figure 1). The guidelines differ from the 2013 version in the following ways:

- inclusion of evidence about vaping as a cessation tool,
- updated information about other approaches that people may use to try to quit,
- risk ratio with 95% confidence intervals

reported, and the number of studies and number of participants, contributing to the evidence where available,

- inclusion of information on barriers and facilitators for smoking cessation that might affect individuals,
- use of GRADE system for guiding recommendations about the quality of evidence wherever possible and a new approach to signal the strength of the evidence.

Providing behavioural support

Behavioural support involves targeted activities designed to maximise motivation to remain smokefree, minimise motivation to smoke, enhance the skills and capacity needed to avoid and resist urges to smoke, and optimise effective use of stop smoking medication.³ Behavioural support can increase long-term smoking cessation, both with and without pharmacotherapy.⁴ Network meta-analysis suggested that the components with the most benefit are “counselling of any kind, guaranteed financial incentives for quitting, and text-messaging based delivery”.⁴

Brief advice

Brief advice can have a large impact at the population level due to the potential reach of the intervention. Brief opportunistic advice from a doctor increases the rate of quitting by 76% compared with doing nothing,⁵ with similar findings reported for nurses, community pharmacists, and

oral health workers.⁴ More intensive advice (>20 minutes) and the addition of follow-up are more effective than minimal advice.^{3,5,6} Brief advice should ideally be combined with an offer of cessation support because offering cessation support is more effective than simply giving brief advice;^{4,7} both should be regarded as best practice for all health professionals.

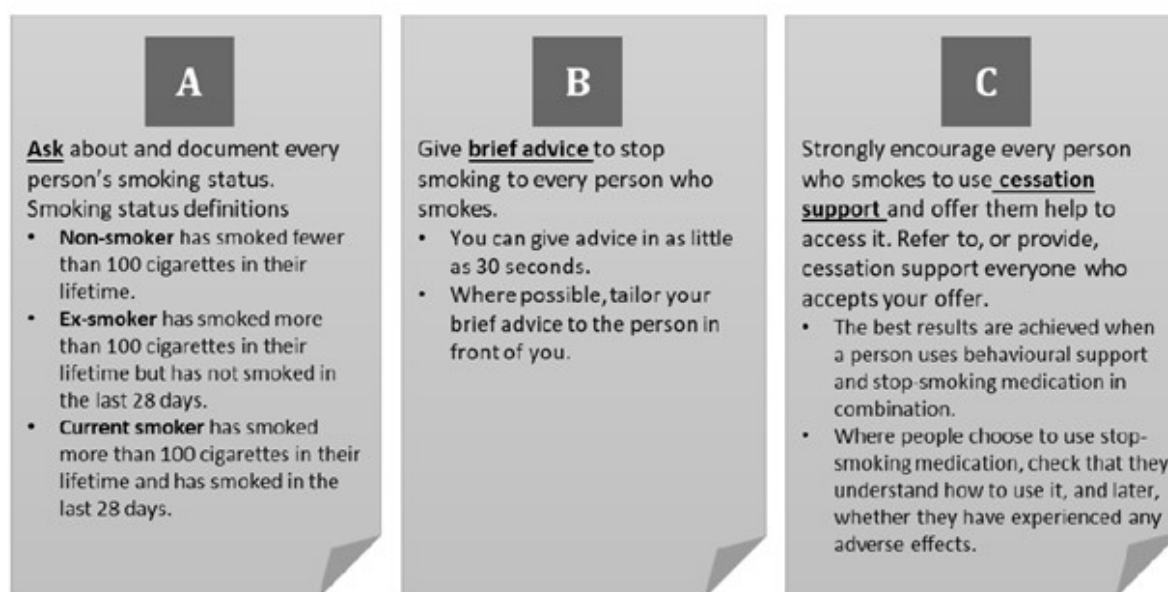
Counselling

Counselling can be delivered face-to-face, over the phone, via real-time video-counselling, individually or in a group. There is no evidence that any one method is better than another.⁴ Compared to controls (i.e., usual care, brief advice, and self-help) counselling increases long-term abstinence by more than 50% for individual and group counselling, and almost 40% for telephone counselling.⁴ The New Zealand Quitline (<https://quit.org.nz/>) is an example of a telephone counselling service that has been shown to be effective, and that has expanded its range of modalities to include text messaging and online support.⁸ More intensive counselling is more effective in increasing long-term abstinence than less intensive counselling.⁹

Technology-based support

Internet-based interventions—includes web pages (e.g., online self-help guides, user forums and blogs) and social media platforms.¹⁰ Internet-based interventions that are tailored and interactive have been shown to increase long-term

Figure 1: The ABC pathway.



abstinence rates compared to self-help guides or usual care; however, the effect is small, and should be interpreted with caution.¹⁰ There is no evidence of benefit for internet-based interventions compared to active controls (e.g., counselling).¹⁰

Automated text messaging support—delivers a mix of information, advice, and motivational messages. Text messaging support increases long-term abstinence rates by 54% compared to minimal support controls.¹¹ When added to other smoking cessation support (such as counselling and pharmacotherapy) text messaging support is more effective than other smoking cessation support alone.¹¹ No difference was found for high-frequency versus low-frequency text messaging.¹¹

Smartphone applications—have been trialled in providing smoking cessation support; however, there is insufficient evidence of their effectiveness and further evidence from RCTs is needed.¹¹

Providing stop-smoking medicines

Nicotine replacement therapy

When compared to controls, nicotine replacement therapy (NRT) can improve long-term abstinence rates by around 50%, regardless of the type of NRT.¹² Higher-dose NRT products are more effective than lower-dose products (e.g., 42 mg patch versus 14mg patch).¹³ Most people should use NRT for 8 to 12 weeks. A small number of smokers may need to use it for longer; however, there is insufficient evidence that long-term NRT use is more effective than short-term use.¹³ NRT is effective at helping people reduce the number of cigarettes they smoke before stopping. This is an effective method of stopping smoking long-term, and improves long-term abstinence compared to standard NRT use by 25%.¹³ NRT use is associated with an increased risk of chest pains that are categorised as “cardiovascular adverse events” compared to placebo, but not with an increased risk of serious cardiovascular effects.¹⁴

Partial agonists

Varenicline, a nicotinic acetylcholine receptor (nAChR) partial agonist, helps people to stop smoking primarily by reducing the severity of tobacco withdrawal symptoms, but it also reduces the rewarding properties of nicotine. Long-term abstinence rates when using varenicline more than double, compared to a placebo.¹⁵ Varenicline is more effective than other smoking cessation medications including bupropion and NRT.¹⁵ There is a 25% increase in the risk of serious adverse events when using varenicline compared

to placebo; however, the adverse events include comorbidities or illness events (e.g., cancer diagnosis) not considered to be associated with the use of varenicline.¹⁵ There is no evidence to suggest increased risk of cardiovascular events or neuropsychiatric events.¹⁵

Cytisine is a plant-based alkaloid that works in a similar way to varenicline by reducing the severity of cravings and the reward properties of nicotine.¹⁵ Although there is good evidence for cytisine’s efficacy and effectiveness, it is not yet licensed for use in New Zealand. If approved, cytisine has potential to be highly acceptable, particularly to Māori, because of its presence in the kōwhai tree.¹⁶ Cytisine is more effective than placebo in increasing long-term abstinence rates.¹⁵ Two New Zealand non-inferiority trials comparing cytisine to varenicline¹⁷ and cytisine to NRT¹⁸ found cytisine was just as effective in increasing long-term abstinence. Cytisine is well tolerated: participants taking cytisine were less likely to report adverse events, such as nausea, than those taking varenicline,¹⁷ but studies with longer follow-up are needed.⁶

Antidepressants

Bupropion, an atypical antidepressant, helps people to stop smoking by reducing the severity of withdrawal symptoms. Bupropion is as effective as NRT and nortriptyline but less effective than varenicline. Bupropion improves long-term abstinence rates by 64%, compared to a placebo.¹⁹ A large multi-site RCT (N=8,144) found no increase in psychiatric adverse events in people using bupropion compared to placebo, regardless of diagnosis.²⁰

Nortriptyline, a tricyclic antidepressant, helps people to stop smoking by reducing the severity of withdrawal symptoms. Nortriptyline improves long-term abstinence, compared to a placebo.¹⁹ In studies comparing nortriptyline to bupropion, there was no significant difference in quit rates.¹⁹ There is insufficient evidence on adverse events,⁶ but there are a number of contraindications and precautions with its use.

Combining smoking cessation interventions

In most cases, behavioural support and pharmacotherapy are most effective when delivered together.^{9,21} Combined behavioural treatment and pharmacotherapy (in most studies, NRT) increases long-term abstinence rates by 83% compared to usual care, brief advice, or less intensive

behavioural support.²¹ There is also evidence that combining pharmacotherapies improves smoking cessation outcomes. For example, combining patch with a faster-acting gum or lozenges increases long-term abstinence by 25% compared with a single NRT product.¹³ There are no safety concerns with combining NRT products compared to single NRT. Using varenicline in combination with NRT may improve long-term abstinence compared varenicline alone, although more evidence is needed.²²

Vaping products

Vaping products (electronic cigarettes, also known as e-cigarettes or vapes) are electronic devices that heat a liquid to form an aerosol inhaled by the user. Vaping liquids often contain nicotine. Vaping products containing nicotine are effective in increasing long-term quit rates by 69%, compared to NRT, and by 71% compared to non-nicotine vaping products.²³ Nicotine-containing vaping products more than double long-term abstinence compared to behavioural support; however, estimates should be interpreted with caution.²³

In New Zealand, vaping products are *not* licensed medicines or devices, but they are regulated tobacco products subject to smokefree provisions and prohibition of sale to minors. They are a less harmful way of delivering nicotine when compared to traditional cigarettes, but they are not harmless. They produce a range of toxicants, including some carcinogens, but the literature points to these generally being at much lower levels than those found in cigarette smoke and less likely to cause harm.^{24,25} Available evidence suggests that risk of adverse events is no different from NRT; however, more long-term (>12 months) follow-up data are needed.²³ Vaping products are typically used over a longer time than most smoking cessation medications (e.g., 12 weeks)⁸ so more information is needed about the health effects of long-term use. They may have a particular appeal to people who have had difficulty quitting with conventional support, both because of their favourable pricing compared to cigarettes and behavioural replacement characteristics.

Smoking cessation interventions for priority groups

In general, interventions effective in the general population are also effective in priority population groups. However, significant ethnic inequalities in the socio-economic determinants of health, access to treatment, and quality of care²⁶ affect both smoking prevalence and smoking cessation support.

Providing stop-smoking support to Māori

Since 2006, daily smoking prevalence in the general adult population has fallen from 22% to 9.4%,²⁷ and from 42% to 22% among Māori.²⁷ Māori men and women are more than twice as likely to be daily smokers than non-Māori (adjusted ratio 2.60 [95% CI 2.14–3.16] and 3.58 [95% CI 3.01–4.26] for men and women, respectively).²⁷ Healthcare workers should demonstrate culturally safe practice and understand that systematic and structural factors, including racism, colonisation and the Crown's failure to meet obligations under Te Tiriti o Waitangi, have contributed to the high prevalence of smoking in Māori compared to non-Māori.²⁶ Inequitable access to health services has contributed to disparities in health between Māori and non-Māori. Financial cost, pervasive smoking among whānau and peers, environments accepting of smoking, and perceived cultural inappropriateness of treatments, are all barriers to Māori using available stop-smoking support.¹⁶ Stop-smoking interventions for Māori must therefore be culturally appropriate, multi-faceted, address cigarette dependence, provide support, partner with Māori, and be inclusive of whānau.^{28,29}

Interventions that work in the general population (e.g., behavioural support and stop-smoking medicines) are at least as effective for Māori.³⁰ For example, one randomised controlled trial (N=134) showed bupropion was effective in assisting Māori to stop smoking.³¹ Likewise, subgroup analyses of RCTs have found no differences in quit rates for Māori compared to non-Māori for vaping devices³² or text message support.³³ A recent trial comparing cytisine and varenicline in Māori and whānau of Māori found 12 weeks of cytisine was at least as effective as varenicline in increasing long-term abstinence.¹⁷

Several small studies have implemented behavioural support programmes for Māori, including incentive programmes,^{34,35} exercise interventions³⁶ and peer support.³⁷ Such programmes have had promising results, and high acceptability, but more evidence is needed to determine their effectiveness.

Providing stop-smoking support to Pacific people

Since 2006, smoking prevalence has decreased from 30% to 16% among Pacific peoples.²⁷ Smoking prevalence amongst Pacific people varies by Pacific nation, especially by sex. Systemic factors also contribute to relatively high smoking among Pacific peoples, including barriers in access to care and quality of care.³⁸ Services and organisa-

tions must identify and address barriers to equitable care for Pacific peoples to address health disparities between groups and improve health equity. Health workers who provide support to Pacific smokers should seek training to ensure they are both technically and culturally safe in this role.

There are limited data on effective interventions for Pacific smokers. However, interventions known to work in the general population are likely to be just as effective for Pacific peoples. Some small studies of culturally tailored smoking cessation behavioural interventions have shown success in helping people quit smoking including text message support³⁹ and online training programmes.⁴⁰

Providing stop-smoking support to pregnant women

Stopping smoking as early as possible during pregnancy can reduce the risk of adverse birth outcomes (such as premature birth and low-birth weight) and infant mortality.⁴¹ Pregnant women need services that are appropriate and meaningful, and that deliver support in a timely manner. Offering partner and wider whānau referral to a stop-smoking service also helps the pregnant woman to stop.⁴² Women should be offered ongoing support to remain smokefree after birth, as rates of relapse after birth are high.⁴³

The following interventions are effective in improving abstinence in pregnant women:⁴⁴ counselling; incentives; and feedback in conjunction with other strategies, although these latter findings should be interpreted with caution due to small sample size. NRT with behavioural support has also been shown to increase abstinence rates in pregnant women compared to behavioural support alone.⁴⁵ There is insufficient evidence to determine the effectiveness of other pharmacological interventions for pregnant women, and varenicline is contraindicated for pregnancy.⁴⁶ Expert opinion suggests that pregnant women can use NRT once they have been advised of the potential risks and benefits.⁴⁷ The use of NRT in pregnancy carries a small potential risk to the fetus, but using NRT is far safer than smoking while pregnant, as blood nicotine levels are typically lower and NRT does not contain harmful substances in tobacco smoke (such as carbon monoxide). There is insufficient evidence to determine the risk of adverse birth outcomes between those using NRT and placebo.⁴⁵ There is insufficient evidence to determine the safety or effectiveness of e-cigarettes to support abstinence during pregnancy.⁶

Providing stop-smoking support to children and young people

The prevalence of daily smokers in people aged between 15 and 24 years has halved from 20.1% in 2006 to 10.1% in 2021.²⁷ Group counselling is effective at increasing long-term abstinence rates in young people who smoke compared to control interventions, but there is insufficient evidence to determine the effectiveness of individual counselling.⁴⁸ There is insufficient evidence to confirm the effectiveness of interventions specifically aimed at helping young people to stop smoking, or to recommend integrating any particular model into standard practice.^{48,49} Interventions that may be acceptable for young people include support from family, friends and community, and incentives, physical activity and group support.⁵⁰ There is insufficient evidence that using NRT improves long-term abstinence rates among young smokers.⁴⁸ Nevertheless, expert opinion is that NRT may be considered for use by young people who want help to stop smoking. The safety and efficacy of other pharmacological interventions in patients under 18 years of age have not been established.^{48,49}

Providing stop-smoking support to people who use mental health and addiction treatment services

People with mental health disorders have particularly high smoking rates. People who smoke are 1.5 times more likely than non-smokers to be diagnosed with at least one mental health condition (25% in smokers and 15% in non-smokers).⁵¹

Previous reviews of effective interventions for adults with mental health conditions have been mixed in their findings; however, these are based on several small studies.^{52–54} A recent, large multi-site RCT compared varenicline, bupropion and NRT to placebo, and found pharmacological interventions increased long-term abstinence compared to the placebo in patients with psychiatric disorders.²⁰ The trial found no increased risk of moderate or severe adverse events.²⁰

There is insufficient evidence to conclude that using NRT improves long-term abstinence rates among people with mental illness who smoke,³ or people with substance use disorders, although there is some evidence of effectiveness for short-term abstinence.⁵⁵ Nevertheless, expert opinion is that NRT may be considered for use by people in this group who want help to stop smoking.

Other treatments and interventions

Table 1 summarises other treatments and interventions that people may ask about, or want to use, to help them stop smoking.

Discussion

The updated *New Zealand Guidelines for Helping People to Stop Smoking*¹ provide current evidence on effective interventions for smoking cessation and make recommendations based on this evidence. These guidelines will be updated in future as more research evidence becomes available.

In addition to these recommendations, the guidelines identify barriers and facilitators to providing smoking cessation. Healthcare professionals can have a positive or negative role in people's smoking behaviour, and barriers and facilitators to delivering smoking cessation (Table 2).

Providing support for people who smoke should always be done with an understanding of the broader context in which people start smoking,

Table 1: Other smoking cessation interventions.

Effective
Reduction-to-quit ⁵⁶
Written self-help materials ⁵⁷
Financial incentives ⁵⁸
Insufficient evidence
Acupuncture ⁵⁹
Other antidepressants (i.e., SSRI, MAOI) ⁶⁰
Anti-anxiety medication ⁶¹
Competitions ⁶²
Heated tobacco products ²
Hypnotherapy ⁶³
NicoBloc and NicoBrevin
Physical activity ⁶⁴
St John's Wort ⁶⁰
Harmful
Clonidine ⁶⁵

Table 2: Healthcare workers' barriers and facilitators to implementing the ABC pathway.

Barriers	Facilitators
Health workers who smoke	Ongoing training
Lack of time, knowledge, and skills	System supports, including leadership
Health workers not engaging if they assume a lack of patient motivation	Provision of a rationale specific to their area of work
Health workers' misperception that smoking cessation interventions are not effective	System prompts (e.g., automated systems, medical chart stickers)
Health workers' concerns that providing smoking cessation advice will adversely affect their relationship with a patient	Audits and feedback

why they continue to smoke and why they try to stop, such as their level of exposure to tobacco products, access to smoking cessation services and support, and their level of exposure to people who have successfully quit.

These guidelines highlight gaps in evidence. More research relevant to New Zealand priority populations is needed to investigate and evaluate interventions operating at the level of social groups and systems, and on the upstream determinants of smoking and quitting. Information

on the relative cost-effectiveness of the interventions is also needed to inform decision-makers and clinicians about the “best buys” to achieve cessation outcomes.

Finally, individual-level smoking cessation interventions are important but should always be seen as one strategy among a comprehensive package of mutually reinforcing population-level tobacco control interventions aimed at tackling smoking in New Zealand.

COMPETING INTERESTS

Nil.

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