Background and Recommendations for *The New Zealand Guidelines for Helping People to Stop Smoking*

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MINISTRY OF
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MANATŪ HAUORA

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Contents

BACKGROUND AND RECOMMENDATIONS FOR
THE NEW ZEALAND GUIDELINES FOR HELPING PEOPLE TO STOP SMOKING: 2021

Summary

The New Zealand Guidelines for Helping People to Stop Smoking 2021 (the Guidelines) provide health workers with updated guidance on how to engage with people who smoke tobacco. The Guidelines replace the previous version published in 2014. This document comprises an updated literature review of available systematic reviews and overseas guidelines, supplemented with information from the literature review undertaken for the 2007 and 2014 guidelines (Ministry of Health 2014).

Other resources offer guidance on specific topics (see **Appendix 2**). These resources can be found on The New Zealand Guidelines for Helping People to Stop Smoking webpage of the Ministry of Health's website at: **www.health.govt.nz/publication/new-zealand-guidelines-helping-people-stop-smoking**.

The basis for the Guidelines is the ABC pathway, which prompts health workers to complete the following steps.

- **Ask** about and document every person's smoking status.
- Give **brief advice** to stop smoking to every person who smokes.
- Strongly encourage every person who smokes to use **cessation support** (a combination of behavioural support and smoking cessation medicine works best) and offer them help to access it. Refer to, or provide, cessation support to everyone who accepts your offer.

Background

Stopping smoking confers immediate and longer-term health benefits for individuals and their whānau. Helping people who smoke tobacco to quit is an important strategy towards achieving New Zealand's smokefree 2025 goal and in improving health equity. *The New Zealand Guidelines for Helping People to Stop Smoking 2021* contributes to this high-priority strategy by providing health workers with the information they need to encourage people to stop smoking.

Tobacco smoking is not merely an individual lifestyle choice; it also has deep-seated connections with structural and socioeconomic determinants of health. Therefore, providing individual support for people who smoke should always been done with an understanding of the broader context in which people start, continue and are trying to stop smoking.

All health workers should be confident and competent to provide evidence-based, compassionate, culturally safe advice and support for people who smoke to become smokefree.

The first New Zealand guidelines for stopping smoking, published in 1999 and revised in 2002, focused on the '5As' framework for stopping smoking (Ask, Advise, Assess, Assist and Arrange) and the 'Stages of Change' model. In 2007, a development team led by The University of Auckland replaced the '5As' with the 'ABC pathway' to underscore the points that:

- all people who smoke, regardless of how ready they are to stop, should be offered help to quit
- it is well within the capabilities and time available to busy health workers to ask people about smoking and provide or arrange support to help them quit.

In June 2014, the guidelines were revised again, using evidence and recommendations from an international review of the effectiveness and affordability of stop-smoking interventions.

This 2021 update was prompted by 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, updates to the Smokefree 2025 objectives and development of the action plan for Smokefree 2025.

The basis for the current Guidelines continues to be the ABC pathway. However, the 2021 Guidelines differ from earlier guidelines in that:

- they include evidence about vaping as a cessation tool
- they provide updated information about other new nicotine products and popular approaches that people may use to try to quit smoking

- where available, they report the risk ratio (RR) with 95 percent confidence intervals (CI) and the number of studies and number of participants (n) contributing to the evidence[1]
- they include information on barriers and facilitators for smoking cessation that might affect individuals, with an emphasis on Māori and priority groups
- they use the GRADE system for guiding recommendations about the quality of evidence wherever possible and a new approach to signal the strength of the evidence (see Grading of recommendations below).

A **glossary of terms** is included at the end of this document.

Grading of recommendations

To make guideline recommendations, we used the GRADE system (Grading of Recommendations Assessment, Development and Evaluation) (Guyatt et al 2008) to assess the quality of the evidence. The GRADE system reflects the extent to which our confidence in an estimate of the effect is adequate to support a particular recommendation. This system classifies quality of evidence as **high, moderate, low, or very low** according to study methodology, consistency and precision of the results, and directness of the evidence (Guyatt et al 2008).

Where a systematic review did not include a GRADE score, we used AMSTAR 2 (A MeaSurement Tool to Assess systematic Reviews) to guide our recommendations (Shea et al 2017). AMSTAR 2 evaluates the quality of a systematic review methodology. Thus, AMSTAR 2 and GRADE measures are not always consistent.

The GRADE scores and, where relevant, AMSTAR 2 ratings are reported in **Appendix 3**.

The bullet points listed under the heading '**We recommend'** aim to alert readers to interventions that have a high or moderate GRADE or AMSTAR 2 score. These interventions should be regarded as best practice.

The bullet points listed under the heading '**We suggest**' aim to alert readers to interventions that have low or very low GRADE or AMSTAR 2 scores (Alhazzani et al 2020).

Practice points are statements that offer advice that is based on common practice and experience, without supporting evidence from high-quality studies.

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[1]   The RR is a measure of relative effectiveness, comparing the smoking abstinence rate in people who received one treatment with that of people who had another treatment or a placebo. See the **Glossary** for more information on risk ratio. Both RR and odds ratio (OR) are reported with their 95 percent confidence intervals (CI), that is, the range in which we are 95% confident that the true estimate lie within. Where a Bayesian analysis is used, this is reported as OR and Credibility Interval (CrI), which represents the range of values that the estimate is likely to take.

Plans for revising the Guidelines

The Ministry of Health will revise the Guidelines as required, with updates posted on the Tobacco control webpage of its website at: **www.health.govt.nz/our-work/preventative-health-wellness/tobacco-control**.

Part 1:
The ABC pathway

The ABC pathway

Ask about and document every person's smoking status

Key messages

- Ask all people attending any health care service if they smoke (or use) tobacco.
- Document their response in their clinical records, using the correct clinical codes where applicable.
- Update the records of anyone who smokes, or has recently stopped, regularly.
- Simple systems (such as computer prompts, stickers in the person's chart or including smoking status as a vital sign in the person's clinical record) can remind health workers to ask about and document smoking status.

We recommend

- Ask about, and document, every person's smoking status.
- For people who smoke or have recently stopped smoking, check and update their smoking status regularly (at every admission to hospital and at least annually in the primary health care setting).
- All health care settings (general practices, medical centres, hospitals, etc) should have systems in place to ensure that smoking status is accurately documented for every patient.

Give brief advice to stop to every person who smokes

Evidence

- 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 percent (RR 1.76, 95% CI 1.58–1.96, 26 studies, N=22,239) compared with doing nothing (Stead et al 2013).

- Reviews have similar reported increases in the rate of quitting following advice or behavioural support delivered by other health workers, including nurses (RR 1.29, 95% CI 1.21–1.38, 44 studies, N=20,881), community pharmacists (RR 2.30, 95% CI 1.33–3.97, 6 studies, N=1,614), and oral health workers (odds ratio [OR] 1.71, 95% CI 1.44–2.03, 14 studies, N=10,535) (Hartmann-Boyce et al 2021).

- Brief advice smoking cessation interventions are typically delivered in around five minutes (West et al 2015), but even very brief advice (given in 30 seconds) can have an impact on quitting (Public Health Internal Guidelines Development 2018).

- More intensive advice (over more than 20 minutes) is more effective than minimal advice (Patnode et al 2021; West et al 2015). The addition of further follow-up increases long-term abstinence compared with minimal advice (RR 1.52, 95% CI 1.08–2.14, 5 studies, N=1,254) (Stead et al 2013).

- Health workers do not need to assess a person's 'stage of change' before offering advice, but they should give advice to all people who smoke regardless of whether the person wants to stop smoking or not.

- Advice can have a stronger effect if the health care worker links it to a person's existing smoking-related medical condition, presents it as a way of protecting an unborn child in pregnant women or presents it as a way of protecting children and young people from exposure to second-hand smoke.

- All health workers who have contact with pregnant women who smoke should give the pregnant women brief advice to stop and offer cessation support as early in the pregnancy as possible. Where pregnant women continue to smoke, health workers should repeat that advice regularly throughout the woman's pregnancy.

- After giving brief advice, it is important to make an offer of cessation support.

- Offering cessation support is more effective than just giving brief advice (Aveyard et al 2012; Hartmann-Boyce et al 2021).

Recommendations

We suggest:

- at every opportunity, all doctors and other health workers should give brief advice to stop smoking to all patients who smoke.

Practice points

- Document that brief advice was provided in the person's records, taking care to use the correct clinical codes.

- Health workers should be trained to provide brief advice effectively.

Strongly encourage every person who smokes to use cessation support, and offer them help to access it

Key messages

- The most effective components of cessation support are multi-session behavioural support and stop-smoking medicines. When used together, these components lead to the highest long-term abstinence rates.

- Details about specific cessation support interventions are provided in Part 2: Smoking cessation interventions.

- More intensive interventions (that is, where there is more follow-up contact) improve the chances of a person stopping smoking (Hartmann-Boyce et al 2021, 2019; Stead et al 2013).

- Behavioural support can be delivered face to face (individually or in a group), via the telephone, through text messaging or online (Hartmann-Boyce et al 2021).

Practice points

- People who deliver behavioural support should be competent to provide that support.

- The following core competences have been identified in delivering behavioural support and are supported by evidence.
  - Advise the person about stop-smoking medication.
  - Give the person options for additional and later support.
  - Assess the person's current and past smoking behaviour.
  - Assess the person's current ability to quit smoking.
  - Assess the person's history of quit attempts.
  - Direct the person to appropriate written materials.
  - Provide information on withdrawal symptoms (Michie et al 2011).

- In Box 1, we summarise the evidence-based behaviour change techniques required to deliver effective behavioural support for stopping smoking (Michie et al 2011).

- Stop-smoking medicines with proven efficacy and effectiveness[2] should be recommended to all regular smokers. However, the evidence of effective smoking cessation medications is more limited for pregnant women and young people aged 12–18 years, so these groups should generally only use nicotine replacement therapy (NRT).
- At the very least, health workers should refer people who want to stop smoking to service providers that provide effective interventions (for example, Quitline or community-based smoking cessation service providers).

Box 1: Competencies for delivering behavioural support for stopping smoking

- Prompting and gaining commitment from the client there and then
- Using a carbon monoxide monitor to measure carbon monoxide at each session (only applies to face-to-face services)
- Facilitating goal setting and action planning (including the development of a treatment plan)
- Facilitating coping and identifying relapse prevention strategies
- Providing advice on changing routines, facilitating the identification of barriers to quitting and staying quit, and problem solving
- Providing options for additional and later support
- Developing rapport and eliciting client views
- Assessing current and past smoking behaviour, including past quit attempts
- Assessing the person's current readiness and ability to stop
- Asking about the person's experience with stop-smoking medicines (current or previous) and monitoring for adverse effects
- Helping the client strengthen their new ex-smoker identity
- Providing appropriate written materials, as well as information on the consequences of smoking and stopping smoking.
- For group discussions, encouraging discussions and tasks that promote interaction and mutual support.

Source: Based on Michie et al 2011

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2   Such medicines include nicotine replacement therapy, bupropion, nortriptyline and varenicline.

Part 2: Smoking cessation interventions

Providing behavioural support

Behavioural support involves advice, discussion, encouragement, and other 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
- optimise effective use of stop-smoking medication (West et al 2015).

A recent umbrella review found that behavioural support can increase long-term smoking cessation, both with and without pharmacotherapy. Network meta-analysis suggested that the components with the most benefit are counselling of any kind (OR 1.44, 95% credibility interval [CrI] 1.22–1.70, 194 studies, N=72,273), guaranteed financial incentives for quitting (OR 1.46, 95% CrI 1.15–1.85, 19 studies, N=8,877) and text-messaging based delivery (OR 1.45, 95% CrI 1.17–1.80, 22 studies, N=14,161) (Hartmann-Boyce et al 2021).

Behavioural interventions are likely to have a low risk of harm (Patnode et al 2021).

Counselling

Counselling can be delivered face to face, over the phone, via real-time video counselling, individually or in a group. Comparing different approaches to counselling (for example, cognitive behavioural therapy, motivational interviewing and withdrawal-oriented treatment) has provided no evidence that any one method is better than the others. However, the basic principles of setting a quit date, emphasising the importance of complete abstinence (not a single puff) and providing multi-session support are important.

Evidence

- Counselling can be delivered through different modes, all of which are generally effective (Hartmann-Boyce et al 2021).
  - Individual counselling increases long-term abstinence by more than 50 percent compared with controls who have been given usual care, brief advice or self-help (RR 1.57, 95% CI 1.40–1.77, 27 studies, N=11,100).
  - Group counselling increases long-term abstinence compared with self-help (RR 1.88, 95% CI 1.52–2.33, 13 studies, N=4,395).
  - Telephone counselling increases long-term abstinence compared with controls who have been given self-help or brief counselling (RR 1.38, 95% CI 1.19–1.61, 14 studies, N=32,484). In New Zealand, Quitline provides a free nationwide telephone support service.
  - There is insufficient evidence to determine the effectiveness of real-time video counselling in helping people quit smoking.
- More intensive counselling is more effective in increasing long-term abstinence than less intensive counselling (RR 1.29, 95% CI 1.09–1.53, 11 studies, N=2,920) (Lancaster and Stead 2017).
- Combining different modes of counselling can improve outcomes, for example, proactive telephone support adds to the effectiveness of face-to-face behavioural support (West et al 2015).
- Counselling as an adjunct to pharmacotherapy is more effective than pharmacotherapy alone (RR 1.24, 95% CI 1.01–1.51, 6 studies, N=2,662) (Lancaster and Stead 2017).

Recommendations

We recommend:

- counselling, regardless of the mode, is an effective method of helping people stop smoking
- any counselling is better than none, but more intensive counselling is more beneficial than less intensive counselling.

Practice points

- Specialist stop-smoking practitioners should aim to see people for at least four support sessions and provide as much support as required for the client.
- Health workers trained as specialist stop-smoking practitioners require dedicated time to provide stop-smoking support.

Technology-based support

Internet-based interventions include webpages (for example, online self-help guides, user forums and blogs) and social media platforms (Taylor et al 2017). Internet-based interventions can range from highly tailored and interactive interventions to low-intensity static materials (for example, self-help pamphlets).

Quitline currently provides online support through its website.

Automated text-messaging support delivers a mix of information, advice and motivational messages. Such support can also provide messages, when needed, to help cope with urges to smoke. Quitline currently provides a text message support programme (Txt2quit). See the Quitline website at: **www.quit.org.nz** for more details.

Evidence

- Internet-based interventions that are tailored and interactive have been shown to increase long-term abstinence rates compared with self-help guides or usual care (RR 1.15, 95% CI 1.01–1.30, 8 studies, N=6,789). However, the effect is small, and results should be interpreted with caution due to high levels of unexplained homogeneity (Taylor et al 2017).
- There was no benefit detected in internet-based interventions when compared with active controls (such as, counselling) (Taylor et al 2017).
- Internet-based interventions combined with behavioural therapy increased abstinence rates compared with non-active controls (RR 1.69, 95% CI 1.30–2.18, 5 studies, N=2,334), although homogeneity was high (Taylor et al 2017).
- No studies were found that evaluated internet-based interventions combined with pharmacotherapy.
- Text messaging support increases long-term abstinence rates compared with minimal support controls (RR 1.54, 95% CI 1.19–2.00, 13 studies, N=14,133) (Whittaker et al 2019a).
- When added to other smoking cessation supports (such as counselling and stop-smoking medication), text messaging support is more effective than other smoking cessation supports alone (RR 1.59, 95% CI 1.09–2.33, 4 studies, N=997) (Whittaker et al 2019a).
- Studies comparing high-frequency and low-frequency text messaging found no difference in quit rates (Whittaker et al 2019a).

Recommendations

We recommend:

- text messaging support is an effective method of supporting people to stop smoking.

We suggest:

- internet-based support can be offered to people who want help to stopping smoking.

Practice point

- More evidence is needed to determine the degree of support required to increase long-term smoking abstinence rates.

Written self-help materials

Self-help materials, such as leaflets and books (for example, *The Easy Way to Stop Smoking*, Carr 2004), are a relatively inexpensive means of communicating stop-smoking advice to a potentially large number of smokers. However, the quality of their content varies widely (Lancaster and Stead 2005).

Evidence

- Self-help materials have only a small effect on long-term abstinence rates compared with no intervention: abstinence rates increased by 19 percent compared with no intervention for non-tailored materials (RR 1.19, 95% CI 1.03–1.37, 11 studies, N=13,241) and 34 percent for tailored materials (RR 1.34, 95% CI 1.19–1.51, 11 studies, N=14,359) (Livingstone-Banks et al 2019b).
- There was no difference when comparing self-help materials with less intensive interventions (for example, brief pamphlets) (Livingstone-Banks et al 2019b).
- Adding self-help materials to other effective interventions (such as brief advice, face-to-face or telephone support, or stop-smoking medication) does not increase the effectiveness of those interventions (Livingstone-Banks et al 2019b).
- Self-help materials tailored to the individual may be more effective than general materials, but there is no evidence of a difference between tailored and non-tailored self-help materials when controlling for amount of contact (Livingstone-Banks et al 2019b).

Recommendations

We recommend:

- in the absence of other support, written self-help materials can be used to help people to stop smoking, particularly those materials that are tailored to individuals.

Practice point

- Self-help materials can help people stop smoking but should not be the focus of efforts when more effective interventions (for example, counselling, stop-smoking medication) are available.

Relapse prevention

Relapse prevention interventions are designed to help prevent people who have managed to stop smoking from either lapsing (a single episode of smoking) or relapsing (a return to regular smoking). Relapse prevention interventions often focus on teaching people skills to recognise triggers and resist the urge to smoke or providing addition treatment (Livingstone-Banks et al 2019a).

Evidence

- Several good-quality studies have tested relapse prevention interventions, but they have produced no evidence that behavioural interventions to prevent relapse are effective (Livingstone-Banks et al 2019a).

- There is some evidence that pharmacotherapy (specifically varenicline and NRT) may help prevent relapse (Livingstone-Banks et al 2019a). See Providing stop-smoking medicines below for more information.

Practice point

- While there is insufficient evidence to recommend any specific relapse prevention behavioural intervention, service providers should still offer ongoing support to people who need further help to remain smokefree.

Providing stop-smoking medicines

Nicotine replacement therapy

Nicotine replacement therapy (NRT) provides some of the nicotine a person would have otherwise received from tobacco but without the harmful toxicants contained in tobacco smoke. The NRT products available in New Zealand are patches, gum, lozenges, inhalators and mouth spray. At the time of writing only the patches, gum and lozenges were subsidised in New Zealand. These products deliver nicotine in different ways, but there is no evidence that they differ in their effectiveness. Subsidised products can be obtained via Quit Cards (the nicotine replacement exchange card system), as well as from pharmacies, in hospitals, from stop-smoking service providers and by prescription.

Evidence

- NRT is effective and, when compared with controls, can improve long-term abstinence rates by 55 percent (RR 1.55, 95% CI 1.49–1.61, 133 studies, N=64,640) (Hartmann-Boyce et al 2018).

- Effectiveness is similar regardless of the type of NRT (Hartmann-Boyce et al 2018).
    - Nicotine gum improved long-term abstinence rates by almost 50 percent compared with controls (RR 1.49, 95% CI 1.40–1.60, 56 studies, N=22,581).
    - Nicotine transdermal patch improved long-term abstinence rates by 64 percent compared with controls (RR 1.64, 95% CI 1.53–1.75, 51 studies, N=25,754).
    - Nicotine lozenges improved long-term abstinence rates by 52 percent compared with controls (RR 1.52, 95% CI 1.32–1.74, 8 studies, N=4,439).

- Evidence suggests that the higher-dose NRT products are more effective than lower-dose products (for example, 4-milligram gum versus 2-milligram gum, 21- or 42-milligram patch versus 14-milligram patch), especially in people who are more highly dependent (Lindson et al 2019a). For more information on NRT dosing, see the Nicotine Replacement Therapy webpage on the Ministry of Health's website at: **www.health.govt.nz/new-zealand-health-system/claims-provider-payments-and-entitlements/nicotine-replacement-therapy**.

- Combining the patch with a faster-acting NRT product (for example, gum or lozenges) can increase long-term abstinence by 25 percent compared with using a single NRT product (RR 1.25, 95% CI 1.15–1.36, 14 studies, N=11,356) (Lindson et al 2019a). There are no safety concerns with combining NRT products compared with single-use NRT.

- Most people should use NRT for 8 to 12 weeks, but a small number of smokers may need to use it for longer (6 percent may continue to use it for up to a year) (Shahab et al 2017). There is insufficient evidence to suggest that long-term NRT use is more effective than short-term use (Lindson et al 2019a).

- There is evidence that NRT is effective at helping people reduce the number of cigarettes they smoke before stopping and that this is an effective method of stopping smoking long term (the practice is known as 'preloading'). Preloading improves long-term abstinence compared with standard NRT use by 25 percent (RR 1.25, 95% CI 1.08–1.44, 9 studies, N=4,395) (Lindson et al 2019a).

- NRT use is associated with an increased risk of chest pains that are categorised as 'cardiovascular adverse events' compared with placebo (RR 1.81, 95% CI 1.35–2.43, 21 studies, N=11,647) but not with an increased risk of serious cardiovascular effects (Mills et al 2014).

- Some side effects relate to the type of NRT used, for example, skin irritation from nicotine patches or mouth irritation from gum (Lindson et al 2019a).

Recommendations

We recommend:

- people should be offered NRT routinely as an effective medication for people who want to stop smoking
- combining a fast-acting NRT product with patches can increase abstinence rates
- NRT can be used to encourage a person to reduce their smoking before they try to stop.

Practice points

- Personal preference should guide which NRT product (for example, patches, gum, lozenges, inhalator or spray)[3] a person uses.
- People should use NRT for at least eight weeks.
- People who need or want to use NRT for longer than eight weeks (for example, people who are highly dependent) can continue to do so.
- People with cardiovascular disease can use NRT safely.
- For information about NRT use in pregnant women and young people, see Part 3: Providing stop-smoking support to priority population groups.

Varenicline

Varenicline is a nicotinic acetylcholine receptor (nAChR) partial agonist; it also has antagonist properties, competing with nicotine for the same receptor site. The main receptor it targets is the alpha-4 beta-2 nicotinic receptor subtype, but it also acts as a full agonist at alpha-7 neuronal nicotine receptors. The agonist effect on the nAChR produces dopamine release but less than that seen with nicotine.

Varenicline helps people stop smoking primarily by reducing the severity of tobacco withdrawal symptoms, but it also reduces the rewarding properties of nicotine.

In New Zealand, varenicline is a fully funded stop-smoking medicine, subject to special authority criteria, for patients who have previously had two trials of NRT or one trial of bupropion or nortriptyline. Varenicline is only available on prescription and the course of treatment is 12 weeks.

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[3]   Currently only patches, gum and lozenges are subsidised in New Zealand. The inhalator and mouth spray can be purchased over the counter.

Evidence

- Long-term abstinence rates when using varenicline more than double, compared with a placebo (RR 2.24, 95% CI 2.06–2.43, 27 studies, N=12,625) (Cahill et al 2016).

- Varenicline is more effective than other smoking cessation medications, including bupropion (RR 1.39, 95% CI 1.25–1.54, 5 studies, N=5,877) and NRT (RR 1.25, 95% CI 1.14–1.37, 8 studies, N=6,264) (Cahill et al 2016).

- Varenicline has also been shown to be effective in increasing long-term abstinence at lower or variable dose rates compared with a placebo (RR 2.08, 95% CI 1.56–2.78, 4 studies, N=1,266) (Cahill et al 2016).

- Using varenicline in combination with NRT may improve long-term abstinence compared with varenicline alone, although more evidence is needed (Chang et al 2015).

- There is insufficient evidence to determine the effectiveness of using varenicline with any other stop-smoking medication.

- There is some evidence to suggest extended use of varenicline may be beneficial in preventing relapse compared with a placebo (RR 1.24, 95% CI 1.08–1.42, 2 studies, N=1,295). However, findings should be interpreted with caution due to quality and heterogeneity (Cahill et al 2016).

- There is high-quality evidence to suggest a 25 percent increase in the risk of serious adverse events[4] when using varenicline compared with a placebo (RR 1.25. 95% CI 1.04–1.49, 29 studies, N=15,370). However, the adverse events included comorbidities or illness events (for example, cancer diagnosis) that were not considered to be associated with the use of varenicline (Cahill et al 2016). There is no evidence of increased risk of harm of a specific serious adverse event: that is, there is no evidence of an increased risk of cardiovascular events or neuropsychiatric events (Cahill et al 2016).

- The most reported adverse event to occur when using varenicline is nausea. Other common adverse effects include headache, insomnia and abnormal dreams.

- Some studies have found that varenicline can reduce cravings for alcohol in individuals who engage in heavy drinking or who have an alcohol-use disorder (Gandhi et al 2020). If someone is smoking and engaging in heavy drinking, varenicline may help support reduction or abstinence of both (provided there are no contraindications).

- There is insufficient evidence to determine the effectiveness of varenicline for pregnant women, adolescents or anyone with an unstable cardiovascular disease.

- For full prescribing information, refer to the varenicline datasheet on the New Zealand Medicines and Medical Devices Safety Authority (Medsafe) website at: **www.medsafe.govt.nz/profs/Datasheet/v/VareniclinePfizertab.pdf**.

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[4] Serious adverse events are events leading to hospitalisation and/or death. Serious adverse events are not necessarily causatively linked to the treatment or medication that the person received.

Recommendations

We recommend:

- Varenicline can be offered as an effective medication for people who want to stop smoking.

Practice points

- The decision to use varenicline should be guided by the person's preference along with contraindications and precautions for use. Patients prescribed varenicline must meet the special authority criteria to have their prescription subsidised.

- When varenicline first came on the market, reports of suicidal ideation and cardiovascular events were reported. However, evidence from randomised controlled trials (RCTs) and meta-analyses did not substantiate these reports. Nevertheless, caution is warranted, and people using varenicline should have regular follow-up and be monitored for adverse events.

- It is important to discuss the possibility of serious neuropsychiatric symptoms in the context of the benefits of stopping smoking.

- Nausea is a common experience in people using varenicline. Antinausea medications may be used in conjunction with varenicline, and people should be advised to take varenicline with a full glass of water after eating. Dosage may need to be revised in some cases.

Bupropion

Bupropion is an atypical antidepressant medication that helps people stop smoking by reducing the severity of withdrawal symptoms via several different mechanisms, including dopamine and noradrenaline pathways.

Bupropion is only available on prescription and is fully subsidised. People should use bupropion for at least seven weeks.

Evidence

- Bupropion is effective; it improved long-term abstinence rates by 64 percent compared with a placebo (RR 1.64, 95% CI 1.52–1.77, 45 studies, N=17,866) (Howes et al 2020).

- Most studies prescribed bupropion at 300 mg per day, with treatment duration between 7 and 26 weeks.

- Bupropion appears to be as effective as NRT and nortriptyline (see below) but appears to be less effective than varenicline.

- Bupropion can be used in combination with other stop-smoking medication, although current available evidence suggests that this does not improve abstinence rates compared with NRT alone or varenicline alone (Howes et al 2020).

- There is insufficient evidence to recommend bupropion in preventing smoking relapse.
- There is insufficient evidence to recommend bupropion to pregnant women or adolescents who smoke. The safety of bupropion for pregnant women and adolescents has not been established.

There is evidence that patients using bupropion are more likely to report adverse psychiatric events compared with a placebo (RR 1.25, 95% CI 1.15–1.36, 6 studies, N=4,439) (Howes et al 2020). However, a large multi-site RCT (N=8,144) found no evidence of a significant increase in psychiatric adverse events in people using bupropion compared with a placebo (Anthenelli et al 2016). This was also true for subgroup analyses of participants with psychiatric disorders (Evins et al 2019).

Recommendations

We recommend:

- Bupropion is an effective medication for people who want to stop smoking.

Practice points

- The decision to use bupropion should be guided by the person's preference along with contraindications and precautions for use.
- Monitor people using bupropion for adverse effects.

Nortriptyline

Nortriptyline is a tricyclic antidepressant that helps people to stop smoking by reducing the severity of withdrawal symptoms via its actions on noradrenaline pathways.

Nortriptyline's action in helping people to stop smoking is independent of its antidepressant effects. Therefore, it also helps people who do not have a history of depression to stop smoking.

Nortriptyline is only available on prescription and is fully subsidised. The course of treatment is 12 weeks.

Evidence

- Nortriptyline is effective in improving long-term abstinence compared with placebo controls (RR 2.03, 95% CI 1.48–2.78, 6 studies, N=975) (Howes et al 2020).
- In the small number of studies comparing nortriptyline with bupropion, there was no significant difference in quit rates, although findings favoured bupropion (RR 1.30 [favouring bupropion], 95% CI 0.93–1.83, 3 studies, N=417) (Howes et al 2020). No studies have compared bupropion with other smoking cessation medications.

- There are only a small number of trials (N=10) evaluating nortriptyline for smoking cessation, therefore the evidence to indicate risk of adverse events is not strong (Patnode et al 2021), however, there are a number of contraindications and precautions with its use.

- There is insufficient evidence to determine the effectiveness of using nortriptyline with any other stop-smoking medication.

- There is insufficient evidence to determine the effectiveness of nortriptyline when prescribed to pregnant women or adolescents who smoke.

- Nortriptyline is best avoided in people with cardiovascular disease as it can produce sinus tachycardia and prolong conduction time. See the nortriptyline datasheet on the Medsafe website at:
www.medsafe.govt.nz/profs/datasheet/n/nortriptylinenrimtab.pdf

Recommendations

We suggest:

- Nortriptyline is an effective medication for people who want to stop smoking.

Practice points

- The decision to use nortriptyline should only follow a discussion with a suitably qualified health worker about the benefits and risks.

- Monitor people using nortriptyline for adverse effects.

Combining behavioural support and pharmacotherapy

Evidence

- In most cases, behavioural support and pharmacotherapy are delivered together.

- Combined behavioural treatment and pharmacotherapy (in most studies, NRT) increases long-term abstinence rates by 83 percent compared with usual care, brief advice or less intensive behavioural support (RR 1.83, 95% CI 1.68–1.98, 52 studies, N=19,488) (Stead et al 2016).

- Increasing the intensity of behavioural support for smoking cessation aided by pharmacotherapy increases long-term abstinence rates by 15 percent (RR 1.15, 95% CI 1.08-1.22, 65 studies, N=23,331) (Hartmann-Boyce et al 2019).

- There is no evidence of an effect to suggest that more intensive behavioural support (that is, more contact points) has larger treatment effects (Hartmann-Boyce et al 2019).

Recommendation

We recommend:

- pharmacotherapy and behavioural support should be provided in combination for the best chance of success.

Vaping products

Vaping products (that is, electronic cigarettes, also known as e-cigarettes or vapes) are electronic devices that heat a liquid to form an aerosol that the user inhales. Vaping liquids often contain nicotine.

Since November 2020, vaping products have been regulated under the Smokefree Environments and Regulated Products Act 1990. They are *not* licensed medicines or devices, but they are regulated tobacco products subject to smokefree provisions and prohibition of sale to minors.

The Ministry of Health considers vaping products to have the potential to contribute to the Smokefree 2025. However, vaping products are not approved stop-smoking medications. They are a less harmful way of delivering nicotine when compared with traditional cigarettes. However, they are not harmless and produce a range of toxicants, including some carcinogens, but at much lower levels than those found in cigarette smoke and at levels unlikely to cause harm (Ministry of Health 2020b).

Evidence

- Vaping products containing nicotine are effective in increasing long-term quit rates by 69 percent, compared with NRT (RR 1.69, 95% CI 1.25–2.27, 3 studies, N=1,498) and 71 percent compared with non-nicotine vaping products (RR 1.71, 95% CI 1.00–2.92, 3 studies, N=802) (Hartmann-Boyce et al 2020).

- Nicotine vaping products more than doubled long-term abstinence compared with behavioural support (RR 2.50, 95% CI 1.24–5.04, 4 studies, N=2,312). However, findings should be interpreted with caution due to imprecision in the estimate and high risk of bias (Hartmann-Boyce et al 2020).

- There is limited evidence of the effects of non-nicotine vaping products compared with other smoking cessation support. Two trials (N=388) have found higher quit rates in participants using non-nicotine vaping products (one as adjunct to NRT) compared with another smoking cessation support, however, the effect was not significant (RR 1.74, 95% CI 0.76–3.96) (Hartmann-Boyce et al 2020).

- There is insufficient evidence to determine the effect of vaping products used in combination with other smoking cessation aids. A recent randomised trial conducted in New Zealand (N=1,124) compared NRT alone with NRT in combination with vaping products (with and without patches) and found increased long-term abstinence was highest in the group receiving NRT and nicotine vaping devices (RD 4.60, 95% CI 1.11–8.09) (Walker et al 2020).

- There is insufficient evidence to determine the effect of vaping products for relapse prevention.

- There is insufficient evidence to determine the effect of vaping products on pregnant women and young people.

- Available evidence suggests that risk of adverse events from vaping is no different from NRT (adverse events: RR 0.98, 95% CI 0.80–1.19, 2 studies, N=485; serious adverse events: RR 0.25, 95% CI 0.25, 95% CI 0.03–2.19, 4 studies, N=494), however, more long-term follow-up (more than 12 months) is needed (Hartmann-Boyce et al 2020). As noted by Patnode et al (2021), vaping products are typically used over a longer time than most smoking cessation medications (for example, 12 weeks), so more information is needed about long-term effects of using vaping devices.

Recommendations

We recommend:

- vaping products with nicotine can be used to support smoking cessation or tobacco harm reduction.

We suggest:

- vaping products without nicotine can be used to support smoking cessation.

Practice points

- Using vaping products without stopping smoking is unlikely to provide the same benefits as switching completely to vaping. Anybody who is switching to vaping should be advised to stop smoking tobacco as soon as possible.

- Vaping products may be considered for pregnant women who have been unable to stop smoking through other methods, but only after they have been informed of and have weighed up the risks and benefits (see Part 3: Providing stop-smoking support to priority population groups).

- Long-term (more than 12 months) effects of vaping products are unknown. However, vaping products are almost certainly less harmful than traditional cigarettes. Cigarette smokers can be advised to switch to vaping products to reduce harm.

- Vaping products are intended for smokers only. Non-smokers (especially young people) should be advised not to take up vaping.

- Vaping products should not be recommended to children and adolescents. The sale of vaping products to under-18-year-olds is prohibited under the Smokefree Environments and Related Products Act 1990.

Other treatments and interventions

There are many other treatments and interventions that people may ask about, or want to use, to help them stop smoking (see the list below). For some of these interventions, there is not enough information to determine their effectiveness, or the intervention may not be widely available in New Zealand. Others are not used because of common or unpleasant side effects (for example, clonidine and cannabinoid type 1 receptor antagonists).

There is also evidence that some of the treatments listed below are ineffective in helping people to stop smoking (for example, anti-anxiety medication), while for others, there is not enough evidence to make a clear recommendation.

Cytisine

Cytisine is a nicotine partial agonist, like varenicline, that is structurally like nicotine (Tutka et al 2019). 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. Cytisine has been licensed for use in several Eastern and Central European countries for more than 40 years and is available, in some countries, on prescription, over the counter and over the internet. Although there is evidence of cytisine's efficacy and effectiveness, it is currently not licensed for use in New Zealand.

Evidence

- Cytisine is effective compared with a placebo in increasing long-term abstinence rates (RR 3.98, 95% CI 2.01–7.87, 4 studies, N=3,461) although more studies are needed to increase the precision of effect estimates (Cahill et al 2016).
- A New Zealand non-inferiority trial comparing 12 weeks of cytisine with 12 weeks of varenicline found no difference between the two medications in supporting long-term abstinence in Māori and whānau of Māori (risk difference [RD] 4.29, 95% CI -0.22–8.79, N=679). Participants taking cytisine were less likely to report adverse events than those taking varenicline (incident RR 0.56, 95% CI 0.49–0.65, N=679) (Walker et al 2021).
- A New Zealand non-inferiority trial comparing one month of cytisine to eight weeks of NRT found improved short-term (RD at one month 6.6, 95% CI 2.4–10.8, N=1,310) and long-term abstinence for participants using cytisine (RD at six months 6.6, 95% CI 2.4–10.8, N=1,310) (Walker et al 2014). Participants taking cytisine were more likely to report adverse events than those taking combination NRT (incidence RR 1.70, 95% CI 1.4–2.0, N=1,310).

- Available data suggest that cytisine is well tolerated. None of the trials of cytisine that reported on harm identified more adverse events associated with it. However, these data come from only a small number of studies and are limited by lack of reporting at longer follow-up (Patnode et al 2021). The most common issue associated with use of cytisine is gastrointestinal problems, that is, nausea (Hajek et al 2013).

Other interventions

Acupuncture (including acupressure and electrostimulation)	There is no evidence to show that acupuncture or other related treatments improve long-term abstinence compared with sham or waitlist treatments (White et al 2014).
Anti-anxiety medication (for example, diazepam)	There are data to show that these medicines are ineffective in helping people stop smoking (Hughes et al 2000).
Antidepressants	Other than those described above (bupropion, nortriptyline), there is insufficient evidence to support the use of other antidepressants (specifically selective serotonin reuptake inhibitors, SSRIs, and monoamine oxidase inhibitors, MAOIs) for smoking cessation (Howes et al 2020).
Competitions	Competitions and performance-based incentives have not been shown to increase long-term abstinence (Fanshawe et al 2019).
Decision aids	There is no evidence of benefit for decision aids and risk assessment feedback (including biomedical feedback, visual feedback and DNA-based feedback) in increasing long-term abstinence (Clair et al 2019).
Heated tobacco products	Heated tobacco products ('Heat not burn' products such IQOS and PAX) may be less harmful than cigarettes, but there is insufficient evidence to determine their effectiveness as cessation products and an absence of independent research on their safety that has not been funded by the tobacco industry.
Hypnotherapy	There is insufficient evidence to determine the effectiveness of hypnotherapy in increasing long-term smoking abstinence (Barnes et al 2019).
Incentives	Incentives can be beneficial in improving smoking abstinence rates where they are used as guaranteed incentives (Hartmann-Boyce et al 2021; Notley et al 2019). There is some evidence that financial incentives can be effective is supporting pregnant women to abstain from smoking (Chamberlain et al 2017).
NicoBloc®	NicoBloc® is a liquid dropped in the filter of a cigarette and said to form an occlusive barrier to nicotine. There are insufficient data to recommend this product to help people stop smoking.
Nicobrevin	Nicobrevin, a remedy developed in Germany in the 1960s, is composed of menthyl valerate, quinine, camphor and eucalyptus oil. There are insufficient data to recommend this product to help people stop smoking.
Physical activity	There is no evidence that adding physical activity to smoking cessation interventions improves long-term abstinence rates (Ussher et al 2019).
Smoking reduction or 'cut down to quit'	There is evidence that using a reduction-to-quit approach attains similar long-term abstinence rates to abrupt quitting (Lindson et al 2019b). If this strategy is used, the person should aim to reduce cigarette consumption by at least 50 percent in the first six weeks. Then over the next 18 weeks, this reduction can either be maintained, or the person can continue to reduce or can quit completely. The person should aim to stop smoking completely within six months. If a reduction of at least 50 percent is not achieved in the first six weeks, then little may be gained from continuing this treatment strategy (McRobbie et al 2006).
St John's wort	St John's wort is a natural remedy that has mild antidepressant effects. There are insufficient data to recommend this product to help people stop smoking (Howes et al 2020).

Part 3:
Providing stop-smoking support to priority population groups

The Ministry of Health has identified several priority groups for stop-smoking support. These groups have been given priority because they have particularly high smoking prevalence rates (for example, Māori and users of mental health services), and they are likely to obtain significant benefit from stopping smoking (for example, pregnant women).

Some of the identified priority population groups are discussed briefly in the following sections. In general, interventions that are effective in the general population are also effective in these population groups. However, significant ethnic inequalities in the socioeconomic determinants of health, access to treatment and quality of care (HQSC 2019) may have impacts on both the prevalence of smoking and smoking cessation support. When delivering interventions to these groups, health workers may need to change their approach to make sure the intervention is as acceptable, accessible and appropriate as possible. It is also important to give people who smoke a choice of different treatment options.

Providing stop-smoking support to Māori

Māori (aged 15 years and over) have a high smoking prevalence (28.7 percent daily smokers in 2019/20) (Ministry of Health 2020a).

In 2019/20, Māori women had a higher prevalence of daily smoking (32.0 percent) than Māori men (25.0 percent). Māori men and women were also more than twice as likely to be daily smokers than men and women in the general population (25.0 percent versus 12.2 percent and 32.0 percent versus 11.0 percent respectively) (Ministry of Health 2020a).

Over time, smoking prevalence among Māori has not declined at the same rate as it has in the general population.

It is important to acknowledge the systematic and structural factors that have contributed to the high prevalence of smoking in Māori compared with non-Māori, including colonisation, the Crown's failure to meet obligations under Te Tiriti o Waitangi and institutional and wider determinants of health in which Māori are disadvantaged (HQSC 2019; Pearson et al 2021). In addition, inequality of access to health services, especially general practice (GP) services has contributed to the widening disparities in health between Māori and non-Māori.

See also Part 4: Barriers and facilitators to smoking cessation.

Evidence

- Interventions that work in the general population (for example, behavioural support and stop-smoking medicines) appear to be at least as effective for Māori (Ministry of Health 2003). For example, one RCT (N=134) showed bupropion was effective in assisting Māori to stop smoking (RR 3 months 2.54, 95% CI 1.30–5.00)(Holt et al 2005). Likewise, subgroup analyses of RCTs have found no differences in quit rates for Māori compared with non-Māori for vaping devices (Walker et al 2020) or text message support (Bramley et al 2005).

- A recent trial comparing cytisine and varenicline in Māori found 12 weeks of cytisine was at least as effective as varenicline in increasing long-term abstinence in Māori (Walker et al 2021).

- Several small studies have also implemented behavioural support programmes for Māori, including incentives programmes (Glover et al 2015; Kira et al 2016), exercise interventions (Roberts et al 2017) and peer support (Glover et al 2016). Group based interventions (for example, whole whānau interventions) like the WERO group stop-smoking competition have also been found to be effective in small pilot studies (Glover et al 2014). Such programmes have had promising results, but more evidence is needed to determine their effectiveness.

- Data from 2009 found Māori smokers who had seen a health care worker in the last 12 months were more likely than non-Māori to have been referred to a stop-smoking service or to have been given stop-smoking medication (42 percent for Māori versus 36 percent for non-Māori) (Ministry of Health 2011). However, Māori experience disparities in their access to health workers – especially GPs, maternity workers and oral health workers (HQSC 2019).

- In general, Māori are slightly less likely to use stop-smoking support in their quit attempts than non-Māori (33 percent compared with 38 percent respectively), but this difference is not statistically significant (Ministry of Health 2011). Differences in the use of stop-smoking support may be due in part to lack of culturally appropriate services and treatment, differential access to services and differences in the type of care provided when Māori do seek support for smoking cessation (Glover 2013).

- Data suggest that financial cost, pervasive smoking among whānau and peers, environments accepting of smoking and perceived cultural inappropriateness of treatments are all barriers to Māori accessing stop-smoking support (Thompson-Evans et al 2011).

- Stop-smoking interventions for Māori should be culturally appropriate and multi-faceted, address cigarette dependence, provide support, partner with Māori and be inclusive of whānau (Chamberlain et al 2017; Fernandez and Wilson 2008).
- Cytisine, if presented as a rongoā Māori (traditional Māori healing method), contributes towards restoring identity, traditional beliefs and practices for Māori in addition to reducing smoking (Thompson-Evans et al 2011).

Recommendations

We suggest:

- culturally appropriate stop-smoking services should be available and accessible to Māori.

Practice points

- Stop-smoking practitioners who provide support to Māori smokers should be trained to ensure they are both technically and culturally safe in this role. Culturally safe practice requires practitioners and service providers to examine their own culture and reflect on how this affects their practices and the power imbalance between patient and provider (Curtis et al 2019).
- It is important for service providers and organisations to identify and address barriers to equitable care for Māori, such as accessibility and appropriateness.
- All health workers should be familiar with the stop-smoking service providers that are available for Māori locally (such as local kaupapa Māori cessation support providers) and nationally (such as Quitline), so they can refer appropriately.
- Offer Māori smokers support that incorporates components known to be effective (such as those identified in the previous sections).

Providing stop-smoking support to Pacific peoples

Pacific peoples in New Zealand have a high daily smoking prevalence – in 2019/2020, 18.3 percent of Pacific people 15 years of age and over were currently smoking (Ministry of Health 2020a). By gender, 21.3 percent of Pacific men and 15.9 percent of Pacific women are daily smokers (Ministry of Health 2020a). Pacific adults are 1.57 times more likely to be daily smokers than adults in the general population (Ministry of Health 2020a).

Smoking prevalence amongst Pacific people varies by Pacific nation, especially by sex. With such a culturally diverse population, it is important to be aware of other kinds of tobacco use, such as chewing tobacco and consumption of tobacco with areca nut.

Around 7 percent of Pacific people who are daily smokers have tried to quit in the last 12 months. According to data from 2012, Pacific people were less likely that non-Pacific to have used quitting products or advice in their most recent quit attempt (Ministry of Health 2014). Pacific people may experience barriers in access to care and quality of care that contribute to differences in the use of quitting products and smoking-cessation support (Ryan et al 2019).

Evidence

- There are limited data on effective interventions for Pacific smokers. However, interventions known to work in the general population (for example, behavioural support and stop-smoking medicines) are likely to be just as effective for Pacific peoples.

- Some small studies of culturally tailored smoking cessation behavioural interventions have shown some success in helping people quit smoking, including text message support (Whittaker et al 2019b) and online training curriculum (Kwan et al 2017). More evidence is needed to determine their effectiveness.

- Stop-smoking interventions for Pacific peoples need to address cigarette dependence, provide support and be delivered in a way that is culturally appropriate and inclusive of whānau as much as possible. It is also important to give Pacific smokers a choice of treatment options.

Recommendations

We suggest:

- providers should offer culturally appropriate services where available.

Practice points

- Offer all Pacific smokers stop-smoking interventions that incorporate components known to be effective (such as those identified in the previous sections).

- Stop-smoking practitioners who provide support to Pacific smokers should seek training to ensure they are both technically and culturally safe in this role.

Providing stop-smoking support to Asian peoples

The prevalence of smoking among Asian peoples living in New Zealand is lower than the prevalence for most other ethnic groups, with 7.4 percent of Asian people daily smokers (Ministry of Health 2020a). However, the prevalence of smoking varies widely within the Asian ethnic group, depending on country of origin. It also varies significantly by sex, with 12.2 percent of Asian maleand 1.4 percent of Asian female daily smokers in New Zealand (Ministry of Health 2020a).

Tobacco use among Asian peoples can take different forms, for example, waterpipe is a form of tobacco use that is prevalent in Middle Eastern countries and popular with young people. Areca nut (which is used in combination with tobacco) is also common in many Asian countries. Areca nut is illegal in New Zealand, but some migrants to New Zealand may arrive with a history of areca nut use.

Evidence

- There is limited evidence on Asian-specific stop-smoking interventions, and the evidence is insufficient to draw any conclusions. However, interventions known to work in the general population (for example, behavioural support and stop-smoking medicines) are likely to be just as effective for Asian peoples.
- Stop-smoking interventions for Asian peoples need to address cigarette dependence, provide support, engage with community leadership and be delivered in a way that is culturally appropriate (Wong et al 2010).

Recommendations

We suggest:

- providers should offer culturally appropriate services where available.

Practice points

- Offer all Asian smokers stop-smoking interventions that incorporate components known to be effective (such as those identified in the previous sections).
- Stop-smoking practitioners who provide support to Asian people who smoke should seek training to ensure they are both technically and culturally safe in this role.

Providing stop-smoking support to pregnant and breastfeeding women

The risks of prenatal tobacco exposure increase with the number of cigarettes smoked and the duration of smoking (Andersen et al 2012). Pregnant women who stop smoking as early as possible during the pregnancy can reduce the risk of adverse birth outcomes (such as premature birth, preterm premature rupture of the membranes (PPROMS) and low-birth weight) and infant mortality (SUDI) (Pineles et al 2014).

For many young women, smoking remains a social norm. Smoking rates in women are highest between 25 and 54 years of age (Ministry of Health 2020a).

The Growing Up in New Zealand study, a large longitudinal study of children born in the Auckland-Waikato region that was officially launched in 2008, found 20 percent of mothers reported smoking before pregnancy, and 9.9 percent continued to smoke throughout their pregnancy (Humphrey et al 2016).

Nicotine freely passes in and out of breast milk, depending on the concentration of nicotine in the maternal blood (which is affected by cigarette consumption, frequency of breastfeeding and the time between smoking and breastfeeding).

Second-hand tobacco smoke is also known to have harmful health effects on young children and can also be detected in breastmilk.

Evidence

- Pregnant women need services that are appropriate and meaningful and that deliver support in a timely manner. Offering the pregnant woman's partner and wider whānau referral to a stop-smoking service will also help the pregnant woman to stop (Allen et al 2012).
- Pregnant women expect clear, honest, non-judgemental communication about smoking (Barnett et al 2019).
- Behavioural interventions are effective in increasing abstinence rates in pregnant women compared with controls (RR 1.35, 95% CI 1.23–1.48, 97 studies, N=26,637). There are no apparent adverse effects of behavioural interventions for pregnant women. Effective interventions included:
  - counselling (RR 1.44, 95% CI 1.19–1.73, 30 studies, N=12,432)
  - incentives (RR 2.36, 95% CI 1.36–4.09, 4 studies, N=212) and feedback in conjunction with other strategies (RR 4.39, 95% CI 1.89–10.21, 2 studies, N=355) although these latter findings should be interpreted with caution due to imprecision in the effect estimate and small sample size (Chamberlain et al 2017).
- There was unclear evidence of the effectiveness of social support interventions (Chamberlain et al 2017).

- Pooled analysis found a 17 percent reduction in infants born with low-birth weight for women who received smoking cessation behavioural interventions (RR 0.83, 95% CI 0.72–1.50, 18 studies, N=9,402) and a 22 percent reduction in neonatal care admissions (RR 0.78, 95% CI 0.61–0.98, 8 studies, N=2,100) (Chamberlain et al 2017).

- Behavioural interventions are also effective in maintaining smoking abstinence at 0–5 months postpartum (RR 1.32, 95% CI 1.17–1.50, 35 studies, N=8,366)(Chamberlain et al 2017).

- NRT (with behavioural support) has also been shown to increase abstinence rates in pregnant women compared with behavioural support alone (RR 1.37, 95% CI, 9 studies, N=2,336) (Claire et al 2020). Two of the studies used fast-acting NRT (that is, gum or inhaler), six used patches and one offered a choice of NRT (single product).

- There is insufficient evidence to determine the effectiveness of other pharmacological interventions for pregnant women. Varenicline (and cytisine) are contraindicated for pregnancy (Karnieg and Wang 2018).

- The use of NRT in pregnancy carries a small potential risk to the fetus but using NRT is far safer than smoking while pregnant. Blood nicotine levels are typically lower when using NRT, and NRT delivers nicotine more slowly compared with smoking. Furthermore, NRT delivers nicotine without the other harmful substances contained in tobacco smoke (such as carbon monoxide). There is insufficient evidence of differences in adverse birth outcomes between those using NRT and placebo (Claire et al 2020).

- Expert opinion suggests that pregnant women can use NRT once they have been advised of the potential risks and benefits (Bar-Zeev et al 2018). If a patch is judged to be the most appropriate NRT product, then the pregnant woman should remove it overnight (Bar-Zeev et al 2018).

- There is insufficient evidence to determine the safety or effectiveness of e-cigarettes in supporting abstinence during pregnancy (Patnode et al 2021). Some epidemiology studies suggest that women using e-cigarettes are at greater risk of adverse birth outcomes compared with non-smokers. However, these studies included dual users of e-cigarettes and traditional cigarettes (Nagpal et al 2021).

- Although a number of women manage to stop smoking during pregnancy, rates of relapse after birth are high (Rockhill et al 2016). There are insufficient data to determine the effectiveness of any specific intervention at preventing relapse (Meernik and Goldstein 2015). However, women should be offered ongoing support to remain smokefree after birth.

- Although there is limited research specifically targeting breastfeeding women, the interventions recommended in **Part 2** above can generally be deemed effective for breastfeeding women. However, some pharmacological interventions may not be safe for women to use when breast feeding as they may be harmful to infants.

- Where a breastfeeding mother is using NRT, it is unlikely that the very low level of exposure will be harmful to the infant due to the relatively low oral availability of nicotine (Benowitz and Dempsey 2004). Either way, it is important to emphasise the importance of continuing to breastfeed, regardless of smoking status.

- Bupropion is excreted in human breast milk, and mothers should not breastfeed while taking it. Nortriptyline is also excreted in human breast milk, although at low levels, and mothers are advised to use it with caution when breastfeeding. No information is available for the use of varenicline during breastfeeding (Drugs and Lactation Database (LactMed) 2018).

Recommendations

We recommend:

- all health workers should briefly advise every pregnant woman who smokes to stop and recommend referral to a stop-smoking service
- all pregnant and breastfeeding women who smoke should be advised not to smoke and offered multi-session, behavioural, stop-smoking interventions without delay from a dedicated stop-smoking service
- where women have had a smokefree pregnancy, offer them help to remain smokefree after birth.

Practice points

- All women of childbearing age should be encouraged to stop smoking.
- Women who are already pregnant should be encouraged to stop smoking continuously throughout their pregnancy (from as early in the pregnancy as possible into the post-partum period).
- Women can use NRT in pregnancy and during breastfeeding. Discuss with them the risks versus benefits of using NRT during pregnancy.
- Advise pregnant women on the benefits of having smokefree homes and cars.

Providing stop-smoking support to children and young people

Smoking has declined markedly in New Zealand young people. The prevalence of daily smokers aged between 15 and 24 years was 10.1 percent in 2019/20, down from 20.7 percent in 2006 (Ministry of Health 2020a). In the 15- to 17-year-old age group, the prevalence of current smokers was 3.0 percent, down from 13.7 percent in 2006.

To meet the Smokefree 2025 goal, we need to address both smoking cessation and smoking initiation.

Health workers should be aware of the risks of second-hand smoke to children and young people exposed to smoking by their families in their homes. On these grounds alone, health workers should offer brief advice and cessation support to whānau members who smoke.

Evidence

- There is limited evidence available of the effectiveness of smoking cessation interventions for young people. Group counselling has been found effective at increasing long-term abstinence rates in young people who smoke compared with control interventions (RR 1.35, 95% CI 1.03–1.77, 9 studies, N=1910) (Fanshawe et al 2017). There is insufficient evidence for the effectiveness of individual counselling.

- There is insufficient evidence to confirm the effectiveness of interventions specifically aimed at helping young people stop smoking or to recommend integrating any particular model into standard practice (Fanshawe et al 2017; Selph et al 2020).

- It is likely that, to be effective, interventions aimed at young people need to differ from those developed for adults, given that these two groups differ in lifestyle and in attitudes to smoking and stopping smoking. Interventions that may be acceptable for young people who smoke include support from whānau, friends and community; incentives; physical activity and group support (Marsh et al 2014).

- There is insufficient evidence to state that using NRT improves long-term abstinence rates among young smokers (Fanshawe et al 2017). 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 bupropion and other pharmacological interventions in patients under 18 years of age have not been established.

Recommendations

We suggest:

- young people who smoke should be offered behavioural interventions to help them stop smoking, especially group counselling.

Practice points

- Interventions that incorporate components known to be effective (such as those identified in the previous sections) can be offered to young people who smoke, including NRT, if it is thought it might help them stop smoking.

Providing stop-smoking support to people with chronic health conditions, including hospitalised and preoperative patients

Tobacco use is a risk factor for many chronic diseases, including cardiovascular disease, diabetes and respiratory illnesses – smoking cessation is associated with a decreased risk for all these conditions.

Stopping smoking before surgery decreases the risk of wound infection, delayed wound healing and post-operative pulmonary and cardiac complications (Thomsen et al 2014).

Smoking cessation can increase the efficacy of chemotherapy, decrease the risk of treatment complications, decrease the risk of postoperative complications, improve survival and improve quality of life (Cataldo et al 2010; United States Public Health Service Office of the Surgeon General and National Center for Chronic Disease Prevention and Health Promotion (US) Office on Smoking and Health 2020).

Smoking cessation is the only intervention that will halt the accelerated decline in lung function seen with chronic obstructive pulmonary disease (COPD) and is one of the most cost-effective interventions available, irrespective of disease stage (Faulkner et al 2006).

Hospitalisation provides an important opportunity to assist people to stop smoking. Such people include not only patients who smoke but also the parents and other whānau members of hospitalised children. Most hospitals in New Zealand do not allow smoking on their premises, and it is important to support people while they are residing in smokefree environments.

Evidence

- There is limited research into the effectiveness of smoking cessation interventions for specific chronic conditions. Recent systematic reviews of smokers diagnosed with lung cancer (Zeng et al 2019) and head and neck cancer (McCarter et al 2016) have found insufficient evidence to determine the effectiveness of smoking cessation interventions.
- There is insufficient evidence to determine the effectiveness of smoking cessation interventions for patients with diabetes (Nagrebetsky et al 2014).
- Psychosocial smoking cessation interventions are effective at increasing long-term abstinence in patients with cardiovascular heart disease compared with control interventions (RR 1.22, 95% CI 1.13–1.32, 37 studies, N=7,682) (Barth et al 2015).

- Cessation support (behavioural support and stop-smoking medicines), when given to hospital inpatients, is effective in promoting long-term abstinence regardless of patient diagnosis, but only if it continues for at least one month after discharge (West et al 2015).
- RCTs show that preoperative smoking interventions, combining behavioural support and NRT, improve short- and long-term abstinence rates. Intensive smoking cessation interventions that begin four to eight weeks before surgery have the greatest impact on reducing perioperative complications and improving long-term abstinence (Thomsen et al 2014).

Recommendations

We recommend:

- provide brief advice to stop smoking to all hospitalised people who smoke.

We suggest:

- hospitalised patients who smoke and want help with stopping should be referred to a stop-smoking provider to arrange multi-session intensive support and medication, and they should be followed up for at least one month after discharge
- advise smokers awaiting surgery to stop smoking and offer them intensive cessation support four to eight weeks before surgery.

Practice points

- Provide brief advice to stop smoking to all people with chronic health conditions for which smoking is a modifiable risk factor.
- Provide NRT to hospitalised people who smoke to help manage tobacco withdrawal symptoms.
- All hospitals should have systems in place to help patients to stop smoking. These include routinely providing advice to stop smoking, offering cessation support and referring those who want help to a stop-smoking service.
- Advise parents and whānau members of hospitalised children to stop smoking and offer them support to help them quit.
- If someone stops smoking, it is important to monitor any long-term medications (for example, insulin in diabetes) as smoking cessation can affect cardiovascular function and metabolism of medication (Zevin and Benowitz 1999).

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

People with mental health disorders have particularly high smoking rates. They smoke approximately one-third of all cigarettes smoked in New Zealand (Tobias et al 2008).

Smokers are 1.5 times more likely that non-smokers to be diagnosed with at least one mental health condition: 25 percent of smokers compared with 15 percent of non-smokers (Ministry of Health 2014).

There is a well-established relationship between smoking and alcohol consumption. Data from 2012/13 found smokers were twice as likely as non-smokers to drink at hazardous levels: 40 percent of smokers compared with 14 percent of non-smokers (Ministry of Health 2014). A high proportion of people with substance use disorders smoke tobacco, with rates of daily smoking as high as 60–70 percent (Adamson et al 2006; Guydish et al 2020).

Smokers with mental illness often started smoking earlier and smoke more heavily (Caponnetto et al 2020) and therefore usually have high levels of dependence on nicotine/tobacco (Das-Munshi et al 2020). Nevertheless, smokers with mental illness are motivated to stop smoking (Caponnetto et al 2020; Siru et al 2009). People who are more highly dependent benefit from more intensive support (for example, a face-to-face programme) to help them stop smoking.

Short-term abstinence from smoking is associated with several tobacco withdrawal symptoms, including low mood and irritability. However, long-term abstinence is associated with statistically significant improvements in psychological wellbeing. Stopping smoking does not appear to be associated with an increase in anxiety or stress, and studies have found either no changes in psychiatric symptoms following smoking-cessation or improved psychiatric symptoms (Lightfoot et al 2020). However, stopping smoking can cause a relapse of depression in some people (Giulietti et al 2020), but this is rare and is not a sufficient reason to withhold support for stopping smoking. Instead, it is a reason to monitor the mental health of people more closely in this group when they are trying to stop smoking.

Evidence

- Several reviews have examined the effectiveness of smoking cessation interventions for adults with mental health conditions, however, the findings are based on several small studies.
    - A review of psychosocial interventions for adults with mental health conditions found no evidence of effect (Lightfoot et al 2020).

- There is some evidence for the effectiveness of pharmacological interventions to improve short-term abstinence in adults with schizophrenia and bipolar disorder, however, there was insufficient evidence to determine the effect on long-term abstinence (Siskind et al 2020).
- There is evidence that smoking cessation interventions can improve long-term abstinence in adults with depression (RR 1.14, 95% CI 1.01–1.29, 16 studies, N=4,252), especially for pharmacotherapy (RR 1.59, 95% CI 1.23–2.05, 5 studies, N=1,090) (Secades-Villa et al 2017).

- A recent, large multi-site RCT (*N*=8144) compared varenicline, bupropion and NRT with a placebo in adult smokers with and without psychiatric disorders (Anthenelli et al 2016). In patients with psychiatric disorders (*N*=4092), the pharmacological interventions increased long-term abstinence compared with the placebo (varenicline OR 4.57, 95% CI 2.59–8.06; bupropion OR 2.22, 95% CI 1.53–4.06; NRT OR 2.76, 95% CI 1.53–4.97) (Evins et al 2019). Subgroup analyses by primary disorder found varenicline and bupropion were effective for smokers with psychotic disorders and mood disorders, and varenicline and NRT were effective for smokers with anxiety disorders. The trial found no significant treatment effect on the experience of moderate or severe serious adverse events (Evins et al 2019).

- Evidence is insufficient to conclude that using NRT improves long-term abstinence rates among people with mental illness who smoke (West et al 2015). Nevertheless, expert opinion is that NRT may be considered for use by people in this group who want help to stop smoking.

- Overall, evidence indicates that stop-smoking interventions can increase short-term abstinence rates in people with substance use disorders. However, there is insufficient evidence to determine the effect on long-term abstinence (Apollonio et al 2016). Evidence is insufficient to conclude that using stop-smoking medicines improves long-term abstinence rates among users of addiction treatment services who smoke. Nevertheless, expert opinion is that these medicines may be considered, where appropriate, for use by people in this group who want help to stop smoking.

- Smoking tobacco can alter the metabolism of several medicines, particularly those prescribed in the management of serious mental illness (Schaffer et al 2009). When a person stops smoking, the enzyme activity returns to 'normal' (slows down), which may result in increased blood levels of these medicines.

Recommendations

We recommend:

- provide brief advice to stop smoking to all users of mental health services who smoke
- provide brief advice to stop smoking to all users of addiction treatment services who smoke
- offer effective interventions (such as those identified in the previous sections) to people with mental health disorders who smoke. Pharmacological interventions may be effective for users of mental health and addiction services.

Practice points

- Offer effective stop-smoking interventions (such as those identified in the previous sections) to smokers who use addiction treatment services.
- Carefully monitor people with mental health disorders who stop smoking while still using medication for their mental health disorder, as the dosage of their medication may need to be reduced.

Providing stop-smoking support to people who make repeated quit attempts

Most successful quit attempts are unplanned or spontaneous, so support people to stop whenever they are ready. Learn lessons from previous quit attempts and, at the next attempt, address factors associated with previous failures (such as high nicotine dependence).

People who make repeated unsuccessful quit attempts are likely to be highly dependent smokers (Partos et al 2013) and may require more intensive support to succeed.

Evidence

- There is modest evidence that stop-smoking medications may be effective in relapse prevention. Specifically:
  - extended use of varenicline improved long-term abstinence in people who quit using a cessation intervention (RR 1.23, 95% CI 1.08–1.41, 2 studies, N=1297)
  - NRT improved long-term abstinence in abstainers using NRT compared with unaided abstainers (RR 1.24, 95% CI 1.04–1.47, 2 studies, N=2261) (Livingstone-Banks et al 2019a).
- There is some evidence from RCTs that other pharmacological interventions, such as bupropion and NRT combined and extended bupropion use, but more evidence is needed (Livingstone-Banks et al 2019a).

Recommendations

We suggest:

- provide brief advice to stop smoking to all people who have relapsed
- offer effective stop-smoking interventions (such as those identified in the previous sections) to people making another quit attempt
- stop-smoking medications may help people to maintain long-term abstinence.

Practice points

- Services should be able to offer support to people who have relapsed as soon as they request support. Stop-smoking practitioners should take past stop-smoking attempts into account when formulating a treatment plan.
- Treatment choice should be guided by learning from previous failures and by individual preference. It is likely that a more intensive treatment is required on a subsequent quit attempt.

Part 4:
Barriers and facilitators to smoking cessation

Implementing the ABC pathway at the service level

Practice points

- Support and encourage health workers who smoke to stop.

- Give training to all health workers to assist them in screening for tobacco use, making an offer of treatment and referring people who want help with stopping smoking to a stop-smoking service. Such training should be relevant to trainees and sensitive to their other time commitments.

- For health workers who provide stop-smoking treatment (that is, stop-smoking practitioners), give the appropriate level of training to enable them to provide evidence-based stop-smoking interventions (including multi-session behavioural support and advice on using stop-smoking medicines).

- Health care organisations (at all levels) should put in place tools and systems that (1) encourage health workers to implement the ABC pathway and (2) provide feedback on performance.

- Health care organisations should foster and support clinical leadership in helping people stop smoking.

Health workers' barriers and facilitators to implementing the ABC pathway

Barriers to implementing the ABC pathway

Health workers who smoke

Smoking prevalence among New Zealand doctors is low – in 2013, just 2.3 percent of male doctors, 1.8 percent of female doctors and 6.8 percent of Māori doctors were regular smokers. (Edwards et al 2018) In New Zealand nurses, 7.9 percent of female nurses and 9.2 percent of male nurses were smokers, however, smoking prevalence is higher among Māori nurses (16.3 percent). Rates of smoking can differ depending on the place of work. For example, a higher proportion of nurses working in mental health smoke – 17.6 percent of female and 14.9 percent of male mental health nurses smoke (Edwards et al 2018).

Health workers who smoke may have different knowledge of and attitudes towards smoking compared with their non-smoking colleagues (for example, they rate risks of smoking and benefits of stopping lower) and are less likely to give stop-smoking advice (Duaso et al 2014).

Lack of time, knowledge and skills

Lack of time is one of the most frequently cited barriers to providing an ABC intervention. A relatively consistent finding in the literature is that the more health workers are asked to do, the less likely they are to do it. Health workers are generally good at screening for tobacco use and advising smokers to stop. However, they appear to be less likely to provide further assistance. A 2018 report from an Auckland primary health organisation found that while brief advice was given to 88–90 percent of patients identified as current smokers, only 23–28 percent were given smoking cessation support or referred to service providers (Wells 2018). The time required to provide stop-smoking support is likely to be a factor, but other factors, such as lack of knowledge and skills, are also likely to contribute.

Perceived lack of knowledge or skills may also be barriers to providing smoking cessation support, for example, health workers may not feel confident in delivering the information to their patients and may be reluctant to provide support in case they 'get it wrong' (Flemming et al 2016).

Health workers who see ABC as beyond their remit

All health workers have an important role to play, especially in prompting a quit attempt and recommending treatment that will increase a person's chances of stopping smoking long term.

Health workers should strongly encourage everyone who smokes to use cessation support and offer them help to access it.

Motivation

Health workers may be reluctant to provide smoking cessation support because they perceive their patients as unmotivated to quit (Sharpe et al 2018). It is important that health workers ask about smoking and provide support regardless of a person's motivation to quit.

Likewise, perceived efficacy of smoking cessation interventions can also be a barrier to health workers providing support (Flemming et al 2016; Sharpe et al 2018). Health workers may be reluctant to advise patients to engage with smoking cessation interventions if they believe it does not work or will not work for a particular patient.

Facilitators for implementing the ABC pathway

Training, reminders and prompts, audit and feedback, incentives and clinical leadership can make it easier for health workers to deliver ABC in all health care settings.

Training

Health worker training is essential to changing their behaviour. Training can increase the rate at which health workers ask about smoking, give brief advice to stop smoking and make referrals to stop-smoking support (Brinson and Ali 2009).

Because one-off training may not change clinical behaviour long term, reinforcement (that is, ongoing training and leadership) and systems support are required to maintain these changes.

Training health workers in practical skills (for example, how to raise the issue of smoking and how to make an offer of cessation support) appears to be more effective than just systems training (for example, how to fill in the smoking section on a form on the computer).

Training also needs to consider time and cost pressures, such as time out of the office and the cost of training.

Providing health workers with a rationale that is specific to their area of work (for example, a key message for surgeons is that stopping smoking before surgery reduces a patient's risk of wound infection and post-operative pulmonary and cardiac complications) may help change these views. Recognition of smoking cessation as a key part of the health workers' role can facilitate training and organisational structures to support health workers in providing smoking cessation support.

Key messages for health workers are available on the Tobacco control information for practitioners webpage on the Ministry of Health's website at: **www.health.govt.nz/our-work/preventative-health-wellness/tobacco-control/tobacco-control-information-practitioners**.

System prompts

Simple reminders and prompts are effective in changing clinical behaviour. For example, using medical chart stickers can increase the rates of screening for smoking (Brinson and Ali 2009).

Automated systems, such as a mandatory field on hospital admission or primary care enrolment forms, can increase the number of smokers who are identified (Papadakis et al 2010). Automated systems can also allow for easier and more consistent prescribing of stop-smoking medication for patients who need it and allow performance management and timely feedback to staff.

Audits and feedback

Auditing the performance of health workers and reporting the results back to them are effective ways of changing clinical behaviour (Papadakis et al 2010).

Auditing could take the form of a simple manual audit of patient records, or it could be automated and provide 'real-time' feedback on performance. Audit and feedback mechanisms can be provided at an individual or departmental/practice level.

Leadership

Leadership is important in achieving and maintaining clinical behaviour change. For example, hospitals with a good track record of implementing stop-smoking strategies rely on a network of senior management and clinicians to develop relevant protocols and monitor how well staff follow those protocols (Al-alawy et al 2011).

Changeover in management positions, particularly senior medical officers, has been reported as hampering implementation of stop-smoking programmes (Freund et al 2009).

Relationships

Having a positive relationship with patients can help facilitate smoking cessation (Flemming et al 2016). However, relationships can also be perceived as a barrier to smoking cessation, with health workers sometimes reluctant to raise questions around smoking for fear of harming the relationship with their patient (Sharpe et al 2018).

Barriers and facilitators to smoking cessation in Māori and priority groups

Barriers to smoking cessation

Socioeconomic determinants of health

High smoking rates in Māori and other high-priority groups are a manifestation of structural and social determinants of health, increased exposure to tobacco products and limited exposure to successful smoking cessation. With regards to helping people quit smoking, much research has focused on the individual smoker rather than the upstream determinants of smoking inequities and behaviours at the provider level.

Lack of relevance of anti-tobacco health messages

Messages may not communicate the risks and benefits in a way that is important for Māori or addresses the risks that are relevant to Māori (Rahman et al 2021). Similarly, some women may not appreciate or understand the risks from tobacco-exposed pregnancies and how those risks relate to them and their baby (Barnett et al 2019). Harm reduction strategies about cutting back may be perceived as sending mixed messages to pregnant women (Barnett et al 2019).

Social environments with high prevalence of smoking

Having other smokers in the house increases the risk of relapse (Johnston et al 2011). Smoking norms may prevent the individual from fully participating in activities and challenge their relationships with other people in their community (Twyman et al 2014). Even if highly motivated to maintain smoking abstinence (such as in pregnancy), it can be difficult for individuals to quit smoking and maintain abstinence in an environment where smoking is common and a fundamental part of social activities (Rahman et al 2021).

Ease of access to cigarettes

This is especially the case in low-socioeconomic areas, where there are often more tobacco retailers (Twyman et al 2014). In the same neighbourhoods, access to GPs and smoking cessation service providers may be limited.

Psychological and physical dependence on smoking

Smoking can provide psychological relief to individuals who may be experiencing additional stressors in their life, which may be due to socioeconomic disadvantage and structural racism. In a qualitative study of smokers that identified as Māori (N=130) almost half (48 percent) reported that they used smoking to cope with stress specifically, and 23 percent said they used smoking to deal with emotions in general (Glover 2013). By combining behavioural and pharmacological interventions, stop-smoking interventions can address both psychological and physical dependence on cigarettes.

Mental health

Tobacco use often co-occurs with alcohol and other substance use, and mental illnesses (see above). These substances, especially alcohol, may be a cue for tobacco smoking and therefore trigger relapse. Similarly, depression may contribute to smoking and relapse, including antenatal and postnatal depression.

Personal experience

Negative experiences in previous quit attempts and negative experience with smoking cessation interventions may be a barrier to quit attempts.

Facilitators to smoking cessation

Whānau support

Whānau support is especially important for pregnant women. An understanding of the risk of second-hand smoke exposure may help motivate partners and other whānau to quit.

Holistic approach

Smoking cessation programmes are more likely to be successful if they take a whole-of-community approach that addresses multiple aspects of smoking, including tobacco control policies (for example, accessibility, affordability), initiation and prevention, and multiple health domains (Chamberlain et al 2017).

Community role-models

Ex-smokers in the community can provide support and can help people through difficult times in their quit journey. It is important to remind people that relapse is common and that, on average, it takes 15 attempts to finally quit.

Cultural appropriate interventions

Anti-tobacco health messages with personal and cultural relevance may have more significance and be appropriate for Māori and other priority groups. Similarly, services that are developed for Māori by Māori are more likely to find success in overcoming barriers to smoking cessation.

Support from health workers

Health professionals can play a positive or negative role in people's smoking behaviour. Supportive health professionals offer non-judgmental advice and build a relationship based on mutual respect and shared expectations (Flemming et al 2015). Providing practical advice is also beneficial (Barnett et al 2019).

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Glossary

Adverse events: Events (or illnesses) that occur in a person who has received a treatment or medication, regardless of causal relationship to the treatment.

Agonist: A chemical substance that initiates a physiological response when combined with a receptor.

Current smoker: Someone who has smoked more than 100 cigarettes (including hand rolled cigarettes, cigars, cigarillos etc) in their lifetime and has smoked at least once in the last 28 days.

Long-term abstinence: Continuous avoidance of smoking for six months or longer.

Meta-analysis: A method of statistical analysis used to combine and compare the results of multiple scientific studies.

Network meta-analysis: A statistical analysis method used for comparing multiple interventions by combining both direct and indirect evidence across a network of studies.

Non-inferiority trial: An RCT designed to show that a new treatment is not unacceptably different from a standard treatment.

Odds ratio (OR): The ratio of the odds of abstinence in the treatment group compared with the odds of abstinence in the comparison group.

Pharmacotherapy: Therapy using pharmaceutical drugs, as opposed to therapy using surgery, movement, radiation, etc.

Randomised controlled trial (RCT): A trial where participants are randomly assigned to a group, often an intervention group and a control group (such as a placebo) (RCTs are considered the gold standard for establishing a causal relationship between an intervention and an outcome).

Risk difference (RD): The absolute difference between the new treatment and standard treatment.

Risk ratio (RR): A measure of relative risk, that is, the risk of disease in the intervention group (those who receive treatment) compared with the risk of disease in those who do not receive the intervention (for example, RR=1.55 means smoking abstinence in the treatment group was 55 percent higher than in the comparison group).[5]

Serious adverse events: Events (or illnesses) leading to hospitalisation and/or death (serious adverse events are not necessarily causatively linked to the treatment or medication that the person received).

Systematic review: A method of collecting information on a topic using systematic search and data extraction methods and appraising data.

Umbrella review: Sometimes called a review of reviews, this is a summary of evidence from systematic reviews and meta-analyses on a topic.

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[5]   For both RR and OR, a value of 1 indicates that the estimated effects are the same for both interventions. The difference between RR and OR is small for rare outcomes but can be large for more common outcomes.

Appendix 1:
The Guidelines development process

The *New Zealand Smoking Cessation Guidelines* were first published in 1999 and later revised in 2002. In 2006, the Ministry of Health commissioned a consortium led by The University of Auckland's Clinical Trials Research Unit to update the guidelines once more, with the result published in 2007.

2021 Guidelines development

The *New Zealand Guidelines for Helping People to Stop Smoking 2021* provide an update of the 2014 *New Zealand Guidelines for Helping People to Stop Smoking*. This update was undertaken by Professor Chris Bullen, Associate Professor Natalie Walker and Dr Jessica McCormack, and reviewed by the Guidelines Advisory Group. The update was based on a targeted literature review of the most recent systematic review and umbrella review evidence of smoking cessation interventions.

Consultation and peer review

Guidelines Advisory Group

- Associate Professor Natalie Walker, National Institute for Health Innovation, School of Population Health, The University of Auckland
- Professor Hayden McRobbie, National Drug and Alcohol Research Centre, University of New South Wales, Australia, and consultant in lifestyle medicine, Lakes District Health Board
- Dr Karen Wright, senior lecturer, Te Kupenga Hauora Māori, The University of Auckland
- Associate Professor Vili Nosa, Pacific Health, School of Population Health, The University of Auckland
- Basil Fernandes, team leader, Counties Manukau Health Living Smokefree Service

Declaration of competing interests

Professor Chris Bullen has provided consultancy for J&J KK (Japan) on a NRT product and recently led a study (unrelated to smoking cessation) funded by Pfizer. He has undertaken research funded by the Health Research Council of NZ, US NIH and NHMRC on vaping products and other smoking cessation treatments.

Dr Jessica McCormack has undertaken research unrelated to smoking cessation funded by Pfizer.

Associate Professor Natalie Walker has undertaken research funded by the Health Research Council of NZ and NHMRC on vaping products and other smoking cessation treatments. Professor Hayden McRobbie has undertaken research and consultancy and received honoraria for speaking at meetings for the manufacturers of smoking cessation medications. He has undertaken research on smoking cessation medications funded by public good research funding agencies in the UK, Australia, and New Zealand. The other advisory group members declare report no potential competing interests.

Appendix 2: Additional resources

The resources listed below offer additional information or guidance on specific topics. These documents are regularly updated and are subject to change without notice.

Go to The New Zealand Guidelines for Helping People to Stop Smoking webpage of the Ministry of Health's website at: **www.health.govt.nz/publication/new-zealand-guidelines-helping-people-stop-smoking** for the documents:

- Guide to Prescribing Nicotine Replacement Therapy (NRT)
- The ABC Pathway: Key messages for frontline health workers.

See also the Vaping information for stop-smoking services and health workers webpage of the Ministry of Health's website at: **www.health.govt.nz/our-work/regulation-health-and-disability-system/regulation-vaping-and-smokeless-tobacco-products/vaping-information-specific-audiences/vaping-information-stop-smoking-services-and-health-workers**.

Appendix 3: Included systematic reviews

Author and year	Type of intervention	Intervention	Control	Effect (long-term abstinence)	Evidence rating
Stead et al 2013 (reported in Hartmann-Boyce et al 2021)	Psychosocial	Brief advice, doctor	No treatment	RR 1.76, 95% CI 1.58–1.96, 26 studies, n=22,239	GRADE evaluation not performed; AMSTAR-2 low credibility
Stead et al 2013 (reported in Hartmann-Boyce et al 2021)	Psychosocial	More intensive doctor advice (20 minutes)	Minimal advice	RR 1.52, 95% CI 1.08–2.14, 5 studies, n=1254	GRADE evaluation not performed; AMSTAR-2 low credibility
Rice et al 2017 (reported in Hartmann-Boyce et al 2021)	Psychosocial	Nurse-delivered smoking cessation advice	Usual care or minimal intervention	RR 1.29, 95% CI 1.21–1.38, 44 studies, n=20,881	GRADE moderate-certainty evidence
Carson-Charhoud et al 2019 (reported in Hartmann-Boyce et al 2021)	Psychosocial	Community pharmacist-delivered smoking cessation advice	Usual care, no contact or less intensive treatment	RR 2.30, 95% CI 1.33–3.97, 6 studies, n=1614	GRADE evaluation not performed; AMSTAR-2 low credibility
Carr et al 2012 (reported in Hartmann-Boyce et al 2021)	Psychosocial	Oral health professional-delivered smoking cessation advice	Usual care, no contact or less intensive treatment	OR 1.71, 95% CI 1.44–2.03, 14 studies, n=10,535	GRADE evaluation not performed; AMSTAR-2 critically-low-credibility review
Hartmann-Boyce et al 2021	Psychosocial	Counselling (of any kind)	Control	OR 1.44, 95% CrI 1.22–1.70, 194 studies, n=72273	GRADE high-certainty evidence
Hartmann-Boyce et al 2021	Psychosocial	Guaranteed financial incentives	Control	OR 1.46, 95% CrI 1.15–1.85, 19 studies, n=8877	GRADE high-certainty evidence
Hartmann-Boyce et al 2021	Psychosocial	Text-messaging based delivery	Control	OR 1.45, 95% CrI 1.17–1.80, 22 studies, n=14161	GRADE moderate-certainty evidence
Lancaster and Stead 2017	Psychosocial	Individual counselling	Usual care, brief advice or self-help	RR 1.57, 95% CI 1.40–1.77, 27 studies, n=11100	GRADE high-certainty evidence
Stead et al 2016	Psychosocial	Group counselling	Self-help	RR 1.88, 95% CI 1.52–2.33, 13 studies, n=4395	GRADE moderate-certainty evidence
Matkin et al 2019	Psychosocial	Proactive telephone counselling	Self-help or brief advice	RR 1.38, 95% CI 1.19–1.61, 14 studies, n=32484	GRADE moderate-certainty evidence

Author and year	Type of intervention	Intervention	Control	Effect (long-term abstinence)	Evidence rating
Whittaker et al 2019a	Psychosocial	Text-messaging support	Minimal support	RR 1.54, 95% CI 1.19–2.00, 13 studies, n=14133	GRADE moderate-certainty evidence
Whittaker et al 2019a	Psychosocial	Text-messaging support as an adjunct to other smoking cessation support	Counselling or medication alone	RR 1.59, 95% CI 1.09–2.33, 4 studies, n=997	GRADE moderate-certainty evidence
Taylor et al 2017	Psychosocial	Internet-based interventions – tailored and interactive	Non-active controls	RR 1.15, 95% CI 1.01–1.30, 8 studies, n=6789	GRADE moderate-certainty evidence
Taylor et al 2017	Psychosocial	Internet-based interventions	Active controls	RR 0.92, 95% CI 0.78–1.09, 5 studies, n=3806	No evidence of benefit; AMSTAR-2 low credibility
Livingston-Banks et al 2019a	Psychosocial	Tailored self-help materials	No treatment	RR 1.34, 95% CI 1.19–1.51, 11 studies, n=14,359	GRADE moderate-certainty evidence
Livingston-Banks et al 2019a	Psychosocial	Non-tailored self-help materials	No treatment	RR 1.19, 95% CI 1.03–1.37, 11 studies, n=13,241	GRADE moderate-certainty evidence
Livingston-Banks et al 2019a	Psychosocial	Self-help materials	Less intensive intervention	RR 0.87, 95% CI 0.71–1.07, 6 studies, n=7023	No evidence of benefit; AMSTAR-2 moderate credibility
Livingston-Banks et al 2019b	Psychosocial	Recognition of high risk	No intervention	RR 0.98, 95% CI 0.87–1.11, 11 studies, n=5523	No evidence of benefit; AMSTAR-2 low credibility
Hartmann-Boyce et al 2018	NRT	NRT	Control	RR 1.55, 95% CI 1.49–1.61, 133 studies, n=64,64	GRADE high-certainty evidence
Hartmann-Boyce et al 2018	NRT	Nicotine gum	Control	RR 1.49, 95% CI 1.40–1.60, 56 studies, n=22581	GRADE high-certainty evidence
Hartmann-Boyce et al 2018	NRT	Nicotine patch	Control	RR 1.64, 95% CI 1.53–1.75, 51 studies, n=25754	GRADE high-certainty evidence
Hartmann-Boyce et al 2018	NRT	Nicotine lozenges	Control	RR 1.52, 95% CI 1.32–1.74, 8 studies, n=4439	GRADE high-certainty evidence
Lindson et al 2019a	NRT	Combination NRT	Single NRT	RR 1.25, 95% CI 1.15–1.36, 14 studies, n= 11,356	GRADE high-certainty evidence

Author and year	Type of intervention	Intervention	Control	Effect (long-term abstinence)	Evidence rating
Lindson et al 2019a	NRT	Preloading NRT	Standard NRT use	RR 1.25, 95% CI 1.08–1.44, 9 studies, n=4395	GRADE moderate-certainty evidence
Cahill et al 2016	Non-nicotine pharmacotherapy	Varenicline	Placebo	RR 2.24, 95% CI 2.06–2.43, 27 studies, n=12625	GRADE high-certainty evidence
Cahill et al 2016	Non-nicotine pharmacotherapy	Varenicline	Bupropion	RR 1.39, 95% CI 1.25–1.54, 5 studies, n=5877	GRADE high-certainty evidence
Cahill et al 2016	Non-nicotine pharmacotherapy	Varenicline	NRT	RR 1.25, 95% CI 1.14–1.37, 8 studies, n=6264	GRADE moderate-certainty evidence
Cahill et al 2016	Non-nicotine pharmacotherapy	Cytisine	Placebo	RR 3.98, 95% CI 2.01–7.87, 4 studies, n=3461	GRADE low-certainty evidence
Howes et al 2020	Non-nicotine pharmacotherapy	Bupropion	Placebo	RR 1.64, 95% CI 1.52–1.77, 45 studies, n=17866	GRADE high-certainty evidence
Howes et al 2020	Non-nicotine pharmacotherapy	Nortriptyline	Placebo	RR 2.03, 95% CI 1.48–2.78, 6 studies, n=975	GRADE evaluation not performed; AMSTAR-2 low credibility
Stead et al 2016	Combined psychosocial and pharmacotherapy	Combined behavioural and pharmacotherapy	Usual care, brief advice, less intensive behavioural support	RR 1.83, 95% CI 1.68–1.98, 52 studies, n=19488	GRADE high-certainty evidence
Hartmann-Boyce et al 2019	Combined psychosocial and pharmacotherapy	Behavioural support as adjunct to NRT	Less intensive behavioural support	RR 1.15, 95% CI 1.08–1.22, 65 studies, n=23331	GRADE high-certainty evidence
Hartmann-Boyce et al 2020	E-cigarettes	Nicotine e-cigarettes	NRT	RR 1.69, 95% CI 1.25–2.27, 3 studies, n=1498	GRADE moderate-certainty evidence
Hartmann-Boyce et al 2020	E-cigarettes	Nicotine e-cigarettes	Non-nicotine e-cigarettes	RR 1.71, 95% CI 1.00–2.92, 3 studies, n=802	GRADE moderate-certainty evidence
Chamberlain et al 2017	Pregnant women	Behavioural interventions	No treatment	RR 1.35, 95% CI 1.23–1.48, 97 studies, n=26,637	GRADE moderate-certainty evidence
Chamberlain et al 2017	Pregnant women	Counselling	Usual care	RR 1.44, 95% CI 1.19–1.73, 30 studies, n=12,432	GRADE high-certainty evidence
Chamberlain et al 2017	Pregnant women	Incentives	Alternative interventions	RR 2.36, 95% CI 1.36–4.09, 4 studies, n=212	GRADE high-certainty evidence

Author and year	Type of intervention	Intervention	Control	Effect (long-term abstinence)	Evidence rating
Chamberlain et al 2017	Pregnant women	Feedback as adjunct	Usual care	RR 4.39, 95% CI 1.89–10.21, 2 studies, n=355	GRADE moderate-certainty evidence
Chamberlain et al 2017	Pregnant women (postpartum)	Behavioural interventions	No treatment	RR 1.32, 95% CI 1.17–1.50, 35 studies, n=8366	GRADE high-certainty evidence
Claire et al 2020	Pregnant women	NRT and behavioural support	Behavioural support only	RR 1.37, 95% CI, 9 studies, n=2336	GRADE low-certainty evidence
Claire et al 2020	Pregnant women	Bupropion	Placebo	RR 0.74, 95% CI 0.21–2.64, 2 studies, n=76	No evidence of benefit
Fanshawe et al 2017	Young people	Group counselling	Control	RR 1.35, 95% CI 1.03–1.77, 9 studies, n=1910	GRADE low-certainty evidence
Barth et al 2015	Chronic conditions (CVD)	Psychosocial interventions	Usual care	RR 1.22, 95% CI 1.13–1.32, 37 studies, n=7682	GRADE evaluation not performed; AMSTAR-2 low credibility

Note: GRADE evaluates the quality of evidence in a review and rates the quality from high certainty to very low certainty. AMSTAR 2 rates the credibility of the systematic review from high credibility to very low credibility.