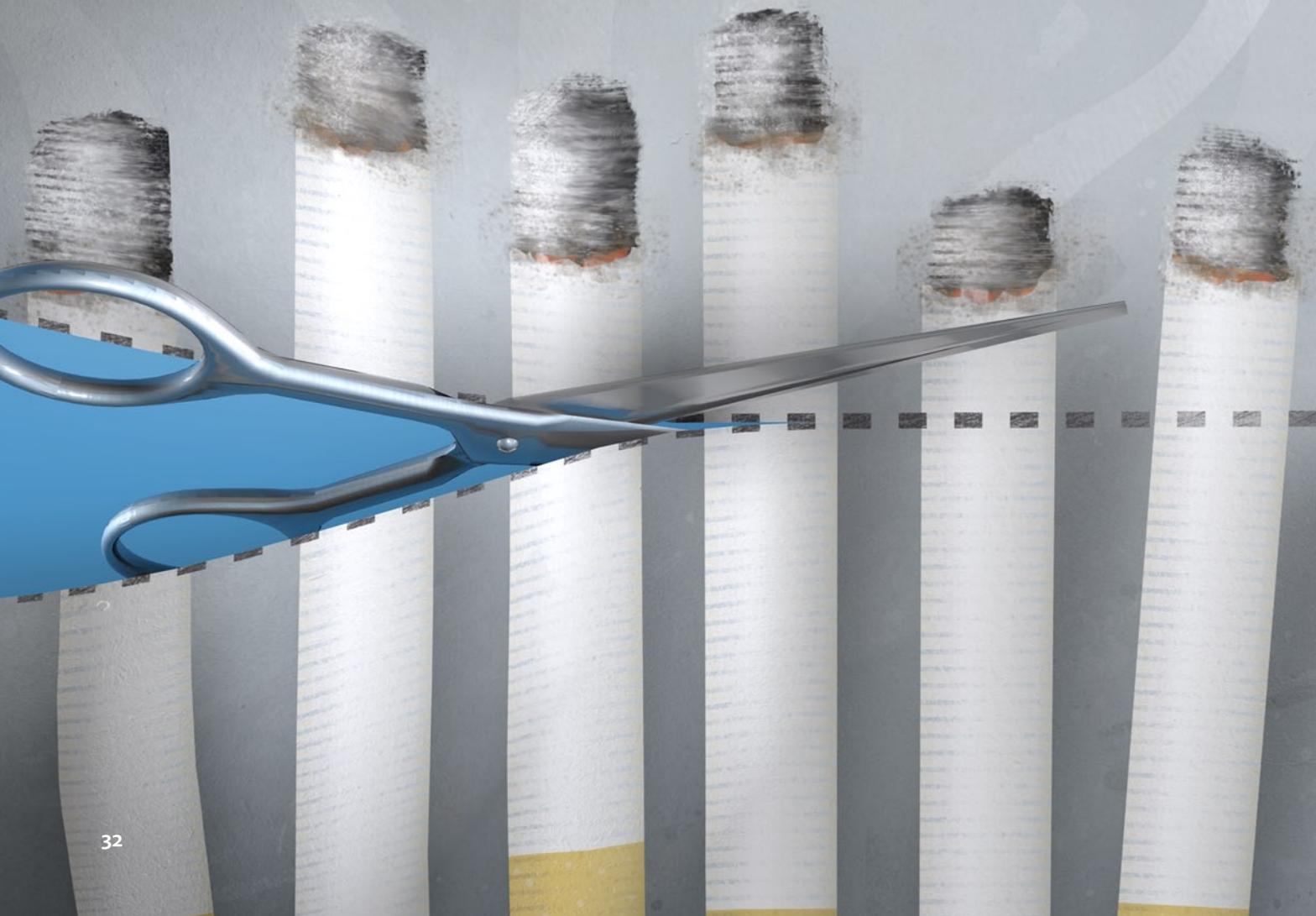


# Smoking prevention and cessation in adolescents:

## Changing futures, saving lives



*On average, New Zealanders who smoke try their first cigarette between the ages of 11 and 12 years. There are large ethnic disparities in the rate of smoking, with Māori females having the highest rate of smoking among all adolescents. Encouraging smoke-free homes, parental involvement in smoke-free messages and participation in extra-curricular activities, e.g. sport, are important early anti-smoking strategies. Smoking can be a marker for substance misuse and mental health disorders, so adolescents who regularly smoke should have an assessment of their wellbeing using a standardised tool, e.g. HEEADSSS. Where appropriate, adolescents can be referred to a smoking cessation service. Nicotine replacement therapy (NRT) may be considered for some young smokers who are dependent upon nicotine. Other smoking cessation medicines are not recommended for use in people aged under 18 years.*

## Smoking in New Zealand adolescents

More than 80% of people who smoke are reported to start before age 18 years.<sup>1</sup> Preventing adolescent smoking and supporting cessation attempts are important ways to reduce the rate of smoking in New Zealand. The average age that Māori youth begin smoking is 11.5 years and the average for non-Māori is age 12.7 years.<sup>2</sup> This emphasises the need for early discussion about the dangers of smoking with children and their whānau/families.

The good news is that the rate of daily smoking\* among New Zealand adults has decreased by approximately one-third since the mid-1990s.<sup>3</sup> There has also been a large decrease in the rate of daily smoking in adolescents aged 15 – 17 years from 14% in 2006/07 to 6% in 2011/12.<sup>3</sup> However, there is still a lot of work to be done to reach the goal of a smoke-free New Zealand.

### Smoking is most prevalent in Māori and Pacific peoples

In New Zealand, rates of current smoking\* are unacceptably high, most notably among Māori (41%) and Pacific peoples (26%) compared to Europeans (17%).<sup>3</sup> This disparity is most pronounced in Māori females aged 15 – 19 years, who are over 3.5 times more likely to smoke (47.1%) than non-Māori females (13.1%) in the same age group.<sup>2</sup> In Māori males aged 15 – 19 years, the rate of current smoking is 29.2% compared to 14.4% in non-Māori males.<sup>2</sup>

Socioeconomic deprivation is associated with an increased rate of smoking,<sup>4</sup> however, the increased rates of smoking among Māori and Pacific peoples cannot be solely attributed to differences in socioeconomic status.<sup>5</sup>

\* Daily smoking is defined as at least one cigarette per day. Current smoking is defined as smoking at least one cigarette in the last 30 days and more than 100 cigarettes in a lifetime.

## Preventing smoking before it starts

Every consultation with a young person is an opportunity to discuss smoking. Ask about and record smoking status in the patient record, and respond in a positive way each time a patient says that they do not, or no longer smoke. Reinforcing the decision not to smoke as being positive and successful as well as emphasising the negative consequences of the behaviour are key prevention messages. Smoking is known to increase the risk of blood clotting in females taking oral contraceptives, therefore a consultation about contraception is an excellent opportunity to also reinforce an anti-smoking message to young females.<sup>6</sup>

N.B. The tool "Ask about smoking status, give Brief advice and make an offer of help to stop, and provide evidence-based Cessation support (ABC)", is recommended for use in all patients, including adolescents (see: "What to do once an adolescent has started smoking?").<sup>7</sup>

### Communicating with adolescents and their whānau

Adolescents are often concerned about confidentiality and issues relating to trust and embarrassment.<sup>8</sup> It is therefore important to stress that the confidentiality of anything the adolescent discloses will be respected. Asking about and acknowledging the cultural background of a patient is important in building a trusting and open relationship and can help to overcome barriers. Communication with adolescents is more successful when it is perceived as being non-judgemental.<sup>9</sup> Patience, good listening skills and asking open ended questions are other qualities that are valued in consultations by adolescents.<sup>9</sup> At the end of a consultation ask the patient about their understanding of what has been discussed – ensure that the messages being communicated are the same messages that have been received. Displaying posters in the practice that target youth issues can enhance the youth-friendliness of a practice.

**Deliver a consistent smoke-free message to all whānau/ family members.** Children from families where the parents have clearly expressed views that smoking is bad are less likely to begin smoking – even when the parents themselves smoke.<sup>10</sup> The Dunedin Longitudinal Study which has followed a cohort born between 1972 – 1973, found that inconsistent parental advice about smoking, i.e. only one parent objected to smoking, resulted in a 50% increased likelihood of smoking in adulthood.<sup>11</sup>

Children with parents who smoke are more likely to be the “early adopters” of smoking in their peer group.<sup>12</sup> Reducing parental smoking therefore may have a wider benefit beyond the family unit by reducing the transmission of smoking through peer groups. This effect is likely to be most pronounced in adolescent females who are more strongly influenced by peers than adolescent males.<sup>13</sup>

**Encourage adolescent participation in sport and cultural activity.** Research has shown that participation in sport protects adolescents against starting smoking.<sup>14, 15</sup> Extra-curricular activity has additional importance during adolescence when the decision to smoke, or not to smoke, is thought to be an important identity statement. Analysis of group discussions between New Zealand adolescents aged 14 – 15 years found that smoking was generally associated with increased social status, which is consistent with international studies.<sup>16, 17</sup> Non-smokers were generally viewed as being “in the middle” or being “average” and required other strategies, e.g. sport or music, to define their status among their peers.<sup>16</sup>

**Increased parental supervision or interaction may decrease smoking.** Adolescents who do not receive parental supervision after school are more likely to smoke than those who do. A

survey of New Zealand adolescents aged 14 – 15 years from 145 high schools found that higher amounts of parental monitoring outside of school hours had an increasingly protective effect against adolescent smoking.<sup>15</sup> It was also found that adolescents who were the least attached to their parents were more likely to smoke than adolescents with a stronger family attachment, across all ethnicities studied.<sup>15</sup>

## What to do once an adolescent has started smoking?

It is recommended that all people who smoke should be advised to stop and be offered cessation assistance in the ABC format each time they visit primary care. This should be delivered regardless of the patient’s age, readiness to stop smoking, and how frequently or how long they have been smoking for. Evidence-based support should then be provided to all people who want to stop smoking.<sup>7</sup> It is now recognised that this offer of support is the most important part of the of the ABC approach.<sup>19</sup>

### Act early before nicotine dependence develops

The progression from occasional smoker to nicotine dependence generally follows a series of predictable steps during adolescence. In the first months after beginning smoking there is often a naïve self-confidence in the ability to stop.<sup>20</sup> This may be rapidly followed by a desire to quit and a realisation that this is difficult.<sup>20</sup> Over the following two years cravings, withdrawal symptoms and tolerance develop as smoking escalates and confidence in the ability to quit declines.<sup>20</sup> Full nicotine dependence develops, on average, approximately one year later.<sup>20</sup> Adolescents who begin smoking at a young age can therefore become dependent upon nicotine by the age of 14 or 15 years.

## Smoking in families is a “vicious cycle”

Adolescent smoking is strongly influenced by exposure to parental smoking, and adult smoking is in turn, correlated with socio-economic disadvantage during childhood.<sup>18</sup> Other factors associated with adult smoking are cognitive ability during childhood, educational achievement, conduct, and again, exposure to parental and peer smoking.<sup>18</sup> Smoking within disadvantaged communities therefore creates a self-perpetuating negative family cycle.



## Perform a HEEADSSS assessment

It is recommended that adolescents have a regular assessment of their psychosocial wellbeing using a standardised tool, such as HEEADSSS (Home, Education, Eating, Activities, Drugs, Sexuality, Suicide, Safety).<sup>21</sup> Smoking is a potential marker for other substance misuse, depression and anxiety disorders in adolescents, particularly amongst females.<sup>22</sup> There is evidence that mental health problems during adolescence often precede smoking and that young people with mental health problems start smoking at a younger age.<sup>22</sup>

 For further information on performing a HEEADSSS assessment see: "Substance misuse in adolescents" BPJ 42 (Feb, 2012).

## Deciding which cessation interventions are appropriate

The majority of available evidence on smoking cessation interventions relates to adults, particularly regarding medicines. An estimate of a young person's nicotine dependence can be used to determine which cessation intervention (or combination) is most appropriate. The best question to assess nicotine dependence is: "How soon after waking do you usually have your first cigarette?"<sup>23</sup> If a person smokes within 30 minutes of waking they have a high degree of dependence and are more likely to benefit from medical assistance when attempting to stop smoking.<sup>23</sup> Smoking more than ten cigarettes a day and a history of withdrawal symptoms in previous quit attempts are also markers for nicotine dependence.<sup>24</sup>

## Managing cues for smoking

Smoking is often associated with cues, such as drinking caffeine or alcohol, or social situations. Due to the high value adolescents place on their social environment, peer influence is an important cue for smoking. Supporting adolescents to say "no" is an essential part of smoking cessation treatment. This can be done by discussing ways in which the young person can become more confident in managing scenarios where they feel pressured to smoke.<sup>25</sup> To do this, focus on something that is important to the adolescent and incorporate this into a response that they can use to decline smoking, e.g. "The coach says he won't pick smokers in the 1st XV, and rugby is more important to me."

## Increasing physical activity can decrease smoking

Physical activity can be an effective smoking cessation intervention for adolescents if smoking has started. A study of over 200 American adolescents aged 14 – 19 years found that students who increased the number of days they performed

at least 20 minutes of exercise were significantly more likely to reduce their daily cigarette use.<sup>14</sup> Additionally, physical activity may help in reducing withdrawal symptoms and stress in young people attempting to stop smoking.

## Consider referral to a smoking cessation service

Quitline offers a phone-based smoking cessation service which can be accessed six days a week (Monday – Friday 8 am – 9.30 pm, Sunday 10 am – 7.30 pm) on 0800 778 778, by a person of any age. Quitline now accepts electronic referrals via Patient Management Systems with this feature enabled. Quitline also operates a Txt2Quit service which sends tips and cessation support directly to mobile phones. Further information is available from: [www.quit.org.nz](http://www.quit.org.nz)

Aukati KaiPaipa is a free, face-to-face smoking cessation service for Māori of all ages delivered from over 30 centres within New Zealand. The programme involves coaches creating a smoking reduction plan, often involving the support of a school counsellor. Cessation follow-ups are conducted by phone, or in person. To find the nearest provider visit:

[www.aukatikaipaipa.co.nz/contact-us](http://www.aukatikaipaipa.co.nz/contact-us)

 For further information see: "Smoking cessation for Māori", BPJ 22, (Jul, 2009).

Pacific smoking cessation services for people of all ages, with quit coaches fluent in Pacific languages, are available in the Auckland, Hamilton, Wellington and Christchurch regions. Further information is available from: [www.talapasifika.org.nz](http://www.talapasifika.org.nz)

## Social media-based cessation support is available

"Smoking Not Our Future" is a campaign run by the Health Promotion Agency that is aimed at young people. The campaign is delivered via a Facebook page, with educational material and tips for stopping smoking and support from New Zealand celebrities. Further information is available from: [www.facebook.com/notourfuture](http://www.facebook.com/notourfuture)

## Nicotine replacement therapy (NRT)

New Zealand smoking cessation guidelines state that nicotine replacement therapy (NRT) can be prescribed for young people aged over 12 years who are dependent on nicotine if the health professional believes that it will assist the person to stop smoking.<sup>23</sup> However, NRT alone is not likely to address the reasons why an adolescent has begun, and continues to smoke.<sup>23</sup> There is little evidence that the use of NRT, or other smoking cessation medicines, in adolescents will improve rates of smoking cessation after six months.<sup>25</sup>

**Table 1:** Guidance on prescribing of fully subsidised nicotine replacement therapy (NRT) for adults,\* adapted from McRobbie, 2013<sup>27</sup>

	Patch (24-hour)	Gum	Lozenge
<b>Product information</b>	Three strengths (7 mg, 14 mg and 21 mg)	Two strengths (2 mg and 4 mg)	Two strengths (1 mg and 2 mg)
<b>Instructions for use</b>	Apply to clean, dry and hairless skin. Remove old patch and apply new patch, daily, to a different area of skin; press in place with hand for 10 – 20 seconds. Slight redness under the patch is normal. If sleep disturbance is reported, remove the patch overnight.	Bite to release the peppery taste and then rest between cheek and gums. Chew when taste starts to fade. Discard after approximately 30 minutes.	Suck to release the peppery taste and then rest between cheek and gum. Suck again when taste starts to fade. Discard after approximately 30 minutes.
<b>Product and dosage</b>	<p><b>A guide to product choice:</b></p> <ul style="list-style-type: none"> <li>■ Smoking a cigarette within 30 minutes of waking or smoking ten or more cigarettes per day: recommend 21 mg/24 hour patch and/or gum or lozenge</li> <li>■ Fewer than ten cigarettes per day: recommend gum or lozenge</li> <li>■ Oral product not tolerated: recommend a 14 mg/24 hour patch and review the dose within one week</li> </ul> <p><b>A guide to dosage:</b></p> <p>Use time to first cigarette to guide dose of gum and lozenge.</p> <ul style="list-style-type: none"> <li>■ If within an hour of waking use 4 mg gum or 2 mg lozenge</li> <li>■ If after an hour of waking use 2 mg gum or 1 mg lozenge</li> </ul> <p>The dose of NRT can be increased if the patient reports significant withdrawal symptoms. All products should be used for eight to 12 weeks. If gum or lozenges are used in combination with nicotine patches, the lowest dose oral medicine should be used and a maximum of twelve pieces or lozenges taken daily.<sup>28</sup></p>		

\* Most people who attempt to stop smoking do not use enough NRT. The suggested doses here differ from those listed on the product packaging to account for this. If the patient feels nauseated then the frequency or dose of the product should be reduced.<sup>27</sup>

There is no specific guidance for dosing NRT in adolescents therefore adult guidelines are followed (Table 1). Adolescents may experience less severe nicotine withdrawal symptoms than adults (see "Smoking and the adolescent brain"), therefore a shorter course or lower dose of NRT may be appropriate in individual patients. Adolescents who smoke their first cigarette within 30 minutes of waking, or who smoke more than ten cigarettes a day, are more likely to benefit from the use of nicotine patches. Trans-buccal NRT is more appropriate than patches for adolescents who smoke less than ten cigarettes per day. NRT is not appropriate, however, for young people who only smoke in social situations.<sup>23</sup>

There is no evidence of specific safety issues arising from the use of NRT in adolescents and safety concerns should not be a barrier to NRT use.<sup>23, 26</sup>

Other nicotine products which are available but not subsidised include nasal spray (10 mg), inhalation cartridges (10 and 15 mg) and 5 mg, 10 mg and 15 mg per 16 hour patches, which may be appropriate for adolescents who do not want to be exposed to nicotine overnight.<sup>28</sup>

#### **Other medicines are not recommended**

The safety of bupropion and nortriptyline as smoking cessation medicines has not been established in people aged under 18 years and New Zealand guidelines list age under 18 years as a precaution for use of both these medicines.<sup>23, 28</sup> A Cochrane review found limited evidence that bupropion by itself was not effective as a smoking cessation medicine in young people.<sup>25</sup> Varenicline use is not recommended in people aged under 18 years.<sup>28</sup>

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## **Smoking and the adolescent brain**

The adolescent brain is thought to be more susceptible to nicotine addiction than the adult brain. The proposed mechanism responsible for this is the mesolimbic dopamine system which is involved with learning survival related behaviour through the reward of dopamine release. Nicotine can cause increased dopamine signalling within this pathway by binding to excitatory nicotinic acetylcholine receptors (nAChRs).<sup>29</sup> This causes reinforcement of addictive behaviour in much the same way as learning and memory occurs.<sup>29</sup> The adolescent brain appears to be more sensitive to this excitatory signalling, with many areas displaying transient up-regulation of nAChRs during development and under expression of inhibitory GABAergic receptors.<sup>30, 31</sup> This is consistent with the risk-taking, novelty-seeking and increased social behaviour of adolescence.<sup>30</sup> Adolescents are also reported to experience more positive and less aversive effects than adults during their first experience of smoking.<sup>29</sup> Animal studies show that nicotine exposure is reported to increase intracellular dopamine levels in developing brains compared with adult animals and that developing rat brains are more vulnerable to nicotine addiction.<sup>30</sup>

There is also evidence that adolescents may experience less symptoms following nicotine withdrawal.<sup>31</sup> Several small clinical studies suggest that adolescent withdrawal from nicotine is relatively mild.<sup>32, 33</sup> Animal studies support the idea that adolescents experience less withdrawal due to developmental differences in brain function.<sup>31</sup>

Evidence is also emerging that nicotine dependence (but not the likelihood of starting smoking) is influenced by genetics.<sup>34</sup>



## PHO performance targets for smoking cessation

The PHO Performance Programme currently has two funded smoking related indicators. The “smoking status recorded” indicator aims to capture smoking status for 90% of enrolled patients in New Zealand aged 15 – 74 years. This accounts for 7% of the performance funding; 2% for the total population and 5% for the high need population. As of December 2012 82.8% of the high needs population and 82.6% of the total population had their smoking status recorded. This continues a strong upward trend for this indicator with over 80% of PHOs recording an improvement. However, the result is still below the national target of 90%.

The “smoking brief advice and cessation support” indicator aims for 90% of enrolled patients aged 15 – 74 years who smoke and have been seen in General Practice, to be given brief advice and/or cessation support within the last 12 months. This indicator accounts for 13% of the performance funding; 4% for the total population and 9% for the high need population. Brief advice to stop smoking includes any documentation that either; a person who currently smokes was advised to stop smoking, or that an offer of cessation support was made, or that an offer was made but refused by the patient. Recent evidence shows that offers of cessation support are the most effective way to encourage quit attempts.<sup>19</sup> Cessation support includes referral to a smoking cessation provider, e.g. Quitline, Aukati KaiPaipa or Tala Pasifika, prescribing NRT or other medicines for the purpose of smoking cessation, or providing behavioural support either face-to-face or via telephone. As of December 2012, over 60% of PHOs had increased their rates of brief advice and/or cessation support to current smokers. However, additional effort is required before rates of advice and/or support for smoking cessation begin to approach the PHO target.



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