



SMOKEFREE  
AOTEAROA  
2025  
PROGRESS  
REPORT 2017

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# INTRODUCTION

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This report is a complementary document to our recommended action plan to achieve Smokefree Aotearoa 2025 (see the main report at [smokefreesshops.co.nz/](https://smokefreesshops.co.nz/)).

The progress report provides an overview of the origins, current status and progress towards the Smokefree Aotearoa 2025 goal.

The main components of the report are listed here.

- A brief overview of the adverse health and economic impacts of smoking in Aotearoa
- A description of the origins and background of the Smokefree Aotearoa 2025 goal
- A review of progress towards achieving the Smokefree Aotearoa 2025 goal, including the following elements:
  - Progress with implementing key interventions and the recommendations of the Māori Affairs Select Committee report
  - Progress in developing a strategy and action plan to achieve Smokefree Aotearoa2025
  - Evidence of government and broader commitment to achieving the goal
  - A comparison with previous Aotearoa New Zealand 'endgame' initiatives
  - Changes in smoking consumption and prevalence, and progress towards the mid-term targets and Smokefree Aotearoa 2025 goal
  - Changes in process measures and intermediate indicators of progress such as quit attempts through Quitline and the face-to-face smoking cessation services
  - A summary of some positive findings for Smokefree Aotearoa 2025 from data on smoking behaviours and recent trends
- A summary of some features of tobacco use in Aotearoa New Zealand relevant to planning for Smokefree Aotearoa 2025.
- Changes in smoking prevalence in other leading countries, including those with endgame goals

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# SUMMARY

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1. Smoking continues to cause an immense burden of ill health, premature death and economic costs in Aotearoa New Zealand.
2. Massive disparities in smoking result in much worse health for Māori and Pacific peoples. This unjust situation has persisted for decades with insufficient action.
3. Smokefree Aotearoa 2025 is a world-leading tobacco-control goal, which originated with the vision of Māori leaders for Tupeka Kore (tobacco-free) Aotearoa.
4. Despite some examples of excellent policy interventions, the 2010 Māori Affairs Select Committee (MASC) recommendations have only been partially implemented. This includes those relating to reducing tobacco availability, tobacco product modification, implementing mass media campaigns and extending smokefree environments.
5. The Government has not developed a comprehensive action plan setting out how the Smokefree Aotearoa 2025 goal will be achieved, despite the MASC report recommendation to do so and a promise to develop such a plan in August 2015.
6. The Smokefree Aotearoa 2025 goal currently appears to have a low political priority. Research suggests that Ministers' speeches and media releases, and key health documents, contain only limited references to the Smokefree Aotearoa 2025 goal. Also, there have been recent decreases in funding for population-based measures such as mass media campaigns and for national tobacco control advocacy and health promotion activities.
7. Funding for tobacco control is increasingly focused on individual smoking cessation services and cessation medications.
8. There is evidence of a strong commitment to achieving the Smokefree Aotearoa 2025 goal among NGO, health professional and academic tobacco control communities. There is also a high level of public support and much local and regional activity in support of the goal.
9. A comparison with previous successful 'endgames' (eradication of hydatid disease and the southern saltmarsh mosquito) and the current campaign to eliminate bovine tuberculosis (TB) suggests that key best-practice elements are not being adopted for Smokefree Aotearoa 2025. This includes developing and implementing an action plan, employing a multi-faceted cross-departmental approach and ensuring there is adequate communication and promotion of the endgame goal.
10. Current smoking prevalence data, trends and modelling studies indicate that the mid-term smoking prevalence targets will not be met, and that the Smokefree Aotearoa 2025 goal will not be achieved. The goal will be missed by far for Māori and Pacific peoples - current estimates predict it won't be achieved for Māori until after 2060.
11. Despite much investment in the Quitline and face-to-face smoking cessation services, the figures for the numbers of smokers quitting through these services are far short of the required numbers needed to quit each year if Smokefree Aotearoa 2025 is to be achieved. This suggests that the priority to reduce smoking prevalence is to implement population-based approaches that can drive an increase in both supported and unsupported quit attempts and reduce smoking uptake among young people.
12. Factors that will help to achieve Smokefree Aotearoa 2025 include: the large proportion of smokers who intend to quit and make one or more quit attempts each year; and the large reductions in tobacco consumption and adolescent smoking over recent years. Wider availability of e-cigarettes may also support an increase in quit attempts and quitting among existing smokers.
13. Key features of smoking patterns in Aotearoa New Zealand that should inform actions to achieve Smokefree Aotearoa 2025 include:
  - continued high levels of smoking uptake among young adults (18-24 years)
  - high smoking prevalence among Māori women
  - very high prevalence of roll-your-own tobacco use
  - close links between alcohol use and smoking
  - high prevalence of smoking among people with mental illness.
14. We conclude that urgent and comprehensive action is needed. This must prioritise population-based measures to dramatically increase quitting and reduce smoking uptake so that Smokefree 2025 Aotearoa is achieved for Māori, Pacific and all population groups in Aotearoa New Zealand.

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## The health and economic impact of smoking in Aotearoa

There is a common misperception that smoking is 'done' – that smoking is in rapid decline, that relatively few people smoke, and that other causes of ill-health and disease are now much more important. The truth is very different.

In 2010 the Māori Affairs Select Committee (MASC) report outlined the massive adverse impacts of tobacco smoking on the people of Aotearoa New Zealand, with a focus on the shocking toll of tobacco use for Māori, who are worst affected.<sup>1</sup> The MASC argued that the need to reduce smoking was of urgent national importance. Seven years later in 2017, this remains the case, but even more so given the very slow decline in smoking since 2010 among Māori and Pacific peoples (described later in this report).

Around 4500 to 5000 deaths per year in Aotearoa New Zealand are attributable to tobacco use.<sup>2</sup> For cancers alone, robust evidence shows that smoking increases the risk of lung, laryngeal, bladder, cervical, kidney, liver, oesophageal, oropharyngeal, pancreatic and stomach cancers.<sup>3</sup>

The New Zealand Burden of Disease study found that tobacco smoking was the risk factor with the greatest adverse impact on health, with all six of the conditions causing the highest burden of disease (coronary heart disease, anxiety and depression, stroke, chronic obstructive pulmonary disease (COPD), diabetes and lung cancer) partly caused by smoking.<sup>4</sup> An updated estimate using New Zealand Health Survey data from 2011/12 ranked tobacco smoking as the number two cause of death and disability nationally.<sup>5</sup>

Due to the high prevalence of smoking among Māori, smoking contributes greatly to preventable disease and death, and to disparities in health, for Māori peoples. For example, an investigation of the impact of smoking on Māori estimated that achieving zero smoking prevalence by 2040 would result in a gain in life expectancy of around 4.7 years for Māori and 2.9 years for non-Māori (mean of six scenarios), with a reduction of disparities for life expectancy ranging from 0.3 to 4.6 years (mean 1.8 years).<sup>6</sup>

Smoking also creates an enormous economic burden. An earlier analysis of the economic costs of tobacco smoking estimated that the 'tangible' economic costs in 2005 were \$1.69 billion, including from costs of treating smoking-related diseases and lost productivity.<sup>7</sup> This total includes \$350 million for health care costs alone. In 2014 the tangible economic costs of tobacco were estimated at \$2.5 billion (Associate Minister of Health, Cabinet paper, April 2016).

In the earlier research above, the 'intangible' costs of preventable adverse health impacts in 2005 included the loss of 62,800 Quality Adjusted Life Years (QALYs) due to premature mortality and 18,850 QALYs due to disease and ill health.<sup>7</sup> (QALYs are a way to measure the burden

of disease, covering both the quality and the quantity of life lived. One QALY equates to one year in perfect health.) The 2016 Cabinet paper estimated the 'intangible' costs of tobacco smoking in 2014 as \$3.11 billion (using the Treasury's valuation of each QALY at \$38,110).

A recent modelling study estimated that eliminating smoking by 2025 would result in saving 282,000 QALYs and \$5.43 billion in health costs from a 2011 baseline – though many of the averted health impacts and costs will occur over subsequent decades (due to the long-term nature of smoking-related health effects in younger smokers).<sup>8</sup>

Smoking-related stroke can be used as an example of the economic impacts of smoking. A recent systematic review of over 80 prospective studies found that smoking increased the risk of stroke by 83% in women and 67% in men.<sup>9</sup> Stroke contributes to productivity loss via premature death, early retirement and absenteeism. A New Zealand Treasury study found that four years after a stroke, in working age adults there was a 19% reduction in employment and a 15% reduction in incomes.<sup>10</sup> Furthermore, the cumulative four-year before-tax earnings losses were NZ\$49,200 for those with a stroke, with the after-tax earnings loss being NZ\$39,000.

Similarly, in Australia, it has been reported that the national aggregate impact of cardio-vascular disease (some of which is smoking related), through lost labour force participation by 45-to-64 year olds in 2009 alone, equated to around:

- AU\$1.1 billion in lost income
- AU\$225 million in lost income taxation revenue
- AU\$85 million in additional government benefit payments
- AU\$748 million in lost GDP<sup>11</sup>

## The origins and nature of the Smokefree Aotearoa 2025 goal

Aotearoa New Zealand is often described as among the leading countries for tobacco control.<sup>12</sup> The 1990 Smokefree Environments Act was world-leading legislation. It required many indoor workplaces and public transport to be smokefree, strengthened regulation of tobacco marketing, and disallowed the sale of tobacco products to people aged less than 16 years (raised to 18 years in 1998). The 2003 Smokefree Environments Amendment Act made all schools and remaining indoor workplaces smokefree, including pubs and restaurants. This placed Aotearoa New Zealand as the first country to introduce smokefree bars and restaurants legislation. (Since implementation was delayed to 2004, Ireland and Norway implemented smokefree bars and restaurants earlier than us.)

Māori communities and leaders have long recognised the devastating effects of tobacco on Māori and initiated specific interventions in response. For example, in the

1990s Te Hotu Manawa Māori developed the first Māori smoking cessation services and in 1997 Apaarangi Tautoko Auahi Kore (the Māori Smokefree Coalition) was formed. In 2000 Aukati Kai Paipa – a ‘by-Māori, for-Māori’ smoking cessation programme – was launched.<sup>13</sup> This was followed by a Maori tobacco control strategy in 2003.<sup>14</sup>

However, because of a lack of effective government action, these measures did not ameliorate ethnic disparities. By 2006, overall smoking prevalence was 24%, but 50% among Māori females and 40% among Māori males.<sup>15</sup> Smoking-related health outcomes reflected these disparities, with lung cancer rates more than three times higher for Māori compared to non-Māori, for example.<sup>16</sup>

These data increased the momentum for measures that would benefit Māori, led by Māori health advocates and politicians who viewed existing interventions as ineffective at reducing Māori smoking prevalence and saw tobacco control as a political issue for Māori. This was reflected in a change towards stronger campaigning against the tobacco industry, led by the Māori national advocacy organisation Te Reo Marama (Figure 1).

Figure 1: Te Reo Marama poster ‘Māori murder’



Political initiatives included a call by Hone Harawira MP, for supply-side measures, including an end to tobacco sales in Aotearoa New Zealand. Mr Harawira introduced a private member’s bill that would have made it illegal to produce or sell tobacco in Aotearoa New Zealand. Though this bill did not succeed, these and other initiatives reflected an evolution in thinking among some Māori advocates, who shifted from seeking “Auahi kore” (smokefree) to a “Tupeka kore” (tobacco-free) goal – the latter first proposed by the Director of Te Reo Marama, Shane Kawenata Bradbrook.<sup>17</sup> In 2009, the wider tobacco control sector adopted the Tupeka Kore Aotearoa 2020 vision. This envisaged a tobacco-free Aotearoa New Zealand by 2020, where:

*“future generations of New Zealand children will be free from exposure to tobacco and will enjoy smokefree lives”.*

It was in this context that in 2010, the New Zealand Parliament’s Māori Affairs Select Committee carried out an inquiry into the tobacco industry in Aotearoa and the consequences of tobacco use for Māori. This inquiry drew on input from Māori whānau, hapu and iwi, as well as researchers and clinicians.

The report highlighted the tragic and broad-ranging impacts of tobacco smoking on Māori. These impacts include how the effects of emphysema, cancer and heart disease can debilitate not just an individual, but a whole whānau, and the devastating effect smoking has on young and unborn children. The cultural cost of tobacco to Māori was also highlighted, with the premature loss of kuia and kaumātua taking away the opportunity for cultural traditions, knowledge and histories to be passed on to younger generations.

The Committee expressed its determination to remove tobacco from Aotearoa’s future and their report made 42 recommendations to the Government.<sup>1</sup> The first called for a goal of making Aotearoa New Zealand a smokefree nation by 2025:

*“We recommend to the Government that it aim for tobacco consumption and smoking prevalence to be halved by 2015 across all demographics, followed by a longer-term goal of making New Zealand a smoke-free nation by 2025.”*

In March 2011, the Government responded to the MASC’s report and committed to either implement or investigate most of its 42 recommendations. The Government response included this statement to address the first recommendation that Aotearoa New Zealand become a smokefree nation by 2025.<sup>18</sup>

*“The Committee’s report is clear that “the term ‘smoke-free’ is intended to communicate an aspirational goal and not a commitment to the banning of smoking altogether by 2025. On that basis, the Government agrees with a longer term goal of reducing smoking prevalence and tobacco availability to minimal levels, thereby making New Zealand essentially a smoke-free nation by 2025.”*

In doing so, the New Zealand Government became the second in the world to set an official ‘endgame’ goal (the first was Finland). The goal was not further defined in the Government’s response, though ‘minimal levels’ of smoking prevalence have since been widely interpreted by the tobacco control sector as achieving a smoking prevalence of less than 5%.

# PROGRESS TOWARDS ACHIEVING THE SFA 2025 GOAL

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Progress towards Smokefree Aotearoa 2025 can be assessed in several ways. We focus on seven topics to assess this progress.

1. Progress with implementation key recommendations of the Māori Affairs Select Committee report.
2. Progress in developing a strategy and action plan to achieve the Smokefree Aotearoa 2025 goal.
3. Evidence of government and broader commitment to achieving the Smokefree Aotearoa 2025 goal.
4. A comparison with previous New Zealand 'endgame' initiatives.
5. Changes in process measures and intermediate indicators of progress such as calls to Quitline and use of smoking cessation services.
6. Changes in smoking prevalence and use, and progress towards the mid-term targets and Smokefree Aotearoa 2025 goal.
7. Tobacco endgame goals and tobacco control strategies in other countries.

## **Progress with implementing the Māori Affairs Select Committee report**

As noted earlier, the MASC report made 42 recommendations which, if implemented, represent a comprehensive programme of measures to achieve Smokefree Aotearoa 2025, with a strong focus on Māori.

There has been good progress in implementing some of the recommendations that relate to specific actions. A range of interventions have been introduced at national and local levels. The main interventions introduced since 2010 or proposed in 2017/18 are summarised in Table 1 (on page 6). Particularly notable are a sustained series of above-inflation tax increases, reduction in duty-free limits for tobacco products, the removal of point-of-sale advertising in all retail settings, smokefree prisons, and commitments to introduce standardised packaging and liberalise the availability of nicotine-containing e-cigarettes and e-liquids.



Table 1: Principal tobacco control interventions implemented in Aotearoa New Zealand 2010-2017

<b>Intervention area</b>	<b>National-level intervention and date</b>	<b>Other interventions and notes</b>
<b>Affordability and price</b>	<p>Annual increase in tobacco excise tax – 10% above inflation increases since 2010, scheduled to continue to 2020 at least.</p> <p>Additional 14% increase in excise on RYO tobacco in 2010.</p>	
<b>Accessibility and supply</b>	<p>Duty-free limits reduced from 200 to 50 cigarettes in 2014.</p> <p>Enforcement penalties for underage sales increased in 2012.</p>	Some local initiatives to promote and support smokefree retailers (eg, Northland DHB)
<b>Promotion and packaging</b>	<p>Point-of-sale displays of tobacco products disallowed in 2012.</p> <p>Standardised packaging due for introduction with enhanced pictorial health warnings in March 2018</p>	
<b>Product modification</b>	No interventions.	
<b>Alternative nicotine-delivery products</b>	Enhanced access to nicotine-containing e-cigarettes and e-liquids announced in 2017.	Timescale and detail of implementation is yet to be confirmed but is anticipated to occur in 2018.
<b>Smokefree messaging</b>	<p>National paid mass media campaigns continued, focusing mainly on promoting cessation/Quitline and health promotion campaigns eg, 'Stop Before You Start' aimed at preventing young adult uptake.</p> <p>New, larger pictorial health warnings with enhanced Quitline information due to be introduced with standardised packaging in 2018.</p>	Brief review suggested inadequate and declining resources allocated to mass media campaigns compared to best practice. <sup>19</sup>
<b>Smoking cessation support</b>	<p>Hospital targets for providing cessation advice to smokers extended to primary care in 2012/13.</p> <p>Quitline contract moved from the Quit Group to Homecare Medical telehealth service in 2015.</p> <p>'Realignment' of smoking cessation services in 2015.</p>	
<b>Tobacco control expenditure and infrastructure</b>	As part of 2015 'realignment' process, expenditure on tobacco control advocacy greatly reduced.	No comprehensive review of tobacco control expenditure trends available.
<b>Smokefree environments</b>	Smokefree prisons introduced in 2010.	<p>Considerable local activity to introduce smokefree parks, sports fields, shopping malls and other outdoor areas.</p> <p>Government rejected the Health Select Committee recommendation to introduce smokefree cars legislation in 2017.</p>



However, a 2015 review of progress since the MASC report noted that key recommendations had not been implemented:<sup>20</sup>

- Introduction of standardised packaging for tobacco products;
- Reduced availability and supply of tobacco;
- Further disclosure of product additives, and the regulation of nicotine and additives;
- Comprehensive and effective use of mass media including targeted mass media campaigns, in particular for Māori and pregnant women;
- Extension of smokefree environments, in particular smokefree cars carrying children.

Of these interventions, there has been further substantial progress only with the introduction of standardised packaging, which is scheduled in March 2018.

We are not aware of steps to investigate further options for measures to reduce retail tobacco supply, as the Government promised in its response to the MASC report.<sup>18</sup> This is a major focus of new tobacco control initiatives internationally<sup>21</sup> and was prioritised in recent documents produced by the tobacco control sector (National Smokefree Working Group) in its 'next steps' plan to achieve Smokefree Aotearoa.<sup>20, 22, 23</sup> There have been some local actions to promote retailers voluntarily stopping selling tobacco products such as the Tobacco-free Retailer Toolkit produced by Northland DHB (Figure 2) and a Smokefree retailers website see ([smokefreeshops.co.nz/](http://smokefreeshops.co.nz/)).

Figure 2: The Tobacco-free Retailer Tool Kit

## Tobacco-free Retailer Tool Kit

WHICH ITEM DOESN'T BELONG?



The MASC recommended: a) requiring tobacco companies to publicly report the constituents of their tobacco products and emissions by class of product, brand, and brand variant, and b) introducing regulations to reduce the additives and nicotine content of tobacco products.<sup>1</sup> In its response, the Government promised to review the current information disclosure regime and investigate regulations to control additives and constituents in tobacco products.<sup>18</sup>

We have not yet seen evidence of this review, or progress on interventions such as removing menthol or mandated introduction of very-low-nicotine-content (VLNC) cigarettes. Menthol removal is increasingly carried out internationally, notably in Canada and across the European Union from 2020 through the Tobacco Products Directive. Mandating VLNC cigarettes is a focus of increasing international interest and research,<sup>24, 25</sup> including innovative studies carried out in Aotearoa New Zealand.<sup>26, 27</sup>

The MASC report recommended maximising smokefree campaigns and use of mass media. Both the National Smokefree Working Group and the Ministry of Health-commissioned SHORE Report have since reiterated calls for additional resources to be allocated to this intervention.<sup>22, 23, 28</sup> In response to the MASC report, the Government committed to determine and implement the best ongoing mix of smokefree public information, education, community initiatives and marketing campaigns.<sup>18</sup> The Ministry of Health, in its progress report to the MASC, stated that progress on these measures was 'ongoing'.<sup>29</sup> But an overall social marketing and mass media strategy for tobacco control has not been developed as the MASC recommended.

A 2014 review found mass media expenditure reduced after the Government adopted the Smokefree Aotearoa 2025 goal, and its use did not align with best practice.<sup>19</sup>

In March 2017, the Government rejected the idea of legislation to require cars carrying children to be smokefree.<sup>30</sup> A report from the Health Select Committee had recommended this measure.<sup>31</sup> There is evidence of continuing major exposure of children to second-hand smoke in cars<sup>32</sup> and overwhelming (over 85-90%) public support for this measure, including among smokers and children.<sup>33, 34</sup>

There has been much activity at the local level to extend smokefree public place policies in various settings such as parks, sports fields, shopping malls, streets and beaches. In July 2015, Local Government New Zealand passed a remit at its AGM requesting that central government develop and implement legislation that would disallow smoking outside cafés, restaurants and bars. This has not occurred.

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## Progress in developing a strategy and action plan to achieve the goal

The MASC report recommended that the Government establish a tobacco control strategy and action plan with a strong emphasis on Māori-focused outcomes (to ensure that tobacco consumption and smoking prevalence was halved by 2015 in a cost-efficient way), and then to work towards making Aotearoa New Zealand smoke-free by 2025.<sup>1</sup>

The Government rejected this recommendation, arguing it already had a comprehensive action plan through its current tobacco control and smoking reduction initiatives, which would be supplemented with additional steps proposed in its response to the MASC report. The Government further argued that it would focus on implementing the actions it identified as necessary rather than devote resources to developing a tobacco control strategy document and publishing a separate action plan.<sup>18</sup>

The recommendation to develop a strategy and action plan was subsequently reiterated by others in the tobacco control sector including: academic commentators,<sup>35, 36</sup> the Te Ara Hā Ora (TAHO) Advisory Group,<sup>37</sup> the National Smokefree Working Group (NSFWG)<sup>22, 23</sup> and the SHORE Report on tobacco control services commissioned by the Ministry of Health.<sup>28</sup>

Eventually, in August 2015, the Associate Minister of Health Peter Dunne stated the following in a speech at the release of the 2015-2020 National Drug Policy:

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*“We have made extraordinary progress on reducing the rates of smoking, but tobacco remains the biggest preventable cause of death. It requires an approach commensurate with the magnitude of the problem. As a result the Government is developing a separate tobacco control plan which will sit alongside the National Drug Policy.”*

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Subsequent communications during 2016 with Ministry of Health officials confirmed that action plan development was underway and a consultation process was planned to inform a final version. However, the plan has not been produced and at a Health Promotion Agency seminar in Auckland on 17 May 2017, Ministry officials stated that it would not be forthcoming in the foreseeable future.

The MASC recommended that the Government should set specific mid-term targets, proportionate across all demographics, as important tools for ensuring progress towards the Smokefree Aotearoa 2025 goal and ‘signalling strong intent’. The Government accepted this recommendation and noted that while such targets should be ambitious, they should also be ‘realistic and cost-effectively achievable’ and would require appropriate monitoring mechanisms. They argued that in committing to specific mid-term targets and the aspirational smoke-free 2025 goal:

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*“the Government is committing to an ongoing programme in future years of reviewing progress towards these targets and assessing what additional steps may be required over time to further address these issues.”<sup>18</sup>*

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Subsequently, the Ministry of Health set mid-term targets to reduce daily smoking prevalence to 10% by 2018 and to halve prevalence from the 2011 baseline to 19% among Māori and 11% among Pacific peoples.

## Evidence of commitment to achieving the SFA 2025 goal

### Organisation of tobacco control in Aotearoa New Zealand

Ultimate political responsibility for the Smokefree Aotearoa 2025 goal rests with the Minister of Health, currently Hon Dr Jonathon Coleman. An Associate Minister of Health (currently Hon Nicky Wagner) has immediate responsibility for tobacco control policy and activities to achieve the Smokefree Aotearoa 2025 goal. Within the Ministry of Health, the Associate Minister is supported by a tobacco policy team and a service commissioning team in the area of chronic disease prevention. The former focuses on tobacco control policy and the latter on commissioning and funding tobacco control services.

At District Health Board (DHB) level there are varying arrangements. Each DHB has a tobacco control plan, which includes an assessment of local smoking prevalence data and sets out plans for the main DHB tobacco control activities. Commonly these include coordination of efforts to achieve the secondary and primary care ‘Better help to quit targets’; commissioning and management of local face-to-face smoking cessation services; running local enforcement activities (eg, relating to smokefree workplaces and hospitality venues, and preventing retail sales of tobacco to minors); and health promotion activities relating to smoking cessation and tobacco control.

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The main tobacco control services and activities funded by the Government include:

- A national Quitline service within the National Telehealth Service, run by Homecare Medical, which provides quit support via telephone, text and online, and referrals to face-to-face services;
- Face-to-face support services with variable local arrangements and providers;
- Subsidised or free smoking cessation medications including nicotine replacement therapy – patches, gums and lozenges available through Quit Providers; and nortriptyline, bupropion (Zyban) and varenicline (Champix) through GPs on prescription;
- Nationally co-ordinated training programmes for smoking cessation services;
- Mass media campaigns promoting quitting and the national Quitline (currently commissioned by Homecare Medical), an annual 'Stoptober' campaign currently run by Action on Smoking and Health New Zealand (ASH), and promoting broader smokefree-related messages such as the current 'Stop Before You Start' campaign.
- Monitoring activities that incorporate questions on smoking-related behaviours such as the annual New Zealand Health Survey (run by the Ministry of Health) and ASH Year 10 survey (run by ASH), biennial surveys such as the Health and Lifestyle Survey and Youth In-depth Survey (run by the Health Promotion Agency [HPA]), the monthly Smoker Toolkit panel (run by the HPA) and the Tobacco Data Repository (run by the HPA).

In addition, a research and evaluation programme, 'the Turanga', led by Auckland University and funded by the Ministry of Health for \$5 million, ran from 2010-2015. The 'Pathway to Smokefree New Zealand 2025' Innovations Fund organised by the Ministry of Health was in place from 2012-2015 and supported a range of national, regional and community-based projects with \$5 million funding per year. Both of these initiatives have now ceased.

## Evidence of government commitment to SFA 2025

Early indications that tobacco control was one of the current Government's health priorities included the following.

- Setting national "Better help to quit" targets in 2009<sup>38</sup> for identifying and providing cessation advice to smokers in hospital and later in primary care settings
- In 2010 the implementation of substantial increases in tobacco taxation after a long period of small increases aligned with inflation
- This was followed in 2011 by the Government adopting the Smokefree Aotearoa 2025 goal in its response to the MASC report.<sup>18</sup>

However, the Government describes the Smokefree Aotearoa 2025 goal as 'aspirational' (in its response to the MASC report). National documents suggest that the goal may be low on the list of health priorities.

For example, the draft New Zealand Health Strategy released for consultation in 2016 did not mention the Smokefree Aotearoa 2025 goal. This seemed a major omission, given the stated aim of enhancing prevention, and that smoking is one of the largest preventable causes of death. The final strategy did briefly mention the Smokefree Aotearoa 2025 goal, after the consultation revealed concern about this omission.<sup>39</sup>

Similarly, the 2015–2019 Statement of Intent by the Ministry of Health lists the Smokefree Aotearoa 2025 goal among the Minister of Health's 12 strategic priorities.<sup>40</sup> However, for other topic-focused priorities like diabetes, childhood obesity and the health of older people, the level of activity and planning is much greater than for Smokefree Aotearoa 2025. For example, a five-year diabetes plan was reported as established and due for implementation from 2015/16, a childhood obesity prevention plan was proposed (and has since been launched), and for the health of older people a wide range of initiatives were listed together with the intention to refresh the existing strategy. By contrast, the text for the Smokefree Aotearoa 2025 goal merely restated the goal and described existing measures with no evidence of any intent to develop a plan or any new initiatives to help achieve the goal:

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*"To support this goal, New Zealand has a comprehensive set of tobacco control measures and smoke-free legislation designed to reduce smoking rates, including high rates of tobacco tax."*

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The SHORE 'Review of Tobacco Control Services' report<sup>28</sup> was commissioned by the Ministry of Health to determine whether the current tobacco control services were sufficient to help achieve the Government's Smokefree Aotearoa 2025 goal. It reported in July 2014. One of its key findings was the need to revitalise the Smokefree Aotearoa 2025 goal, as it was widely seen to have fallen 'off the national radar' and down the list of priorities. Various initiatives were recommended, such as:

- Develop an action plan and logic model for achieving Smokefree Aotearoa 2025;
- Establish an inter-agency committee to engage all relevant government agencies/ministries in a 'joined up' government approach to achieving Smokefree Aotearoa 2025;
- Increased NGO advocacy and expenditure to promote the Smokefree Aotearoa 2025 goal (eg, by HPA) and to raise public awareness of the goal.

None of these recommendations were actioned.

Further (indirect) evidence that suggests low political priority on tobacco control is available in an analysis of trends and patterns of references to the Smokefree Aotearoa 2025 goal in political speeches and media releases between March 2010 and December 2015.<sup>41</sup> This found a low number of references to the goal – only 1-3 mentions per month – throughout the study period. The goal was most commonly referred to by Hon Dame Tariana Turia and Peseta Sam Lotu-iiga, the Associate Ministers of Health with responsibility for tobacco control from March 2010 to September 2014 and September 2014 to December 2015 respectively.

Of note, there were virtually no references to the goal by other Ministers and even by the Senior Ministers of

Health, although they did frequently mention the much less ambitious ‘Better help for smokers to quit’ targets, suggesting that these were a higher priority (see Table 2). These targets are limited in nature as they are only process measures, rather than more ambitious and robust outcome measures such as the number of people quitting smoking. Also, they apply only to one highly-focused area of tobacco control, cessation support in health care settings.

The low number of references to the Smokefree Aotearoa 2025 goal was not restricted to members of the Government. In this study, opposition party spokespeople also rarely referenced the goal,<sup>41</sup> suggesting that politicians in general have not prioritised the goal.

Table 2: Patterns of references to tobacco and Smokefree Aotearoa 2025 goals among politicians after adoption of the Smokefree Aotearoa 2025 goal March 2010-December 2015

Name	Role (MoH = Minister of Health)	References to tobacco issues		References to Smokefree 2025		References to ‘Better help for smokers to quit’ targets	
		Pre-Sept 2014*	Post-Sept 2014 #	Pre-Sept 2014*	Post-Sept 2014 #	Pre-Sept 2014*	Post-Sept 2014 #
Tariana Turia§	Māori Party MP. Associate MoH pre-Sept 2014	67	N/A	51	N/A	5	0
Tony Ryall§	National Party MP. MoH pre-Sept 2014	49	N/A	2	N/A	22	0
Jonathan Coleman	National Party MP. Minister of Defence pre-Sept 2014, MoH, post-Sept 2014	3	16	1	0	3	8
Peseta Sam Lotu-iiga	National Party MP. Associate MoH, post-Sept 2014	1	8	0	7	0	0
Peter Dunne	United Future MP, Associate MoH, post-Sept 2014	3	4	2	1	2	1
<b>Total references by MOH</b>		<b>123</b>	<b>28</b>	<b>56</b>	<b>8</b>	<b>32</b>	<b>9</b>

\* Mar 2010 to Sept 2014 # Sept 2014 to Dec 2015

§ Tariana Turia and Tony Ryall left Parliament after the September 2014 election

## Extent and trends in tobacco control spending

Another measure of commitment to the Smokefree Aotearoa 2025 goal is the level of expenditure on tobacco control interventions. Patterns and trends in spending are difficult to summarise. This is due to the complexity of the data, differences in what costs are included, and variety in how expenditure is reported and categorised in different reports. We summarise three sets of data here.

### Spending information in the MASC report

The MASC report detailed expenditure on tobacco control in 2009/10 as \$57 million of the Vote Health budget.<sup>1</sup> This was made up of the following: \$10.7m DHB tobacco control funding, \$18.8m smoking cessation services, \$8.5m NRT, \$11.0m promotion, education and media campaigns, and \$8.5m public health and national services, SFEA enforcement, research, monitoring and evaluation. The MASC pointed out that this was only a small percentage of the total tax revenue from tobacco (5.4 per cent of the \$1.3 billion revenue from tobacco excise duty and GST in 2008/09, the previous year).

The MASC report noted: “the urgent problem presented by tobacco use requires further dedicated and significant financial investment.”

### Spending information in the SHORE report

The SHORE report<sup>28</sup> described expenditure on tobacco control from the 2013-14 financial year, though the figures are hard to disentangle. They are probably broadly similar to 2010/11 (eg, \$17.4m on smoking cessation \$9.4m Quitline, \$5.8m Aukati Kaipapa, \$1.3m Pacific cessation support and \$1.1m smoking cessation in pregnancy services). Spending on national-level information services (total \$1.9m) was broken down as follows:

- Action on Smoking and Health \$578,000
- Hāpai Te Hauora Tapui Ltd \$587,000 for National Māori Tobacco Control and Public Health leadership
- Smokefree Coalition \$167,000
- Pacific Heartbeat \$577,000.

### Spending information in 2014/15

A report from the Associate Minister of Health to Cabinet (April 2016) breaks down expenditure for 2014/15 as follows. The total of \$61.7 million included:

- \$15 million on smoking cessation medicines
- \$9.4 million on the Quitline
- \$9.1 million on DHB tobacco control funding (including the Government ‘Better to help to quit’ health targets and community-based cessation services)
- \$8.5 million on ‘stop smoking’ services
- \$5.8 million on Public Health Unit tobacco control enforcement and health promotion activities
- \$5 million on the Pathway to Smokefree New Zealand 2025 Innovation Fund

- \$3.9 million on mass media campaigns
- \$2.7 million on health targets and workforce development
- \$2.3 million on national health promotion advocacy services.

### Summary of overall tobacco control expenditure

These figures reveal that the tobacco control spend is focused mainly on supporting individual smokers to quit by providing cessation support services and stop smoking medications. As noted by the MASC, the expenditure represents only a small fraction of the revenue collected through tobacco taxation.

The above figures suggest overall expenditure was roughly similar (\$57 million vs \$61.7 million) after allowing for inflation between 2009/10 and 2014/15.

### Spending in specific areas

**Tobacco control contracts:** Additional information on trends is provided through analysis of tobacco control contracts<sup>1</sup> expenditure by the Ministry of Health (data obtained via an Official Information Act request). This averaged \$44.6 million from 2007-2010 in the four years before the goal was adopted and reduced to a mean of \$40.7 million between 2011 and 2014. The 2015 figure was \$34.8 million, but this may have been affected by transitional reductions to expenditure in the Quitline contract. This suggests there was a slight decrease in expenditure on these contracts after the Smokefree Aotearoa 2025 goal was adopted. As noted in the footnote, these figures are only for tobacco control contracts, so they don’t represent the full picture of spending.

**Smoking cessation support:** The spend on smoking cessation support has remained reasonably consistent over recent years. For example, Quitline expenditure from 2007 to 2014 varied between \$9.43 and \$9.75 million per annum; and ‘stop smoking service’ funding decreased slightly from a peak of \$9.90 million in the 2007-08 financial year to \$8.34 million in 2014-15.

**National advocacy, health promotion and mass media:** Spending on population-based measures and advocacy for population-based measures such as mass media campaigns appears to have decreased over time. Thus, funding for national advocacy and health promotion services averaged \$1.7 million per year from 2007-10 before the adoption of the goal and \$2.0 million per year from 2011-2015 after the goal was adopted; but was then greatly reduced by over 70% to just \$593,000 in 2015-16.

Mass media expenditure in Aotearoa New Zealand is made up of campaigns promoting smoking cessation and the Quitline service, and more broadly based campaigns such as ‘Smoking Not Our Future’, Stop Before You Start’,

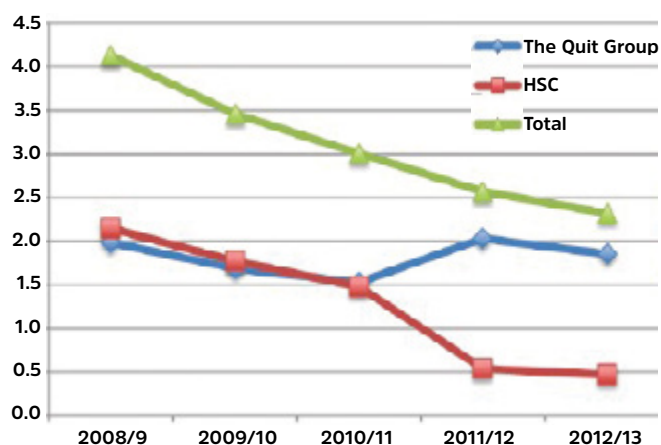
<sup>1</sup> This excludes departmental expenditure within the Ministry as well as PHARMAC expenditure on smoking cessation medicines and additional DHB expenditure outside of Ministry allocation.



and smokefree cars campaigns (run by the HPA or its predecessor organisation the HSC). Also there has been an annual 'Stoptober' campaign from 2014-16 run by ASH, though the future of this is uncertain.

A previous study examined mass media expenditure (placement costs only as development costs vary greatly year on year) between 2008/9 and 2012/13 (Figure 3).<sup>19</sup>

Figure 3: National mass media tobacco control expenditure 2008-2013



Source: Edwards et al. ANZJPH 2014; 38(4): 395-396

This study showed that while Quitline marketing expenditure remained fairly constant between \$1.5 million and \$2.0 million per annum, expenditure on HSC/HPA mass media campaigns fell sharply following the adoption of the Smokefree Aotearoa 2025 goal from \$1.5 million and \$2.0 million per annum from 2008/9 to 2010/11 to around \$0.5 million in 2011/12 and 2012/13.

More recent spending on Quitline marketing is difficult to assess due to the transition in providers from the Quit Group to Homecare Medical. However, the 2015/16 expenditure by HPA (who are currently contracted to deliver the Quitline mass media campaign) was only \$737,000, and is projected to be \$840,000 in 2016/17. This is a large reduction from previous levels. Spending on other HPA campaigns between 2013/14 and 2016/17 averaged \$940,000. This was an increase from 2011-2013 levels, but was still much less than before we adopted the Smokefree Aotearoa 2025 goal.

### Loss of national coordination

The Ministry of Health responded to the SHORE report (discussed earlier) with a realignment of tobacco control services in 2015.<sup>42</sup> It realigned and retendered smoking cessation services, intending to better target resources towards high-need populations in key geographic locations and to focus on quality and performance. These new services started on 1 July 2016.

As part of the realignment, the national information and advocacy services were reconfigured. A review of the performance of these services had been excluded from

the SHORE work. The review made no recommendations on national coordination or advocacy, except to state that the Smokefree Aotearoa 2025 goal needed 'revitalising' and that there should be enhanced media advocacy for Smokefree Aotearoa 2025.

Despite this, the Ministry announced these services would be retendered, with a cut of approximately 70% in resource allocation (as described in the previous section). After the retendering process, funding ceased for the Smokefree Coalition and ASH, resulting in the demise of the Smokefree Coalition and an uncertain future for ASH.

Partly as a result of this shake-up in the tobacco control sector and reduced resource allocation for information and advocacy, the National Smokefree Working Group was wound up in 2016. This group was an umbrella organisation consisting of leaders in tobacco control across the NGO, DHB, practitioner and academic sectors, which aimed to coordinate multisectoral action and strategy for Smokefree Aotearoa 2025.

It is difficult to see how actions that resulted in the demise of the two main coordinating bodies for tobacco control in Aotearoa New Zealand – and reduced resources available to provide information about and advocate for interventions to help achieve Smokefree Aotearoa 2025 – would 'revitalise' the goal. Nor does it suggest a political commitment to achieving the Smokefree Aotearoa 2025 goal.

### Summary of government commitment

The Government's adoption of the Smokefree Aotearoa 2025 goal in 2011 was a brave, world-leading action. However, the goal has since had little prominence in key documents like the New Zealand Health Strategy and the Ministry of Health's Statement of Intent. Recommendations to revitalise the goal from the Ministry's own review have not been implemented.

Funding for tobacco control has remained at around the same level since 2011, but appears to be increasingly focused on individual smoking cessation services and cessation medications. Funding has been drastically cut for national information and advocacy services, and has reduced for mass media interventions.

This evidence, together with the failure to develop a comprehensive action plan and to implement key recommendations of the MASC report, suggests that political commitment to achieving the Smokefree Aotearoa 2025 goal is not strong enough. It appears especially limited for interventions other than those focused on providing support to help individual smokers to quit.

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## Evidence of broader commitment and support for the SFA 2025 goal

We have assessed the degree of commitment for Smokefree Aotearoa 2025, outside of the Government, in three ways:

1. support among NGO, health professional and academic tobacco control communities
2. public understanding and support for the Smokefree Aotearoa 2025 goal
3. the level of local and regional activity in support of Smokefree Aotearoa 2025.

In each of these areas there is evidence of strong support – and reasons for optimism – for the Smokefree Aotearoa 2025 goal.

### Tobacco control sector support for the goal

**A strong and multi-faceted tobacco control sector** is apparent in Aotearoa New Zealand. As would be expected for any strong and diverse group, the tobacco control community in Aotearoa often has debates and disagreements about tactics and strategies. Yet universally, tobacco control leaders and practitioners are deeply committed to achieving Smokefree Aotearoa 2025 for all peoples in Aotearoa. There is also general agreement that urgent action beyond the current 'business as usual' approach is required if the goal is to be reached, particularly for Māori.

This sector includes tobacco control-focused NGOs such as ASH, and the National Tobacco Control Advocacy service Hāpai te Hauora (and previously Te Reo Marama – the Māori Smokefree Coalition). There are also several health NGOs which have a long history of leadership and active involvement in tobacco control such as the Cancer Society of New Zealand, the Heart Foundation, and the Stroke Foundation of New Zealand. Others involved have included the Asthma and Respiratory Foundation, the Mental Health Foundation, Whakawhetu (the Māori SIDS National Prevention Service) and Tala Pasifika.

Many prominent tobacco control leaders work at the local level, notably within DHBs and Public Health Units. Government-funded agencies that have greatly contributed to tobacco control include the Health Promotion Agency (formerly Health Sponsorship Council) and the Quit Group. The goal has also been strongly endorsed by many health professional organisations such as the New Zealand Medical Association, New Zealand College of Public Health Medicine, Plunket, and the Thoracic Society of Australia and New Zealand.

A strong tobacco control focus exists within the academic sector, with major concentrations of tobacco control research at the University of Auckland (notably in the National Institute of Health Innovation) and through the ASPIRE 2025 collaboration with researchers at the Universities of Otago, Massey, AUT and the Burden of Disease, Epidemiology and

Equity & Cost-Effectiveness Programme (BODE<sup>3</sup>). There are other leading tobacco control researchers within Massey University, ESR and the University of Canterbury, as well as independent researchers and research through consultancy organisations and government-funded agencies like the HPA.

Despite recent setbacks, such as reduced funding to key national organisations and the regrettable loss of coordinating bodies like the Smokefree Coalition and the National Smokefree Working Group, the sector's commitment and determination to achieve the Smokefree Aotearoa 2025 goal remains strong and resolute.

### Public support for the goal

The goal also attracts **overwhelming public support**. For example, 79% of those surveyed in a 2012 study supported the Smokefree Aotearoa 2025 goal and only 6% disagreed.<sup>43</sup> In-depth qualitative research has revealed strong support among young smokers, who mostly recognised that broader social good would result from achieving the goal.<sup>44</sup> However, there is also evidence that only about half of adults,<sup>45</sup> and a third of children,<sup>46</sup> are aware of the goal.

Moreover, there is evidence of widespread misunderstanding of the nature of the Smokefree Aotearoa 2025 goal, and evidence that this may undermine the degree of support for the goal.

For example, in the 2012 study cited above, participants were asked to state whether each of seven scenarios was encompassed by the Smokefree Aotearoa 2025 goal.<sup>47</sup> An incorrect scenario ('no smoking allowed in any public place') was most commonly cited as correct (by 80% of participants), while the three broadly-correct scenarios were correctly identified by a lower proportion of respondents: 'very low smoking prevalence' (61%), 'less than 5% of people smoke' (49%) and 'sales of cigarettes and tobacco in Aotearoa New Zealand are restricted to very few outlets' (46%).

In the study, many participants thought two wholly incorrect scenarios, 'no retail sales of cigarettes or tobacco' (45%) and 'smoking is banned in New Zealand' (37%), were part of the goal. The investigators also found that support for Smokefree Aotearoa 2025 increased after the nature of the goal was explained to participants.<sup>47</sup>

### Local support for the goal

Finally, in contrast to national actions, there is evidence of determined leadership and innovative strategies and interventions in support of Smokefree Aotearoa 2025 at the local level. This is despite legislative and fiscal constraints, often substantial, about what can be implemented.<sup>48</sup> Local action has been driven by NGOs, District Health Boards (DHBs), iwi authorities, local marae, local authorities and businesses. Many cities (eg, Auckland, Christchurch, Wellington, Whangarei) and regions (eg, Hawkes Bay) have announced local comprehensive Smokefree Aotearoa 2025 initiatives.



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This activity has featured a large increase in locally-led implementation of smokefree outdoor policies such as smokefree parks, playgrounds, entrances to buildings, bus-shelters, stadia, leisure facilities, transport centres, events, shopping malls and beaches. Many DHBs have some of the strongest non-commercial outdoor smokefree policies in Aotearoa New Zealand.<sup>48</sup> There has also been progress in the areas of smokefree worksites and ski fields (eg, The Remarkables, Treble Cone), and parts of downtown areas such as squares and streets in Whanganui and Hastings. In Whangarei and Christchurch some pensioner and social housing has been made smokefree.

In the absence of central government action on smokefree outdoor dining and drinking, local authorities and their partners in Palmerston North, Hawkes Bay, Wellington, Christchurch, Ashburton and Westland, among others, have been moving towards voluntary smokefree policies and bylaws. In 2015 and 2016, three councils (Palmerston North, Napier and Hastings) have used pavement lease policies and bylaws to start introducing an element of requirement into smokefree outdoor dining. This action at the local level was reflected in the adoption of a remit at the 2015 Local Government New Zealand conference, as noted earlier, to ask central government to develop and implement legislation to disallow smoking outside cafés, restaurants and bars.<sup>49</sup>

Iwi have been active in various parts of the country in adopting smokefree policies. For example, in 2015, an alcohol and smokefree policy was approved for 14 Tūpuna Maunga (the volcanic cones such as Mt Eden) in Auckland, with governance involvement from 13 iwi and hapū. Ngāti Kahungunu has a tobacco-free strategy and holds tobacco-free events.

Initiatives to encourage tobacco-free retailing continue to expand at the local level and beyond, particularly in Northland, where there were 22 tobacco-free retailers by November 2016, with wide dissemination of a Smokefree Toolkit.

The Northland Intersectoral Forum (NIF) comprises local and central government agencies who have signed a Smokefree 2025 Statement of Intent. Signatories commit to: supporting the smokefree vision, implementing individual agency plans that specify actions within the relevant organisations to progress the Smokefree Aotearoa 2025 agenda, and supporting the initiatives of other NIF partners. This is a model for interagency-coordinated Smokefree Aotearoa 2025 activities that could occur more widely, as well as within central government.

### Summary of broader commitment

Strong commitment to the Smokefree Aotearoa 2025 goal by various sectors suggests that there is strong will to achieve the goal. Key findings from our canvassing of the broader commitment to the goal, which will greatly support progress towards the goal, include:

- evidence of wide commitment and support for Smokefree Aotearoa 2025 within the tobacco control, NGOs and the health sector, among the public, and among local organisations, iwi, communities and other key stakeholders
- likely wide-ranging and overwhelming support for, and engagement with, a government-led action plan to achieve the Smokefree Aotearoa 2025 goal, and the expectation that national actions would both stimulate and be endorsed by local-level interventions
- from a political perspective, a comprehensive Smokefree Aotearoa 2025 plan that includes bold and rigorous interventions would be politically advantageous as it would attract strong public support

## Comparison with previous 'endgame' initiatives in Aotearoa NZ

Aotearoa New Zealand has been the setting for various other successful 'endgame' initiatives to enhance human or animal health. We describe three examples here, followed by an example of slower progress, then review the potential lessons for Smokefree Aotearoa 2025. This section draws on various publications by Professor Nick Wilson (University of Otago, Wellington).

### Four case studies

#### Eradication of Hydatid Disease

Hydatid disease is a parasitic disease of humans and livestock caused by the larval (hydatid) stage of a tapeworm parasite. Sheep, cattle, goats, pigs, horses and humans can catch the disease by ingesting tapeworm eggs. In Aotearoa New Zealand dogs have been the tapeworm's primary host, commonly becoming infected after being fed offal from home-killed livestock on farms.

Aotearoa has a long history of efforts to reduce hydatid infection, for example campaigning by health professionals that highlighted the extent of disease (particularly in children), and by farmers focusing on the economic costs (eg, lost exports of mutton) of infected meat products. Up until the 1950s, these efforts mainly involved education of farmers, promotion of (non-mandated) treatment for dogs and local level activities.<sup>50</sup>

By the late 1950s, it was widely accepted that existing efforts had failed and more intensive and nationally-coordinated measures were required. As a result, in 1959 a national eradication campaign was launched with the passing of the 1959 Hydatids Act.<sup>50</sup> This Act established an autonomous national coordinating body - the National Hydatids Council.

The resulting interventions included: a national education campaign, a system of dog registration and testing, compulsory dosing of dogs with anti-hydatid medication, and legislation with tougher penalties for dog owners who persisted in feeding raw offal to their dogs.

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Enforcement occurred through Hydatid Control Officers and was overseen by 85 regional Hydatid Control Authorities. A National Hydatid Research Council was re-established and oversaw a national research programme and funded a national Hydatid Research Unit. There was also much stakeholder-led and community-based activity and support, notably in the formation of around 800 Voluntary Eradication Committees and the introduction of a levy on farm dogs (proposed by farmers themselves) which was ear-marked for hydatid control efforts.<sup>50</sup>

The eradication strategy was initially successful in reducing incidence of disease, but due to various administrative issues and possible strategic errors, the eradication process was protracted. But by 1982, human and sheep disease incidence was greatly reduced, and by 1991 eradication was almost achieved and the National Hydatid Council was disbanded. In 2002 hydatid disease was declared eradicated in Aotearoa New Zealand.

### **Eradication of the southern saltmarsh mosquito**

The southern saltmarsh mosquito (SSM) was first detected in Napier in 1998, and later confirmed present in nine other locations on both the North and South Islands.<sup>51</sup> This imported mosquito posed a threat to public health because it transmits the Ross River virus to humans. The disease is estimated to produce large economic costs and adverse health impacts, for example in parts of Australia.<sup>52</sup>

The Ministry of Health led the initial management of the response to the SSM until 2006 when the eradication and ongoing monitoring and surveillance programme became jointly managed with the Ministry of Agriculture and Fisheries (now the Ministry for Primary Industries).

A dedicated national eradication programme was implemented to eliminate the SSM. Interventions included: intensive surveillance, spraying with mosquito control chemicals, habitat management and communications with the public and other stakeholders. The cost of the national eradication programme was \$70 million over 11 years.<sup>51</sup> In 2010 Aotearoa New Zealand became the first country in the world to eradicate the SSM.

### **Eradication of bovine TB**

Our third example is a current endgame goal from the agricultural sector. Bovine tuberculosis (TB) is an infectious disease that affects cattle and deer, and has been a long-standing problem in Aotearoa New Zealand. The disease poses a threat to the economy and eradication of the disease is important for maintaining Aotearoa New Zealand's valuable dairy, beef and deer exports. Possums and ferrets are the main vectors (carriers) of bovine TB. There are occasional human cases of the disease in Aotearoa New Zealand.<sup>53</sup>

Active management of the disease has occurred since the 1950s. After initial successes with possum control, funding was withdrawn in 1978 resulting in a resurgence of infection. In response, government and industry

collaborated on renewed efforts and with greater funding for pest control, which laid the foundations for today's eradication programme.<sup>54</sup>

A nationally-coordinated bovine TBfree plan commenced in 1998, implemented under the Biosecurity Act 1993. As well as enabling the use of statutory powers, the bovine TB plan was seen by affected industries (dairy, beef and deer) and government as essential to supporting: long-term funding arrangements, achievement of shared TB management objectives, and a nationally co-ordinated approach. The programme was run by Operational Solutions for Primary Industries (OSPRI), an NGO formerly called the Animal Health Board. OSPRI has the strong involvement of farmers and leaders across stakeholder industries.

The TBfree programme, developed in collaboration with key stakeholders, includes nationwide testing, identification, tracing and registration of cattle and deer herds in high-risk areas, with slaughter of infected animals. Three long-term strategies are implemented to control, and eventually eradicate, bovine TB: in-herd disease management; movement control; and the control of possums and ferrets. Each strategy has a costed implementation plan. The plan has been well resourced with around \$1.2 billion spent on TB control from 2000 to 2016. In 2015 the funding for implementing the national TBfree plan was \$80 million per annum.<sup>55</sup>

The TBfree plan was independently reviewed in 2015, involving key sector representatives. The review found that OSPRI had exceeded its targets and shown that eradication was possible.<sup>55</sup> Infected herd numbers had fallen greatly over 20 years, from 1700 in the mid-1990s to 43 in 2016.<sup>54</sup>

As a result, a new plan was developed and launched in July 2016. This plan included a new – more targeted – testing and pest control programme and a specific endgame goal of eradicating bovine TB from Aotearoa New Zealand. Specified milestones included: TB freedom from cattle and deer herds by 2026, TB freedom from possums by 2040 and biological eradication by 2055.

The 2016 Budget allocated \$69.8 million of new operating funding over four years to help eradicate bovine TB, with funding largely divided between the Crown, and the dairy and beef industries. The new programme is making good progress and exceeding its targets. In some areas of the country, bovine TB appears to have been eliminated already, making Aotearoa New Zealand a world leader in the control and management of bovine TB.<sup>56</sup>

### **Leaded petrol: a cautionary tale**

An example of a less successful (or at least more protracted) endgame was the removal of leaded petrol from the market in Aotearoa.<sup>60</sup>

There had been long-standing concerns about the adverse impacts of lead in the environment, particularly on children's health and development. The US EPA made its first regulatory moves against leaded petrol in 1972 and advocacy in

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Aotearoa New Zealand from the Environmental Defence Society began in 1973. The Clean Air Council, a government advisory body, called for a phase-down of lead in gasoline in 1974. However, there was a prolonged lag period before a 'phase-down' of lead in petrol was announced in 1984 and unleaded petrol introduced in 1986. Leaded petrol was phased out, eventually, in 1996.<sup>60</sup>

In this example, there was no clear national endgame goal. A comprehensive or planned approach was lacking, as was clear national leadership. Neither was there any national programme of communication about lead-free petrol. Despite some excellent international and local research evidence, in practice this was poorly applied. For example, the decision in 1984 to introduce unleaded petrol was largely a political decision, rather than one preceded by considered policy evaluation. The Department of Health (former Ministry of Health) lacked personnel with the required technical expertise to analyse the issue of leaded petrol and its effects.<sup>60</sup>

In the three successful endgame examples, there was no concerted opposition of economic interests such as industry groups. Indeed, in the cases of bovine TB and hydatid eradication, industry groups were largely supportive. However, opposition from industry played a major role in the case of leaded petrol. The lead additive manufacturer, Associated Octel, was the main industry player in Aotearoa New Zealand in the eighties and nineties, and used several strategies to try to influence decision-making on lead additives. These included maintaining close relationships with politicians and officials in Aotearoa New Zealand, spending much time and effort countering expert advice and scientific evidence, and acting to build new alliances.<sup>60</sup>

## Lessons from endgame case studies for SFA 2025

The three successful case studies have several key features which may hold lessons for the SFA 2025 goal – not least of which is evidence that bold, ambitious endgame goals like Smokefree Aotearoa 2025 can be achieved.

The cases demonstrate that endgame goals can galvanise activity and motivate stakeholders and the public. For example, having an elimination goal was identified as a success factor in the hydatids case. The Rural News Group cited the goal as important to achieving elimination, reflecting the determination of people who “*would accept nothing less than total elimination of the pest*”.<sup>57</sup> The goal attracted and united prominent rural leaders and academics, who shared a belief that the goal was achievable.<sup>57</sup>

Several features are common to the three case studies, and may be critical for the success of other endgame goals like Smokefree Aotearoa 2025.

### 1. A planned and comprehensive approach to achieve the endgame goal with clear intermediary milestones and robust reviews of progress

In all three of the case studies, strategic planning was used to identify evidence-based actions and monitor progress towards a clearly-defined elimination goal. Sustained, substantial funding was provided.

For example, in the case of bovine TB, an independent, nationwide programme was established, and allocated dedicated ongoing funding. The programme achieved strong buy-in from both industry and government. Key principles of the programme included: (i) setting clear interim targets (eg, for possum population reduction); (ii) using proven interventions (eg, tools for achieving possum population reductions); (iii) ensuring necessary legislative support was provided to ensure compliance with interventions; and (iv) applying an objective methodology for assessing whether target reductions were achieved.<sup>58</sup>

A key success factor was having a dedicated organisation and Board, with Board-driven objectives for design, costing and implementation, and stakeholder input and approval. Legislation requires regular formal review of the plan, with input from the wider public as well as funders and stakeholders.

Surveillance and monitoring were important in all three successful campaigns. For example, the SSM campaign benefitted from regular reviews and ongoing monitoring, and efforts to strengthen surveillance both locally and nationally.

### 2. Clear leadership with collaboration across agencies and organisations is important

In each of the endgame case studies, there was defined and strong national leadership, and collaboration between government and key stakeholders. The eradication of hydatids was led by the National Hydatid Committee and the goal's achievement was facilitated by collaboration between the farming industry, dog owners and government.

In the case of bovine TB, there was NGO (OSPRI) leadership of a programme to achieve an endgame goal with collaboration between farmers, industry and government organisations in the TBfree programme. OSPRI required government approval of the national strategy and operational plan, but was otherwise largely unconstrained by political decision-making.

The programme to eliminate the SSM also used a cross-agency approach, with initial leadership by the Ministry of Health, then shared responsibility between Health and the Ministry for Primary Industries (previously MAF).

### 3. Stakeholder and public involvement and support

Each of the three endgame case studies featured strong stakeholder involvement and support. For example, the hydatid eradication programme involved hundreds of local Voluntary Eradication Committees, it had strong support from the Women's Division of Federated Farmers due to concerns about children's health, and some funding was raised from a levy on dog-owners (suggested by farmers). Although the decades of largely educational interventions to prevent hydatid disease were widely seen as ineffective, they may have helped by sensitising the public and the farming community to the importance of hydatid control, so that when more robust regulatory approaches were introduced, these had much greater acceptance and compliance.<sup>50</sup>

The TBfree plan articulates clear benefits for stakeholders and funders, and regular formal review of the plan includes input from the wider public as well as funders and stakeholders. Aotearoa New Zealand's TBfree programme is considered unique in the extent to which farmers have a strong say in the programme, compared with other countries.<sup>59</sup> Securing strong public and stakeholder support for the TBfree programme has been greatly helped by widespread recognition of the possum as a major pest and threat to conservation in Aotearoa New Zealand, and more recently, by a planned national campaign and goal for a predator-free Aotearoa New Zealand by 2050.

### 4. Research-informed responses

In each of the case studies, a research-informed, evidence-based response was developed. For instance, the programme to eliminate the SSM was sparked by concerns about public health and potential health costs. The decision to provide government funding was based on a health impact assessment by University of Otago academics in February 1999, and on cost-benefit analyses carried out by the New Zealand Institute of Economic Research, suggesting that eradication would result in net benefits.<sup>52</sup> The Ministry of Health set up a broad-based technical advisory group of experts and also drew on Australian expert advice (since the SSM was imported from Australia) to inform the development of the programme and the interventions implemented, such as a spray-based programme for mosquito control.

The bovine TB programme has also been strongly influenced by a large body of scientific research, for example featuring 'proof of concept' pilot studies, research-informed planning, applied research such as option modelling and forecasting, employment of technical staff on the programme, and consultation and collaboration with internationally-recognised scientists.

### 5. Promotion and communication

Extensive promotion and communication was a key strategy in the hydatids, bovine TB and SSM campaigns. In the case of the SSM for example, communication was identified as an important component of the eradication programme, including informing and updating local authority staff, landowners, residents, recreational visitors and others. The TBfree programme has a communications team which has increasingly promoted the programme within Aotearoa New Zealand and internationally. An important success factor is the communication with farmers to attain their support for the programme, and to help design a programme which meets farmers' needs and preferences.

#### How do the five potential critical success factors apply to SFA 2025?

Most of the lessons from the three successful case studies have been, at best, only partially applied to the Smokefree Aotearoa 2025 goal.

**Planned, comprehensive approach:** Although there are clear end-point and mid-term targets, no government plan exists to guide the implementation of measures to achieve these targets. On the whole, funding continues at around the same level as prior to the adoption of the Smokefree Aotearoa 2025 goal. Despite clear evidence that recent reductions in smoking prevalence are insufficient to achieve the goal,<sup>64</sup> particularly for Māori, there has been no government review of the adequacy of current or planned measures to achieve the Smokefree Aotearoa 2025 goal.

**Clear leadership with multi-agency coordination:** The Ministry of Health tobacco control team and the Associate Minister of Health with responsibility for tobacco control provide national leadership. However, unlike in the case of hydatid disease and the TBfree plan, there is no semi-autonomous national lead organisation. Tobacco control has no equivalent organisation to OSPRI. The recommendation in the MASC report to consider establishing a Tobacco Control Authority, with a strong kaupapa Māori approach, to strengthen and accelerate Aotearoa New Zealand's tobacco control<sup>1</sup> was rejected by the Government as unnecessary and not cost-effective.<sup>18</sup>

The National Smokefree Working Group (NSFWG) was set up in 2011 by the tobacco control sector at the initiative of health and tobacco control NGOs, and produced 'next-steps' action plans for Smokefree Aotearoa 2025.<sup>22, 23</sup> The NSFWG had no decision-making power and its recommendations were largely ignored. It disbanded in 2016. The Smokefree Coalition was formed as an umbrella group to foster collaboration between NGOs in tobacco control. It also had no decision-making power. Funding for the Smokefree Coalition was withdrawn in 2016, following the 'tobacco services realignment' process. A 'tobacco control integration group' has since been established by the Ministry of Health. However, its focus is largely on smoking cessation services and it is mainly a forum for disseminating information and consulting, with no decision-making or resource allocation powers.

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There is currently little collaboration across government agencies for Smokefree Aotearoa 2025, other than within the health sector. Notable exceptions were the Smokefree Prisons policy introduced by the Corrections Department and the announcement on 31 May 2017 that the New Zealand Defence Force will be smokefree by 2020. Both of these initiatives seem to have been prompted by internal factors within the relevant agency, though, not as a result of cross-government initiatives led by the Ministry of Health or Health Ministers.

**Stakeholder and public involvement and support:**

Widespread stakeholder and public support exists for the Smokefree Aotearoa 2025 goal (as discussed above), and this has been fostered by advocacy efforts from NGOs and the smokefree sector. However, some research has also revealed a lack of public understanding of the goal, with greater support when the goal was explained and understood.<sup>47</sup>

**Research-informed responses:** There is a strong evidence base in some areas of tobacco control, but for newer policy options the evidence base is still developing. Some evidence-based interventions and interventions supported by tobacco control experts have been introduced. However, interventions implemented to date have been much less intensive than advised by experts in tobacco control, with some recommended interventions implemented only partially (eg, tobacco tax increases have been lower than recommended by many tobacco control experts, and mass media campaigns have been insufficiently resourced) or not at all (eg, smokefree cars, restrictions on additives and retail supply).

**Promotion and communication:** In contrast to the other campaigns canvassed here, the Government has not introduced a national campaign to increase public support for the Smokefree Aotearoa 2025 goal.

**Summary of learning from other endgames**

A comparison with previous successful 'endgames' (eradication of hydatid disease and the southern saltmarsh mosquito) and the current campaign to eliminate bovine TB suggests that some of the key best-practice elements are not being adopted for Smokefree Aotearoa 2025. Success factors from other campaigns include developing and implementing an action plan, employing a multi-faceted, cross-departmental approach, and ensuring adequate communication and promotion of the endgame goal.



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## Patterns of smoking in Aotearoa and progress towards the SFA 2025 goal

### Overview and snapshot of smoking

Trends in smoking prevalence and modelling work suggest Aotearoa New Zealand is not on track to achieve the Smokefree Aotearoa 2025 goal. There are wide disparities in smoking, with much higher prevalence among Māori and Pacific peoples, people on low incomes and people with mental illness, for example.

As a result, on current trends the mid-term targets and the goal will be missed overall – and by a large margin for Māori and Pacific peoples. We present here some key current figures and recent trends for smoking in Aotearoa New Zealand.

#### A snapshot of smoking in Aotearoa New Zealand

One in six people (610,000) aged 15 years or over smoke, including one in seven (532,000) who smoke daily

Adolescent smoking has declined over the last 15 years to very low levels but almost one in four people (106,000) aged 18 to 24 years still currently smoke

Māori have the highest rates of smoking among adults and youth

Almost two in five (186,000) Māori adults smoke

More than one in four (57,000) Pacific adults smoke

Māori and Pacific smoking rates have reduced only slowly since 2006

Adults who live in the most deprived areas are more than 3 times as likely to smoke as those living in the least deprived areas.

Source: 2015/16: New Zealand Health Survey.<sup>61</sup> Interactive tool: <https://minhealthnz.shinyapps.io/nz-health-survey-2015-16-annual-update/>

### Overview of progress towards SFA 2025 – trends in prevalence

The most recent New Zealand Health Survey results (2015/16) for smoking prevalence are shown in Table 3 (on the next page). This includes adult current smoking prevalence (smoking at least once a month), daily smoking prevalence and numbers of smokers by ethnic group in 2011/12 (shortly after the Smokefree Aotearoa 2025 goal was adopted) and in 2015/16.

While the absolute numbers of smokers will have been affected by growth in underlying populations, the figures nevertheless have stark implications for the achievement of the Smokefree Aotearoa 2025 goal.

The table shows that the prevalence of smoking (current or daily) has reduced by around 2% in the first four years since the goal was adopted (an absolute decrease of 0.5% per year) with modest absolute decreases among Māori and NZ Europeans, slower decreases among Asians and minimal change among Pacific peoples. Due to increases in populations, the number of Māori current and daily smokers have actually increased during this period.

Table 3: Smoking prevalence for adults, by ethnic group in 2011/12 and 2015/16

Smoking prevalence NZ adults (≥ 15 years)	Current smoking (at least once a month)				Daily smoking			
	2011/12		2015/16		2011/12		2015/16	
	%	number	%	number	%	number	%	number
New Zealand overall	18.2	636,000	16.3	610,000	16.3	567,000	14.2	532,000
Māori	40.2	179,000	38.6	186,000	37.7	167,000	35.5	172,000
Pacific	25.9	52,000	25.5	57,000	22.6	45,000	22.8	51,000
NZ European	16.5	455,000	14.5	418,000	14.6	402,000	12.5	359,000
Asian	9.4	35,000	8.7	39,000	7.9	29,000	7.1	32,000

Source: New Zealand Health Survey 2015/16

The New Zealand Health Survey (NZHS) is the monitoring tool used by the Government to assess progress in reducing smoking. However, there are other nationally-based measures of smoking prevalence, notably the New Zealand Census and the HPA's biennial Health and Lifestyle Survey (HLS). These give slightly more optimistic pictures of recent trends in smoking prevalence. But a review of recent trends, which synthesised findings from the three data sources, concluded that on current trends the mid-term targets for Smokefree Aotearoa 2025 will be missed by a wide margin, particularly for Māori.<sup>62</sup>

### What level of reduction is required to meet the SFA 2025 goal?

If all groups maintained an absolute prevalence reduction of 0.5% per year for the three years to 2018 (assuming the 2015/16 figures are from 2015), the daily smoking prevalence would be as follows:

- 2018: overall 12.7% (government mid-term target 10%), Māori 34% (target 19%), and Pacific 21.3% (target 11%);
- 2025: overall 9.2%, Māori 30.5%, and Pacific 17.8% (target <5% for all).

With a 0.5% per annum rate of absolute reduction, the < 5% target for daily smoking would not be met until 2034 for the whole population, 2051 for Pacific peoples - and 2076 for Māori.

The reductions in smoking prevalence that are required from 2015 to 2025 to achieve 5% or less prevalence are:

- NZ adults (relative -9.9%, absolute -0.9% per annum)
- Māori (relative -17.8%, absolute -3.1% per annum)
- Pacific (relative -14.1%, absolute -1.8% per annum)
- Asian (relative -3.5%, absolute -0.75% per annum)
- NZ European (relative -8.8%, absolute -0.75% per annum)

For all ethnic groups except Asians, these relative

reductions are **4-6 times higher** than the best rates that were achieved in any of ten leading tobacco control countries between 2005 and 2015 (see Table 4 on page 23). This underscores the need for an effective action plan.

### How many smokers need to quit smoking to reach the SFA 2025 goal?

Another approach is to estimate the total reduction required in numbers of smokers to achieve the mid-term targets and < 5% prevalence by 2025. Table 3 shows that the number of daily smokers decreased by only **35,000** in the first four years of the goal, around **9,000 per year**.

Based on Statistics New Zealand median probability population projections,<sup>1</sup> the total number of adults aged 15 years and above will grow from 3.77 million in 2016 to 3.92 million in 2018 and around 4.28 million in 2025.

Hence to achieve the 10% mid-term target figure, we would need to reduce the number of daily smokers by **140,000** by 2018 (around **47,000 per year**) to 392,000.

Importantly, to achieve the < 5% prevalence level, the number of daily smokers would need to reduce by over 300,000 (around 31,000 per year) by 2025 to about 220,000.

The 2014 SHORE report also estimated a reduction of around 30,000 smokers per year was required to achieve the Smokefree Aotearoa 2025 goal.<sup>28</sup> However, because the number of smokers would reduce over time and quitting is likely to occur at a similar rate among the pool of existing smokers, the reduction in number of smokers will likely need to be much higher (over 50,000 per annum) in the early years and fall during later years.

Moreover, the numbers of smokers who will need to successfully quit will be even larger due to the continued influx of new daily smokers. (Although this will be partially balanced by the number of smokers dying each year). In 2013 an estimated **11,000** new young adult young smokers were joining the pool of daily smokers per year

1 Available at: [http://www.stats.govt.nz/browse\\_for\\_stats/population/estimates\\_and\\_projections/NationalPopulationProjections\\_MR2016.aspx](http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/NationalPopulationProjections_MR2016.aspx)



(unpublished data from 2013 NZ Census). The estimates of how many people would need to quit smoking highlight the need to use broad, population-based measures that also rapidly reduce uptake of smoking (as well as helping individual smokers to quit).

### Findings from modelling studies in Aotearoa NZ

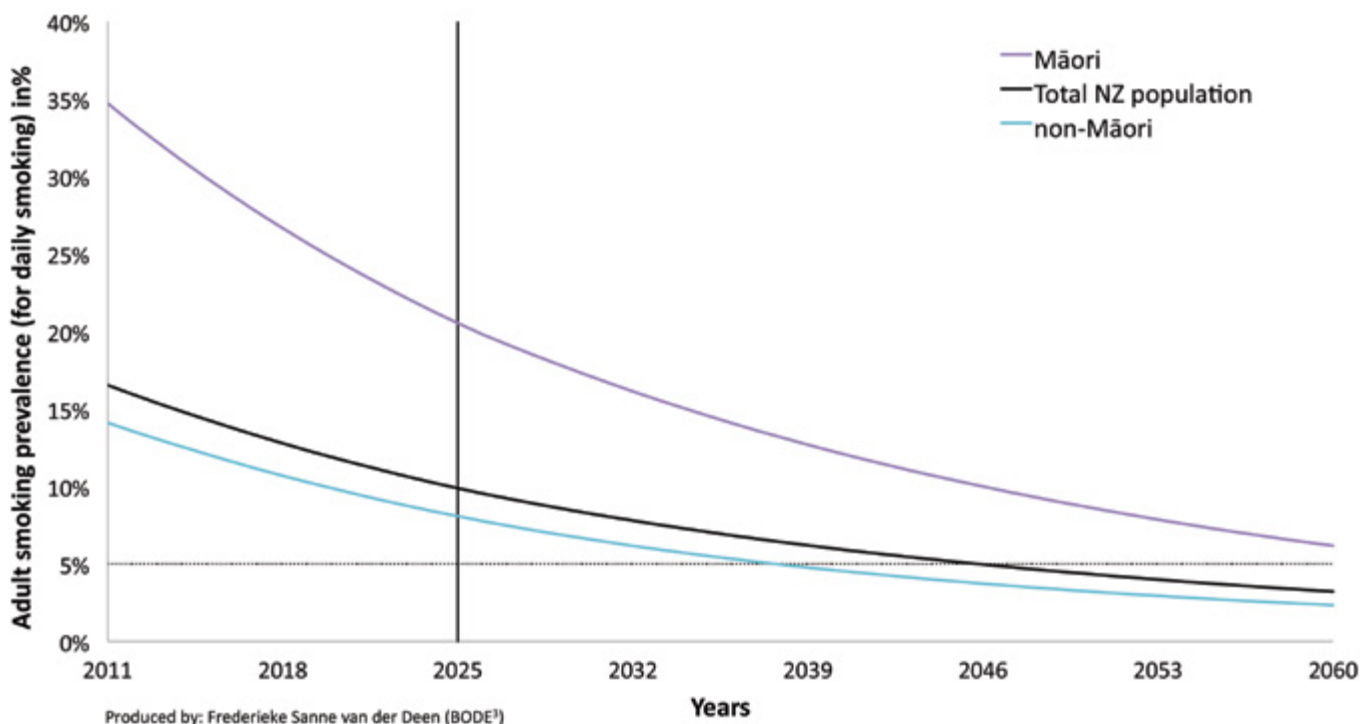
Two recent modelling studies also endorse the conclusion that we are likely to miss the mid-term targets by a long shot, under existing policy settings. One study (based largely on NZHS prevalence data to 2011/12) estimated that prevalence by 2025 would be 21% for Māori males and 33% for Māori females and around 9% for non-Māori men and women.<sup>63</sup>

The most recent modelling study used the more optimistic 2013 NZ Census data, and estimated that prevalence in 2025 would be 19% for Māori men and women, and 8% and 6% for non-Māori men and women respectively.<sup>64</sup>

Under this forecasting scenario, less than 5% smoking prevalence won't be achieved by non-Māori women until the year 2032 and men until 2040. For Māori men and women, the goal won't be achieved until **sometime after 2060**.<sup>64</sup>

The latest modelling projections, displayed in Figure 4, suggest the Smokefree Aotearoa 2025 goal won't be achieved by any ethnic group, with current policies.<sup>99</sup> For Maori, the goal wouldn't be achieved until beyond 2060.

Figure 4: Projected smoking prevalence trends for Māori and non-Māori - with current policies



### Predicted smoking prevalence under various policy scenarios

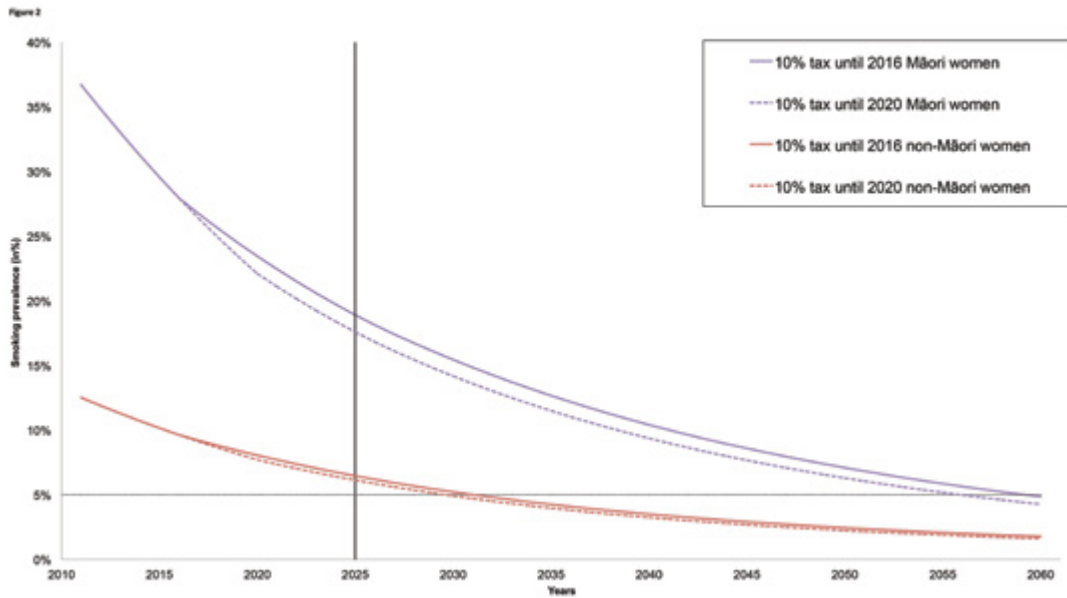
Figure 5 (on page 22) shows projected prevalences up to 2025 and beyond for Māori and non-Māori women (results are similar for men) under two 'business as usual' scenarios – no further tax increases from 2017 and constant tax increases of 10% each year to 2020 (as currently planned). Even with the latter, smoking prevalence for Māori women is forecasted to be around 18% in 2025 and a 5% prevalence is not achieved until 2055.<sup>65</sup>

Figures 6 and 7 (on page 22) show what could happen if a range of robust population-based measures were implemented to reduce the affordability and availability of

tobacco products separately for Māori and non-Māori. The graphs (and Figure 4) are produced by Frederieke Sanne van der Deen and stem from her University of Otago PhD on the future prevalence, health and cost impacts of 'endgame' strategies in New Zealand.<sup>99</sup>

In the 'combined' scenario (20% annual tax increases until 2025, 95% reduction in retail availability and a tobacco-free generation policy), 5% smoking prevalence is achieved before 2025 for non-Māori and by 2032 for Māori (personal communication, Frederieke Sanne van der Deen). This is much earlier than what is projected under current policy settings.

Figure 5: Daily adult smoking prevalence for Māori and non-Māori women in two tobacco taxation scenarios



Source: van der Deen et al N Z Med J. 2016;129(1441):94-97. 65

Figure 6: Daily adult smoking prevalence for Māori in 'business as usual' and various tobacco control intervention scenarios

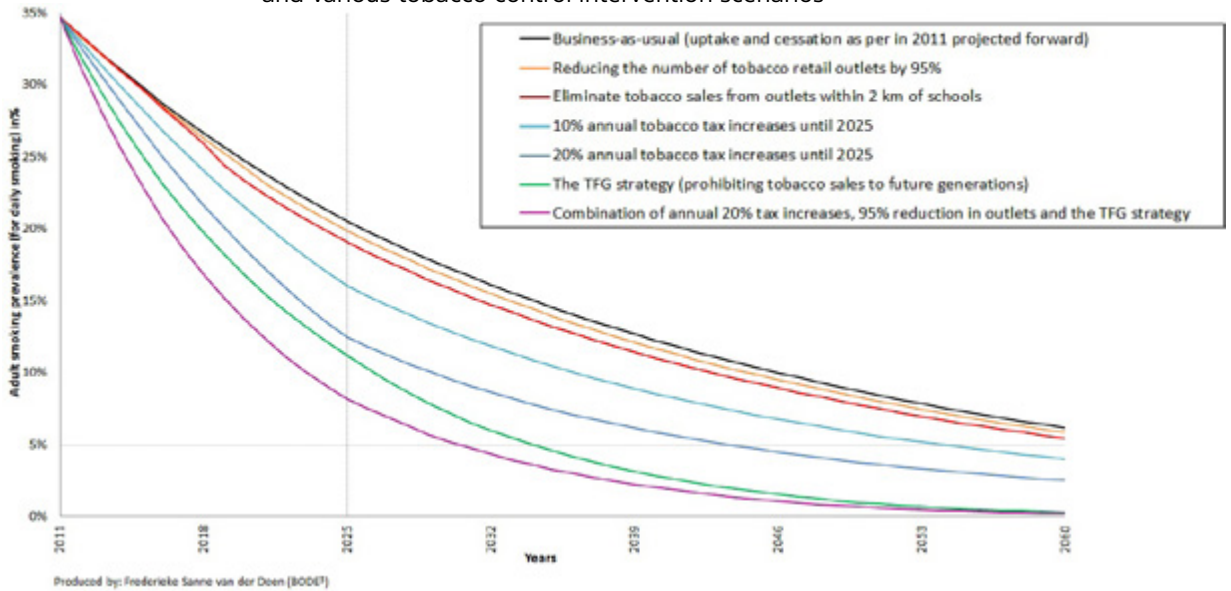
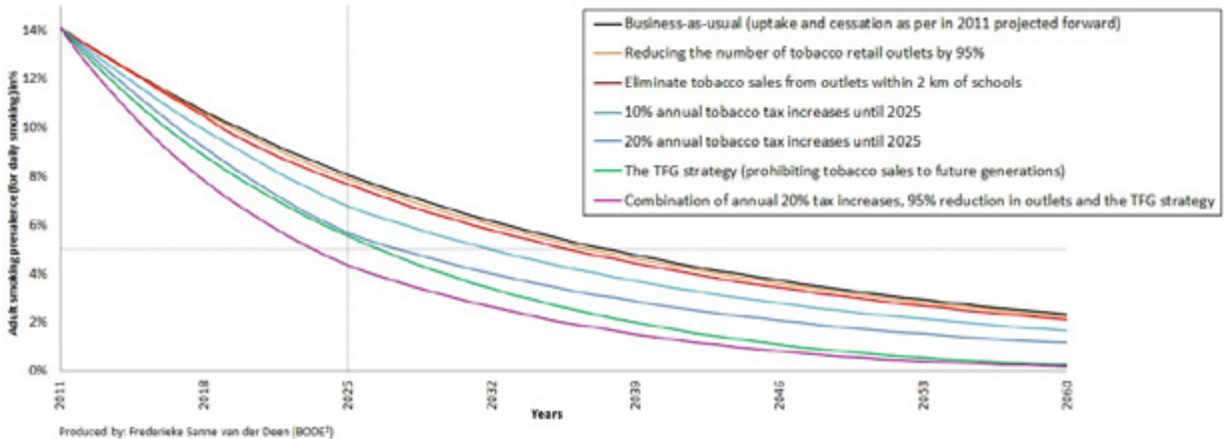


Figure 7: Daily adult smoking prevalence for non-Māori in 'business as usual' and various tobacco control intervention scenarios



In summary, the monitoring data on smoking prevalence present a stark picture indeed. Although the overall smoking rate is generally trending downwards, the decline in smoking prevalence has been slow in recent years, particularly among Māori and Pacific peoples. Large,

unacceptable ethnic disparities in smoking persist. The data indicate that the mid-term smoking prevalence targets will not be met, and that the Smokefree Aotearoa 2025 goal will not be achieved, and will be missed by far for Māori and Pacific peoples in Aotearoa New Zealand.

## Overview of progress towards SFA 2025 – trends in indicators such as quit attempts

As described earlier, tobacco control expenditure in Aotearoa New Zealand focuses on individualised smoking cessation support and smoking cessation medications. The figures presented above suggest that currently well over 30,000 smokers per year need to quit successfully if the Smokefree Aotearoa 2025 goal is to be achieved.

Data is available to assess the current and potential contribution of the main cessation services – the national Quitline and face-to-face cessation support services – to achieving the number of quitters needed to meet the Smokefree Aotearoa 2025 goal.

### Quit attempts supported by the Quitline

Figure 8 displays the number of quit attempts supported by the Quitline (as estimated from the number of enrolments to Quitline services from data provided by the Ministry of Health in response to an Official Information Act request) from 2007-2016. The number peaked at just over 60,000 in 2011, and was around 46,000 in 2014 – the last full year the service was run by the Quit Group. Some of the reduction in 2012-14 from 2010-11 levels may have been due to a narrower definition of enrolment from 2012.

The service was changed from a dedicated quit support service to a quitline within a wider telehealth service (with a new provider) in late 2015. Results from the first year of the new service suggest that the number of supported quit attempts has greatly reduced – to around 23,000 service enrolments in 2016. Numbers may subsequently increase as the service beds in, but so far are similar for the first quarter of 2017.

Previous evaluations have self-reported quit success rates of around 20% at 12 months. However, self-reported quit successes are significantly higher than biochemically validated quit rates, and some 12-month quitters will subsequently relapse to smoking.

A current analysis of the impact and cost-effectiveness of the Quitline assumed a 13% long term quit success rate.<sup>66</sup> That would represent about 8000 smokers helped to quit at peak service enrolments in 2011, reducing to around 6000 in 2014 and 3000 in 2016.

Further, the proportion of Māori smokers among Quitline users averaged around 20% while the service was run by the Quit Group. It has been between 11% and 14% with the new provider, suggesting potentially less targeting of priority groups.

Figure 8: Annual quit attempts (enrolments) through Quitline 2007-2016



It is important to note that the contract for delivery of the Quitline service moved from The Quit Group to Homecare Medical in November 2015. The 2015 figure is therefore a composite of the performance of the two providers and was likely affected by the transition period.

### Quit attempts supported by face-to-face cessation services

The numbers of people who quit smoking through the face-to-face services can be estimated in a similar way. Following the realignment there was a switch to new contracts (and many new providers) in June 2016, so it is too early to evaluate the performance of the new services.

The number of quit attempts supported by the face-to-face services varied between 8500 and 10,000 during the years from 2011-12 and 2014-15, with a projection of around 8,500 based on figures for the first nine months of 2015-16 (data from monitoring reports provided by the Ministry of Health through an OIA request).

The proportion of Māori smokers using face-to-face cessation services is high (over 50%), reflecting the strong Māori focus of many of these services.

Long-term quit rates through these services are uncertain, but if these are assumed to be around 20%, up to 2000 smokers quit through face-to-face cessation services each year.

### Summary and implications of quit attempt estimates and trends

Summing up, these figures suggest that at the peak of the Quitline's impact, the number of smokers quitting through cessation services may have been around 10,000 per year, but is currently closer to 5,000 per year due to reduced numbers quitting through Quitline. Both of these figures are far short of the required numbers needed to quit each year if Smokefree Aotearoa 2025 is to be achieved. This is despite the large investment in these cessation support-focused interventions.

It is important to note, though, that only a minority of quit attempts are supported by Quitline and the face-to-face cessation services. For example, in the 2012/13 Tobacco Use module of the New Zealand Health Survey,<sup>67</sup> only 12% of smokers (who had tried to quit) used Quitline or face-

to-face services in their most recent quit attempt. The vast majority of people who quit do so without the help of formal cessation services - they quit 'cold turkey'.

Other authors have noted that the role of assisted quitting (through service provision) in achieving population smoking prevalence reductions is likely to be modest.<sup>68</sup> For example, estimates of the proportion of unassisted quitting (without the help of a service) varied from 54% to 69% in a recent systematic review of Australian studies.<sup>69</sup>

The evidence suggests that improvements in assisted quitting services will not be able to provide the increase in cessation required to reduce smoker numbers sufficiently to achieve the Smokefree Aotearoa 2025 goal. In contrast, intensified population-based measures may be able to do so, such as those suggested in our action plan to reach the goal.

Population-based measures, such as mass media campaigns and tobacco tax increases, have the advantage that they will increase the overall level of quit attempts - and hence will drive increases in unassisted (the majority of quit attempts) as well as assisted quitting. Wider availability of e-cigarettes may also support an increase in quit attempts and assisted and unassisted quitting among existing smokers. However, uncertainty remains about the impact of e-cigarettes on long-term quit success. Population-based measures may also reduce smoking uptake (which individual cessation services will not). Hence the main driver for achieving the accelerated reductions in smokers numbers that is required to achieve Smokefree 2025 is likely to be population-based interventions that create an environment that simultaneously promotes and supports quitting, reduces relapse among quitters and decreases smoking initiation.

### Positive signs for the SFA 2025 goal

Despite the evidence of slow progress, there are some positive signs that suggest that the goal is reachable, if efforts to achieve it are intensified and appropriate tobacco control interventions are introduced.

**The first is the evidence that most smokers intend to quit and most have recently made a quit attempt.**

For example, in preliminary analysis of data from the current ITC cohort study of 1070 smokers and recent quitters, over half of current smokers had tried to quit in the previous year, and 76% stated they intended to quit, including 41% in the next six months (Edwards and colleagues, preliminary unpublished data).

Findings for quit attempts in the previous year from the HPA HLS are shown in Figure 9 (on page 25) for Māori participants (the findings are similar for non-Māori). These data strongly suggest that most smokers want to quit and are actively trying to quit.

Tobacco control interventions that provide a supportive environment to further enhance motivation to quit, trigger quit attempts and reduce the risk of relapse, as well as interventions that enhance smoking cessation support, are therefore likely to accelerate declines in smoking prevalence.

Secondly, consumption data for tobacco products (cigarettes plus cigarette equivalents for roll-your-own sales) continues to show a steady decline. Figure 10 (on page 25) shows sales data from supermarkets and garages from 2011-2016.

**This pattern of steadily declining consumption suggests that the recent tax increases are having an effect on reducing consumption in Aotearoa New Zealand, as has been found in numerous international studies.<sup>71</sup>**

Thirdly, Aotearoa has achieved large, sustained reductions in adolescent smoking uptake - and smoking among young adults is also in decline.

Figure 11 (on page 25) shows how regular smoking (at least monthly) among 14/15 year olds school students has declined dramatically among all ethnic groups since 2002, and is now less than 5% in all except Māori and Pacific students.

The past decade has also seen a major decrease in adolescent (<18 years) smoking rates.

**Between 2006/7 and 2015/16, the NZHS figures show that the largest absolute and relative reduction in current smoking rates was for adolescents aged 15-17 years, for whom the rate has more than halved from 15.7% in 2006/07 to 6.1% in 2015/16.**

This suggests that the number of new smokers joining the pool of adult smokers may decline rapidly over time. This would result in a permanent reduction in prevalence in the longer term,<sup>72</sup> and would ensure that once a very low prevalence of smoking is achieved, it would be sustained. However, due to large smoking uptake among young adults aged over 18 years (see below) this low-uptake scenario has not yet been reached in Aotearoa New Zealand and new smokers continue to be added to the total of existing smokers in large numbers.

Fourthly, there is a 'common-sense' view that a growing proportion of the remaining smokers will be heavily addicted, hardened, long-term smokers with low motivation and intention to quit. This is sometimes called the 'hardening' hypothesis, and if true would suggest it will get more and more difficult to reduce smoking further as prevalence declines and the Smokefree Aotearoa 2025 goal is approached. However, there is little evidence to support this theory, from most,<sup>73-76</sup> but not all,<sup>77</sup> overseas studies or from Aotearoa New Zealand studies.<sup>78</sup>

Finally, while there are wide disparities in smoking, with population groups such as Māori, people living in the most deprived areas and people with mental illness having much higher smoking rates,<sup>67</sup> there are also groups of the population that already have very low smoking prevalence.

**Some are already below or close to 5%.**

These include demographic groups such as adolescents aged 15-17 years, older adults (>70 years), people living in the least deprived neighbourhoods (NZDep 1 and 2) and Asian women.<sup>79</sup>

There also many occupational groups that have achieved <5% prevalence (Table 5) or are close to it (data not shown) (Danny Tu, preliminary unpublished data).

Figure 9: Number of quit attempts in previous year, Māori smokers and recent quitters, 2008-2014 (HPA Health and Lifestyle Survey)

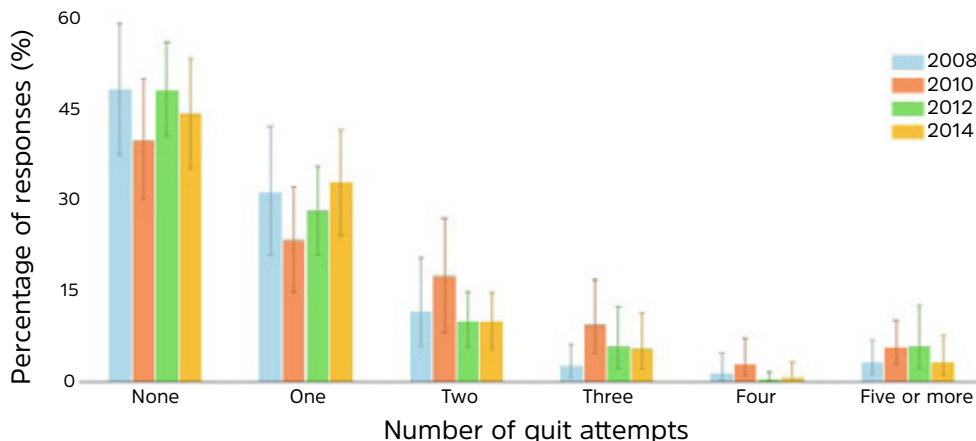


Figure 10: Sales data from Aotearoa New Zealand supermarket and service stations (From AC Nielson data)<sup>1</sup>

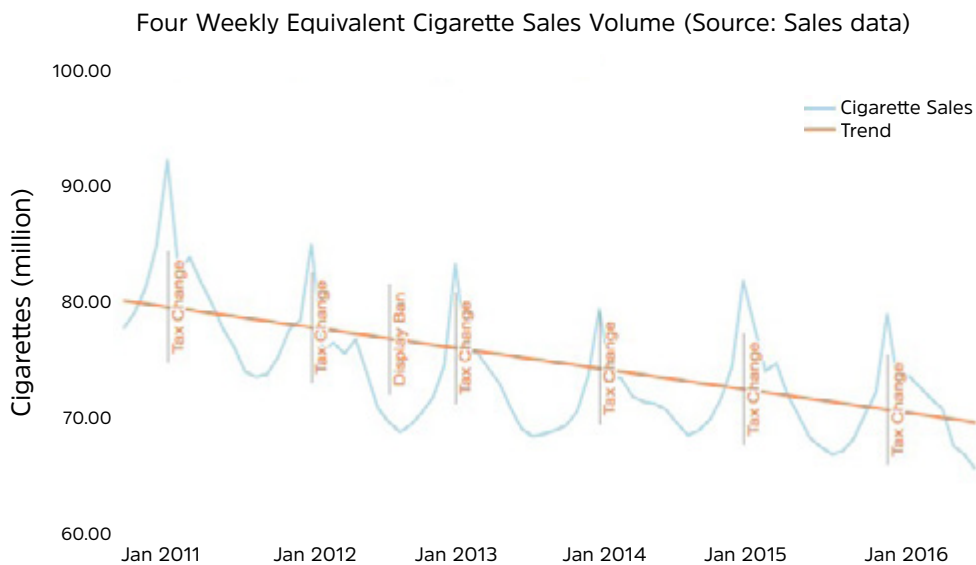
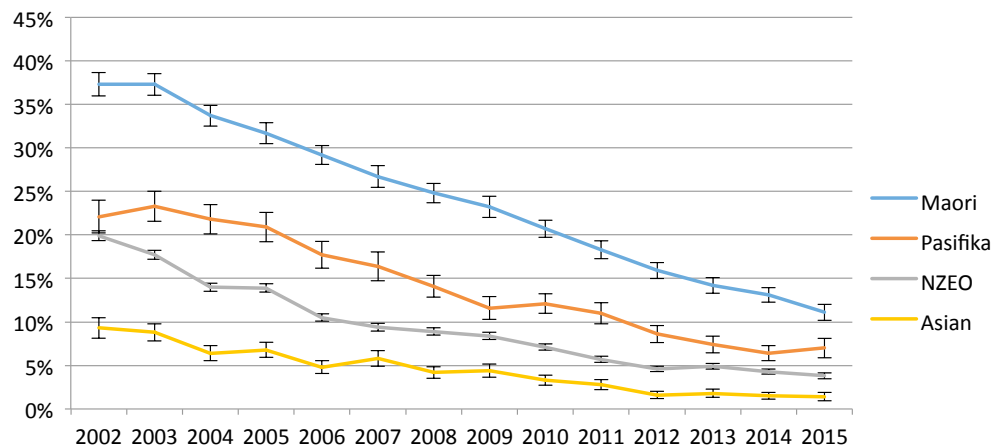


Figure 11: Regular smoking by prioritised ethnicity 2002-2015 (Source: ASH Year 10 Survey)



<sup>1</sup> Graph prepared using Tobacco Control Data Repository, available at: <http://www.tcdata.org.nz/>



Table 5: Occupational groups with smoking prevalence < 5% in 2013 NZ Census

	Smoking prevalence (%)		Smoking prevalence (%)
Aircraft Pilots and Related Workers	5	Judges	3.8
Geologists and Geophysicists	4.9	Microbiologists and Related Professionals	3.4
Philologists, Translators and Interpreters	4.9	Non-ordained Religious Associate Professionals	2.4
Mathematicians, Statisticians and Related Professionals	4.6	Dentists	2.3
Secondary Teaching Professionals	4.6	Veterinarians	2.3
Psychologists and Psychotherapists	4.5	Medical Doctors	2.1
Architects and Resource Management Professionals	4.4	Physicists	1.9
Meteorologists	4.3	Other Health Professionals (Except Nursing)	1.9
Proof-Reading and Related Clerks	4.3	Religious Professionals	1.8
Physiotherapists	4.1	Pharmacists	1.6
Musical Instrument Makers and Tuners	4	Dietitians and Public Health Nutritionists	1.5

Although these are selected groups, this provides evidence that very low smoking prevalences can be achieved. But the challenge of generalising this to all sections of the population remains.

## Relevant features of Aotearoa NZ tobacco use for SFA 2025

There are some striking features of tobacco use in Aotearoa New Zealand that are relevant to planning interventions to achieve the Smokefree Aotearoa 2025 goal.

### High uptake of smoking among young adults (18-24 years)

Firstly, although smoking prevalence among adolescents and young adults aged less than 18 years has reduced dramatically in recent years (see above), there is still a **substantial smoking uptake among young adults aged greater 18 years or older.**

Although there have been recent declines in the 18-24 year age group, smoking prevalence remains far too high among this age group, particularly among Māori.

As a result, thousands of new smokers continue to be added to the pool of adult smokers every year, adding smokers to those who will need to quit for Smokefree Aotearoa 2025 to be achieved. This represents an enduring failure to protect young people from becoming addicted to a highly hazardous product that will kill over half of those who continue to smoke long term. It also represents an opportunity:

if uptake in this group can be prevented, then the supply of new smokers should more or less 'dry up' as there is evidence that uptake after 25 years of age is now minimal in Aotearoa New Zealand.<sup>80</sup>

Current smoking prevalence in the NZHS among 18-24 year olds has declined (27.7% in 2006/7, 27.3% in 2011/12 and decreasing to 22.7% in 2015/16).<sup>61</sup> Figure 12 (on page 27) shows the patterns of smoking by individual ages between 15 and 24 years in the 2006 and 2013 Censuses. The graph shows that prevalence has declined markedly for all ages in this age-range between 2006 and 2013. It also shows

that smoking uptake occurs rapidly between 15 and 18 years of age, reaching around 22% by age 23-24 years in 2013. This represents over **11,000** new daily smokers joining the total pool of smokers each year.

The equivalent data is shown for Māori (Figure 13) and Pacific peoples (Figure 14) below.

These graphs display similar patterns, but the prevalence is much higher for Maori and Pacific youth – reaching 42% among Māori and 33% among Pacific by 24 years of age. This represents about 3500 Māori and 1400 Pacific smokers joining the pool of smokers each year.

These figures strongly suggest that efforts to reduce uptake should be focused on the 15-24 years age group, and that the impact of preventive tobacco control interventions should be evaluated within these age groups. In particular, interventions must be specifically evaluated for their effectiveness with Māori and Pacific young people.

### Māori women have high smoking prevalence

One feature of smoking in Aotearoa New Zealand is the very **high rate of smoking among Māori women**.

Māori women are more likely to be current smokers than Māori men. Almost 40% of Māori women currently smoke, compared with less than 15% of women in the overall population.<sup>81</sup> In the 2013 Census the highest smoking prevalence (43.1%) of any age/gender group was among young Māori women aged 25 to 29 years, and more than 40 percent of Māori women of childbearing age (20-44 years) smoke regularly.<sup>79</sup> Use of tobacco within two weeks after giving birth from 2009-2015 varied between 12% and 14% for the overall population but between 32% and 34% for Māori women. There were only minimal decreases in prevalence during this period.<sup>81</sup>

Māori women also have a relatively high prevalence of smoking during pregnancy. Given the proven adverse impacts of smoking in pregnancy on maternal and foetal outcomes, the benefits of smoking cessation among women of child-bearing age (and even short-term cessation during pregnancy) will be extremely high. Hence interventions, including targeted smoking cessation support, to reduce smoking among women of child-bearing age and during pregnancy should be a high priority. The needs, experiences and preferences of Māori women, specifically, in relation to smoking and quitting must be prioritised. It is vital to

Figure 12: Daily smoking prevalence (all ethnic groups) between 15 and 24 years of age (2006 and 2013 NZ Census)

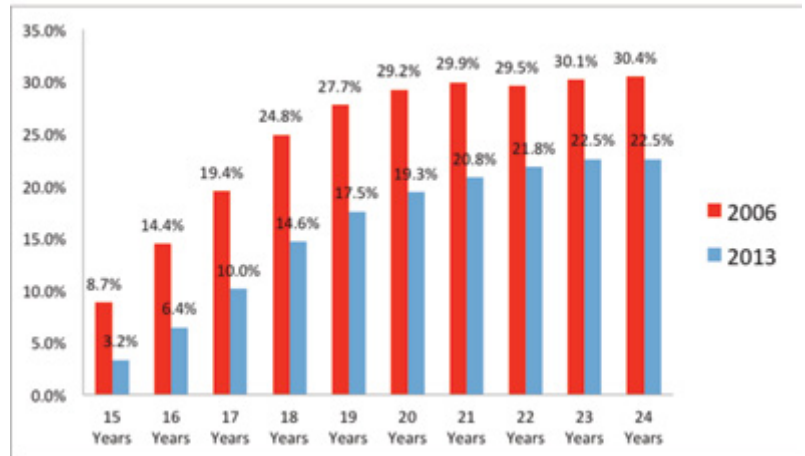


Figure 13: Daily smoking prevalence among Māori between 15 and 24 years of age (2006 and 2013 NZ Census)

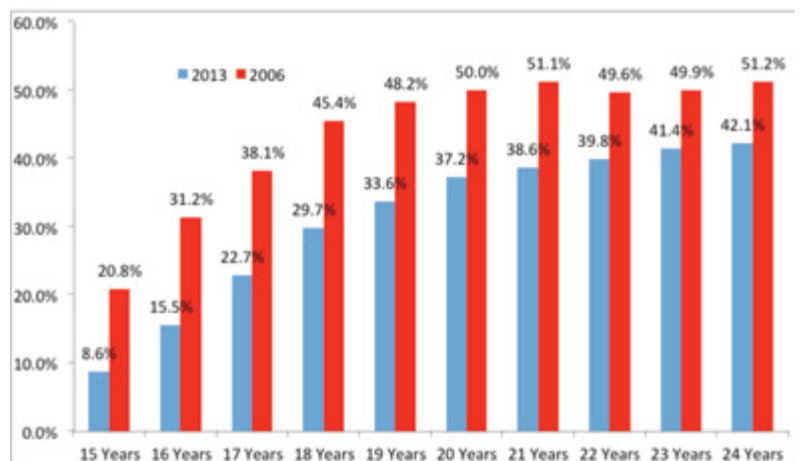
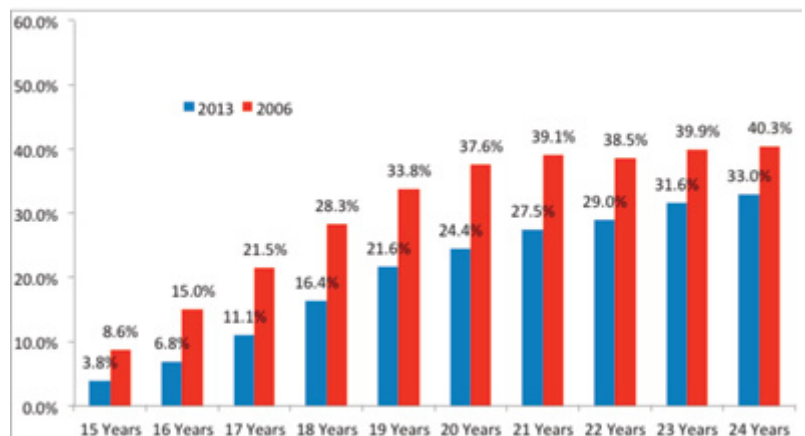


Figure 14: Daily smoking prevalence among Pacific Peoples between 15 and 24 years of age (2006 and 2013 NZ Census)





work with iwi and Māori communities to prevent young Māori women from starting smoking, and to assist those currently smoking to quit.

### High use of roll-your-own tobacco

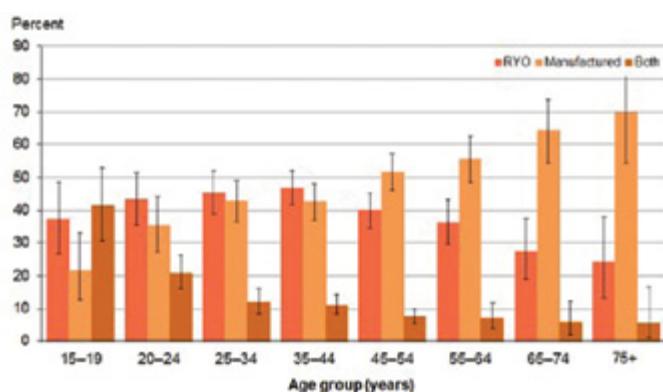
Another feature of tobacco use in Aotearoa New Zealand is the **high proportion of smokers using roll-your-own (RYO) tobacco**. This is strongly patterned by age and also by ethnicity.

Figure 15 (below) displays data from the 2011/12 NZHS Tobacco Use module describing the proportion of current smokers using RYO tobacco by age group.<sup>67</sup> As age increases, there is a steady increase in the proportion of smokers using exclusively manufactured cigarettes. Conversely, a far greater proportion of young adults smoke either exclusively RYO or a mixture of RYO and manufactured cigarettes.

Use of RYO tobacco is greater among Māori (but less among Pacific smokers), and greater among more deprived smokers.<sup>67, 82</sup> The main reason given by adult smokers for using RYO is the lower price – 83% in the 2007/8 ITC cohort of smokers, and 82% and 74% in 2016/17 (Edwards and colleagues, unpublished preliminary data).

RYO use is also common among adolescents who smoke. For example, of adolescent smokers (who stated a usual type of cigarette smoked), around 50% mostly smoked RYO in a 2013 study. For adolescents, RYO use was higher among regular smokers than intermittent smokers, suggesting that RYO may be particularly important in the transition to regular smoking.<sup>83</sup>

Figure 15: Type of cigarettes smoked by age group (Source: 2012/13 NZHS Tobacco Module)<sup>67</sup>



These data suggest that interventions that specifically make RYO tobacco more expensive or less appealing may be particularly effective for reducing smoking among Māori, youth and young adults, and people on low incomes.

### Alcohol is closely linked with smoking

Another aspect of tobacco use in Aotearoa New Zealand is a **high level of alcohol use among smokers**. In the 2012/13 NZHS tobacco module, hazardous drinking was almost three times greater among smokers than non-smokers, and over half of smokers aged 15-34 years and Māori and Pacific smokers of all ages engaged in hazardous drinking.<sup>67</sup> Very similar findings were reported in the NZ ITC survey in 2007/2008.<sup>84</sup>

Qualitative studies with young people have found that a common pattern when young adults start smoking is that smoking occurs mainly when socialising and drinking with friends in bars and pubs. This suggests that alcohol use may increase the risk of young people experimenting with smoking and becoming regular smokers.<sup>85</sup>

Consequently, tobacco control interventions in pubs and bars (eg, making outdoor areas smokefree or stopping sales of cigarettes in these settings), and also more general measures to reduce hazardous alcohol intake, may help to prevent young adults starting to smoke, while also helping existing smokers to quit or reduce risk of relapse among quitters.

### Mental health is closely linked with smoking

**Smoking is more common among people with diagnosed mental health conditions or worse mental health.** The strong association of tobacco smoking with mental illness is well documented internationally,<sup>86</sup> including with severe mental illness such as schizophrenia.<sup>87</sup> For example, in a large population-based study from the US smoking was around three times higher in people with a psychiatric diagnosis.<sup>88</sup> In an Australian survey, smoking prevalence among patients with psychosis was 67%.<sup>89</sup> Smoking-related diseases contribute markedly to the much poorer health and greater mortality suffered by people with mental illness.<sup>90</sup>

The evidence available from Aotearoa New Zealand also shows that smoking is strongly associated with mental illness. In Te Rau Hingengaro New Zealand Mental Health Survey, the prevalence of smoking was 32% among participants with a mental health disorder compared with 21% in the rest of the population.<sup>91</sup> The proportion among people with substance use disorder was 56%.

In the 2012/13 NZHS, there was a 1.5 to 1.6 times higher prevalence of diagnosed mental health conditions among smokers compared with non-smokers, with almost a quarter (24%) of current smokers reporting one or more diagnosed mental health conditions (depression, bipolar disorder, anxiety disorder, an alcohol-related disorder or a drug-related disorder) compared to 15% of non-smokers.<sup>67</sup>

An estimated 33% of all cigarettes in this country are smoked by people with mental illness.<sup>92</sup> There is evidence from an Aotearoa New Zealand prospective study that mental health deteriorates after starting smoking.<sup>93</sup>

A systematic review found clear evidence that smoking cessation results in improved mental health among people with and without mental illness.<sup>94</sup> However, the evidence about what works to support cessation for this group of smokers is limited,<sup>95</sup> and international studies suggest quitting rates and declines in prevalence are often lower.<sup>96</sup>

One of the reasons for high smoking prevalence among people with mental illness is that mental health services may not provide a smokefree environment and sufficient encouragement and support for smokers to quit. A qualitative study of mental health services in Aotearoa New Zealand found that only a minority of organisations had a smokefree culture.<sup>97</sup> Barriers identified to creating such a culture included high smoking rates among staff, negative staff attitudes to becoming smokefree, poor knowledge of nicotine dependence, smoking-related harm and smoking among psychiatric nurses – 17% compared with 8% for all nurses in the 2013 NZ Census (Edwards et al, submitted for publication).

Therefore, a strong case can be made for a focus on encouraging and supporting smoking cessation among people with mental illnesses and worse mental health.

Mental healthcare services may be important settings for interventions that aim to create smokefree environments and cultures, and to ensure readily accessible and appropriate smoking cessation support.

### Some occupations have high smoking prevalence

As well as the occupational groups with low smoking prevalence noted above, there are also some **occupational groups with much higher smoking prevalence**, particularly among Māori. Selected examples of high prevalence occupations with the greatest number of smokers are provided in Table 6 (Edwards and colleagues, preliminary unpublished data). There are also some occupations who by virtue of their role or status may be particularly influential – for example, teachers and health professionals. Some of these occupations continue to have significant levels of smoking, particularly among Māori. For example, 19% of Māori nurses, 27% of Māori early childhood workers and 16% of Māori primary school teachers smoked at the time of the 2013 census (preliminary unpublished data).

Workplaces have been identified as a potential setting for smokefree interventions including cessation support.<sup>98</sup> The high prevalence of smoking concentrated in particular occupational groups suggests that the workplace settings may be an important setting for smokefree interventions, such as educational campaigns and targeted cessation support.

Table 6: Occupational groups \* with high smoking prevalence in 2013 NZ Census

	Smoking Prevalence - % (N)	
	Māori	Non-Māori
Other agricultural workers	50.8 (894)	21.8 (894)
Fruit growers	47.0 (729)	15.3 (1530)
Meat & fish process machine ops	44.7 (2004)	29.4 (2583)
Forest workers and loggers	44.3 (786)	29.5 (822)
Packers and freight handlers	43.7 (1716)	21.6 (3492)
Caretakers and cleaners	43.7 (2682)	20.1 (6147)
Building and related workers	43.4 (858)	31.5 (2145)
Machine tool operators	42.8 (594)	24.5 (1776)
Lifting truck operators	42.8 (522)	31.2 (972)
Cooks	42.0 (966)	24.2 (4836)
Labourers	41.3 (3957)	25.3 (8898)
Earth mover and related machine ops	40.9 (519)	29.3 (1353)
Painters and paper-hangers	39.0 (603)	27.4 (2913)
Personal care workers	37.4 (2211)	17.8 (6390)

Occupations highlighted in orange are those with the highest number of smokers

## Comparison with progress in other countries

Our progress towards eliminating tobacco can be compared with progress in other high-income countries. Here we compare Aotearoa New Zealand to other countries that are leaders in tobacco control and that share a similar history of previously high levels of smoking among men and women.

Table 4 sets out the estimated daily smoking prevalence in 10 countries in 2015 and recent annual percentage reductions in smoking prevalence for men and women. This is from a recent analysis by the Global Burden of Disease study team.<sup>70</sup> Other countries that have endgame goals include Finland, Ireland and Sweden (in the UK, only Scotland has adopted an endgame goal). Also, the latest available national survey daily (or current where daily is not available) smoking prevalence is

reported. The figures for the latest survey (see the right-hand column below) are not directly comparable due to differences in survey year, age range of participants and use of current (rather than daily) smoking in the UK and US data.

The table shows that Aotearoa New Zealand experienced one of the largest (ranked 2nd) declines in female smoking between 2005 and 2015, and ranked in the middle for recent declines in male smoking prevalence. Estimated male and female smoking prevalence in 2015 were both ranked 7th-lowest, while prevalence in the latest survey was 6th-lowest for females and 5th-lowest for males.

Yet, smoking prevalence in Aotearoa New Zealand, based on the 2015/16 New Zealand Health Survey, remains much higher than in the leading countries (Canada, Sweden and Iceland) for both males and females.

Table 4: Daily smoking prevalence and recent changes in prevalence in 10 leading tobacco control countries

Country	GBD daily smoking prevalence (%) estimates, 2015		GBD estimates of annual % decrease in prevalence, 2005-15 (%) data (year)		Latest national survey daily smoking prevalence	
	Female	Male	Female	Male	Female	Male
Australia	13.3	15.6	-1.9	-2.2	12.1	16.9
Canada	12.4	14.5	-1.4	-1.6	7.9	10.9
Finland	15.5	19.3	-0.4	-1.3	14.0	17.0
Iceland	14.4	14.5	-2.2	-2.8	11.1	10.9
Ireland	21.9	20.6	-0.3	-1.4	19.0	19.0
New Zealand	14.9	16.3	-2.5	-2.1	12.9	15.6
Norway	14.8	15.0	-2.4	-3.1	11.0	13.0
Sweden	11.4	10.3	-3.1	-1.4	10.0	8.0
UK	18.1	19.9	-1.2	-0.9	14.1	17.7
USA	11.7	14.4	-2.0	-2.4	13.6	16.7

Sources: Global Burden of Disease estimates: Global Burden of Disease Collaboration, The Lancet - Published online April 5, 2017.70

**Latest national prevalence surveys:** Data sources, age ranges and year of data collection for the national surveys of smoking prevalence are as follows. Australia - Australian Bureau of Statistics, *National Health Survey*, 18 years and over, 2014-15; Canada - Canadian Tobacco Alcohol and Drugs, 18 years and over, 2015; Finland - Health Behaviour and Health among the Finnish Adult Population, 15-64 years, 2014; Iceland - Iceland Health Interview Survey, 15-79 years, 2015; Ireland - Healthy Ireland Survey, 15 years and over, 2016; New Zealand - NZ Health Survey, 15 years and over, 2015/16; Norway - Statbank data, 16-74 years, 2016; Sweden - National Public Health Survey, 16-84 years, 2016; UK - Annual Population Survey, 16-84 years, 2016 (current smoking), USA - National Adult Tobacco Survey, 18 years and over, 2015 (current smoking).

# CONCLUSION

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This review reveals that current progress towards Smokefree Aotearoa 2025 is insufficient. Despite the implementation of some excellent national and local interventions and initiatives, current and planned actions will not achieve the 2025 goal.

We conclude that urgent and comprehensive population-wide action is needed if Smokefree Aotearoa 2025 is to be achieved for all population groups in Aotearoa New Zealand. It is crucial the goal is reached for Māori and Pacific communities, who are affected by large, unacceptable health disparities at present. These disparities have persisted for decades without sufficient political action.

The time to act is now. The necessary actions are set out in the accompanying action plan for Smokefree Aotearoa 2025.

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