



Why the New Zealand Government should reconsider abandoning denicotinised cigarettes

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Summary

New Zealand is the first country to enact legislation to “denicotinise” cigarettes to minimally addictive levels. The decision drew on strong scientific evidence that denicotinising cigarettes leads to significant reductions in cigarette smoking and dependence, and increased quit attempts and quit success. These benefits occur with few adverse consequences; participants in clinical trials do not compensate for the lower levels of nicotine by smoking more and nor do they suffer severe withdrawal symptoms. Research suggests denicotinising cigarettes will also accelerate switching to alternative products such as vaping devices resulting in reduced exposure to toxicants. Critics’ unsubstantiated concerns about growth in illicit tobacco are almost certainly greatly exaggerated, particularly given strengthened enforcement activities introduced by the previous government and the availability of viable alternative sources of nicotine. The public health benefit of denicotinising cigarettes is likely to be profound. Repealing this measure risks seeing around 5000 New Zealanders continue to die every year from smoking and a persistence of associated health inequities.

Introduction

The history of tobacco control is rich with initiatives once thought of as impossible but later seen as visionary as measures become established best practice (e.g., Ireland with smokefree environments; Australia with plain packaging). Today, New Zealand stands at the forefront of implementing world-leading ‘endgame’ actions with the potential for a ripple effect that could greatly reduce the global devastation smoking causes. At the centre of the New Zealand plan is denicotinisation – rendering cigarettes minimally or non-addictive by reducing their nicotine content to a maximum of 0.8 mg/g; a reduction of over 90% compared to a regular cigarette.

Robust evidence to support denicotinising cigarettes.

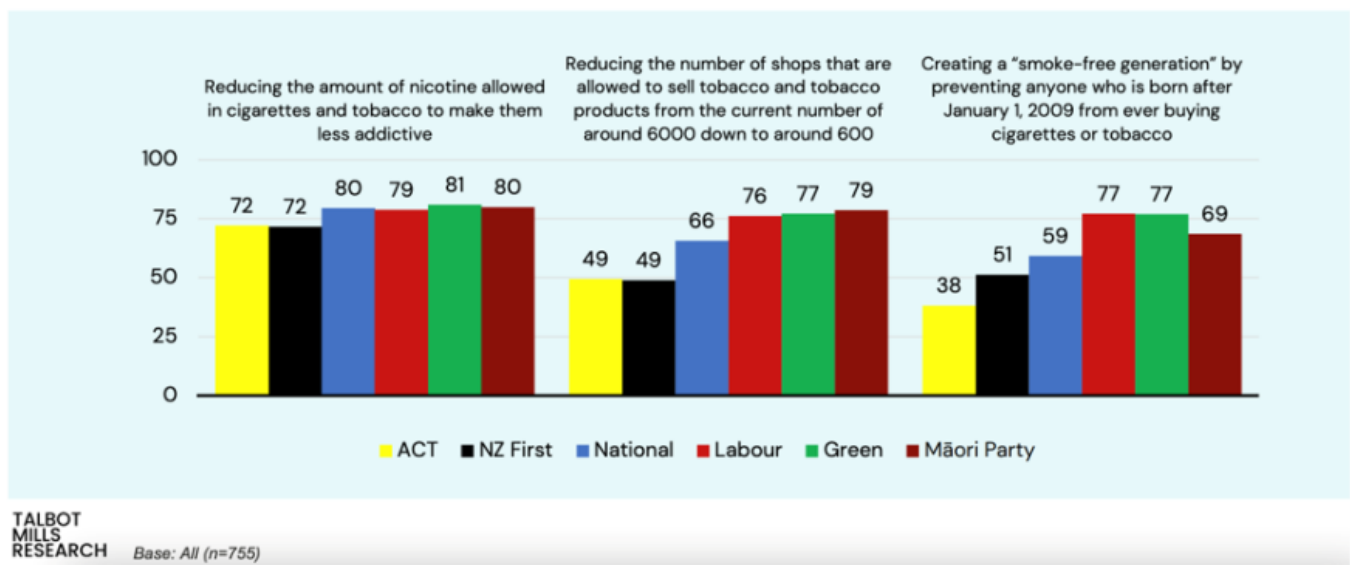
Nicotine is the main cause of addiction to *smoked* tobacco products, driving repeated and prolonged exposure to over 7000 chemicals including about 70 carcinogens.¹ The tobacco industry has harnessed the addictive power of nicotine by researching and manipulating nicotine content and delivery.² The nicotine in tobacco can be greatly reduced (e.g. by chemical extraction or gene editing) to produce very low nicotine cigarettes (VLNCs).

Denicotinisation would also almost certainly reduce the development of dependence among adolescents.³ Extensive data from trials with people who smoke provided with VLNCs shows they smoke fewer cigarettes, have lower exposure to toxicants, reduced satisfaction with smoking and dependence,^{4,5} and increased quit rates.⁶⁻⁸ These observations are seen regardless of sex or gender, race/ethnicity, age, mental health status, and education or socioeconomic status.^{9,10} This means the greatest benefits from denicotinising cigarettes would likely occur among populations with high smoking rates such as Māori, thus closing the existing health inequities gap.¹¹ Modeling studies suggest denicotinisation would save many life years and avert numerous smoking related deaths.^{11,12}

Broad support for reducing nicotine in cigarettes.

Support for reducing nicotine in cigarettes is high among people who smoke. Surveys conducted in United Kingdom, Canada, United States, Australia showed that 57-70% agreed with reducing nicotine in cigarettes so they are less addictive.^{13,14} Among people familiar with VLNCs through smoking them during a clinical trial, 60.8% supported denicotinisation and only 18.7% opposed this measure.¹⁵ Within Aotearoa New Zealand [people who smoke](#), [young people](#) and [the general population](#) also endorse denicotinisation. Endorsement came from across the political spectrum, with over 70% of ACT and NZ First voters, and 80% of National voters, supporting this measure (see figure).

Now considering the individual laws, how strongly do you support or oppose each of the following?
(% Total support)



Lack of negative impacts on people who smoke

Some opponents claim denicotinisation will cause harm by increasing distress among people who smoke. The data do not support this concern. For example in a trial of VLNCs with people with elevated depression smoking VLNCs did not worsen symptoms.¹⁶

Others argue denicotinisation will result in compensatory smoking as people try to maintain their nicotine intake. However, to maintain their nicotine consumption, people smoking denicotinised cigarettes would typically have to consume almost 10 times as much smoke, a level few would tolerate. Indeed, evidence from thousands of participants in clinical trials suggests that people smoke **less**, not more, when switched to denicotinised cigarettes and, consequently, are exposed to fewer toxicants.^{6,17-22}

Reduced nicotine in cigarettes will likely accelerate switching to less harmful products.

When allowed access to alternative nicotine products such as e-cigarettes people who smoke assigned to only smoke denicotinised cigarettes used significantly more e-cigarettes than those assigned to smoke typical nicotine content cigarettes.²³ Greater use of e-

cigarettes was associated with reduced smoking, toxicant exposure and increased days abstinent. Because non-tobacco nicotine products like e-cigarettes are associated with reduced exposure to carcinogens and toxicants, completely switching to these products will likely reduce health risks compared to cigarette smoking.²⁴

Supply of and demand for illicit cigarettes can be mitigated

The tobacco industry, [echoed by the NZ Prime Minister](#), has stated that denicotinisation will greatly increase illicit tobacco supply. There is no direct evidence for this claim. As denicotinisation dramatically reduces smoking prevalence, and thus tobacco consumption, the size of the illicit market will logically continue to shrink, as it did [by an estimated 27% between 2019-2022](#). Any risk of increased illicit tobacco supply can be addressed by enhanced surveillance and enforcement, measures the previous government put in place.²⁵ Having vaping products available as alternative sources of nicotine could further mitigate the risk of increased demand for illicit tobacco, though regulatory frameworks need to also minimize the risk of young people taking up vaping.

Maximising public health benefit

Denicotinising cigarettes should be implemented together with measures that maximise encouragement and support for quitting such as enhanced access to smoking cessation services and supportive social marketing campaigns. The latter should explain that denicotinisation reduces the addictiveness but not the harms of smoking, and people benefit through quitting, not because VLNCs pose fewer health risks. Presenting vaping as a reduced risk alternative to smoking should also continue to encourage switching among people who cannot quit their nicotine addiction.

Conclusion

Countries like New Zealand that are considering denicotinising cigarettes and other combustible tobacco products are on the cusp of dramatically reducing tobacco-related death and disease. Denicotinisation will almost certainly greatly accelerate equitable reductions in smoking prevalence.

Unfortunately, the NZ government proposes to repeal all of the three key measures in the 2022 Smokefree legislation. However, government spokespeople appear most concerned about reducing retailer numbers and implementing a smokefree generation. We believe these are important complementary measures. Nonetheless, given the pivotal role of denicotinisation, a possible compromise would be to proceed with the [plan proposed by the current Health Minister, Dr Reti](#), when he was in opposition. Dr Reti argued strongly that denicotinisation should be implemented first and its impact reviewed before deciding whether to proceed with other interventions. This approach would ensure that the smokefree 2025 goal is achieved for all populations, including Māori; and will bring profound social, health and economic benefits.

What is new in this briefing?

- There is strong evidence that denicotinising tobacco products will result in substantial reductions in smoking prevalence.
- Denicotinisation is likely to greatly hasten the equitable achievement of the Smokefree Aotearoa goal and have enormous public health, social and economic benefits.

Implications for public health practice and policy

- There is a strong case for the government to implement mandated denicotinisation of smoked tobacco products as soon as possible.

Authors details

[Professor Eric C. Donny](#) has conducted research on nicotine addiction and tobacco product use for over 30 years including over a dozen studies of denicotinized cigarettes involving over 3000 people who smoke since 2006. He was a Visiting Professor at the National Institute on Health Innovation at the University of Auckland in 2016; a consultant for the Secretariat of the World Health Organization Framework Convention on Tobacco Control regarding denicotinising in 2018; and a member of the Low Nicotine Tobacco Technical Expert Group for the Ministry of Health in New Zealand in 2022-2023.

[Professor Dorothy K. Hatsukami](#), has likewise conducted research on nicotine dependence, its treatment and tobacco product regulation (e.g., reducing nicotine in cigarettes) over 40 years. She was a contributor to U.S. Surgeon General's Reports focused on nicotine addiction, has served on a number of U.S. governmental advisory boards including the National Institute on Drug Abuse, the National Cancer Institute and the U.S. Food and Drug Administration Tobacco Product Scientific Advisory Committee. She currently serves as a member of the World Health Organization Study Group on Tobacco Product Regulation.

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