

Review of: "The case for denicotinising tobacco in Aotearoa NZ remains strong: response to online critique"

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This is our reviewers' reply to the response of authors to our initial Qeios review.

We thank the authors for their constructive and timely response [Edwards et al., 2022](#)^[1] to our Qeios review ([Bates et al., 2022](#))^[2] of their modelling of the denicotinisation mandate under consideration in New Zealand [Quakrim et al., 2022](#)^[3].

Summary

In brief, we reassert that the modelling is based on inappropriate extrapolations from a smoking cessation trial that bears no relation to the market conditions that would emerge following the denicotinisation mandate. Expert intuition cannot provide much more than arbitrary guesswork, as there is no experience to draw upon. On the basis of our critique, we do not argue that the denicotinisation policy should be dropped, only that the modelling is not informative for policymakers and may be falsely reassuring. We accept that a denicotinisation measure is likely to reduce smoking, but we also anticipate a range of adverse consequences and recommend that these are considered more carefully. We note recent official data showing that the current policy, based on user consent and encouragement to quit or to switch to lower-risk products, is proving very effective and already making progress well beyond the baselines used in the modelling. We recommend, therefore, that a stronger counterfactual is developed as the basis for comparison with the proposed denicotinisation measure. This could better reflect the observed effectiveness of the current policy and include further measures to accelerate voluntary switching from smoked to smoke-free nicotine products.

Analysis

Rather than respond line by line, we have extracted four main arguments from the authors' response and set out a reply to each.

1. "The key criticism – that we relied mainly on evidence from a single randomised controlled trial (RCT) of very low nicotine cigarettes (VLNCs) – is incorrect."

Response 1. In fact, the RCT in question does play a significant role in parameterising the model. In their preprint, Ouakrim et al. state:

“To parameterise the intervention scenarios we adapted initial estimates by Wilson et al, [28] which derived their potential effects based on A/NZ-specific literature (including a randomised trial of denicotinised cigarettes) and international literature; adaptation for this paper included incorporating additional research and expert judgements by the authors.”

The use of New Zealand trial The Wilson et al. (2022)^[4] modelling relies almost entirely on the 2009-10 randomised controlled trial (which included denicotinised cigarettes) conducted by Walker et al. (2012).^[5] The authors place this modelling and, therefore, the trial at the heart of their analysis. The other inputs are discussed as “adaptations”. The smoking cessation effect size used in the Ouakrim et al. modelling is almost identical to that assumed by Wilson et al., which in turn is almost identical to the *total* effect size found in the Walker et al. trial. We noted in our critique that the *incremental* effect of adding VLNC was much smaller than the total effect and limited to six months.

The main problem with the modelling is that it does not conceptualise the proposed regulation as a market intervention in which behavioural outcomes are mediated by supply, demand, and price responses. The market dynamics of the proposed law will be, therefore, nothing like the intervention used in the Walker et al. smoking cessation trial that has been used to inform the modelling.

The use of experts. The authors argue they have relied more on expert elicitation. They may have consulted *tobacco control experts* to validate or determine the assumptions used in their modelling. However, there is little relevant *expertise* to draw upon because there are no apparent precedents for such a market intervention, and none are cited. The views of the experts consulted are largely guesswork and, given their overt support for the policy, they are vulnerable to confirmation and optimism biases. The most well known expert elicitation exercise on denicotinisation, Appelberg et al., 2018,^[6] undertaken for the United States, revealed that the experts in question varied by an order of magnitude in guessing the effects of such a policy.

The distributions of the responses from the eight experts varied widely [...]. For example, the experts' median estimate of the percentage of smokers who would quit smoking in the first year after the introduction of the policy ranged from 4.5 to 55.0%, and estimates for subsequent years ranged from 4.5 to 80.0%

Rather than take an average of such divergent views, it would have been more prudent to conclude that the experts consulted could not provide a useful consensus for modelling purposes.

2. “Further, the critique and associated press coverage incorrectly imply that the case for mandated denicotinisation is weak and thus that the policy is not justified. The exact impact of mandated denicotinisation is uncertain because it has never been implemented outside of research studies which only partially simulate the

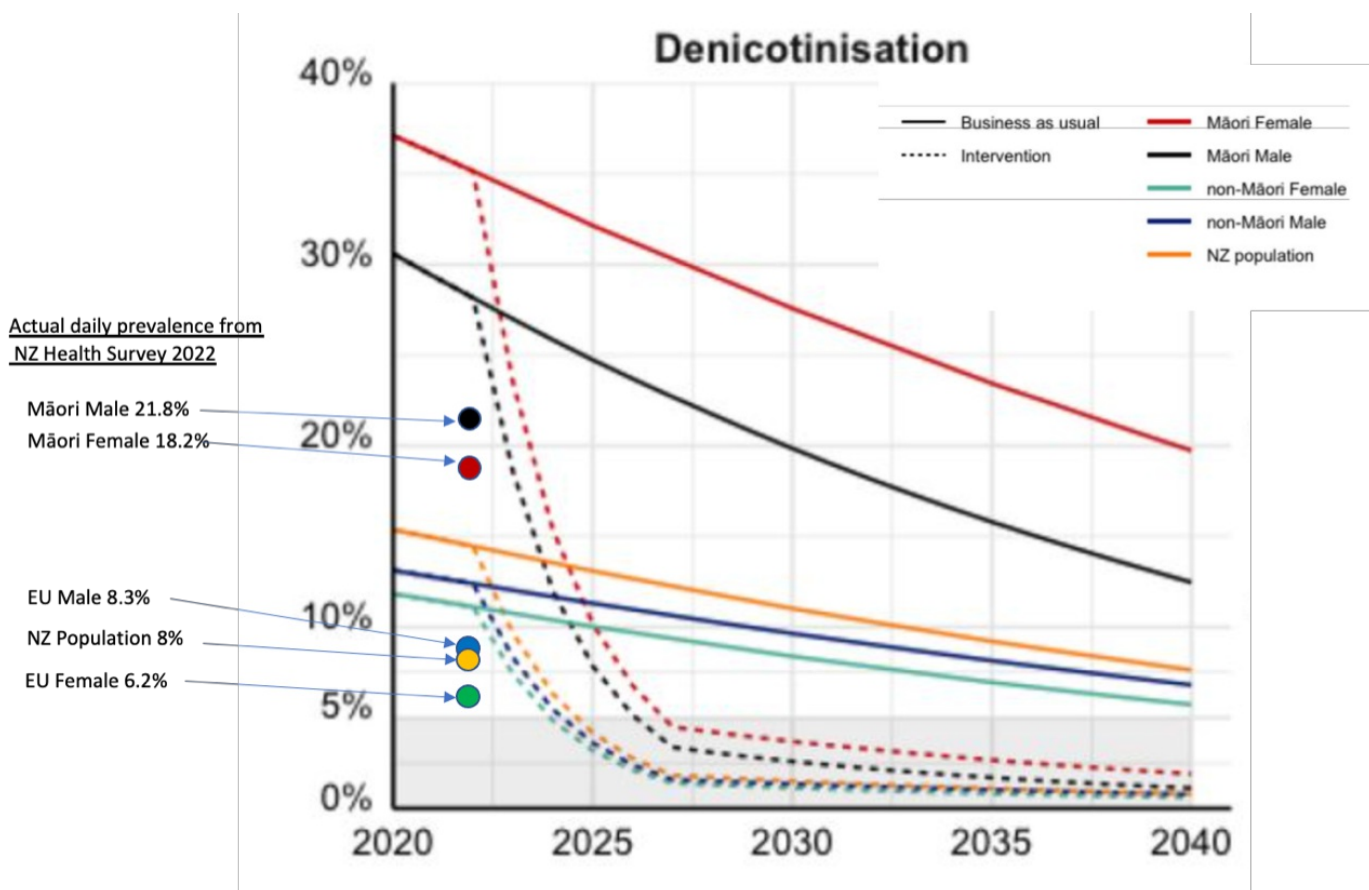
policy.”

Response 2: Our primary argument is that the model is unrealistic and the modelling is uninformative for policymaking purposes. Whether denicotinisation is a good policy is beyond the scope of our review of Ouakrim et al., and we did not pass judgement on that. However, we did suggest that modelling would be better employed as a scenario and sensitivity exercise. We recommended a deeper assessment of plausible unintended consequences, consideration of the optimum timing for such a measure, and that a stronger counterfactual should be adopted for comparative purposes.

In November 2022, the Ministry of Health released [tobacco use data](#)^[7] showing that New Zealand's current policy, based on consent and informed consumer choice, is working very well.

- Adult (age 15 or over) daily smoking prevalence fell from 11.9% in 2019-20 to 8.0% by 2021-22, a one-third decline in the last two years.
- Māori adult daily smoking prevalence reduced by 30% in the past two years from 28.6% to 19.9%.

These are remarkable and unforeseen gains. The chart from Ouakrim et al. on the impact of denicotinisation has been annotated below with the daily smoking point prevalence figures from the latest Ministry of Health data.^[7]



Though the age groups used differ slightly (the Health New Zealand survey covers adults aged 15 years and over, whereas Ouakrim et al. used adults aged 20 years and over), the visualisation is striking. The modelling did not anticipate a one-third reduction in smoking prevalence over two years in its counterfactual. It follows that the benefits of the modelled policy will be correspondingly lower, especially if this rate of progress under current policies is sustained or enhanced.

The appropriate comparator for a denicotinisation policy is the success of the current policy combined with what else could be done to enhance the progress already made without resorting to a denicotinisation mandate. Smoking prevalence is already well below the baseline estimates developed by Ouakrim et al., and rates of decline are far outpacing the BAU modelling used as a comparator to the predicted impact of denicotinisation.

3. “However, modelling studies, trials, other evidence and careful logical analysis of the policy strongly suggest it will be highly effective as the key policy to dramatically lower smoking prevalence and reduce health loss and inequalities when implemented in the Aotearoa/New Zealand (A/NZ) context.”

Response 3. There will likely be multiple behavioural reactions to a denicotinisation mandate on both the consumer and supplier sides. We agree that smoking may reduce following a denicotinisation law as smokers switch to vaping or quit nicotine use altogether. There may also be a range of adverse reactions, including a growing black market, workarounds and home growing. There may also be dissatisfaction among the affected individuals and communities and resentment at the level of government intrusion in personal behaviours. A key consideration, outside the scope of modelling, is whether it is appropriate to use the coercive power of the law to force behaviour change onto smokers and what effects this is likely to have. An enabling approach based on consent and empowerment of users to make their own choices may be more respectful, resilient and sustainable. This is the current approach, and it is working well.

4. “Given our paper was focused on Māori and smoking inequities, we were particularly disappointed that the online critique did not make any reference to Māori or Indigenous peoples, nor was there engagement with key Māori stakeholders prior to the critique being published.”

Response 4. Our critique focused on the methodology behind the assumptions made, and those limitations stand regardless of the modelled population. It was not intended as a consultative exercise. The purpose was not to critique the modelled impact on health inequities as we consider the shortcomings of the modelling assumptions do not allow for any accurate prediction of smoking cessation for an entire population, let alone any meaningful insights into health equity. We also note that studies of denicotinised cigarettes referenced in the author's response have no indigenous or Māori data, notably the reliance on the Walker et al. trial,^[5] the Wilson et al.^[4] modelling paper or the overseas expert assessment of Appelberg et al.^[6] that was cited by Wilson et al.

References

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