

# Interventions to reduce alcohol's harms to health: a modelling study

## Executive summary for Māori stakeholders

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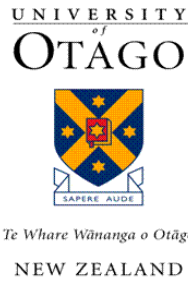
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### **Notes on revision**

The core results from this report were submitted to the Journal *Addiction* for publication. During the peer-review process, the reviewers highlighted an error with our estimate for tourist consumption. The updated report has incorporated other reviewer comments, including the correction of the tourist consumption estimate. Article DOI [10.1111/add.16331](https://doi.org/10.1111/add.16331).

## Background

Alcohol consumption is the fifth ranked cause of morbidity and mortality in Aotearoa.<sup>1</sup> Māori have long recognised the negative impact of alcohol as a result of colonisation and specifically, Crown legislative and policy action and inaction, which has contributed to disproportionate alcohol harms among Māori. In 2010, the New Zealand Law Commission proposed 153 recommendations to address harm from alcohol in Aotearoa,<sup>2</sup> but progress has been slow.<sup>3</sup> Failure to implement the Commission's key recommendations highlight breaches of Te Tiriti o Waitangi, and is one aspect of the Waitangi Tribunal claim (Wai 2575).<sup>4</sup> A specific tobacco, alcohol and other substance abuse Waitangi Tribunal report<sup>5</sup> outlines how the Crown has failed to address, and in fact, actively contributed to, the disproportionately high rates of alcohol harm among Māori.

More recently, Maynard (2022)<sup>6</sup> has specifically outlined four key features future alcohol policy must include to ensure it is compliant with Te Tiriti o Waitangi: 1) Te Tiriti o Waitangi is specifically referred to and references are precisely worded; 2) Māori can meaningfully and effectively participate in decisions around alcohol in their communities; 3) inequities between Māori and non-Māori are actively addressed; and 4) monitoring systems ensure progress on eliminating health inequities.

Our project aimed to estimate the health impacts of key modelled alcohol interventions including tax, marketing and availability for Māori and non-Māori.

## Current inequities

Health inequities between Māori and non-Māori have arisen from generational and systemic inequities in the social determinants of health. Māori alcohol consumption and associated harms have also been driven by the wider social determinants (e.g., income inequality, systemic racism, marginalisation)<sup>6</sup> but are also influenced by more proximal elements such as the disproportionate exposure to alcohol marketing and availability. Our results showed that neighbourhoods with a higher proportion of Māori ( $\geq 15\%$ ) had 32% more alcohol outlets than neighbourhoods with a lower proportion of Māori ( $< 15\%$ ). Aotearoa evidence shows that tamariki Māori are exposed to five times more alcohol marketing than non-Māori children.<sup>7</sup> Our results showed that tāne Māori and wāhine Māori drink more alcohol per day than their non-Māori counterparts. In particular, for any age group, tāne Māori consumed greater amounts of alcohol (2.6-3.9 standard drinks per day) than wāhine Māori (0.6-2.4 standard drinks per day). New Zealand Health Survey data show Māori are more likely than non-Māori to have hazardous drinking patterns.<sup>5</sup> Collectively, historical Crown failings, current alcohol policy settings and drinking patterns contribute to a disproportionate burden of alcohol-related harm among Māori.

## Intervention selection and effectiveness

Our approach to intervention selection considered which interventions would bring the greatest health gain for Māori and those interventions with the greatest potential to reduce consumption based on international evidence. We focused our interventions on the World Health Organization's (WHO) three most cost-effective alcohol intervention areas which are price, availability and marketing.<sup>8</sup> These interventions were modelled collectively and individually. Specifically, our intervention package included:

- a 50% tax increase;
- reduction from 63 to five off-licence alcohol outlets per 100,000 population (outlet density);
- reduction in the maximum alcohol outlet trading hours from 112 to 50 hours per week;
- and a total alcohol marketing ban.

Each intervention was estimated to reduce alcohol consumption by ~8%. When intervention effects were applied sequentially, the full intervention package resulted in an estimated 30% reduction in alcohol consumption. Even after a 30% decrease in consumption, the median alcohol consumption for

tāne Māori aged 35-74 and for wāhine Māori aged 35-54 was still over the Ministry of Health recommendations to reduce long-term health risks.<sup>9a</sup> These trends were reflected in the non-Māori population and are indicative of Aotearoa's high baseline level of alcohol consumption.

For Māori, the combined alcohol intervention package would result in 171,000 Health-Adjusted Life Years (HALYs)<sup>b</sup> gained and an increase in median life expectancy from 73.6 to 73.9 years (~5 months).<sup>c</sup> The improvements in life expectancy of 0.32 years are in line with results from one other study demonstrating the impact of completely eradicating tobacco use would improve life expectancy by 0.50 years.<sup>10</sup> The focus on improvements to median life expectancy obscures the fact that some individuals would experience substantially more health gains, particularly those at the most risk of alcohol-related disease and injury.

Restricting alcohol availability (outlet density = 51,000 HALYs; outlet trading hours 54,000 HALYs gained) had a slightly greater impact than an alcohol marketing ban (53,000 HALYs) or a 50% alcohol tax increase (45,000 HALYs). A 133% increase in alcohol tax (as modelled by the Ministry of Justice) would result in 112,00 HALYs gained and an increase in life expectancy of 0.21 years (~3 months), which is around 65% of the entire intervention package effectiveness (including a 50% tax increase).

Māori experienced greater health gains than non-Māori across all interventions, in particular, Māori men. In our model, the differential benefit for Māori is due to their larger baseline alcohol consumption, disease incidence and younger age structure. In reality, it is likely Māori would experience greater benefits due to differential intervention effectiveness related to baseline exposure to the determinants of alcohol consumption, drinking patterns or age structure, which were not incorporated into our model.

First, Māori are disproportionately exposed to the drivers of alcohol consumption including higher rates of alcohol marketing exposure<sup>7</sup> and alcohol outlet density and trading hours.<sup>11</sup> Second, while we raise health equity concerns around tax in the full report, evidence suggests heavy drinkers are the most price sensitive.<sup>12</sup> In Aotearoa, Māori are more likely to be hazardous drinkers,<sup>13</sup> which means any resulting tax increase may result in disproportionate effectiveness due to drinking patterns. Third, younger people are more sensitive to price increases<sup>14</sup> and to the persuasive effects of alcohol marketing.<sup>15</sup> Given Māori have a younger age structure than non-Māori, these interventions would likely have a disproportionate benefit for Māori.

### **Law Commission recommendations**

To determine the health loss attributable to Government inaction on the Law Commission recommendations, we have taken the estimated HALYs from the first decade of the main intervention model (2018 to 2027) as representative of the time period from 2011 to 2020. Under these assumptions, the failure to implement the Law Commission recommendations has cost an estimated 7,300 HALYs across the population (1,300 HALYs for Māori), which would increase by six-fold if action is delayed by an additional decade (e.g., from 2020 to 2030). These health costs will accelerate as the majority of health gains for the cohort are experienced between 20 and 50 years after an intervention is implemented.

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<sup>a</sup> Ministry of Health recommendations to reduce long-term health risks (women = two standard drinks per day with maximum of 10 per week, or 100g per week divide by seven days = 14.3g per day; men = three standard drinks per day with a maximum of 15 per week, 150g per week divide by seven days = 21.4g per day).

<sup>b</sup> Health-adjusted life years (HALYs) are a population health measure that include morbidity and mortality in a single number. Roughly translating to an increase in the years lived in good health. A common practice in cost-effective analyses is to multiply the HALYs gained by the Gross Domestic Product per capita (~NZ\$64,000) – the total value of the Māori health savings would be ~NZ\$11billion over the next 100 years.

<sup>c</sup> Life expectancy (LE) is the median age at death for a particular population group.

## **Limitations**

As mentioned, our modelling results do not incorporate differential intervention effectiveness due to differential baseline exposure to the determinants of alcohol consumption, drinking patterns or age structure, which likely underestimate the potential health equity benefits for Māori. Our model conservatively incorporates the highly contested health benefits of moderate alcohol consumption for older age groups for a small number of diseases (in particular for older wāhine Māori). While this research offers policy solutions to minimising the harms from alcohol, we recognise that a suite of actions and more comprehensive work is needed with Māori leadership at the fore in order to further address or mitigate alcohol harm among Māori and to uphold Māori rights to equity, Tino Rangatiratanga and active protection, and ultimately control over how alcohol is managed in society as well as how alcohol harms are mitigated among Māori.

## **Future research**

Given Māori are disproportionately exposed to the drivers of alcohol consumption, future research should explore this issue more closely in order to understand what policy and/or legislative changes are necessary to reduce exposure in Māori communities.

More broadly, research should explore Māori alcohol use in more depth to better understand the nuances of Māori alcohol use, factors contributing to Māori alcohol use patterns and to gain a clearer understanding of why Māori are drinking in ways that contribute to disproportionate harms compared to non-Māori.

Lastly, future research could explore the ways to operationalise Māori-led solutions to addressing alcohol harm, what resourcing may be needed to action these solutions and how they may be implemented effectively in our communities and broader society.

## **Recommendations**

- 1) Ensure future policy work is led by Māori and/or conducted in partnership with Māori with a clear focus on improving Māori health outcomes and upholding Māori rights under Te Tiriti o Waitangi.
- 2) Include in alcohol legislation: explicit reference to Te Tiriti o Waitangi; mechanisms to enable Māori to effectively participate in decision-making around alcohol in their communities; and mechanisms to ensure legislation addresses health inequities.
- 3) Introduce national off-licence density measures.
- 4) Reduce national off-licence trading hours to a maximum of 50 hours, with a closing time of 8pm.
- 5) Introduce a comprehensive ban on alcohol marketing including alcohol sponsorship.
- 6) Increase alcohol tax rates to achieve an effective minimum unit price as previously modelled by the Ministry of Justice.
- 7) Ensure the standardisation of the alcohol outlet trading hours in the Alcohol Regulatory and Licensing Authority (ARLA) database.

## **Conclusion**

Crown failings to address the disproportionate harms and determinants of alcohol consumption experienced by Māori are currently being heard by the Waitangi Tribunal.<sup>4,5</sup> Our results highlight the consequences for Māori of Government inaction on the Law Commission recommendations. Across all policies, Māori would experience greater benefits compared to non-Māori. Our model likely underestimates the differential benefit for Māori and potential health equity potential of the selected alcohol interventions due to: 1) not accounting for differential intervention effectiveness; and 2) the incorporation of beneficial effects for older wāhine Māori from moderate alcohol consumption.

## References

1. Griswold MG, Fullman N, Hawley C, Arian N, Zimsen SR, Tymeson HD *et al.* Alcohol use and burden for 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet*. 2018;392(10152):1015-1035. [https://doi.org/10.1016/S0140-6736\(18\)31310-2](https://doi.org/10.1016/S0140-6736(18)31310-2)
2. New Zealand Law Commission. *Alcohol in our lives curbing the harm: a report on the review of the regulatory framework for the sale and supply of liquor*. Wellington (NZL): New Zealand Law Commission;2010. Accessed 14 May 2021. <http://www.lawcom.govt.nz/sites/default/files/projectAvailableFormats/NZLC%20R114.pdf>.
3. Kypri K, Connor J, Maclennan B, Sellman D. What became of New Zealand's golden opportunity for liquor law reform? *Drug and Alcohol Review*. 2013;32(6):557-560. <https://doi.org/10.1111/dar.12075>
4. Ministry of Justice. *Wai 2575—the health services and outcomes inquiry*. Wellington (NZL): Ministry of Justice;2019. Accessed 18 May 2021. <https://waitangitribunal.govt.nz/inquiries/kaupapa-inquiries/health-services-and-outcomes-inquiry/>.
5. Walker K. *Issues of tobacco, alcohol and other substance abuse for Māori*. Wellington (NZL): Waitangi Tribunal;2019. Accessed 13 Dec 2021. [https://forms.justice.govt.nz/search/Documents/WT/wt\\_DOC\\_155808738/Wai%202575%2C%20B030.pdf](https://forms.justice.govt.nz/search/Documents/WT/wt_DOC_155808738/Wai%202575%2C%20B030.pdf).
6. Maynard K. *Te Tiriti o Waitangi and alcohol law*. Wellington (NZL): Te Hiringa Hauora | Health Promotion Agency;2022. Accessed 26 Aug 2022. <https://www.hpa.org.nz/sites/default/files/Te%20Tiriti%20o%20Waitangi%20and%20alcohol%20law.pdf>.
7. Chambers T, Stanley J, Signal L, Pearson AL, Smith M, Barr M *et al.* Quantifying the nature and extent of children's real-time exposure to alcohol marketing in their everyday lives using wearable cameras: Children's exposure via a range of media in a range of key places. *Alcohol and Alcoholism*. 2018;53(5):626-633. <https://doi.org/10.1093/alcalc/agy053>
8. World Health Organization. *SAFER: A world free from alcohol related harms*. Geneva (CHE): World Health Organization;2018. Accessed 14 May 2021. [https://www.who.int/substance\\_abuse/safer/msb\\_safer\\_brochure.pdf?ua=1](https://www.who.int/substance_abuse/safer/msb_safer_brochure.pdf?ua=1).
9. Ministry of Health. *Alcohol*. Online: Ministry of Health;2022. Accessed 3 Aug 2022. <https://www.health.govt.nz/your-health/healthy-living/addictions/alcohol-and-drug-abuse/alcohol>.
10. Blakely T, Cleghorn C, Petrović-van der Deen F, Cobiac LJ, Mizdrak A, Mackenbach JP *et al.* Prospective impact of tobacco eradication and overweight and obesity eradication on future morbidity and health-adjusted life expectancy: simulation study. *Journal of Epidemiology & Community Health*. 2020;74(4):354-361. <https://doi.org/10.1136/jech-2019-213091>
11. Cameron M, Cochrane W, McNeil K, Melbourne P, Morrison S, Robertson N. *The impacts of liquor outlets in Manukau City: Summary report—revised*. Wellington (NZL): Alcohol Advisory Council of New Zealand;2012. Accessed 26 Aug 2022. [https://www.hpa.org.nz/sites/default/files/imported/field\\_research\\_publication\\_file/ManukauReportSummaryREVISED.PDF](https://www.hpa.org.nz/sites/default/files/imported/field_research_publication_file/ManukauReportSummaryREVISED.PDF).
12. Meier PS, Holmes J, Angus C, Ally AK, Meng Y, Brennan A. Estimated effects of different alcohol taxation and price policies on health inequalities: a mathematical modelling study.

- PLoS Medicine*. 2016;13(2):e1001963.  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4764336/pdf/pmed.1001963.pdf>.
13. Ministry of Health. *Annual update of key results 2019/20: New Zealand Health Survey*. Online: Ministry of Health;2020. Accessed 19 May 2022.  
<https://www.health.govt.nz/publication/annual-update-key-results-2019-20-new-zealand-health-survey>.
  14. Meier PS, Purshouse R, Brennan A. Policy options for alcohol price regulation: the importance of modelling population heterogeneity. *Addiction*. 2010;105(3):383-393.  
<https://doi.org/10.1111/j.1360-0443.2009.02721.x>
  15. Jernigan D, Noel J, Landon J, Thornton N, Lobstein T. Alcohol marketing and youth alcohol consumption: a systematic review of longitudinal studies published since 2008. *Addiction*. 2017;112:7-20. <https://doi.org/10.1111/add.13591>