

Effects over time of tobacco tax increases in New Zealand

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Ongoing tobacco tax increases predicted to improve health, reduce health system costs, and reduce health inequalities, but take years to have their maximum health impacts.

Annual 10% [tobacco tax](#) increases in New Zealand over the next 20 years should lead to [health](#) gains, net [health system](#) cost savings and modest reductions of about 2% to 3% in health inequalities between indigenous (Māori) and non-indigenous people, according to a study published by Tony Blakely and colleagues from the University of Otago, New Zealand, in this week's *PLOS Medicine*.

The researchers estimated quality-adjusted life-years (QALYs; a measure of disease burden that includes both duration and quality of life) gained and net health system costs over the remaining life of New Zealand's 2011 population exposed to annual 10% tobacco tax increases for 20 years. The model included 16 tobacco-related diseases in parallel using national data on all-cause mortality and morbidity (illness). In 2011 the smoking prevalence was 35% for Māori and 14% for non-Māori. Compared to the 2011 population simulated into the future with no tax increases, the researchers estimated that 260,000 QALYs would be gained if the population were exposed to the annual tax increases, with net health system cost savings of US\$2550 million (due to prevention of tobacco-related diseases).

"This health gain of 260,000 QALYs is 17% of all health gain that we estimated would occur if all smokers in 2011 quit that year, and we

followed or simulated the population into the future," says Professor Blakely, lead-researcher.

The QALY gains per capita associated with annual tobacco tax increases were 3.7 fold higher for Māori (indigenous population) than for non-Māori because of higher smoking levels and likely greater price sensitivity among Māori.

Notably, the health gains and cost savings are not predicted to peak for several decades. This is because smoking is more common among younger age groups and the tobacco tax effect is greater among young people (who have limited disposable income). These young people do not benefit maximally from reduced rates of tobacco-related diseases for many decades to come, due to the long delay between smoking onset and the incidence of tobacco-related disease in individuals.

As with all modeling studies, the accuracy of these findings depends on the assumptions built into the model and the data fed into it.

Professor Blakely says: "This modeling work has suggested that ongoing tobacco tax increases deliver sizeable health gains and health sector [cost savings](#), and are likely to reduce health inequalities. However, if policy makers are to also achieve more rapid reductions in the non-communicable diseases (NCD) burden and [health inequalities](#), they need to complement tobacco tax increases with additional tobacco control interventions focused on cessation."

More information: Blakely T, Cobiack LJ, Cleghorn CL, Pearson AL, van der Deen FS, Kvizhinadze G, et al. (2015) Health, Health Inequality, and Cost Impacts of Annual Increases in Tobacco Tax: Multistate Life Table Modeling in New Zealand. *PLoS Med* 12(7): e1001856. [DOI: 10.1371/journal.pmed.1001856](https://doi.org/10.1371/journal.pmed.1001856)

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