Smoking prevalence in New Zealand from 1996–2015: a critical review of national data sources to inform progress toward the Smokefree 2025 goal

Jude Ball, James Stanley, Nick Wilson, Tony Blakely, Richard Edwards

ABSTRACT

AIM: The New Zealand Government has committed to a goal of becoming a smokefree nation by 2025. This study analysed recent smoking trends using three national data sets to: i) assess progress towards the smokefree goal; and ii) critically evaluate New Zealand’s main national-level data sources on smoking prevalence for measuring progress towards the Smokefree 2025 goal.

METHODS: Trends in adult (age 15+) daily smoking prevalence from 1996 to 2015 were compiled from three data sources: the New Zealand Census, the New Zealand Health Survey (NZHS), and the Health and Lifestyles Survey (HLS). We compared key features of the surveys (eg, sample size, ethnicity classification), examined composite trends across surveys, and analysed differences between and within surveys over time.

RESULTS: Both the Census and the NZHS show a decline in adult (age 15+) daily smoking over the past 18 years, from 23–25% in 1996/97, to around 15% in 2014/15, with broadly consistent findings from the HLS since it began in 2008. However, recent NZHS findings do not suggest substantive reductions in daily smoking prevalence, particularly for Māori and Pacific populations, with 2014/15 rates of 35.5% and 22.4% in these populations respectively, and no statistically significant change since 2006/07. NZHS has advantages over the New Zealand Census and the HLS for the purposes of monitoring annual progress towards the Smokefree 2025 goal.

CONCLUSION: These data collectively suggest that recent declines in smoking prevalence are modest and clearly inadequate for achieving the Smokefree 2025 and interim 2018 goals, particularly for Māori and Pacific peoples. Continuation and improvement of tobacco-related surveillance is crucial for monitoring progress toward the 2025 goal.

Smoking is the single biggest preventable risk factor for premature death and morbidity in New Zealand, with Māori and Pacific peoples disproportionately affected. In March 2011, in response to the recommendations of the Māori Affairs Select Committee, the New Zealand Government committed to becoming an essentially smokefree nation with minimal smoking levels and tobacco availability by 2025. This was seen as a major victory for public health, and temporarily put New Zealand at the forefront of tobacco control globally.

The Government subsequently set interim goals to be achieved by 2018: i) daily smoking prevalence must fall to 10% overall, and ii) the Māori and Pacific rates should have halved from their 2011 levels, ie, to no more than 19% for Māori and 12% for Pacific peoples.

Given this background, this paper reviews trends in smoking prevalence from 1996 to 2015, based on three national data sets. We aimed to answer the following questions:

1. Do the various surveys present a consistent picture about smoking
trends in the adult population and by ethnicity?

2. What are the strengths and weaknesses of current national data sources for monitoring progress towards the Smokefree 2025 goal?

3. What do the figures tell us about progress towards the Smokefree 2025 goal, and 2018 interim goals?

Method

The current study reviewed time trends in tobacco use among adult (age 15+) New Zealanders, using repeated cross-sectional survey data from the public domain. The key data sources for the 1996–2015 period were the New Zealand Census (Census) conducted by Statistics New Zealand, which included questions on tobacco use in 1996, 2006, and 2013; the Ministry of Health’s New Zealand Health Survey (NZHS) which was conducted in 1996/7, 2002/3, 2006/7 and as a rolling study since 2011/12 (reporting annually); and the Health and Lifestyles Survey (HLS) conducted by the Health Promotion Agency (HPA) every 2 years since 2008.

All three surveys measure smoking behaviour in adults aged 15+, using approximately comparable questions and definitions for daily smoking (see Table 1). Daily smoking is the primary prevalence measure used in the current paper because it is the only measure comparable across all three data sources.

We sourced Census and HLS data from the Health Promotion Agency’s online tobacco control data repository, and NZHS data from the Ministry of Health website. Overall, adult daily smoking prevalence (unadjusted) for the 1996–2015 period was plotted, and the findings from the three surveys compared. We also plotted prevalence by ethnicity (Māori, Pacific, Asian and European/Other), where this was available in the public domain. In Figures 1 and 3 (overall and by ethnicity), a smoothed trend in smoking rates over time has also been plotted (indicated with dashed lines) to give a composite trend based on all of the reported data sources. These trends were calculated using restricted quadratic spline fits, with the fitting of the lines weighted by the inverse variance of the estimates (ie, the more statistically precise data sources have a higher weighting in determining the shape of the line). The variances were derived from the reported confidence intervals for each data source. For the 1996/97 and 2001/02 NZHS data (for which no confidence intervals are reported in public domain documents) the inverse variance weight for the total was set to 5 (based on weightings for subsequent iterations of the NZHS); for the Census (which has no sampling variability, by definition), an arbitrary inverse weight was set at 10 for the overall trends (taken as double the weight of the NZHS estimates, as the most statistically precise survey tool here). For the ethnicity-specific trend estimates (Figure 3), the weight for the Census estimates was set separately for each ethnic group (again, as double the weight for the most precise NZHS estimate for that ethnic group.) In all figures, the x-axis (time) position of data points is positioned as follows: for the Census at 1 March (since Census dates across this period were in early March); for the NZHS, at 1 January as the midpoint of the data collection period (eg, for the 2006/2007 NZHS, the midpoint is January 1 2007); and for the HLS, at 1 July (field dates generally from May to August).

Results: appraisal of data sources

Definition of ‘smoking’

The survey questions used to derive smoking prevalence for each survey are provided in Table 1. The Census includes manufactured cigarettes and loose tobacco (‘rollies’) in its definition, and excludes cigars and pipes, marijuana and other smoked non-tobacco products in questions about current smoking. Use of non-smoked tobacco products (eg, chewing tobacco) and passive smoking are also specifically excluded in the Census definition.

The NZHS definition of smoking changed between 2002/03 and 2006/07. Up until 2006/07, the survey asked “Do you smoke one or more tobacco cigarettes a day?” and was therefore in line with the Census definition. From 2006/7, the first question in the tobacco section has been “Have you ever smoked cigarettes or tobacco at all, even just a few puffs? Please include
pipes and cigars.” Presumably the prevalence question that follows (“How often do you now smoke?”) also includes pipes and cigars, although this is not explicitly stated in the interview schedule. Given the NZHS seems to include daily pipe and cigar smokers and the Census does not, the NZHS prevalence estimate in 2006/07 and subsequent years is likely to be inflated compared with the Census. However, findings from the NZHS suggest that the prevalence of pipe or cigar smoking is low, at less than 2% in 2012/13. Therefore, the systematic difference between the NZHS and Census since 2006/07 is likely to be negligible.

The HLS questionnaires ask about current tobacco smoking without giving a further definition or explicitly including or excluding pipes, cigars or non-smoked tobacco products. Therefore, it is not clear how comparable the HLS is with the Census or NZHS.

Other key aspects of survey design for the Census, NZHS and HLS are shown in and discussed below.

Mode of survey administration
The NZHS and HLS surveys are administered face-to-face by a trained interviewer, whereas the Census is a self-completion questionnaire. These administration modes have different methodological strengths, with face-to-face surveys typically yielding the highest response rates, for example, and self-completion questionnaires minimising social desirability bias in surveys of sensitive topics. Few studies have examined differences in the reporting of smoking behaviour by mode of survey administration, and findings are mixed. A major Danish survey of the general population found a significant mode effect, with higher reporting of daily smoking in face-to-face interviews compared with self-completion questionnaires. A smaller US study found no significant mode difference in reported smoking status or number of cigarettes smoked per day in a survey of Latina and African American women aged 12–21. These findings suggest that social desirability bias does not necessarily lead to

<table>
<thead>
<tr>
<th>Survey</th>
<th>Question wording</th>
<th>Response categories</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZ Census</td>
<td>Do you smoke cigarettes regularly (that is, one or more a day)? (1996, 2006, 2013)</td>
<td>Yes</td>
<td>Same wording in 1996, 2007, 2013. Census form includes instruction: “DON’T count pipes, cigars or cigarillos. Count only tobacco cigarettes.” Census definition of ‘regular’ smoking is equivalent to ‘daily smoking’ in the NZHS and HLS surveys.</td>
</tr>
<tr>
<td>NZHS</td>
<td>How often do you now smoke? (2006/7, 2011/12, 2012/13, 2013/14, 2014/15)</td>
<td>You don’t smoke now At least once a day At least once a week At least once a month Less often than once a month</td>
<td>The answer options are provided on a showcard, and read out by the interviewer. This question is only asked of those who have smoked 100+ cigarettes in their life. Different question phrasing and answer profile in 1996/97 and 2002/03: “Do you smoke one or more tobacco cigarettes in a day?”</td>
</tr>
<tr>
<td>HLS</td>
<td>Looking at Showcard [Tx], which best describes how often you smoke tobacco now? (2008, 2010, 2012, 2014)</td>
<td>At least once a day At least once a week At least once a month Less often than once a month I do not smoke now</td>
<td>Unlike the NZHS, the HLS does not include the 100+ minimum requirement in the definition of daily smoking.</td>
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Table 1: Smoking prevalence questions in major New Zealand based surveys.
under-reporting of smoking in face-to-face surveys, and in fact, under-reporting may be more likely in self-administered modes.

Classification of ethnicity
Both the Census and NZHS use ‘total response’ for categorising ethnicity. This means people who reported more than one ethnic group are counted once in each group reported, and the total number of responses for all ethnic groups is greater than the total number of people who responded.

The HLS uses a ‘prioritisation’ method, where each person is allocated to a single ethnic group based on the ethnicities they have identified. In 2008, ethnicity was classified using prioritisation in the order of Pacific peoples, Māori, Asian and European/Other (ie, a person identifying as both Māori and Pacific would be counted as ‘Pacific’).13 In 2010 and subsequent years, the order of prioritisation was changed to Māori, Pacific peoples, Asian, and European/Other (ie, a person identifying as both Māori and Pacific would be counted as ‘Māori’).14 As a result, the HLS findings by ethnicity have limited comparability between 2008 and subsequent years.

Research comparing prioritised and total response ethnicity suggests these different methods of categorisation produce little difference in results for health behaviours.15 However, prioritisation with Māori as the prioritised group results in understatement of group size for non-Māori groups, in particular Pacific peoples.16 Statistics New Zealand argue that valid analysis of a group depends on the consideration of all its members, and prioritisation “is no longer considered viable in reflecting the changing face of ethnic diversity in New Zealand”.16

New Zealand Census
For the purposes of monitoring daily smoking prevalence, the Census has the advantage of reaching 93–95% of the New Zealand adult population (aged 15+), and, as it is a census of the total population, it is not subject to sampling error. However, post-enumeration surveys show that there is likely to be systematic undercounting of smokers, since smokers are over-represented in the groups most likely to be missed by the Census. For example in 2013, younger adults aged 15–29 years had a higher relative undercount (est. 4.8%) than other age groups, and the estimated under-
count was also higher for Māori (6.1%) and Pacific peoples (4.8%) compared to Asian (3.0%) and European (1.9%). The estimated undercount for Māori and Pacific was substantially higher in 2013 than previous years (for example, it was about 3% for Māori in both 2006 and 1996).17

Census data quality is also affected by the relatively high question non-response rate, with 4–5% of respondents not answering the smoking question as directed, or at all.18 For the purposes of this paper, question non-response includes individuals who filled in the Census form, but did not respond to the smoking question (“not stated”), and responses that could not be classified or did not provide the type of information asked for (“response unidentifiable”). It is plausible that smokers are also over-represented in this group, however analysis of non-response by ethnicity, age, and other sociodemographic variables is not possible with public domain data. Another factor that may affect data quality is the household nature of data collection, which may result in under-reporting in people who wish to hide their smoking from other family members. For example, teenagers may not admit to daily smoking if their parents are collating the household’s individual Census forms.

A disadvantage of the Census for monitoring progress towards the Smokefree 2025 goal is the long time period between data collection points, with only three data points in the last 20 years. This is in part due to the pattern (at least to date) of the tobacco question not being included in every Census. As a result, the Census is less useful for identifying recent trends in smoking prevalence than the more frequent NZHS. However, the upcoming 2018 Census (which will include the smoking question) will be well timed to measure progress against the Smokefree 2025 interim goals.

The only significant change in the way Census data were collected, defined, and classified between 1996, 2006 and 2013 was the introduction of an online survey option in 2006, when 7% of respondents completed their survey forms online. This increased to 34% in 2013.19 The online version has built-in editing functionality, for example allowing only one response to be selected for each of the smoking questions, whereas multiple responses to these questions are possible when forms are completed on paper. This reduces the risk of invalid responses to individual questions, and as a result, data from online forms may be of higher quality than data from paper forms. According to Statistics New Zealand, 2013 data “is fully comparable with data from the 2006 Census” and “highly comparable with the 1996 Census data”.18

**New Zealand Health Survey**

Strengths of the NZHS are its large sample size, continuous sampling design, and the high response rates achieved since 2011. The NZHS is administered face-to-face, and this mode has the advantage of high item response, and places the least cognitive demand on respondents.10 As previously noted, social desirability bias can affect face-to-face surveys on sensitive topics, but there is no evidence that this is the case for questions about tobacco use.11-12

The NZHS has a survey response rate of between 68% and 80%. Of note is that the survey response rate increased between 2006/7 (68%) and 2011/12 (79%), which is likely due to a change in fieldwork provider that occurred at that time. It is plausible that smokers are over-represented amongst NZHS non-responders, however calibrated weights used in calculating population-level estimates in the NZHS include adjustment for non-response (both for non-participation by individuals, and also non-response to individual items) with this adjustment based on population stratified by age, ethnicity, and socioeconomic position.20 Furthermore, the relatively high response rate in the last three waves reduces the risk and/or potential impact of such a bias compared with earlier waves. If the level of non-response remains approximately constant, then any bias in recent and future estimates should be consistent, and the observed trends are likely to be fairly reliable.

The NZHS uses sampling methods to select interviewees, and hence is subject to sampling error, illustrated by the error bars in Figures 1 and 2 (representing 95% confidence intervals [CI] of the estimates).

A disadvantage of the NZHS for examining trends over time is questionable...
comparability between pre- and post-2011 NZHS iterations, due to a number of significant methodological changes. Prior to 2011, the NZHS was conducted every 4–6 years, and from July 2011 it became a continuous survey, with question sets and reporting periods retaining a July to June timetable. Another change was the introduction of a dual sample frame using electoral roll-based identification of high-Māori mesh blocks. Prior to 2011, the NZHS only included people living in private accommodation; since then the target population has broadened to the New Zealand usually resident population, including those living in non-private accommodation (such as aged care facilities and student accommodation). The NZHS 2012 methodology report notes, “To make the current and past surveys more comparable, the weights from the earlier surveys have been re-benchmarked, using benchmarks that reflect the target of the current survey”.21

The weightings for 2011/12 and subsequent years were adjusted again in 2014/15 to correct minor errors in how the weights were initially calculated and to further refine population weightings based on the 2013 Census.20 The prevalence figures for 2011/12, 2012/13 and 2013/14 presented in the current paper are those issued by the Ministry of Health in 20156 and differ slightly from the Ministry's previously published data.

In summary, the relative weaknesses of the NZHS for monitoring smoking prevalence over time are limited comparability pre- and post-2011, and the inherent imprecision in the prevalence estimation process arising from a sampling-based design.

Health and Lifestyles Survey

The HLS collects information on attitudes and behaviour relating to HPA's programme areas of alcohol, tobacco control, sun safety, minimising gambling harm, nutrition and physical activity, mental health, and immunisation. The frequency of the HLS is a strength of this survey compared with the Census. However, the HLS does not have any clear advantages over the NZHS for the purpose of monitoring smoking prevalence over time. It has a similar survey response rate, but is less frequent (every 2 years) and has a substantially smaller sample size, which results in poor precision for subgroup analyses. This is illustrated in Figure 2, with the error bars (95% CI) indicating a high margin of error in the HLS when considering specific ethnic groups. Furthermore, ethnicity classification was changed after 2008 (as described above), meaning that comparability between 2008 and subsequent years is limited for analysis by ethnicity.

It is plausible that smokers are over-represented among those who cannot be contacted or refuse participation in the survey, however the HLS methodology report notes, “each selection weight was adjusted using the response rate of the meshblock the respondent was selected from...to compensate for any non-response bias that may have arisen from people refusing to participate in the survey”.22 A sharp improvement in response rate occurred between 2010 (56.7%) and 2012 (83.1%), probably due to a change in fieldwork supplier. As a result, non-response bias, if it occurs, has likely reduced in the most recent two waves of the HLS. However, as noted for the NZHS, non-response should not affect the validity of trends observed after 2012 if non-response remains consistent over time.

Results: prevalence estimates and trends

Adult daily smoking prevalence

Both the Census and the NZHS show a steady decline in adult (age 15+) daily smoking over the past 18 years, from 23–25% in 1996/97, to 18–21% in 2006/07, and then to around 15% in the 2013 to 2015 period, as shown in Figure 1. The HLS, since it began in 2008, shows broadly consistent findings. The dashed line in Figure 1 represents the weighted estimate of smoking prevalence in New Zealand based on all three data sources, and shows a decreasing prevalence of smoking over the study period.

Daily smoking prevalence by ethnicity

Daily smoking prevalence trends for the main ethnic groupings are discussed below. Note that ethnic breakdowns of
Census and NZHS data are not available in the public domain for years prior to 2006, so the analysis below focuses on the 2006–2015 period. Figure 2 presents the prevalence data for all three data sources, separated into panels by data source, with 95% confidence intervals included. Figure 3 presents trends in smoking prevalence by ethnic group (demarcated by colour) for the Census, NZHS and HLS (demarcated by the shape of the data points). The dashed lines give an indicative trend in smoking rates over time for each ethnic group (weighted by the precision of the data sources: these weights were highest for the Census, followed by the NZHS, and then the HLS, as can be seen by the widths of the confidence intervals in Figure 2). A version of this figure including confidence intervals for individual survey estimates is available from the authors. The confidence intervals are the same as those included in Figure 2.

New Zealand European is the largest ethnic group in the country, and in all three data sets the analysis is combined with ‘Other’ ethnicity (ie, this aggregate group covers those people not identifying as Māori, Pacific or Asian). The daily smoking prevalence for this group tracked steadily down from 2006 until 2013 (Figure 3), when the figures from the NZHS and Census converged at 13–14%. However, the most recent findings from the NZHS show no further decline since 2012/13.

The daily smoking rate for Māori adults was generally around twice that of the general population in all the surveys and at all time points (Figure 3). However, the recent trends in Māori and Pacific tobacco use are not clear, since the different data sources (considered individually) give different messages (Figure 2). Census data indicate that daily smoking among Māori fell from 42.2% in 2006 to 32.7% in 2013—a dramatic drop in just 7 years. However, the NZHS presents a less promising picture: according to the unadjusted data, daily smoking amongst Māori decreased only modestly in 8 years, from 39.2% in 2006/07 to 35.5% in 2014/15, a change well within the NZHS survey’s margin of error for this ethnic group.

Pacific smoking was also consistently higher than for European/Other (Figure 3). Estimates of the Pacific daily smoking rate in 2006–07 were 29.2% in the Census and 24.8% in the NZHS. As seen for Māori, the Census figures present a more positive picture of recent trends than the NZHS, showing a drop of 7% in Pacific daily...
smoking in 7 years (2006–2013) to 22%. In contrast, the NZHS shows a modest 2.4% drop from 24.8% in 2006/07 to 22.4% in 2014/15. Again this change is within the margin of error of the NZHS.6

Asian peoples have the lowest rate of daily smoking of the main ethnic groupings (Figure 2). The NZHS shows a steady decline in daily smoking amongst Asian peoples from 9.2% in 2007 to 5.9% in 2014/15, and this is echoed by the Census figures (Figure 3).

According to Ministry of Health analysis, Asian peoples were the only ethnic grouping to show a statistically significant decline in smoking (after age-adjustment) since 2011/12, when the 2025 goal was set.6

Discussion

This study is the first critical review of New Zealand’s national data sources on smoking prevalence. Its scope was limited to data available in the public domain.

Consistency of findings between data sources

The Census, NZHS and HLS present a relatively consistent picture about overall trends in daily smoking prevalence over the past 18 years, but there are important
Figure 3: Ethnic-specific trends in New Zealand adult (age 15+) daily smoking prevalence 2006–2014/15.*

The size of the points in Figure 3 is proportional to the weight of each data source for determining the smoothed trend for that ethnic group.

Discrepancies in findings by ethnicity in the period since 2006. The Census presents more encouraging results for smoking decline among Māori and Pacific than the NZHS, with the latter indicating there has been no statistically significant reduction in daily smoking prevalence in these groups since 2006/07 (after adjustment for differences in the population age structure over time). It is not clear why the Census and NZHS findings are inconsistent for prevalence trends by ethnicity. An increase in non-response/non-inclusion of Māori and Pacific in the 2013 Census compared to previous years may partly account for this finding, resulting in a higher number of ‘missing’ Māori and Pacific smokers in the 2013 Census compared with 2006. This could be investigated by a more in-depth study and appropriate sensitivity analyses.
Strengths and weaknesses of current data sources

Of the three data sources currently available, we believe the NZHS is the most useful single source for monitoring progress in reducing smoking prevalence towards Smokefree 2025 goals. The Census is too infrequent to detect year on year changes, and the sample for the HLS is too small to provide reliable estimates of prevalence by ethnicity—both of which are crucial for assessing progress towards the 2018 interim targets. The NZHS has a large enough sample size to provide reasonably precise prevalence estimates by ethnicity, and the reporting of annual data allows timely monitoring of trends. Furthermore, the NZHS annual reports also include information on whether observed changes in smoking rates are statistically significant once changes in the population age structure have been considered.

However, the Census and HLS also contribute to monitoring progress towards the Smokefree 2025 goals. The NZHS sample size is inadequate to monitor trends in smaller groups that are key to reaching the Smokefree 2025 goal—for example, smoking trends in 15–19 and 20–24-year-olds stratified by ethnicity. The Census enables this more finely grained analysis by age/gender/ethnicity on a periodic basis, and provides valuable complementary data, for example on smoking by occupation and by socio-economic status.

The HLS also has a niche function in the overall surveillance system, as it provides a regular more comprehensive dataset on smoking-related attitudes, beliefs and behaviours and the impact of tobacco control measures. For example, it provides data on attitudes to current and future tobacco control measures, as well as data on factors that influence smoking uptake and quitting. For this reason, the HLS may be the most useful regular survey for monitoring a broader range of tobacco-related attitudes and behaviours. There is a periodic tobacco module for the NZHS which also provides more in-depth information (currently in field for the 2015/16 NZHS period); however, questions on tobacco-related attitudes are limited in scope, and the timing and frequency of its inclusion in the NZHS is irregular, making it less useful for the purpose of monitoring emerging trends.

Progress towards the Smokefree 2025 goal

All three data sources suggest there has been a modest decline in overall daily smoking prevalence over the last 7–8 years, from 18–21% in 2006–08 to a 2013/15 level of 15%. Age-adjusted NZHS findings indicate that this is a real change, and is not simply driven by underlying changes in the age structure of the population.

However, two recent modelling studies based on Census findings have suggested that with business-as-usual trends, the 2025 goal (of achieving a smoking prevalence under 5%) is unlikely to be achieved for any ethnic group in New Zealand. Another modelling study has suggested that this goal will not be achieved even with high annual tobacco tax increases through to 2025 (superimposed on baseline trends).

Recent trends in Māori and Pacific daily smoking prevalence are not clear, given the discrepancy in findings between the Census and the NZHS. However, both data sources suggest that the 2018 interim targets—smoking prevalence of no more than 19% for Māori and 12% for Pacific peoples—will be missed by a substantial margin. The apparent lack of progress indicated by the NZHS findings is extremely concerning, and points to an urgent need for enhanced tobacco control measures, including targeted interventions for Māori and Pacific groups and an emphasis on population measures that will have a strong impact on smoking prevalence in these populations.

Implications for surveillance system design and policy

Notwithstanding the discrepancies noted above, the current surveillance system is fairly robust for monitoring smoking prevalence, though it is important that all three data sources are maintained and the methods remain robust and consistent. For example, inclusion of the smoking question in the 2018 Census (and beyond to 2025) is very important, since this will enable fine-grained analysis on a periodic basis, and will provide a cross-check on use of the NZHS data as the preferred data source.

Current trends, along with recent modelling studies, suggest that the
interim 2018 goal and the Smokefree 2025 goal will not be met, and will be missed by a substantial margin for Māori and Pacific peoples. Bold and urgent action is needed to accelerate smoking decline, particularly interventions that make a difference for high-need groups, for example Māori, Pacific, and pregnant women. Policy measures identified as high priority by the tobacco control sector and recommended by the Māori Affairs Select Committee include introduction of plain packaging, reduction in availability and supply of tobacco, mass media campaigns targeted at Māori and pregnant women, and continued tax increases.\(^2\)

**REFERENCES:**


**Competing interests:**
Nil.

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