

Tobacco Trends 2008

A brief update of tobacco use in
New Zealand

Please note: Care must be taken when comparing smoking rates as rates may vary depending on the survey type, age range of respondents, definition used for smoking (ie, current or daily smokers) and statistical adjustments (eg, age-standardisation).

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Key Points

- The estimated smoking rate for people aged 15 years and over for 2008 is 21%. This is generally consistent with the downward trend over the last 25 years.
- Among youth aged 15 to 19 years, 20.8% were current smokers in 2008.
- Half of youth aged 15 to 19 years had never tried smoking, not even one puff. This prevalence is significantly higher than in 2006 (39%).
- Nearly 60% of youth current smokers aged 15 to 17 years reported buying cigarettes in the past month.
- Among youth, roll-your-own cigarettes were more likely to be smoked by 15- to 17-year-olds than 18- to 19-year-olds. The most common reason given for smoking roll-your-own cigarettes among 15- to 17-year-olds was that they were cheaper than manufactured cigarettes.
- Māori (45.4%) and Pacific people (31.4%) were more likely to be current smokers compared with the total population aged 15 to 64 years.
- People living in the most deprived neighbourhoods were 1.5 times more likely to be smokers than people living in the least deprived areas
- The amount of tobacco available per person for consumption in New Zealand in 2008 increased by less than 1% from 2007.

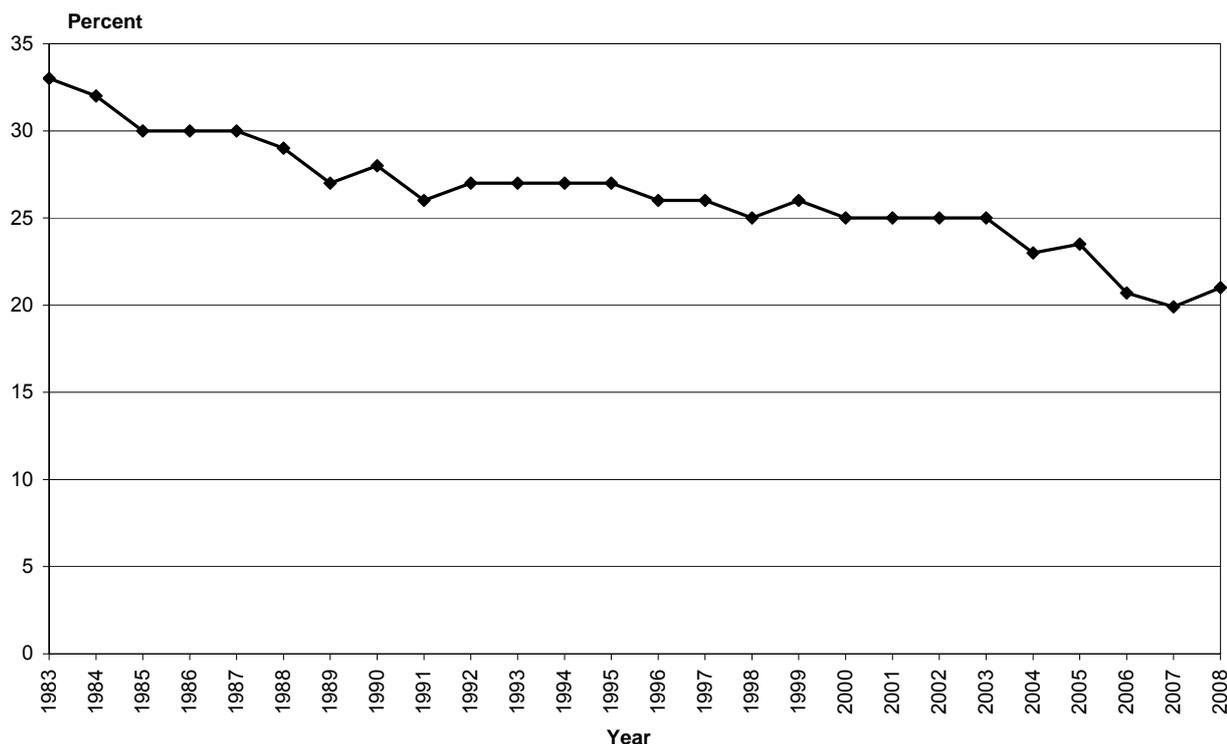
Introduction

This paper is a brief update of tobacco use in New Zealand in 2008. It provides an overview of current smoking and tobacco consumption among New Zealanders over time, and presents some data from the 2008 New Zealand Tobacco Use Survey (NZTUS 2008), including current smoking by age, ethnic group and neighbourhood deprivation, and smoking in youth aged 15 to 19 years.

Current Smoking Among New Zealanders

The 2008 estimate for current smoking was 21%, confirming the general downward trend since 1983 (see Figure 1). A current smoker is defined as someone who has smoked more than 100 cigarettes (or equivalent) in their lifetime and currently smokes at least once a month (World Health Organization 1998). In this paper, smoking refers to cigarettes, roll-your-own tobacco, cigars and pipes.

Figure 1: Current smoking among those aged 15 years and over, 1983–2008 (unadjusted prevalence)



Sources: AC Nielsen NZ Ltd (1983–1995, 1997–2005); 1996 and 2006 Censuses of Population and Dwellings, Statistics New Zealand; 2006/07 New Zealand Health Survey; NZTUS 2008.

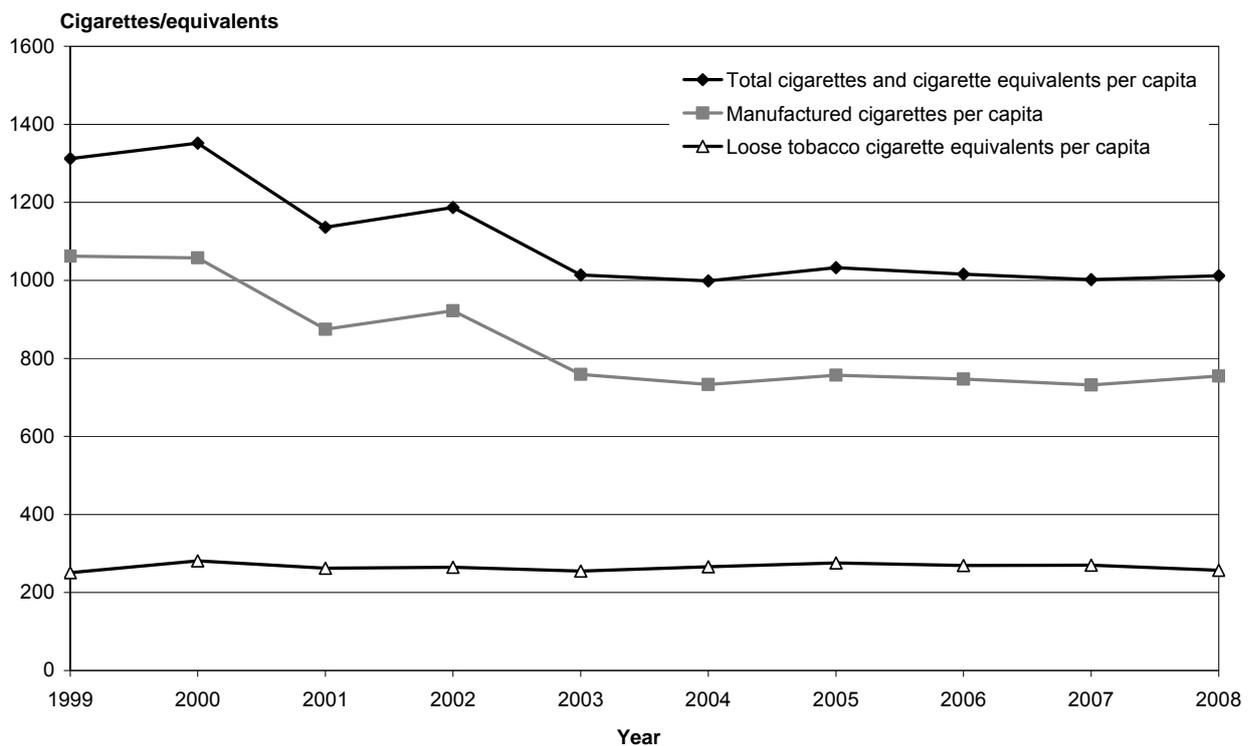
Notes:

- 1 From July 1989 to March 1996 data were collected from people 16 years and above. Adjustments have been made to estimate the expected proportion of smokers among 15-year-olds by using the results from the older age group.
- 2 In 2003 data were collected from people aged 18 years and above. Adjustments have been made to estimate the expected proportion of smokers among 15–17-year-olds by using the results from the older age group.
- 3 Annual AC Nielsen NZ Ltd estimates have been calculated from the average of the quarterly results until 1999. From 2000 annual estimates are derived from the years' pooled data.
- 4 The proportion of current smokers aged 15+ in 2008 has been estimated using the NZTUS 2008 data for 15- to 64-year-olds and an estimate (adjusted for gender and ethnic group) based on the 2006/07 New Zealand Health Survey (Ministry of Health 2008a) for those aged 65+.

Supply of Tobacco in New Zealand

There was little overall movement in the amount of tobacco products per person aged 15 years and over available for consumption in New Zealand in 2008 compared with the previous year (Figure 2). The total cigarettes and cigarette equivalents available per capita increased by less than 1% from 2007. There was a 3.1% increase in the number of manufactured cigarettes per capita available and a 4.8% decrease in the number of cigarette equivalents of tobacco (one gram of loose tobacco = one cigarette)¹ available per capita.

Figure 2: Annual number of tobacco products available for consumption in New Zealand per capita, 1999–2008



Source: Statistics New Zealand (2008)

Notes:

- 1 One cigarette equivalent equals one manufactured cigarette or one gram of loose tobacco.
- 2 Quantities of loose tobacco and manufactured cigarettes are based on the annual tobacco products released and annual tobacco returns (for more information, see the Methodology section).
- 3 'Per capita' means for each individual (15+ years) in the population.

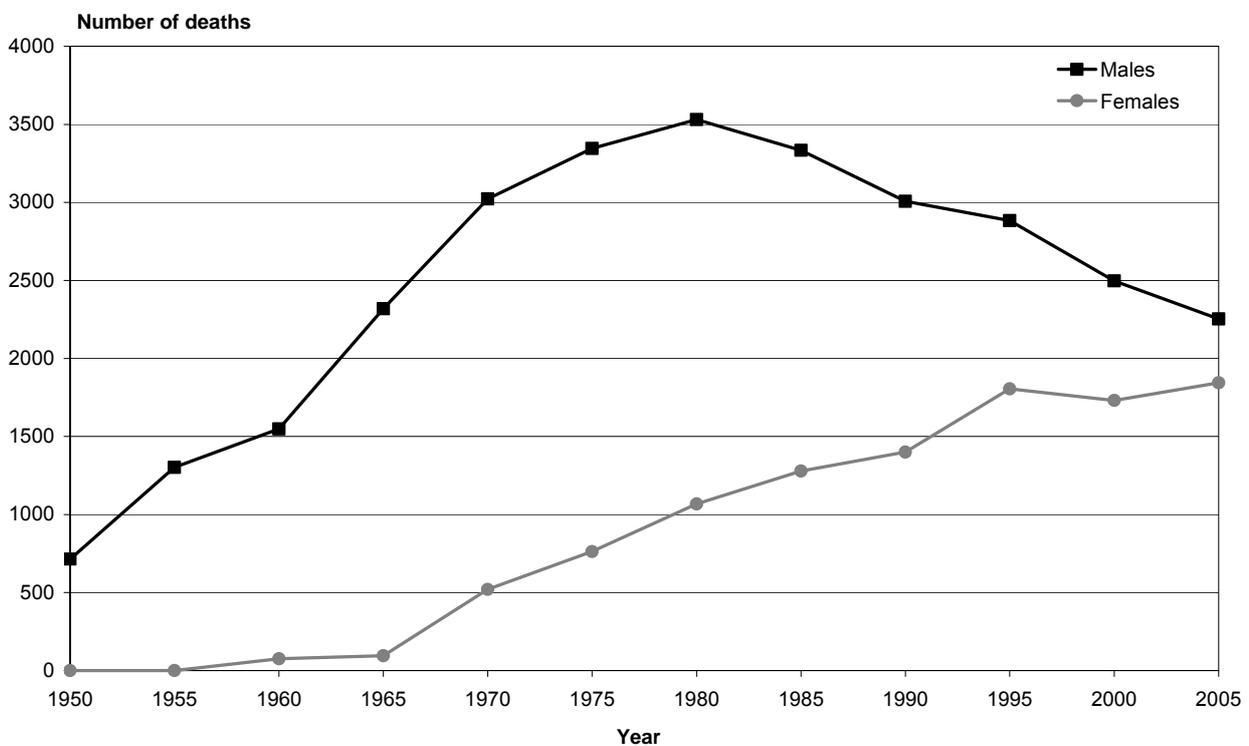
¹ It has been argued that this standard for conversion from tobacco to cigarette equivalents may underestimate the true cigarette numbers. The equivalent may be as low as 0.5 grams, as used in Laugesen 2009.

Tobacco Attributable Mortality

It is estimated that smoking kills around 4500–5000 people in New Zealand every year (including deaths due to second-hand-smoke exposure), with around 1500 of these deaths occurring in middle age.

In New Zealand, there was a large overall increase in mortality attributable to smoking (all causes) up until the 1980s, the total number then remained fairly steady until the mid-90s, the number of deaths now appears to be decreasing. This decrease appears to be driven by a reduction in the number of deaths attributed to smoking for men, while the number of tobacco-attributable deaths among women increased steadily to the mid 1990s and has since stabilised (see Figure 3). These sex differences in tobacco attributable mortality (TAM) reflect differences in the timing and magnitude of the tobacco epidemic experienced by males and females.

Figure 3: Total number of deaths attributed to smoking (all causes), 1950–2005



Source: Health & Disability Intelligence (HDI); Peto et al (2006)

Notes:

- 1 Estimates for 2000 and 2005 have been derived by HDI from Ministry of Health mortality counts.
- 2 Estimates for 1950–1995 were drawn from Peto et al 2006.
- 3 Estimates have been calculated using the Peto method (WHO 1998), which is used internationally. Analysis of linked New Zealand census and mortality data suggests that the Peto method may overestimate TAM when applied to ethnic groups such as Māori (Blakely et al 2006). Ethnic-specific estimates have therefore not been presented here.

Smoking is the main cause of lung cancer, and is a prominent risk factor for chronic obstructive pulmonary disease (COPD), cardiovascular disease (CVD), upper aerodigestive cancers (includes cancers of the mouth, oesophagus, pharynx and larynx), and many other cancers and chronic diseases.

Table 1 presents the total number of deaths attributable to smoking, broken down by disease type. The highest proportions of deaths from smoking are due to lung cancer, COPD and CVD, which together account for more than three-quarters of deaths attributable to smoking.

Table 1: Number of deaths attributable to tobacco smoking in New Zealand, by cause of death, 2002–2006

Year	CVD	COPD	Lung cancer	Upper aerodigestive cancer	Other cancer	Other medical	All causes
2002	1114	1180	1224	161	362	525	4566
2003	984	1180	1217	175	352	470	4377
2004	1062	1234	1298	168	368	514	4644
2005	907	1048	1191	162	335	455	4098
2006	909	1085	1196	162	323	509	4185
2002–2006	997	1147	1225	166	348	497	4381

Notes:

- 1 Estimates have been derived by HDI from Ministry of Health mortality data.
- 2 TAM for lung cancer is calculated differently to TAM for other diseases.
- 3 All causes may not be the sum of specific causes due to rounding.
- 4 The 2002–2006 calculation uses the same Peto methodology (WHO 1998); however it uses five years of data.

The New Zealand Tobacco Use Survey 2008

The NZTUS 2008 was a face-to-face survey carried out from February to June 2008. The survey included 5132 voluntary respondents (both smokers and non-smokers) aged 15 to 64 years old who were randomly selected to participate. The response rate for the survey was 74%.

Current smoking, 15 to 64 year olds

In 2008, 23.1% (21.7–24.5) of people aged 15 to 64 years were current smokers.²

After adjusting for age, significantly more males (25.7%, 23.6–27.8) were current smokers than females (22.3%, 20.3–24.2) (p-value < 0.05).

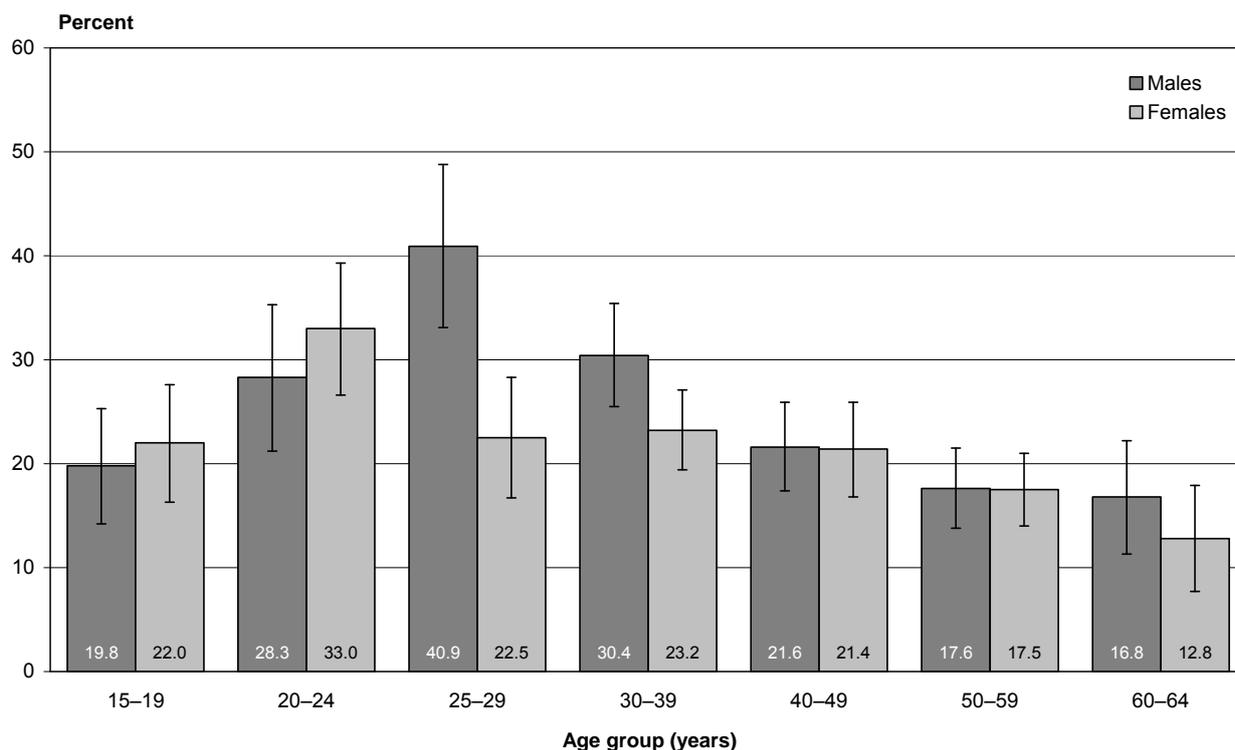
Current smoking, by age group

The prevalence of current smoking increased with age until 20 to 24 years for females (33.0%, 26.6–39.3) and until 25 to 29 years for males (40.9%, 33.1–48.8), after which it declined (Figure 4). The lowest rates were in the 50 to 64 years age groups.

Overall there were no differences by gender in the prevalence of current smoking, except in the 25 to 29 years age group, where males were significantly more likely to be current smokers than females.

² 20.7% of 15 to 64 year olds were daily smokers, this represents 89.8% (87.5–92.1) of current smokers.

Figure 4: Current smoking for 15- to 64-year-olds, by age group and gender, 2008 (unadjusted prevalence)



Source: NZTUS 2008

Current smoking, by ethnic group

Table 2 gives an indication of the prevalence of current smoking in New Zealand in 2008 by ethnic group.

Table 2: Current smoking for 15- to 64-year-olds, by ethnic group (total ethnicity) and gender, 2008 (unadjusted)

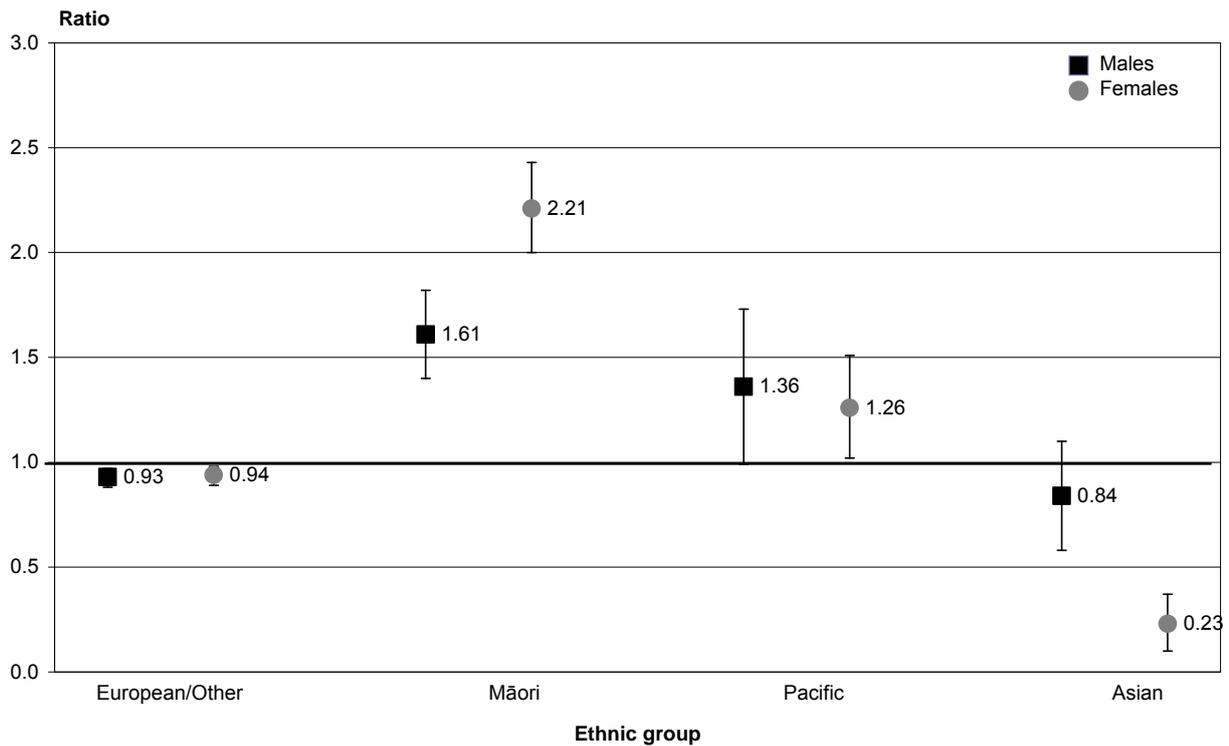
Ethnic group	Males		Females		Total	
	Prevalence (95% CI)	Number	Prevalence (95% CI)	Number	Prevalence (95% CI)	Number
European/Other	22.5 (20.3-24.7)	227,100	20.2 (18.0-22.5)	218,800	21.3 (19.8-22.8)	446,000
Māori	40.4 (34.7-46.0)	63,400	49.7 (44.4-55.1)	91,300	45.4 (41.4-49.4)	154,700
Pacific	34.7 (26.6-42.8)	26,100	28.5 (23.3-33.6)	23,700	31.4 (26.9-36.0)	49,800
Asian	20.1 (13.2-26.9)	31,200	5.2 (2.7-9.0)	8,600	12.4 (8.7-16.2)	39,800

Source: NZTUS 2008

Note: Total response standard output for ethnic groups has been used.

After adjusting for age, Māori females were more than twice as likely, and Pacific females were over 25% more likely, to be current smokers than females in the total population (Figure 5). Māori and Pacific males were significantly more likely to be current smokers than males in the total population. Asian females and European/Other males and females were significantly less likely to be current smokers than males and females in the total population.

Figure 5: Current smoking for 15–64-year-olds, by ethnic group and gender (age-standardised rate ratio)



Source: NZTUS 2008

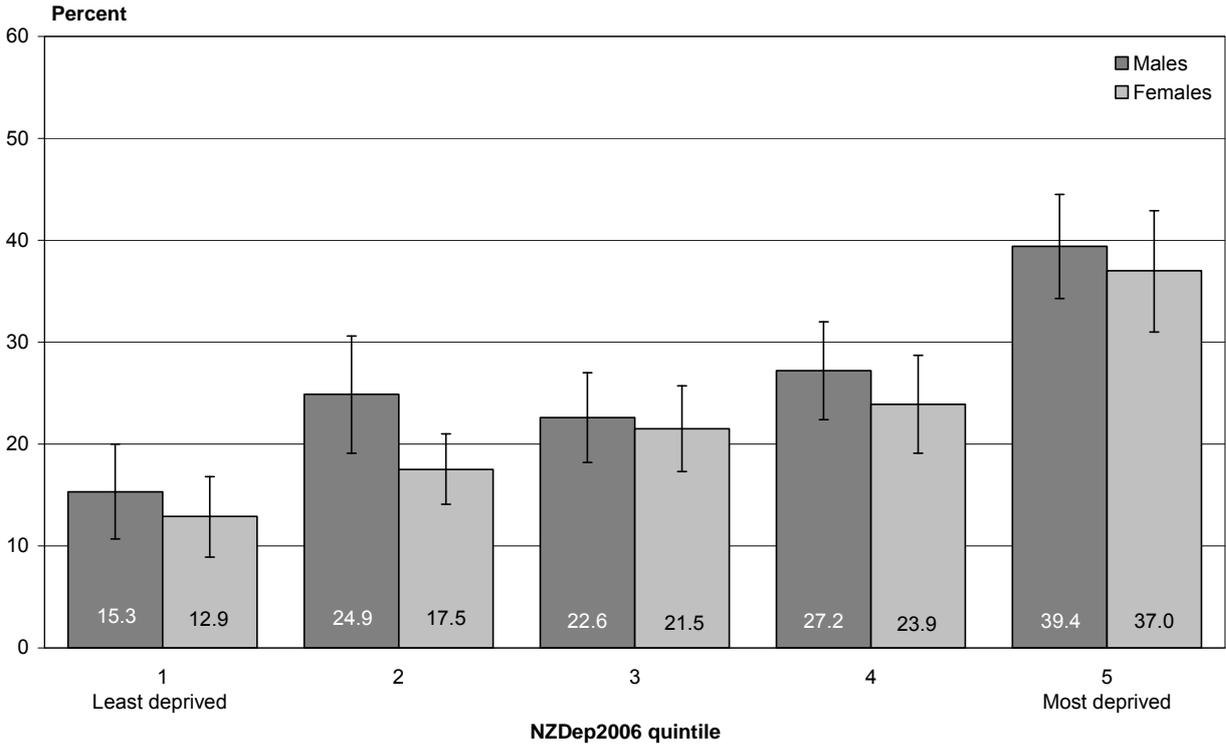
Notes:

1. The reference group is indicated by the bold line with a rate ratio of 1.0, which represents the total New Zealand population aged 15 to 64 years for males or females.
2. Total response standard output for ethnic groups has been used.

Current smoking, by neighbourhood deprivation

After adjusting for age, both males and females living in the most deprived neighbourhood areas (NZDep2006 quintile 5) were 1.5 times more likely to be current smokers than males and females living in the least deprived neighbourhood areas (NZDep2006 quintile 1) (Figure 6).

Figure 6: Current smoking for 15–64-year-olds, by NZDep2006 quintile and gender, 2008 (age-standardised prevalence)

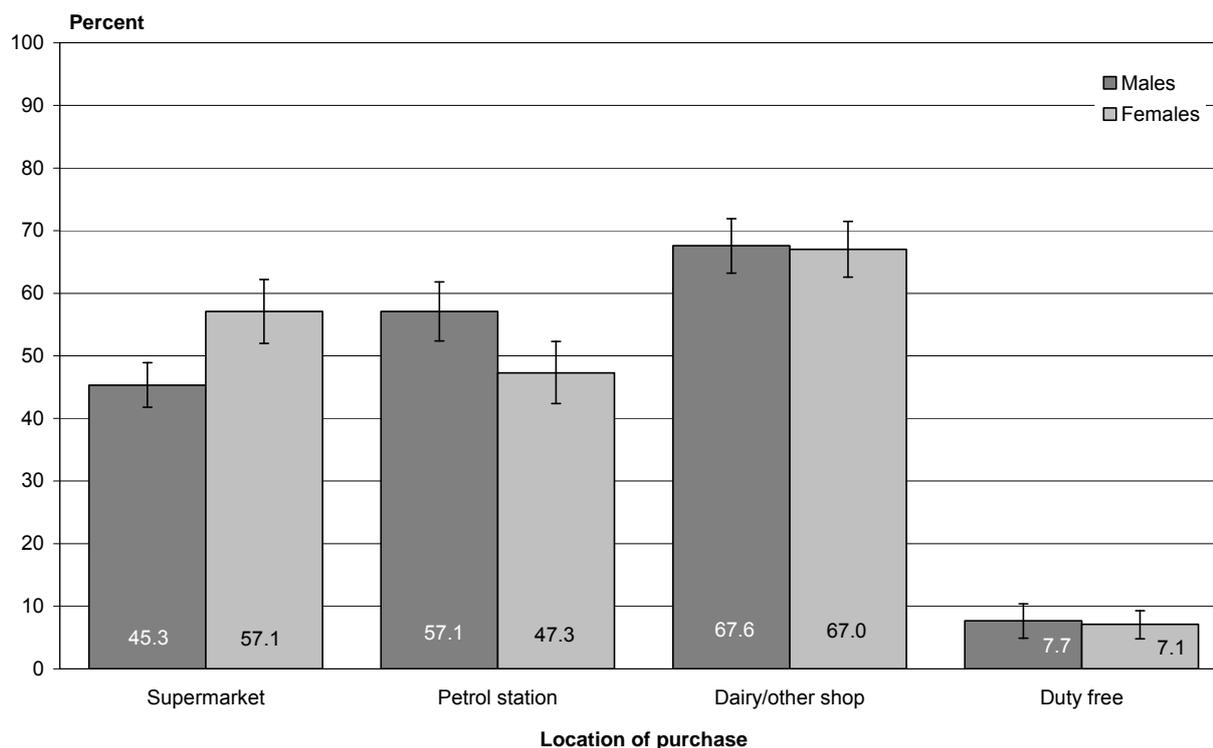


Source: 2008 NZTUS

Source of tobacco products

Two-thirds of current smokers aged 15 to 64 (66.9%, 63.7–70.1) purchased cigarettes or tobacco from a dairy or other shop in the month prior to the survey (the results are given in Figure 7 by gender). Over half also purchased cigarettes or tobacco from a supermarket (52.2%, 48.8–55.6) and half (51.4%, 47.8–54.9) made a purchase at a petrol station. Females were more likely to purchase cigarettes or tobacco from a supermarket, whereas males were more likely to purchase these products from a petrol station, after adjusting for age.

Figure 7: Places where current smokers aged 15 to 64 years purchased tobacco/cigarettes in the past month, 2008 (age-standardised prevalence)



Source: NZTUS 2008

Note: Smokers were able to report buying cigarettes from multiple locations in the past month, so may be included in more than one category.

Current smoking in youth (15 to 19 years)

Among youth aged 15 to 19 years, 20.8% (17.0–24.7) were current smokers in 2008. There was no significant difference by gender.

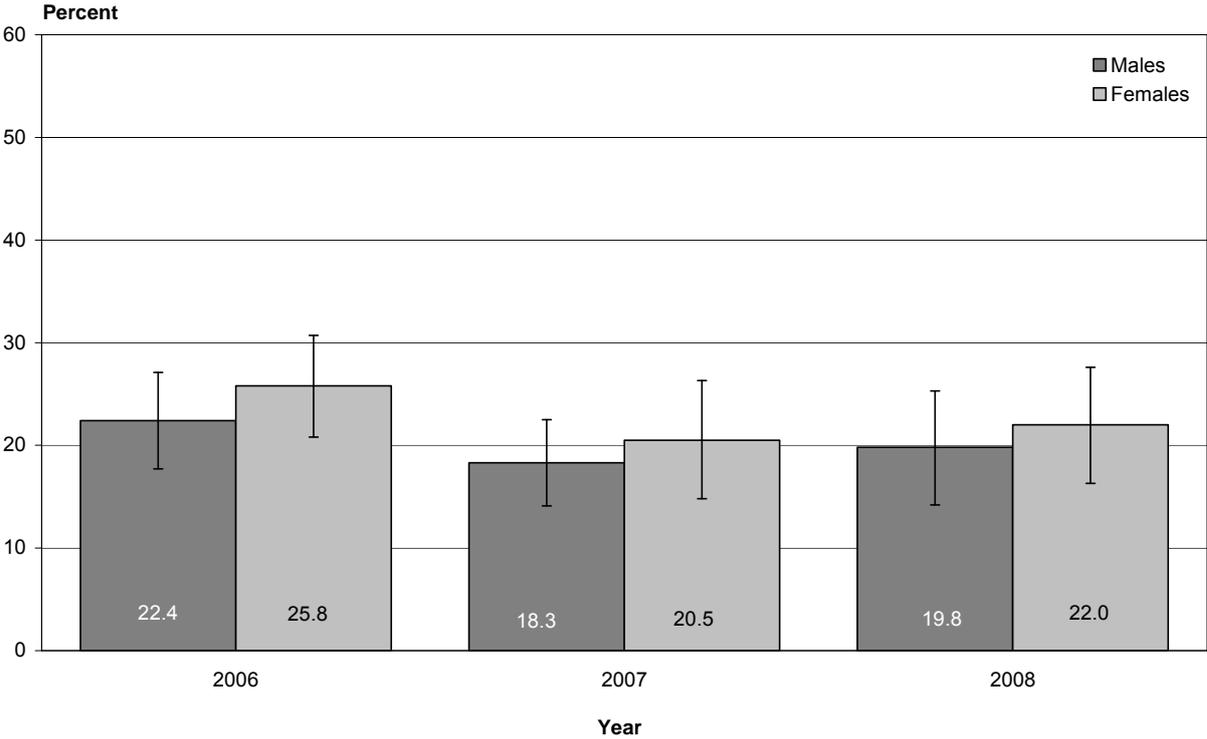
Overall, in 2008 the average age that 15- to 19-year-olds had their first cigarette was 13.3 years (12.9–13.7 years).

Of all current smokers aged 15 to 19 years, 81.0% (72.4–89.6) had a family member who smoked. In comparison, significantly fewer non-smokers had family members who smoked (56.1%, 50.7–61.5).

Among youth, all smokers were asked if they were smoking less, more or about the same as they were last year. Among 15- to 19-year-olds, 44.1% (33.4–54.9) of current smokers were smoking the same as they did last year and 21.4% (13.2–31.7) said they were smoking less. One in four (26.8%, 17.2–36.3) said they were smoking more than they did last year (this number excluded people who were not smoking in the previous year).

There was a slight decrease in the prevalence of current smoking in youth from 2006 to 2008 for both males and females, but this was not statistically significant (Figure 8).

Figure 8: Current smoking for youth, by gender, 2006–2008 (unadjusted prevalence)



Sources: NZTUS 2006; 2006/07 New Zealand Health Survey; NZTUS 2008.

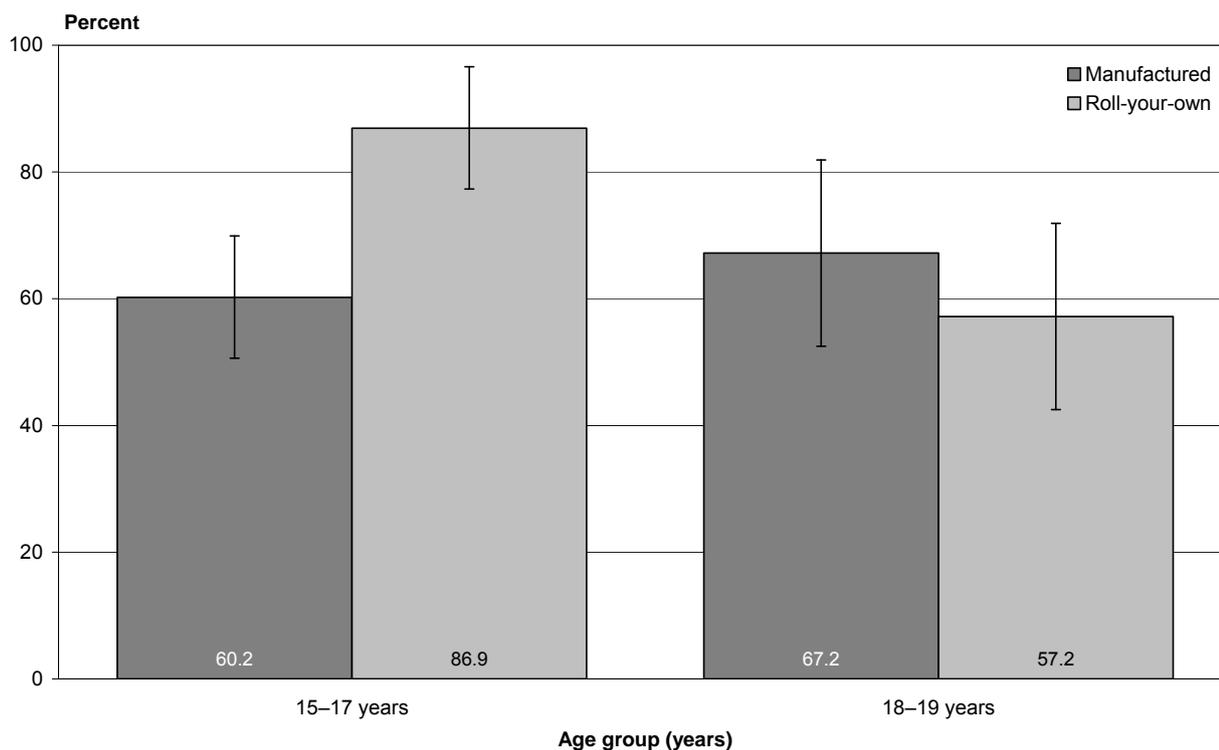
Note: The 2007 data point represents the 2006/07 New Zealand Health Survey (Ministry of Health 2008a).

Half of youth (50.5%, 45.4–55.7) aged 15 to 19 years had never tried smoking, not even one puff. This prevalence is significantly higher than in 2006 (39%, 35.5–42.6).

Youth: roll-your-own and manufactured cigarette consumption

Among youth, roll-your-own cigarettes were more likely to be smoked by 15- to 17-year-olds than 18- to 19-year-olds (Figure 9). A key difference between these groups is that it is illegal to sell tobacco products to 15- to 17-year-olds. Members of the younger age group were significantly more likely to smoke roll-your-own cigarettes than manufactured cigarettes. In comparison, among 18- to 19-year-olds there was no significant difference between smoking manufactured cigarettes and smoking roll-your-own cigarettes.

Figure 9: Use of manufactured vs roll-your-own cigarettes in youth current smokers aged 15 to 19 years, by age group, 2008 (unadjusted)



Source: NZTUS 2008

Note: Youth current smokers were able to report smoking both manufactured and roll-your-own cigarettes, so may be included in both categories.

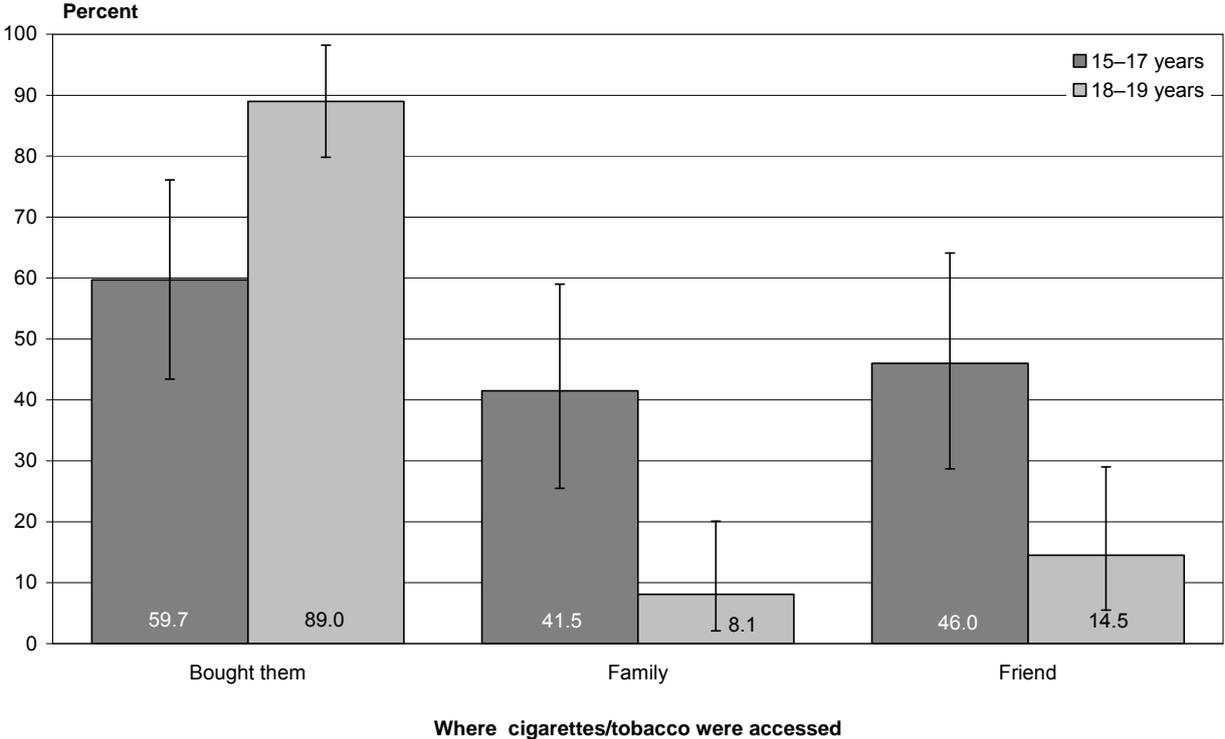
The most common reason given for smoking roll-your-own cigarettes among 15- to 17-year-olds was that they were cheaper than manufactured cigarettes.

Youth: access to tobacco products

Among youth current smokers, significantly more 18- to 19-year-olds than 15- to 17-year-olds bought their cigarettes or tobacco (Figure 10). The younger age group (15–17 years) were significantly more likely than 18- to 19-year-olds to get their cigarettes or tobacco from their friends or family.

Nearly 60% (59.7%, 43.4–76.1) of youth current smokers aged 15 to 17 years reported buying cigarettes in the past month.

Figure 10: Where cigarettes / tobacco products were accessed in the past month, youth current smokers aged 15 to 19 years, by age group, 2008 (unadjusted prevalence)

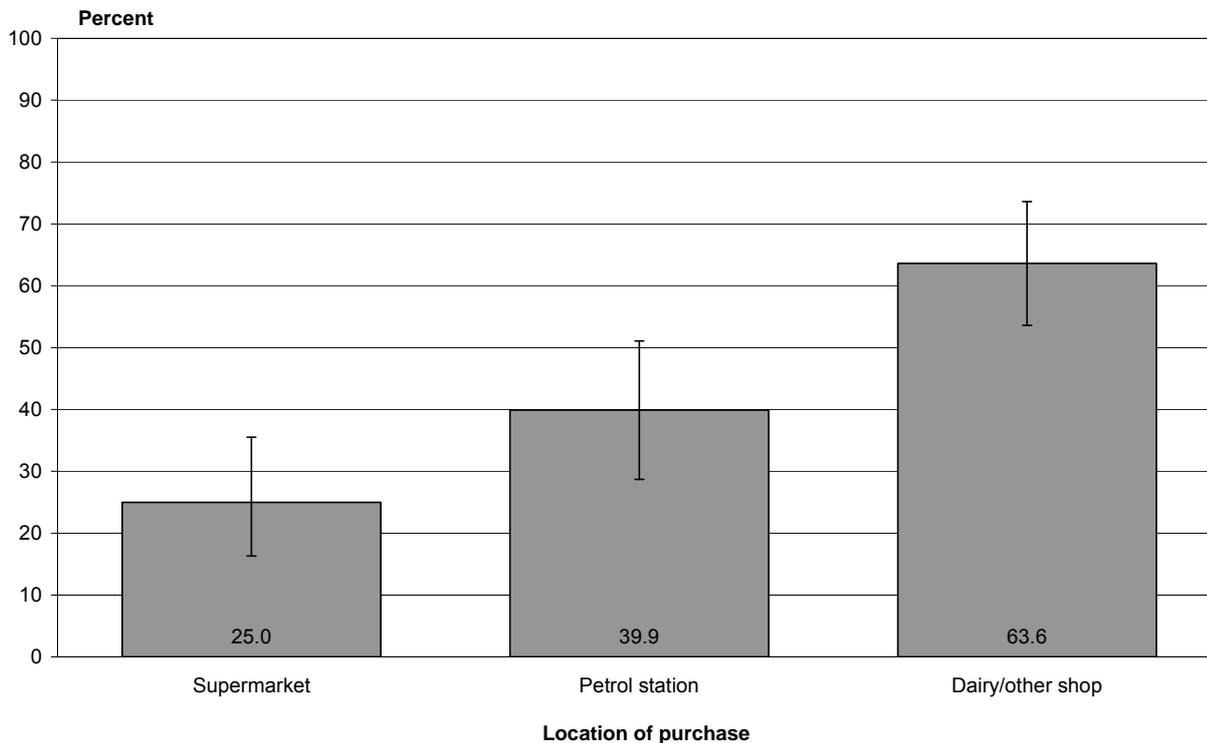


Source: NZTUS 2008

Note: Multiple answers were accepted so an individual may have been counted in more than one category.

Most youth current smokers (63.6%, 53.6 –73.6) bought their cigarettes from a dairy or other shop in the month preceding the survey (Figure 11).

Figure 11: Places where cigarettes / tobacco products were purchased in the month prior to the survey, among youth current smokers aged 15 to 19 years, 2008 (unadjusted prevalence)



Source: NZTUS (2008)

Note: Multiple answers were accepted so an individual may have been counted in more than one category.

Methodology

1 Survey design and analysis

The target population for the NZTUS 2008 was the usually resident civilian population aged 15 to 64 years, living in permanent private dwellings in New Zealand. The target population was approximately 2.7 million people aged 15 to 64 years.

The survey was carried out with a face-to-face computer-assisted personal interview (CAPI) system from February to June 2008. The NZTUS 2008 adopted a multi-stage, stratified, probability-proportional-to-size sampling design. This included a Pacific stratum, as well as sampling by District Health Board area and a screen sample to boost the proportions of Māori, Pacific people and those aged 15 to 24 years.

The overall weighted response rate for the survey was 74%, with a sample size of 5132 respondents. This included 933 Māori, 528 Pacific people, 556 Asian people and 3670 European/Other people.³ The survey has been weighted to represent the total New Zealand population aged 15 to 64 years.

The methodology report contains more information on the sample design and analysis (available from <http://www.moh.govt.nz/moh.nsf/indexmh/tobacco-trends-2008>).

2 Total response ethnicity

A standard output classification that measures the distribution of the population across ethnic categories. Because individuals may count themselves in each of the four ethnic groups (European/Other, Māori, Pacific, Asian), the sum of the ethnic populations exceeds the total New Zealand population.

For more information, refer to Statistics New Zealand's classification for ethnicity output: www.stats.govt.nz/statistical-methods/classifications-and-related-statistical-standards/ethnicity/output.htm, or see *Presenting Ethnicity: Comparing prioritised and total response ethnicity in descriptive analyses of New Zealand Health Monitor surveys* (<http://www.moh.govt.nz/moh.nsf/indexmh/presenting-ethnicity-nzhmsurveys>) (Ministry of Health 2008b).

³ Note that these sample sizes add to more than 5132, because total response ethnic groups have been used.

3 Neighbourhood socioeconomic deprivation: The New Zealand Index of Socioeconomic Deprivation 2006 (NZDep2006)

The New Zealand Index of Socioeconomic Deprivation 2006 is used in this paper as a measure of neighbourhood socioeconomic deprivation and a proxy for individual socioeconomic position. The NZDep2006 is created from the Census 2006 data. It describes deprivation using nine variables from the 2006 Census.⁴ NZDep2006 scores have been divided into five even groups (quintiles) to compare neighbourhoods of the least deprivation (quintile 1) with neighbourhoods of the most deprivation (quintile 5).

4 Tobacco supply data

In New Zealand, tobacco supply is measured using the annual tobacco products released and the annual tobacco returns. The annual tobacco products released are the amount of manufactured cigarettes and loose tobacco, on which tax has to be paid, imported for sale in New Zealand. This information is reported annually by Statistics New Zealand. The annual tobacco returns identify the amount of tobacco products, including manufactured and loose tobacco, sold to retailers each year. As required by the Smoke-free Environments Act 1990, the returns are reported to the Director-General of Health annually by individual tobacco product manufacturers.

Actual consumption can only be inferred from this data. The supply is reported per capita to minimise the effect of the increasing population.

When converting quantities of loose tobacco to the equivalent numbers of cigarettes, the standard measure used in this paper was one gram of tobacco is equivalent to one manufactured cigarette.

⁴ Receiving a means-tested benefit, low household income, not owning the home you live in, single-parent family, unemployment, no school qualifications, household overcrowding, no access to a telephone and no access to a car.

Glossary

Age-standardisation	This is used when comparing different populations. Age-standardisation involves adjusting for the effects of any differences in the age distributions between population groups.
Current smoker	Someone who has smoked more than 100 cigarettes in their lifetime and at the time of the survey was smoking at least once a month (World Health Organization 1998).
Manufactured cigarette	A cylinder of finely cut tobacco rolled in paper using mechanical production-line techniques and sold in packets of 20 or more. Also known as a tailor-made, ready-made or factory-made cigarette.
Never smoked	Someone who has either never smoked at all or has never been a daily smoker and has smoked less than 100 cigarettes (or the equivalent).
Ninety-five percent confidence intervals and p-values	A 95% confidence interval means there is a 95% chance the true value of the estimate (if we were to survey the whole population) lies between the lower and upper confidence interval values.
Non-smoker	Someone who at the time of the survey did not smoke at all. Non-smokers include: <ul style="list-style-type: none">• ex-smokers (people who were formerly current smokers but at the time of the survey did not smoke at all)• people who have not smoked more than 100 cigarettes in their lifetime• never smokers.
P-value	A statement of probability which represents the significance of a t-test. If a p-value is less than 0.05, the difference between two rates is said to be statistically significant.
Prevalence	The proportion or percentage of the specified population at a given time (for the NZTUS 2008, this is 2008) with a health behaviour (eg, smoking).
Roll-your-own cigarettes	Loose tobacco, cigarette papers and (sometimes) filters are purchased separately and rolled either by hand or with the aid of a small portable rolling machine. Also known as rollies. For the purposes of this paper one gram of loose tobacco is equivalent to one ready-made cigarette.
Smoking	The active smoking of tobacco products such as manufactured or roll-your-own cigarettes, cigars or pipes. Smoking does not include: <ul style="list-style-type: none">• the smoking of any other substances (eg, herbal cigarettes or marijuana)• the consumption of tobacco products by other means, such as chewing.
Standardised rate ratios	The ratio of the prevalence of one group compared with the prevalence of another group. In this report, rate ratios are used to compare the four ethnic groups with the total New Zealand population, and they have been age-standardised.

Statistically significant Differences between estimates are said to be statistically significant when the confidence intervals for each rate do not overlap. Sometimes, however, even when there are overlapping confidence intervals the difference between the groups can be statistically significant. In this report, any differences between two variables where the confidence intervals overlapped were tested using a t-test. The significance of a t-test is represented by the p-value. If a p-value is below 0.05, then we are 95% confident the difference between the two estimates is statistically significant. Unless otherwise stated, all differences noted in the text in *Tobacco Trends 2008* are statistically significant.

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