

# Tobacco

# *Statistics*

# 2000



Cancer  
Society

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**Cancer  
Society**

*Tobacco Statistics 2000* brings together a wide range of information about tobacco and smoking in New Zealand from various sources, to fill a steady demand from tobacco control professionals, teachers, students, libraries and the media.

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### **The author**

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### **Acknowledgements**

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## Foreword

We commend *Tobacco Statistics 2000* to all who are working for a smoke-free New Zealand. With over 4500 people per year still dying from smoking tobacco products, there is every reason for Government and other agencies to act firmly to improve on the statistics found in these pages.

It is encouraging that the rate of consumption of tobacco products has dropped more quickly in New Zealand over recent decades than in virtually any other industrialised country. Unfortunately, four in ten women in their early twenties and about six in ten Maori of that age are still daily smokers. If these young people keep on smoking, one in two will die early of smoking, a much higher death rate than was previously realised.

Smoking causes one in four of all cancer deaths in New Zealand. Among middle-aged men four in ten fatal cancers are due to smoking tobacco products. Among middle-aged women the proportion of cancers caused by smoking is increasing. Even so, cancer only accounts for just over one-third of smoking deaths. Smoking also causes respiratory and circulatory diseases.

*Knowing that almost all smokers likely to die from cigarette smoking in the next 20 years are already smokers, the Cancer Society has sought to encourage government and other voluntary agencies to support a sustained Quit Campaign, to help smokers to quit. We would like to see the Smoke-free Environments Act extended to make all public indoor spaces, including schools, workplaces, bars and restaurants, smoke-free. The Society also wants to see the price of tobacco products steadily increased.*

In short, the Cancer Society wants much firmer measures put in place to reduce the smoking death toll, whether through smoke-free laws, subsidised treatment for would-be ex-smokers, or publicity informing smokers of the consequences of smoking.



Bette Kill

Chairperson, National Health Promotion Committee

Cancer Society of NZ (Inc)

# Contents

Acknowledgements	ii	
Foreword	iii	
Smoking prevalence data	vi	
Executive summary	1	
Table 1	Chronology of recent events in tobacco control in New Zealand	2
<b>Smoking prevalence</b>		
Figure 1	Cigarette smoking prevalence, men and women, age 15 years and over, 1983-99	3
Table 2	Cigarette smoking prevalence, New Zealand, by age group, sex, and ethnicity, by census 1976-96, and surveys, 1983-99, percentages	4
Figure 2	Cigarette smoking by ethnicity, age 15 years and over, 1990-99	5
Table 3	Cigarette smoking prevalence and quit ratio, ethnic groups, 15 years of age and over, 1996	5
Table 4	Cigarette smoking prevalence in Maori and total population, age 15-34, and 35 years and over, by sex, 1976-99, percentages	6
Table 5	Cigarette smoking prevalence in Maori men and women, by five-year age group, 1976-99, percentages	6
Figure 3	Cigarette smoking prevalence, Maori men, by five-year age group, 1976, 1981 and 1996	7
Figure 4	Cigarette smoking prevalence, Maori women, by five-year age group, 1976, 1981 and 1996	7
Table 6	Cigarette smoking prevalence in non-Maori men and women, by five-year age group, 1976, 1981 and 1996, percentages	8
Table 7	Cigarette smoking prevalence, total population, by five-year age group and sex, 1976, 1981, 1990-92 and 1996, percentages	8
Figure 5	Cigarette smoking prevalence, non-Maori men, by five-year age group, 1976, 1981 and 1996	9
Figure 6	Cigarette smoking prevalence, non-Maori women, by five-year age group, 1976, 1981 and 1996	9
Figure 7	Cigarette smoking prevalence in men, by age group and decade of birth	10
Figure 8	Cigarette smoking prevalence in women, by age group and decade of birth	10
<b>Cigarette smoking in young people</b>		
Figure 9	Cigarette smoking prevalence, age 15-19 and 20-24 years, 1983-99	11
Table 8	Cigarette smoking status, secondary school students age 14 and 15 years, by gender and ethnicity, 1992-9.	11
Table 9	Cigarette smoking prevalence, age 14 and 15 years, 1998-9, compared with adults age 15+ years in 1996, by territorial local authority	12

## **Tobacco products consumption – New Zealand**

Table 10	Cigarettes per smoker aged 15 years and over per day, 1985-99	14
Figure 10	Cigarettes per smoker per day and cigarette smoking prevalence, aged 15 years and over, 1985-99	14
Table 11	Tobacco products consumption per adult aged 15 years and over, released for sale in New Zealand, 1920-99	15
Table 12	Tobacco in tobacco products released for sale in New Zealand 1990-99	16

## **New Zealand tobacco control programme results**

Table 13	Percentage risk of dying in middle age (35-69 years), from cigarettes or other causes, 1975-96 and the 1985-96 trend	17
Figure 11	Smoking prevalence age 15 and over, rate of change 1985-95, OECD countries	18
Figure 12	Cigarettes per smoker per day, OECD countries, 1995	18
Figure 13	Tobacco products consumption per adult age 15 and over, OECD countries, 1995	19
Figure 14	Tobacco products consumption per adult age 15 and over, OECD countries, rate of change 1985-95	19
Figure 15	Tobacco products released for sale per adult aged 15 years and over, United Kingdom, New Zealand and Sweden, 1980-99	20

## **The cost of smoking**

Figure 16	Manufactured cigarette prices and sales before and after the Budgets of 1991, 1998 and 2000, weekly data from supermarket checkouts	21
Table 14	Changes in tax, price, volume sales, responsiveness of sales to price, and dollar sales, for manufactured and hand rolled cigarettes combined, average of the weeks before and after the Budgets of 1991, 1998 and 2000, % changes	21
Table 15	Tobacco products excise rates and cigarette retail prices, 1985-00	22
Figure 17	Price of a packet of 20 manufactured cigarettes, 1960-00, in 1995 dollars	23
Table 16	Tobacco products: national consumer expenditure and excise fraction of the retail price, 1980-99	24
Figure 18	Tobacco products, revenue and consumption, 1980-99	25
Figure 19	Minutes to earn 20 cigarettes at average hourly wage rates, 1960-99	26
Table 17	Tar and nicotine yields popular brands, 1980-99	27

## **The mortality cost of smoking**

Table 18	Premature deaths attributable to cigarette smoking, 1990, 1996	28
Table 19	Percentage of deaths of women in their early forties, due to smoking, 1996, by ethnicity	29

# Smoking prevalence data

## Cigarette smoking definition

Unless otherwise mentioned, cigarette smoking refers to the smoking of “any type” of cigarette - that is, either manufactured cigarettes or hand-rolled (roll-your-own) cigarettes.

## Sources of prevalence data

All adult prevalence data are from the Census of 1976, 1981 or 1996, or from the AC Nielsen (formerly OTR Spectrum Research) surveys 1983-99.

## The AC Nielsen surveys of cigarette smoking prevalence

AC Nielsen collates door-to-door interviews about smoking from some 10,000 people each year. About 2500 fresh interviews are reported each calendar quarter. The survey results are downloaded from the AGB McNair Omnibus survey, which routinely asks about consumption of a variety of products.

AC Nielsen surveys have consistently produced smoking prevalence results several percentage points higher than health surveys conducted at the same time, and also conducted face-to-face. Part of the difference may come from the more permissive influence of a consumer survey. Part may also be due to the difference in the question asked. The AC Nielsen surveyor asks, “Which of these products do you ever smoke?” and a card is shown depicting the products. If the person ever smokes ready-made (manufactured) cigarettes, the person is asked, “On average how many ready-made cigarettes do you smoke on an average day?” and similarly for roll-your-own cigarette smokers. The AC Nielsen survey includes some less-than-daily or “occasional” smokers of manufactured or hand-rolled cigarettes, but the prevalence for “any cigarette smoker” is not affected.<sup>1</sup>

If a survey on smoking is conducted by telephone rather than by face-to-face interview, this can also lower the prevalence result, as smokers are usually disproportionately represented among those not on the telephone.

The level of smoking prevalence can vary according to question, survey method, sample size and response rate. In the 1982-95 period, the AC Nielsen survey response rate (successful interviews as a proportion of households approached) fell from about 60 percent to just over 50 percent, but the method of sampling and the wording of the question asked in this doorstep survey remained uniform throughout, and so is useful in indicating the trends between Census smoking questions from one year to the next.

The number of Maori surveyed in 1998-99 was around 1000 per year, meaning for a given five-year age group, the average number interviewed was only 50, and less for higher age groups, resulting in widely varying percentages for some age groups for a given year.

## The Census question on smoking

The Census asked about smoking prevalence in 1976, 1981 and 1996. In the March 1996 Census, which asked, “Do you smoke cigarettes regularly (that is, one or more per day)?”, 23.7 percent of adults aged 15 and over said “yes”. For the March 1996 quarter the corresponding AC Nielsen survey result was 26 percent.

<sup>1</sup> In the April to June 1996 quarter, 36 out of 499 smokers of ready-made cigarettes surveyed and 11 out of 287 roll-your-own smokers smoked less than one cigarette a day, but no current smoker smoked less than one a day when both types of cigarette were considered. If only those smoking one or more per day are counted, the percentage smoking manufactured cigarettes reduces from 18.5 percent to 17.2 percent, and the percentage smoking roll-your-owns is reduced from 10.6 to 10.2 percent, but the percentage smoking either type of cigarette remained unchanged at 25 percent.

# Executive summary

## Trends and overview: 1990-2000

Smoking prevalence reduced markedly in the late 1980s, but only slowly in the 1990s. Consumption per smoker reduced most markedly in 1991, 1998 and 2000, due to tobacco tax increases in the Government's budget.

## Decreased tobacco advertising and increased smoke-free promotions

Exposure to tobacco brand advertising was finally eliminated from sponsorships in 1995 and from shops in 1998. The Health Sponsorship Council associated the Smokefree brand with sports and cultural events from 1990 onward. The first sustained government-funded media campaigns against smoking were "Why Start?" (1996-9) and the "Quit" campaign (1999 onwards.)

## Price policy, consumption and prevalence

Tax was increased by 2.5 cents per cigarette in 1991 and again in 1998, and by 4.45 cents in 2000. In addition, from 1990 onwards, inflation adjustment of the tobacco tax maintained the price of cigarettes relative to other goods. Smoking prevalence remained steady between 1991 and 1999, consistent with a lack of any sustained media campaign. By switching to less costly brands of manufactured or hand-rolled cigarettes, many smokers avoided quitting. Workplace smoking restrictions may have contributed to reduced consumption of manufactured cigarettes, without necessarily affecting smoking prevalence.

## Smoking prevalence among youth, women and Maori

The rates of smoking among adolescents and among women have been reducing slowly. However, smoking prevalence among Maori remains about twice as high as among non-Maori.

## Conclusion

- The main trend in the 1990s was a steady decline in cigarette consumption per smoker, but little reduction in smoking prevalence.  
Government actions determined how rapidly smoking prevalence was reduced in national population terms.
- Increases in the rate of tobacco taxation particularly reduced cigarette consumption per smoker, but media campaigns may also be needed to reduce smoking prevalence.  
Smoking reduced as and when Government intervened, by legislation, taxation, health promotion programmes or publicity campaigns.  
The population's health status and Government revenue both benefited from the tobacco control policies of the 1980s and 1990s.
- The 1991, 1998 (and 2000) tax increases were followed by marked reductions in cigarette consumption, much more than would have been expected from the same increase in previous decades, suggesting that if tobacco tax is further increased, further large reductions in tobacco consumption will result, along with major improvements in health status.

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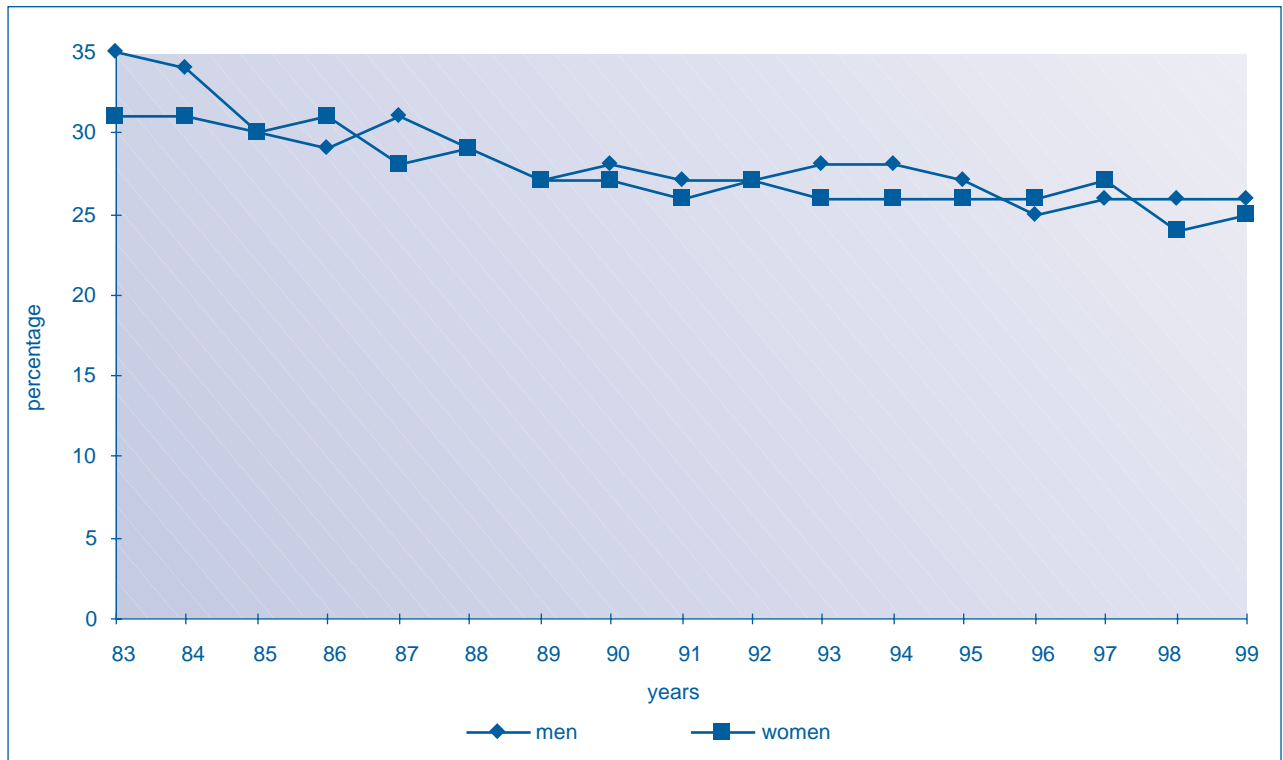
**TABLE 1**                      **Recent events in tobacco control in New Zealand**

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1985	May	The Government's Advisory Committee on Smoking and Health presents the first attempt at a comprehensive plan for the promotion of non-smoking.
1990	August	Smoke-free Environments Act enacted, banning print media advertising in December 1990, banning smoking in offices from February 1991.
1994	October	Sir Richard Doll's 40-year follow-up study on British doctors shows that continuing smokers have a one-in-two risk of dying 14 years early on average.
1996	March	Census shows 23.7% of adults aged 15 and over, smoke cigarettes regularly.
	July	Increased Government allocations for tobacco control begin, amounting to \$11.5 million over three years, for increased sponsorships, enforcement, a smoke-free schools initiative and a media campaign.
	March	Weekly e-mail newsletter begun from Health New Zealand for tobacco control workers. First Smokefree Industry Conference in Wellington. Tobacco consumption has risen for the last two years, says Ministry of Health.
	May, Nov.	New Zealand cigarettes high in nicotine. - <i>NZ Public Health Report</i>
1997	July	The Smoke-free Environments Amendment Bill No. 2; (1) now bans sales of tobacco products to anyone under 18 years of age and require retailers to take all reasonable steps to check age; (2) bans sales of cigarettes in packs less than 20 cigarettes from 1 February 1998; (3) clarifies the regulatory powers of the Act to limit harmful constituents in tobacco products and includes penalties for those in breach; (4) bans manufacturers giving incentives to retailers to promote tobacco products and (5) reduces in-shop tobacco advertising down to one price card 90 by 55mm per brand variant, all in all not totalling more than one A4 sheet per shop, as from December 1998. The Smokefree Coalition Trust formed.
	October	Apararangi Tautoko Auahi Kore (ATAK), the Maori Smokefree Coalition established.
1998	February 1	Packs of less than 20 cigarettes and pouches of under 30g are banned. Barbara Langford becomes director of the Smokefree Coalition (SFC).
	May 14	Budget. Tax raised by 2.5 cents per cigarette. Price increases 13 percent: Supermarket sales of cigarettes and roll-your-own tobacco fall 10 percent.
	May	Cigarettes kill one in three Maori - report from Ministry of Maori Development by Laugesen & Clements < <a href="http://www.tpk.govt.nz">www.tpk.govt.nz</a> >
	Dec. 10	Tobacco advertising in shops ended, as the amended Act required.
1999	July	Launch of the national media Quit Campaign. SFC symposium recommends regular school smoking surveys. National Health Committee launches smoking cessation guidelines.
	November	Labour-led Coalition Government comes to power, promising further tightening of tobacco legislation and further taxation of tobacco.
2000	January-June	Cigarette manufacturers required to have stronger health warnings on cigarette packets including 'Smoking kills' in both Maori and English.
	May 9	Pre-budget excise tax increases; price rises 20%, sales fall 16%.
	June-July	\$11 million annually for Maori quitting programmes and nicotine replacement therapy subsidy.

# Cigarette smoking prevalence

FIGURE 1 Cigarette smoking prevalence, men and women, age 15 years and over, 1983-99



- From 1990 to 1999 smoking prevalence decreased by two percentage points. At this rate it would take another 90 years to close the gap in prevalence between that of the adult population and that of doctors (prevalence of 5% in the 1996 Census).
- Male prevalence remained slightly above that of females from 1987 onwards.

### Note

- For the smoking prevalence values plotted here, see Table 2.
- Smoking includes smoking of manufactured and/or hand-rolled cigarettes.
- From July 1982 to June 1989, AC Nielsen (formerly OTR Spectrum Research) recorded smoking prevalence for ages 15 years and above. From July 1989 to March 1996, the youngest age group reported was 16-19 year-olds. Correction for this period was made from the 1989 Heart Health Survey which recorded prevalence at individual years of age from age 15-19, for the expected proportion of smokers age 15-24 years and 15-19 years as compared to 16-19 and 16-24 years old.

**TABLE 2** Cigarette smoking prevalence, New Zealand, by age group, sex and ethnicity, by census 1976-96, and surveys 1983-99; percentages

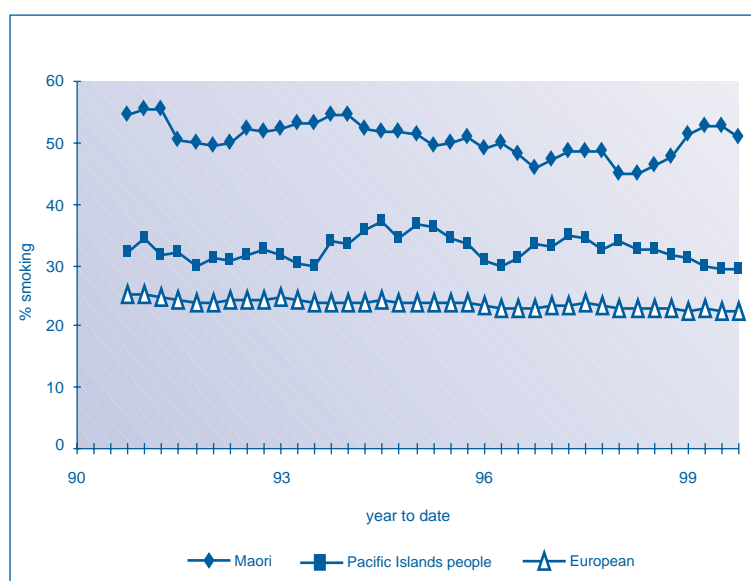
age, years	Census year			Survey year													
	'76	'81	'96	'83	'85	'87	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99
<b>Male</b>																	
15-24	35	33	24	34	31	32	28	30	28	25	28	28	25	26	27	27	30
25-34	43	38	31	38	35	34	30	32	35	34	35	36	35	32	30	34	33
35-54	44	38	25	37	31	34	28	30	27	29	30	30	29	25	28	28	27
55+	35	30	16	29	24	22	20	18	18	18	19	17	19	18	16	16	16
<b>male 15+</b>	<b>40</b>	<b>35</b>	<b>25</b>	<b>35</b>	<b>30</b>	<b>31</b>	<b>27</b>	<b>28</b>	<b>27</b>	<b>27</b>	<b>28</b>	<b>28</b>	<b>27</b>	<b>25</b>	<b>26</b>	<b>26</b>	<b>26</b>
<b>Females</b>																	
15-24	34	35	23	40	40	36	37	34	33	33	30	34	33	36	35	30	33
25-34	38	34	30	35	34	35	33	32	30	36	34	33	36	35	36	31	32
35-54	35	32	24	31	29	26	25	28	24	27	26	25	25	26	26	26	26
55+	21	19	12	21	19	19	16	16	16	14	16	16	14	13	14	12	13
<b>female 15+</b>	<b>32</b>	<b>29</b>	<b>23</b>	<b>31</b>	<b>31</b>	<b>29</b>	<b>27</b>	<b>27</b>	<b>26</b>	<b>27</b>	<b>26</b>	<b>26</b>	<b>26</b>	<b>26</b>	<b>27</b>	<b>24</b>	<b>25</b>
<b>Both Sexes</b>																	
All, 15-19	30	28	21	30	31	27	28	27	26	24	24	25	24	25	21	23	25
All, 15-24	35	34	24	37	35	34	32	32	31	30	30	31	29	31	31	28	31
All, 20-24	40	40	30	43	39	41	38	38	37	36	35	38	35	35	38	32	39
All, 25-34	41	36	31	36	34	35	32	32	33	35	35	34	35	33	33	33	34
All, 35-44	39	35	25	34	30	32	26	30	25	29	29	30	29	27	29	30	29
All, 45-54	40	34	23	34	29	28	28	29	26	26	27	24	24	23	24	24	24
All, 55-64	34	30	18	29	26	25	25	22	20	20	22	21	22	20	20	18	19
All, 65+	21	18	11	20	18	16	14	13	14	13	13	13	12	11	11	11	10
<b>Maori</b>	<b>58</b>	<b>56</b>	<b>44</b>	-	-	-	-	51	50	52	54	52	51	48	48	48	51
male 15+	56	53	40	-	-	-	-	-	-	-	-	49	49	40	40	47	46
15-24	63	61	38														
25-34	58	54	46														
35-54	57	55	42														
55+	45	40	27														
female 15+	59	58	47	-	-	-	-	-	-	-	-	55	53	54	58	50	54
15-24	68	68	46														
25-34	61	59	55														
35-54	62	61	49														
55+	41	35	29														
<b>Pacific Is. Peoples 15+</b>	<b>35</b>	<b>33</b>	<b>30</b>	-	-	-	-	32	30	30	33	34	34	32	33	32	30
<b>Indian</b>	-	14	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Chinese</b>	-	15	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>European 15+</b>	<b>34</b>	<b>30</b>	<b>21</b>	-	-	-	-	25	24	24	24	24	24	23	23	23	22
male 15+	38	33	22	-	-	-	-	-	-	-	-	25	24	23	24	24	23
female 15+	30	27	20	-	-	-	-	-	-	-	-	23	23	23	23	21	21
<b>All, 15+</b>	<b>36</b>	<b>32</b>	<b>24</b>	<b>33</b>	<b>30</b>	<b>30</b>	<b>27</b>	<b>28</b>	<b>26</b>	<b>27</b>	<b>27</b>	<b>27</b>	<b>27</b>	<b>26</b>	<b>26</b>	<b>25</b>	<b>26</b>

**Note**

- Caution should be exercised in comparing Census results with survey data, the latter being subject to sampling error, especially for sub-groups. The Census returns are overseen by the head of the household, and some 15-19 year-olds may not have made their smoking habits known.
- European includes NZ European. For 1976 and 1981 only, European was taken as total population minus Maori and Pacific Islands peoples.
- Cigarette smoking here includes hand-rolled cigarettes.

**FIGURE 2** Cigarette smoking by ethnicity, age 15 years and over, 1990-99

- Nearly one-half of Maori, nearly one-third of Pacific Island people, and one-fifth of European New Zealanders were cigarette smokers in 1999.
- Pacific Island people's smoking appears to have decreased since 1995. Each data point represents 500-600 persons interviewed.
- In the 1990s smoking prevalence has decreased in Europeans by 3 percentage points.



**Source**

AC Nielsen cigarette smoking prevalence survey. Purchased by Ministry of Health.

**TABLE 3** Cigarette smoking prevalence and quit ratio, ethnic groups, 15 years of age and over, 1996.

Ethnic group	Smoking prevalence			Quit ratio*	
	all	male	female	male	female
NZ European	21	22	20	54	50
Australian	23	27	21	51	54
Dutch	19	22	17	63	61
Non NZ-European	20	22	18	61	57
All European	21	22	20	55	52
NZ Maori (ethnic)	44	40	47	31	27
Samoan	27	33	22	21	25
Cook Is. Maori	37	37	37	23	23
Tongan	28	40	17	20	29
Niuean	31	33	28	26	25
Fijian	22	25	20	39	40
Tokelauan	44	44	43	22	19
Other Pacific Isl.	24	27	21	37	37
All Pacific Islanders	30	35	25	23	25
Indian	9	14	4	38	41
Chinese	9	16	4	39	44
Korean	21	36	6	33	33
Sri Lankan	7	11	2	60	50
Vietnamese	20	37	4	19	33
Cambodian	16	28	5	21	26
New Zealand	24	25	23	50	46

\* The quit ratio is the percentage of people who have ever smoked who are now ex-smokers.

**Source**

Calculated from Ethnicity by sex and smoking behavior 1996 age 15 and over, 1996, NZ Census of population and dwellings, Table 16a.

**TABLE 4** Cigarette smoking prevalence, Maori and total population, age 15-34, and 35 years and over, by sex, 1976-99, percentages

sex	(source)	year	age 15-34 years		age 35+ years		age 15+ years	
			Maori	total	Maori	total	Maori	total
male	(census)	1976	58	39	53	40	56	40
	(census)	1981	56	35	49	34	58	35
	(census)	1996	41	29	38	22	40	24
male	(survey)	1994-5	50	31	44	25	49	27
	(survey)	1996-7	37	29	38	23	40	25
	(survey)	1998-9	48	32	39	23	47	26
female	(census)	1976	63	36	53	28	59	32
	(census)	1981	64	34	50	26	58	29
	(census)	1996	51	28	44	19	48	22
female	(survey)	1994-5	60	34	43	21	54	26
	(survey)	1996-7	55	35	48	21	56	26
	(survey)	1998-9	55	31	41	21	52	25

**Note**

- Data for 1976, 1981 and 1996 are from the Census. The 1976 and 1981 definition of Maori was by half or more Maori blood, in 1996 ethnicity was by self-identification. For 1997 and 1999, data are from AC Nielsen doorstep surveys, based on ethnic self-identification.

Survey data were from AC Nielsen doorstep surveys, averaged from 5-yearly age group data as in Table 4. The total number of Maori interviewed was approximately 1000 annually, under half of whom were aged 35 and over.

**Comment**

- Particularly between 1981 and 1996, Maori and total smoking prevalence reduced markedly.
- Under 35 years of age, between 1994-5 and 1998-9, in both Maori and total populations, smoking decreased, in men and in women.
- In Maori, 35 years and over, men decreased their smoking.
- At 35 years of age and over, decreases were greater in men than in women.
- Overall, the decreases in prevalence between 1994-5 and 1998-9 were slight.

**TABLE 5** Cigarette smoking prevalence in Maori men and women, by five-year age group, 1976-99, percentages

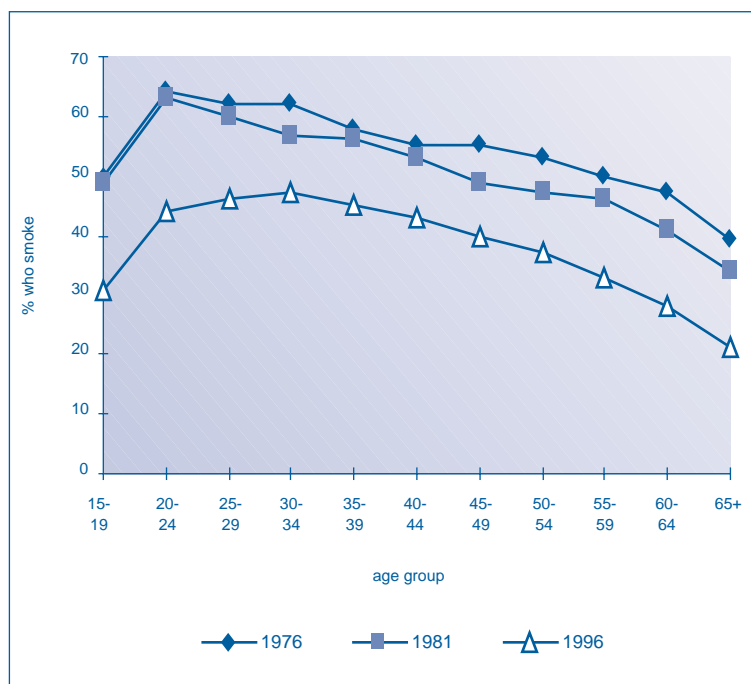
	age	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65+	15+
male (census)	1976	50	64	62	62	58	55	55	53	50	47	39	56
	1981	49	63	60	57	56	53	49	47	46	41	34	58
	1996	31	44	46	47	45	43	40	37	33	28	21	40
male (surveys)	1997	27	44	29	39	45	69	36	23	51	31	16	40
	1999	38	56	52	61	41	41	55	63	57	43	33	46
female (census)	1976	55	69	68	66	61	57	56	51	49	42	33	59
	1981	57	70	66	63	61	56	52	49	42	37	27	58
	1996	41	54	55	54	53	49	46	43	36	29	18	47
female (surveys)	1997	46	64	71	64	56	52	55	48	53	30	33	58
	1999	45	60	69	63	52	57	47	76	23	33	30	54

**Note**

As for Table 4 above.

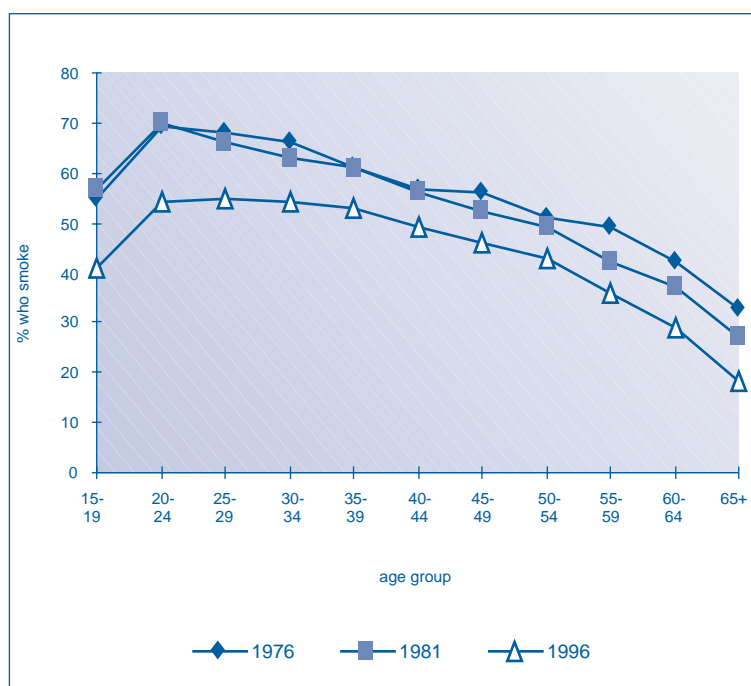
**FIGURE 3** Cigarette smoking prevalence, Maori men, by five-year age group, 1976, 1981 and 1996

- Among male Maori youth, smoking rates are still high, but decreasing. In 1996, at any given age less than half of Maori men were current smokers.
- Some of the decrease in the Maori smoking prevalence may be due to changes in the way the ethnicity question was asked between 1981 and 1996. In 1996, those who identified with another ethnic group besides Maori were categorised as Maori.



**FIGURE 4** Cigarette smoking prevalence, Maori women, by five-year age group, 1976, 1981 and 1996

- More than half of Maori women in their 20s and 30s smoked cigarettes. Overall, smoking prevalence decreased about 10 percentage points between 1976 and 1996.
- The lower percentage of men and women aged over 50 years who smoked was partly due to higher death rates for smokers, and partly due to quitting.



Source for Figures 3 and 4

Census of Population. Statistics NZ. Question on cigarette smoking.

**TABLE 6** Cigarette smoking prevalence in non-Maori men and women, by five-year age group, 1976, 1981 and 1996, percentages

sex	year	age group (years)											
		15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65+	15+
male	1976	28	40	41	43	42	43	44	44	40	38	30	<b>38</b>
	1981	24	37	36	36	37	36	37	38	36	32	28	<b>32</b>
	1996	18	29	30	28	23	24	23	23	21	18	12	<b>23</b>
female	1976	27	36	35	35	33	34	35	33	30	26	14	<b>28</b>
	1981	26	37	31	30	31	29	30	30	27	24	13	<b>25</b>
	1996	18	24	28	24	22	20	20	19	16	14	9	<b>19</b>

### Source

*Census of Population. Statistics NZ. Question on Smoking.*

- Non-Maori men were much less likely to be smokers in 1996 than two decades previously. Smoking prevalence halved at ages 45 years and over between 1976 and 1996.
- Between 1976 and 1996 smoking prevalence among non-Maori women decreased in all age groups.

**TABLE 7** Cigarette smoking prevalence, total population, by five-year age group and sex, 1976, 1981, 1990-2, and 1996, percentages

sex	year	age group (years)											
		15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65+	15+
male	1976	30	42	43	44	43	44	45	44	41	38	33	<b>40</b>
	1981	27	40	38	37	38	38	38	38	36	32	27	<b>35</b>
	1990-92	22	34	34	32	29	30	27	27	25	22	14	<b>27</b>
	1996	20	31	33	30	25	26	25	24	22	19	12	<b>25</b>
female	1976	30	39	38	38	35	35	36	34	31	26	17	<b>32</b>
	1981	30	40	35	33	33	31	31	31	28	25	17	<b>30</b>
	1990-92	29	41	37	34	29	26	26	26	19	18	14	<b>27</b>
	1996	22	29	32	28	27	24	22	22	18	15	9	<b>23</b>

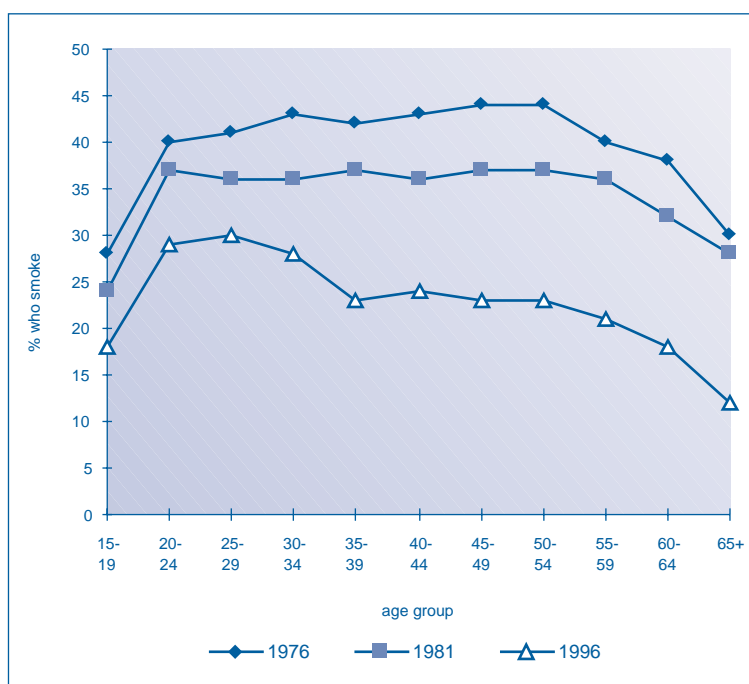
### Note

*Census data were used for 1976, 1981 and 1996. For 1990-92 AC Nielsen survey data were combined to give larger numbers for analysis.*

- In the total population, most of the reduction in smoking prevalence between 1976 and 1996 was achieved between 1976 and 1990-2, especially as the survey values tend to be higher than by Census.
- A marked reduction in male youth smoking prevalence occurred in the 1980s.
- Under 30 years of age, smoking prevalence is higher in women than in men.
- Despite greater reductions in male smoking, male smoking prevalence is still greater than in women at 40 years of age and over, at the ages when the risks of tobacco mortality are greatest.

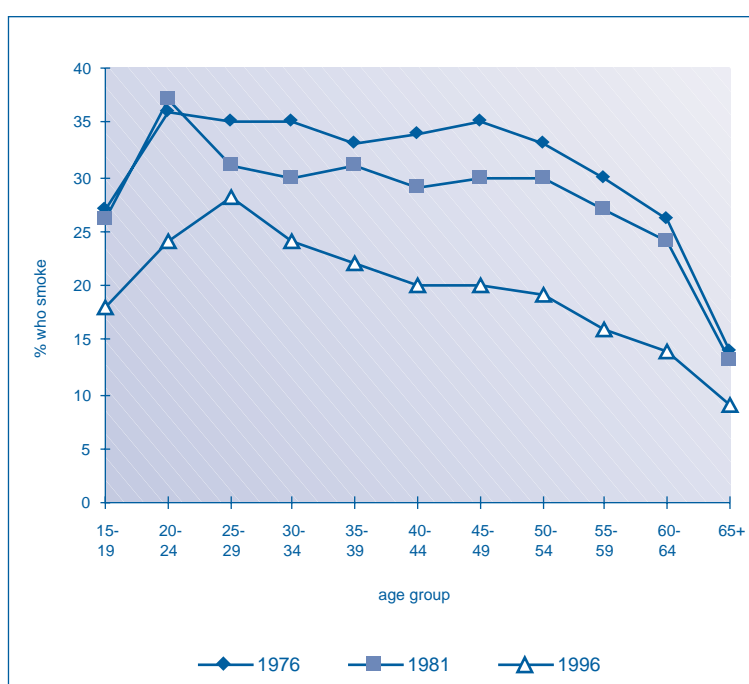
**FIGURE 5** Cigarette smoking prevalence, non-Maori men, by five-year age group, 1976, 1981 and 1996

- By 1996, many non-Maori men quit smoking from age 25 onwards. Others waited to quit until after 50 years of age, just as men had 20 years previously, probably due to health concerns. But this was not always soon enough to avoid much of the excess mortality risks in early middle age.
- In 1976, 40% of men in their 20s were smokers. In 1996, more than half of these smokers (about one in four men in their 40s) were still smoking.
- Smoking prevalence in men over age 45 years halved between 1976 and 1994-95.



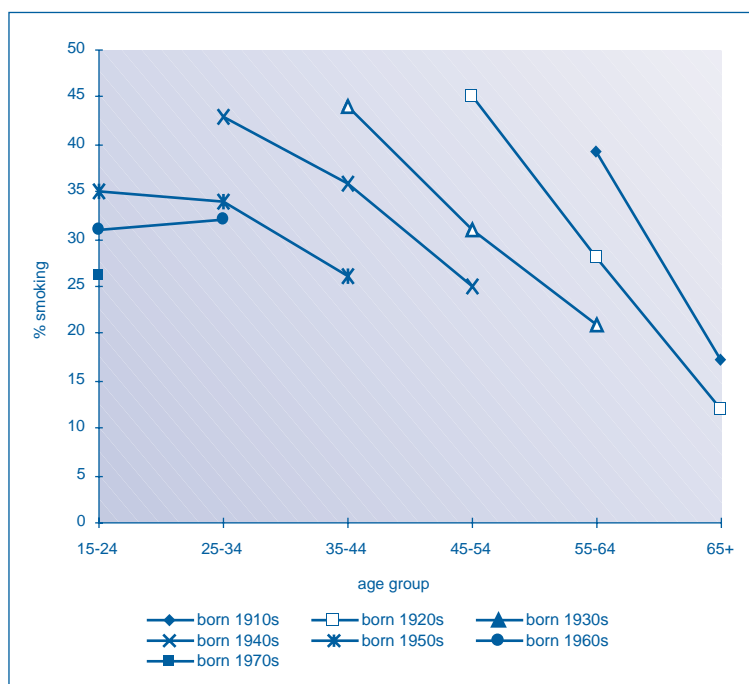
**FIGURE 6** Cigarette smoking prevalence, non-Maori women, by five-year age group, 1976, 1981, 1996

- Smoking prevalence among non-Maori women in their 40s and 50s reduced by 10 to 15 percentage points between 1976 and 1996.
- In 1996, smoking prevalence peaked in women aged 25-29 years, then decreased, possibly in response to social pressures on young mothers not to smoke.



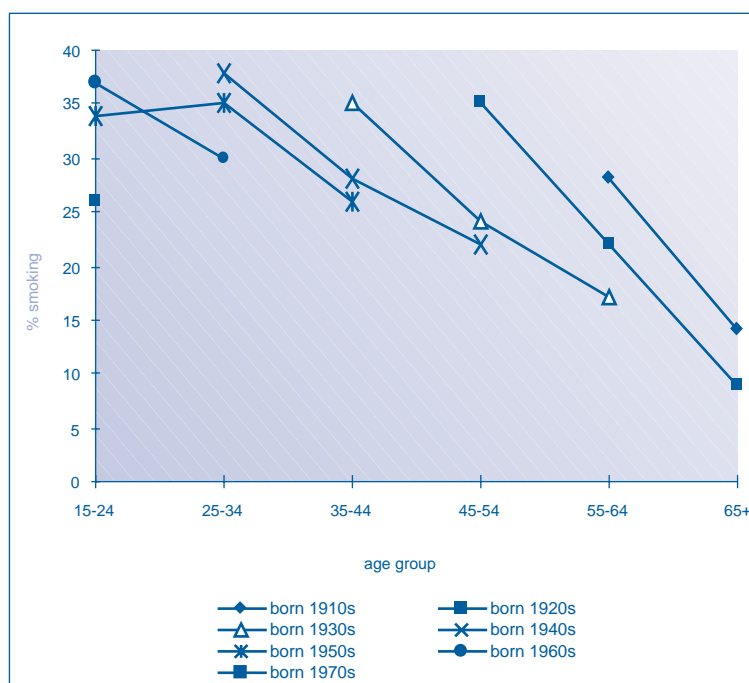
**FIGURE 7 Cigarette smoking prevalence, men, by age group and decade of birth**

- In the 1976 to 1996 period, men had a smoking prevalence some 10 percentage points less than men born 20 years previously.
- Men born in the 1960s increased their smoking prevalence between age 15-24 and 25-34 years.
- Men born in all decades from the 1910s to the 1960s reduced their smoking progressively between the mid 1970s and the mid-1990s.
- Men in each age group had a lower smoking prevalence than men in that age group 10 years previously.



**FIGURE 8 Cigarette smoking prevalence, women, by age group and decade of birth**

- Among women aged 40 years and over, cigarette smoking prevalence was about 10 percentage points lower in women born post-World War 2, than in women born pre-war.
- Smoking in women born in the 1970s was only slightly less than for those born in the 1950s.
- Women born in all decades from the 1910s to the 1960s reduced their smoking progressively between the mid 1970s and the mid-1990s. Women who were 15-24 around 1976 increased their smoking in the ensuing 10 years. At this time cigarettes were particularly affordable. (Figure 19)
- Women in each age group had a lower smoking prevalence than women in that age group 10 years previously.



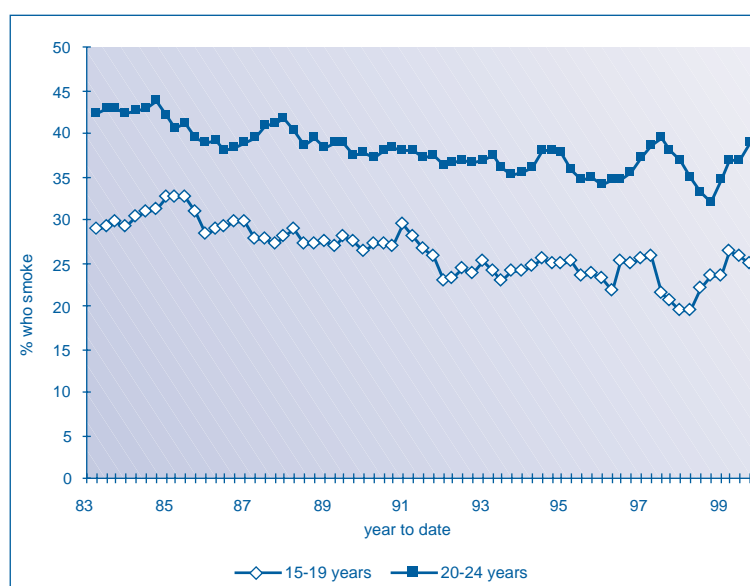
**Note**

These cohort graphs are based on the Census of 1976, the OTR Spectrum Research survey of 1987 and the Census of 1996.

# Cigarette smoking in young people

FIGURE 9 Cigarette smoking prevalence, age 15-19 and 20-24 years, 1983-99

- Among 15-19 year-olds smoking prevalence declined to a low of 21 percent in 1997. Since then it has risen, reflecting the increase in smoking prevalence in 14 and 15 year-olds noted between 1992 and 1997 in the ASH surveys of secondary schools.
- Among 20-24 year-olds, the 1999 result also reflected the effect of increases in smoking at age 14 and 15 years of age from 1992 onwards.



### Note

The data have been smoothed by aggregating four quarters for each data point.

TABLE 8 Cigarette smoking status, secondary school students age 14 and 15 years, by gender and ethnicity, and by frequency, 1992-9.

year	Boys				Girls			
	1992	1997	1998	1999	1992	1997	1998	1999
number	3610	3055	3353	3398	4574	3983	4187	4377
Monthly, weekly, or daily smokers								
European	21	23	22*	25**^	24	31**	31**	29**
Maori	24	32**	33**	32**	43	54**	53*	48##
Pacific	18	24	23	24	18	32**	33**	30**
Asian	6	14**	11	11*	4	7	10**	9
<b>Total</b>	<b>20</b>	<b>23**</b>	<b>23**</b>	<b>24**</b>	<b>25</b>	<b>32**</b>	<b>32**</b>	<b>30**#^</b>
<b>Daily smokers</b>								
<b>Total</b>	<b>11</b>	<b>13**</b>	<b>12**</b>	<b>14**</b>	<b>12</b>	<b>16**</b>	<b>16**</b>	<b>15**#</b>

\* $p < 0.05$ , \*\* $p < 0.01$ , versus 1992, adjusting for age & ethnicity.

# $p < 0.05$  ## $p < 0.01$  versus 1997, adjusting for age & ethnicity.

^ $p < 0.05$ , ^ $p < 0.01$ , versus 1998, adjusted for age and ethnicity.

### Source

ASH NZ, national fourth form survey, 72 schools participating in all four surveys.

### Acknowledgements

Dr Robert Scragg, University of Auckland, under contract to ASH, for the analysis. The Ministry of Health funded the 1997 and 1998 surveys, HFA the 1999 survey.

### Comment

From 1997 to 1999, smoking significantly decreased in girls, particularly in Maori girls.

**TABLE 9 Cigarette smoking prevalence, age 14 and 15 years, 1998-9, compared with adults age 15+ years in 1996, by territorial local authority**

Territorial district Health district HFA division	Smoking deaths as a % of total deaths in 1989-93*	age 15+ 1996 Census %	age 14-15 years, 1998 %	age 14-15 years, 1999 %
Far North	20	32	30	29
Whangarei	18	26	28	28
Kaipara	18	27		34
Northland health district	19	28	28	29
Rodney District	16	21	31	31
North Shore City	16	18	21	26
Waitakere	18	25	30	31
Auckland City	16	21	26	23
Manukau City	18	25	25	25
Papakura District	18	27		31
Franklin District	17	24	43	35
Auckland health districts	17	22	25	26
Northern HFA division	18	23	26	26
Thames-Coromandel	18	25	17	41
Hauraki	18	28	39	38
Waikato	18	27		28
Matamata- Piako	16	24	28	28
Hamilton City	16	23	31	23
Waipa District	15	22	38	21
Sth Waikato	20	32	18	24
Waitomo	19	32		30
Waikato health district	17	25	31	27
Western Bay of Plenty	19	23	38	25
Tauranga	18	23	31	31
Tauranga health district	18	23	32	29
Taupo	19	31		28
Rotorua	18	30	34	32
Lakeland health district	18	30	34	31
Eastbay health district incl. Whakatane	18	29	22	32
Gisborne health district	18	30	32	37
N Plymouth	17	24	34	21
Sth Taranaki	16	27		22
Taranaki health district.	17	25	34	23
Midland HFA division	18	26	32	28
Hastings	17	27	32	33
Napier	18	26	28	34
Central Hawkes Bay	18	28	36	26
Hawkes Bay health district.	17	27	31	33
Wanganui	17	27	25	30
Rangitikei	17	28	33	34
Wanganui health district	17	28	28	30
Manawatu	16	24	35	29
Palmerston North	16	21	20	24
Horowhenua	18	27	25	36
Manawatu health district	17	24	24	28
Kapiti Coast	18	22	19	33
Porirua City	21	29		27
Upper Hutt City	18	25	32	34
Lower Hutt City	18	25	19	26
Wellington City	17	20	23	22
Masterton	16	28	25	33
Wellington-Wairarapa health district	18	23	24	27

Table 9 continues

Territorial district Health district HFA division	Smoking deaths as a % of total deaths in 1989-93*	age 15+ 1996 Census %	age 14-15 years, 1998 %	age 14-15 years, 1999 %
Tasman	17	22	31	33
Nelson City	15	22	26	26
Marlborough	17	22	26	19
Nelson-Marlb. Health d.	16	22	27	26
Central HFA division	17	24	26	28
West Coast districts Buller- Grey-Westland	19	27	20	35
Waimakariri	18	20	33	33
Christchurch City	17	22	31	32
Selwyn	17	20	37	24
Canterbury	17	21	31	31
Ashburton	17	22	26	40
Timaru	16	22	33	28
South Canterbury h.d.	16	22	31	32
Waitaki	16	24	33	30
Central Otago	16	25	33	30
Queenstown Lakes	13	26		18
Dunedin City	17	22	29	30
Clutha	18	26	27	47
Otago health district	17	23	30	31
Southland	17	24		40
Gore	15	26	35	23
Invercargill City	17	28	38	32
Southland health district	17	26	37	32
Southern HFA division	16	23	32	31
<b>New Zealand</b>	<b>17</b>	<b>24</b>	<b>28</b>	<b>28</b>

\* Deaths attributed to cigarette smoking as a % of all deaths, based on Peto and Lopez' method.

### Note

In 1998, over 17,000, and in 1999, over 30,000 14-15 year olds gave specified responses. Unspecified responses were 1% in 1999. Students completed anonymous questionnaires.

Only districts with 100 or more specified responses are listed here. Responses from 16 districts with fewer than 100 surveyed in 1999 were, however, included when calculating the prevalence percentages for health districts and HFA divisions.

HFA=Health Funding Authority. HFA divisions correspond to the former regional health authorities. Secondary schools include state, state-integrated and independent. In the 1998 survey, 36% of all schools responded; and in the 1999 survey, 77%.

### Source

The Big Kill Continues Cancer Society 1996; 1996 Census, Statistics NZ; ASH NZ.

### Comment

The ratio of cigarette smoking prevalence in 14-15 year-olds in 1999 to adults in 1996, averaged 1.20 across the districts. Higher ratios suggest adolescent smoking rising disproportionately to adult and community influences.

For 1992 figures for 15-year-olds, see *The Big Kill Continues*.

# Tobacco products consumption – New Zealand

**TABLE 10** Cigarettes per smoker age 15 years and over per day, 1985-99

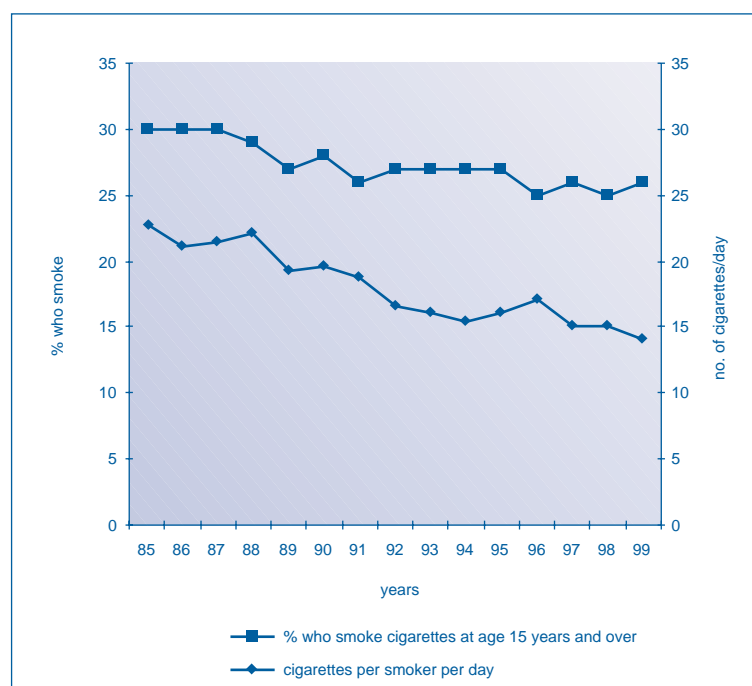
<i>year</i>	<i>cigarettes per smoker per day</i>
1985	23
1990	20
1991	19
1992	16
1993	16
1994	15
1995	16
1996	17
1997	15
1998	15
1999	14

**Note**

For prevalence, see Table 2.

For cigarettes per day, see Table 10 on this page. The number of cigarettes per smoker is obtained by dividing tax paid consumption per adult aged 15 years and over by the fraction of adults aged 15 years and over who smoke (prevalence). This method gives a more objective but higher estimate than smokers self-reporting their consumption

**FIGURE 10** Cigarettes per smoker per day and cigarette smoking prevalence, age 15 years and over, 1985-99



- Cigarettes smoked per smoker decreased 39 percent between 1985 and 1999. The average smoker in 1998 smoked 15 cigarettes per day, and in 1999, 13.7 cigarettes per day consistent with high cigarette price levels in relation to wages, and social pressures against smoking indoors, reinforced by the Smoke-free Environments Act 1990 ban on smoking in shared offices.
- The percentage of adults aged 15 years and over who smoked cigarettes decreased from 30 percent in 1985 to 26 percent in 1991, and was still 26 percent in 1999. There were sporadic media campaigns to encourage quitting in the 1980s, but none in the 1991-9 period.

**TABLE 11 Tobacco products consumption per adult, released for sale in New Zealand, 1920-99 Year**

Year	Manufactured cigarettes per adult per year	Loose tobacco grams per adult per year	Total per adult tobacco products per adult per year	Commentary
1920	640	1855	2495	
1925	610	1431	2041	
1930	570	1471	2041	The Depression
1935	530	1511	2041	
1940	710	1694	2404	World War 2
1945	980	1515	2495	
1950	1465	1709	3174	
1955	1746	1593	3339	Tobacco products per adult peak
1960	1931	1363	3294	Tax increased 40% in 1957
1965	2315	879	3194	US Surgeon General's Report (1964)
1970	2581	534	3114	
1971	2615	493	3108	
1972	2705	468	3173	
1973	2697	416	3113	
1974	2740	371	3112	First warnings on cigarette packets
1975	2885	347	3232	Manufactured cigarette sales peak
1976	2835	319	3154	
1977	2857	300	3157	
1978	2794	272	3066	
1979	2715	255	2970	
1980	2617	239	2856	
1981	2666	239	2905	
1982	2603	230	2832	
1983	2541	228	2769	
1984	2560	219	2779	Government policy
1985	2293	200	2493	to promote non-smoking 1985
1986	2102	202	2304	Tobacco tax, price increased 53%
1987	2125	203	2327	
1988	2101	217	2317	Tax increase, four times in one year
1989	1662	216	1877	
1990	1738	233	1972	Smoke-free Environments Act
1991	1495	243	1742	Tax increase raises price by 17%
1992	1277	283	1561	
1993	1232	295	1531	
1994	1221	249	1471	
1995	1187	287	1477	Tax increase on loose tobacco
1996	1280	230	1512	
1997	1191	253	1449	
1998	1118	259	1383	Tax increase raises price by 13%
1999	1062	251	1316	Quit campaign begins

### Source

Statistics New Zealand. From 1990, cigars included, from manufacturers' returns.

### Note

One manufactured cigarette is counted as equal to one gram of loose tobacco. The tobacco content of manufactured cigarettes decreased from around 1.1 grams in the 1960s to 0.8 grams in 1996. Loose tobacco does not include cigars.

### Comment

- Tobacco products consumption per adult fell by 33% between 1990 and 1999.

**TABLE 12 Tobacco in tobacco products released for sale, New Zealand 1990-9**

Year	Tobacco used in manufactured cigarettes (tonnes)	Manufactured cigarettes volume tax paid (millions)	Tobacco dry weight/ manufactured cigarette (grams)	Cigarette tobacco (tonnes)	All loose tobacco used in manufacture (tonnes)	All loose tobacco tax-paid (tonnes)	Cigars (tonnes)	Total tobacco products released, volume on which tax paid (tonnes) <b>h=b+f+g</b>	Total tobacco dry weight used all tobacco products (tonnes) <b>bc,+f+g minus-water</b>
	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>e</b>	<b>f</b>	<b>g</b>		
1990	3770	4489	0.73	591	618	602	3	5094	<b>3758</b>
1991	3150	4014	0.68	647	675	652	11	4677	<b>3275</b>
1992	2729	3466	0.68	640	662	768	3	4237	<b>2892</b>
1993	2593	3381	0.66	694	722	810	11	4201	<b>3326</b>
1994	2597	3396	0.66	798	822	694	4	4094	<b>2908</b>
1995	2635	3333	0.67	782	805	808	11	3893	<b>2934</b>
1996	2746	3660	0.65	683	701	658	4	4322	<b>2941</b>
1997	2671	3449	0.67	699	716	733	15	4195	<b>2884</b>
1998	2502	3263	0.66	724	741	757	17	4036	<b>2760</b>
1999	2358	3119	0.65	727	728	736	12	3867	<b>2633</b>
<b>Trends</b>									
1990-99	-37.4%	-30.5%	-11.0%	23.0%	17.8%	22.3%	400%	-24.1%	-29.9%

**Source**

Statistics New Zealand for tax paid released-for-sale data.  
Manufacturers' returns to the Ministry of Health, 1991-00.

**Note**

Pipe tobacco accounts for the difference between loose and cigarette tobacco.  
Moisture is assumed to be 13.5 percent for manufactured cigarettes, 20 percent for cigarette tobacco, 19 percent for pipe tobacco, 12 percent for cigars. Dry weight is calculated for zero moisture.

**Comment**

Tobacco tonnage sold for smoking decreased 30% between 1990 and 1999.

# New Zealand tobacco control programme results

TABLE 13 Percentage risk of dying in middle age (age 35-69 years), from cigarettes or other causes, 1975-96, and the 1985-96 trend

Percentage risk	1975 %	1980 %	1985 %	1990 %	1995 %	1996 %	1985-96 % change
Male, cigarette-smoking							
-attributable	14	13	12	9	8.1	7.8	-34
Male, other mortality	28	26	24	22	23	23	-4
Male, total mortality	38	36	33	30	27	27	-18
Female, cigarette attributable	3.8	4.3	4.3	4.4	4.4	4.2	-2
Female, other mortality	20	19	17	15	16	15	-12
Female, total mortality	23	22	20	19	18	18	-10

## Note

- The risk of dying in middle age is the probability that someone entering that age range would die during it, if the death rates in that year were to persist unchanged.
- If no one smoked, the percentage reduction in risk of dying in middle age is the difference between total mortality and other mortality risks. The total mortality risk is less than the combined risk of dying from either cigarettes or other mortality.

## Source

Peto, Lopez et al. (1994 OUP) for 1975-90; 1980, 1995 and 1996 data calculated by same exponential method.

## Comment

- Tobacco products (manufactured cigarettes plus loose tobacco) consumption per adult peaked in 1963. New Zealand, with the United States, was among the first countries to start reducing tobacco use. Manufactured cigarette consumption peaked in 1975, and consumption declined more steadily thereafter.

## Men

- The male population's cigarette-smoking-attributable mortality risk decreased from 1975 onwards. This does not mean that the risks of smoking itself decreased, rather that more had quit smoking, or they smoked fewer cigarettes per day.
- The trends in the death rates of smokers have not been studied in New Zealand. We cannot assume that smokers have enjoyed improved survival due to better medical care. The risks of smoking for British doctors who smoked doubled between 1950-70 and 1970-90 despite presumably high living standards and excellent medical care. (Doll R. *BMJ* 1994).
- Most of the gain in the survival of the total male population since 1975 is attributable to reduced smoking.

## Women

- In the mid 1990s the population attributable risk of death by cigarette smoking began to decrease in middle aged women as well as among men.
- Women's overall risk of dying in middle age, in 1996, was two thirds that of men.
- Women's overall risk of dying in middle age has reduced more slowly than the risk for men. Women have reduced their cigarette smoking mortality less than men.

**FIGURE 11** Cigarette smoking prevalence trends, age 15 and over, 21 OECD countries, 1985-95

**Note**

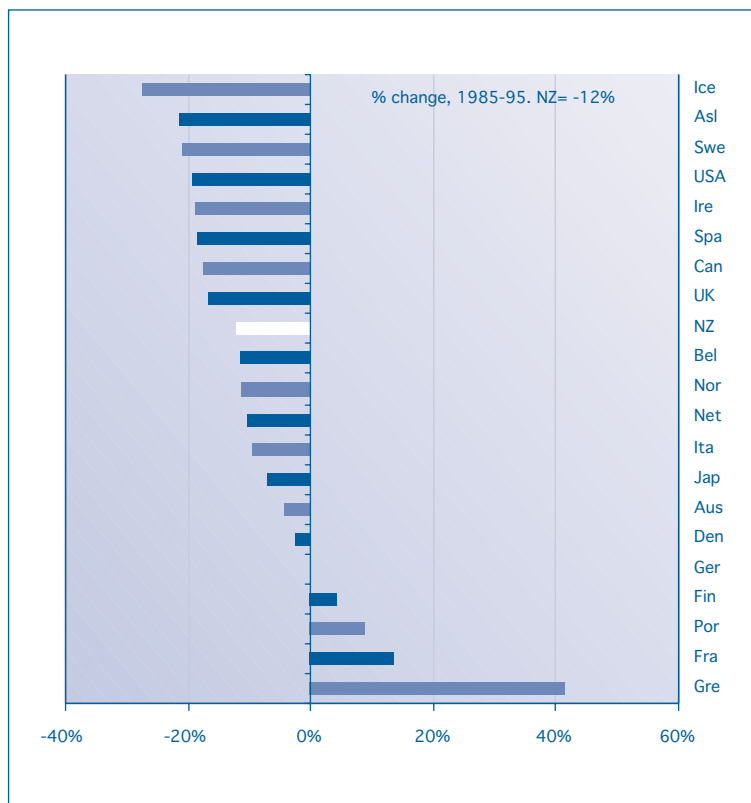
Although smoking prevalence surveys vary between countries in definitions and methods, the rate of reduction in prevalence in each country allows comparison of the effectiveness of programmes between countries.

**Source**

National survey data, Health New Zealand tobacco control database, 1960-2000.

**Comment**

- The rate of decrease in adult smoking prevalence was higher in Australia (Asl) than in New Zealand. This may be related to the quit campaigns and health advertising which have been a feature of Australia's efforts.
- In New Zealand, the "Quit" campaign, beginning July 1999, was the first sustained campaign of paid health advertising against adult smoking.



**FIGURE 12** Cigarette consumption per smoker per day, OECD countries, 1995

**Note**

Includes hand-rolled cigarettes, counting 1 gram of tobacco as one cigarette.

**Source**

National statistics, surveys; Health New Zealand tobacco control database, 1960-2000

**Comment**

- The number of cigarettes consumed per day per New Zealand smoker was one of the lowest among OECD countries, and half the number consumed daily in the United States.
- Low consumption in New Zealand reflects the higher cost of cigarettes in relation to wages. Norway, the lowest consumer, also has expensive cigarettes.

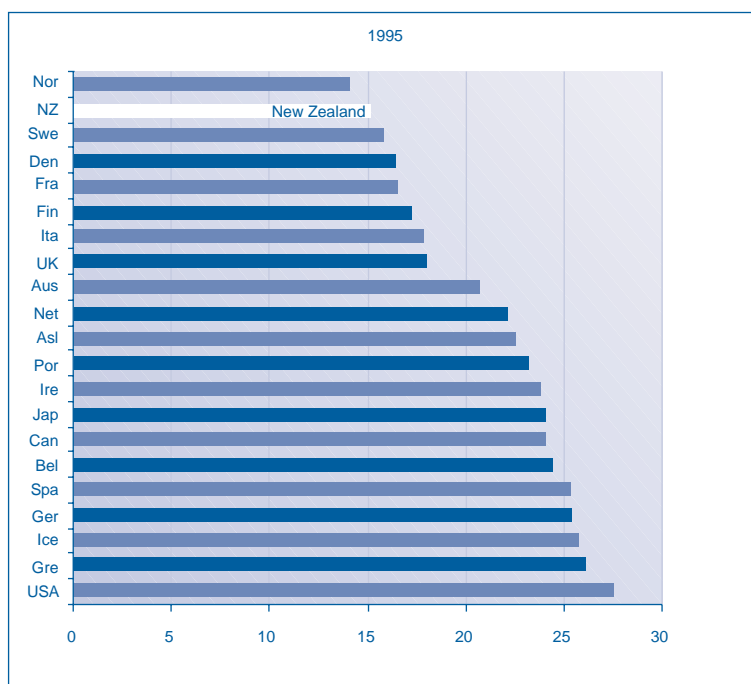


FIGURE 13 Tobacco products consumption per adult, OECD countries, 1995

**Note**

Includes hand-rolled cigarettes, counting 1 gram of tobacco as one cigarette.

**Source**

National statistics; Health New Zealand tobacco control database, 1960-2000

**Comment**

- Tobacco product consumption per adult is the smoking prevalence fraction multiplied by consumption per smoker. It is therefore used as the most important summary measure of the popularity and intensity of tobacco use. This is “the bottom line” for tobacco control.
- In 1995 and again in 1998, New Zealand had the second lowest tobacco products consumption per adult of any OECD country. Sweden’s consumption was lower.

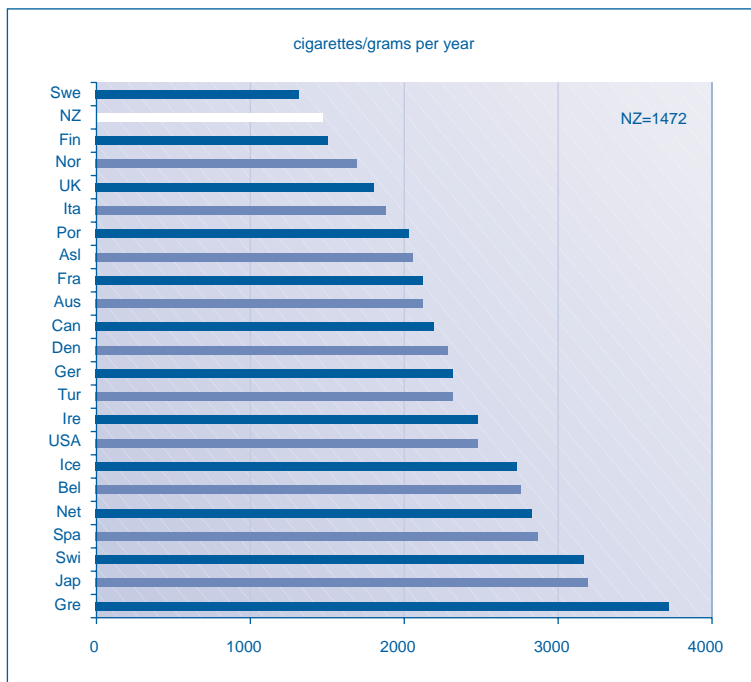
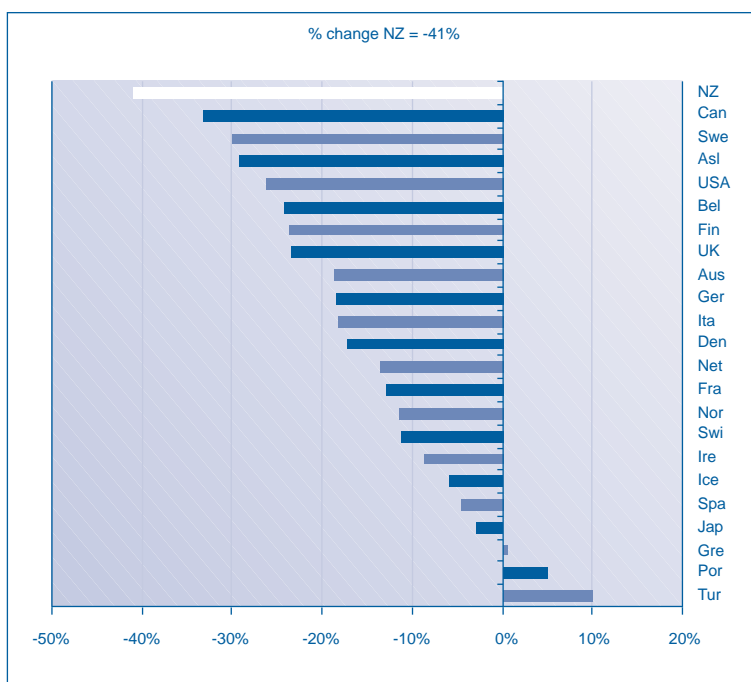
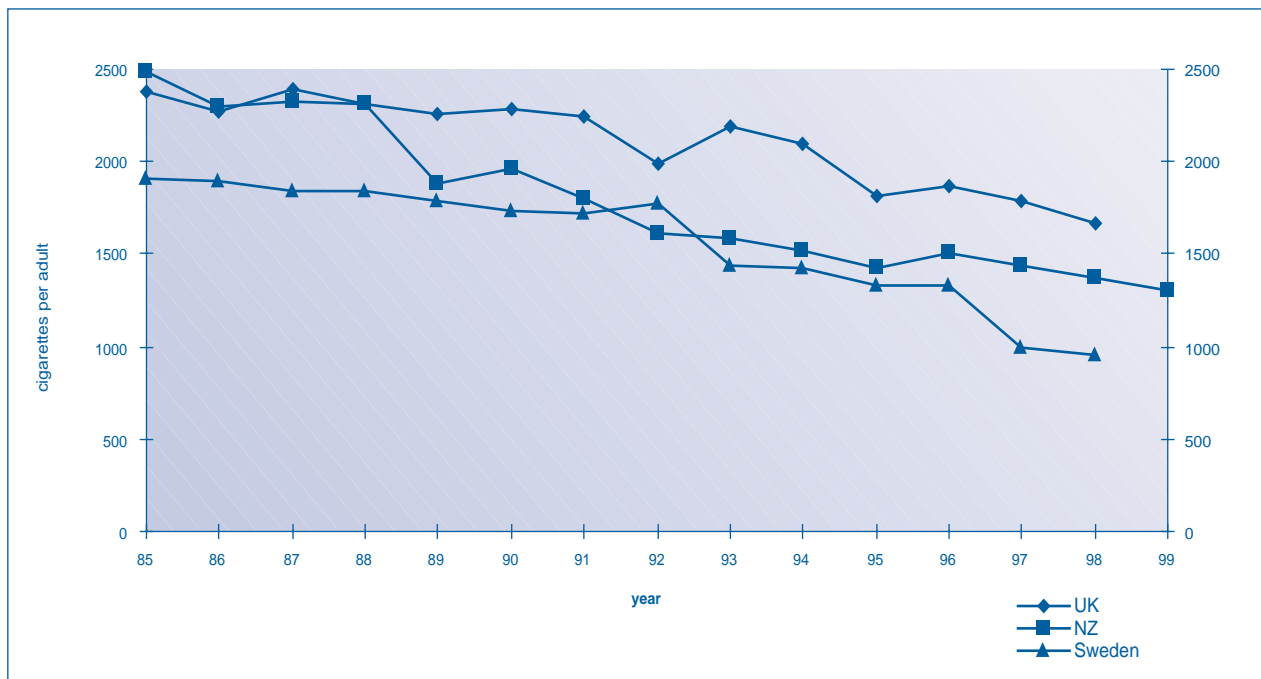


FIGURE 14 Tobacco products consumption per adult, OECD countries, rate of change, 1985-95

- The rate of reduction of tobacco consumption per adult is the best measure of the effectiveness of a country’s tobacco control programme. New Zealand’s tobacco product consumption per adult reduced by 41%, Canada by 33%, and Sweden by 30%.



**FIGURE 15** Tobacco products released for sale per adult, aged 15 years and over, United Kingdom, New Zealand and Sweden, 1985-99



**Note**

- Tobacco products only are counted, rather than their tobacco content which, for manufactured cigarettes and cigars, varies between years and countries.
- Cigarettes are counted by number or if hand rolled as one cigarette per gram of loose tobacco. Pipe tobacco is counted as one cigarette per gram. Tobacco products include manufactured cigarettes, cigars and other manufactured tobacco for smoking, and exclude tobacco for oral use.

**Comment**

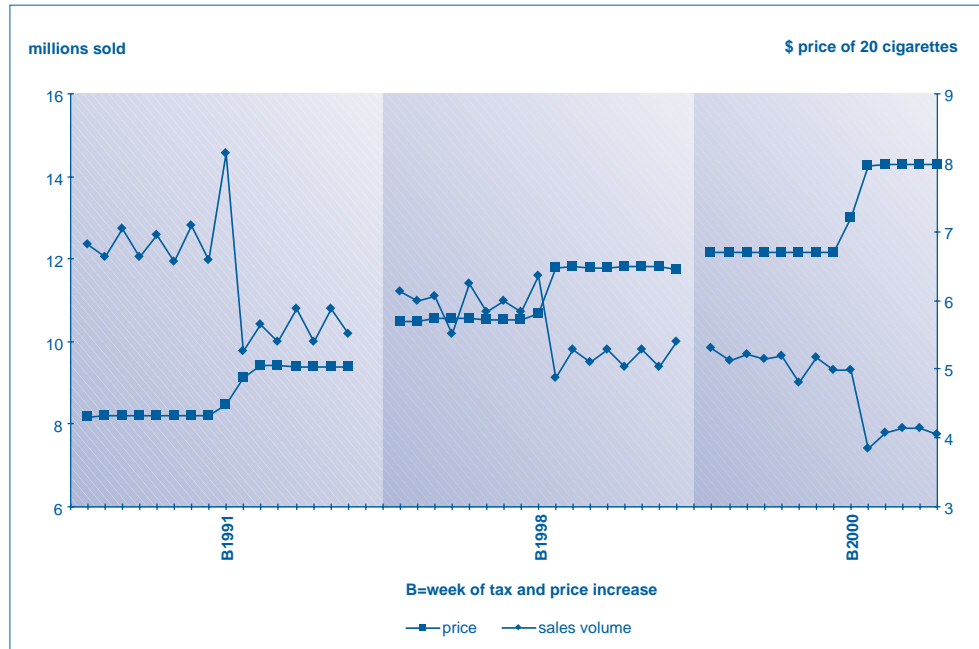
- In the late 1980s tobacco products consumption decreased more rapidly in New Zealand than in the UK. Then in the 1990s consumption per adult decreased more rapidly in Sweden than New Zealand.
- These reductions in consumption were accompanied by marked increases in tobacco taxation in New Zealand between 1986 and 1991, and in Sweden in the mid to late 1990s.

**Source**

- Central Statistical Office UK, Statistics New Zealand, National Institute of Public Health, Sweden and Swedish Tobacco Company.

# The cost of smoking

FIGURE 16 Manufactured cigarette sales before and after the Budgets of 1991, 1998 and 2000, weekly data from supermarket checkouts



## Source

AC Nielsen national supermarket retail checkout data, 1991-2000.

TABLE 14 Changes in tax, price, volume sales, price responsiveness of sales, and dollar sales, for manufactured and hand rolled cigarettes combined, average of the weeks before and after the Budgets of 1991, 1998 and 2000. % changes

% changes	Tax % change	Price % change	Volume sales % change	Responsiveness of sales to price %	Dollar sales % change
	a	b	c	c/b	d
1991	20.6	16.3	-10.5	<b>64</b>	4.2
1998	15.1	13.3	-9.6	<b>72</b>	0.4
2000	23.0	20.2	-16.1	<b>80</b>	0.8

## Note

These national estimates allow for the slightly higher proportion of roll your own cigarette tobacco (RYO) sold in supermarkets compared to national tax-paid sales. In 2000, the changes shown were made several weeks before the rest of the Budget.

## Source

- AC Nielsen weekly supermarket sales of manufactured cigarettes and RYO. For RYO in 1991, due to lack of supermarket data, national tax-paid sales were used.

## Acknowledgement

Department of Health funded data and analysis in 1991, Smokefree Coalition in 1998 and 2000.

## Comment

- The price responsiveness of smokers markedly increased during the 1990s, due to the total anti-smoking programme, including many components not easily measured.

**TABLE 15** Tobacco products excise rates, and cigarette retail prices 1989-00

<b>Date effective from</b>	<b>Manufactured cigarettes, (\$ per 1000 cigarettes)</b>	<b>Loose tobacco (\$/kg)</b>	<b>Nature of price rise</b>	<b>New retail price of 20 standard cigarettes</b>	<b>Real price index of tobacco products after tax increase Dec.1988=100</b>
28 Jul 1989	110.00	100.00	budget + trade	from 3.80 to 3.95	114.2
1 Sep 1989	112.53	102.30	budget + trade	4.10	117.7
1 Mar 1990	115.78	105.25	indexation	4.25	119.1
1 Sep 1990	118.90	108.09	indexation	4.40	120.9
1 Mar 1991	121.38	110.35	indexation	4.50	124.6
31 Jul 1991	146.38	133.07	budget + trade	5.25	144.5
1 Jun 1992	147.40	134.01	indexation	5.35	144.4
1 Dec 1992	148.30	134.83	indexation	5.40	145.2
1 Jun 1993	148.81	136.82	indexation	5.40	144.8
1 Dec 1993	150.49	137.09	indexation	5.45	144.3
1 Dec 1994	153.20	139.28	indexation	5.50	142.2
1 Jun 1995	156.82	142.57	indexation	5.60	141.8
5 Dec 1995	158.63	198.29	indexation + Finance Bill	5.70	147.6
Dec 1996	162.30	202.87	indexation	5.90	147.9
June 1997	162.30	202.87	trade	6.00	153.0
Dec 1997	165.20	206.50	indexation+ trade	6.15	155.3
May 1998	190.20	237.75	budget + trade	6.95	223
Dec 1998	193.36	241.70	indexation	7.05	227
Dec 1999	195.50	244.44	indexation	7.15	230
Feb. 2000	195.11	243.89	indexation correction	7.15	
May 2000	240.00	300.08	budget-related + trade	8.50	

**Source**

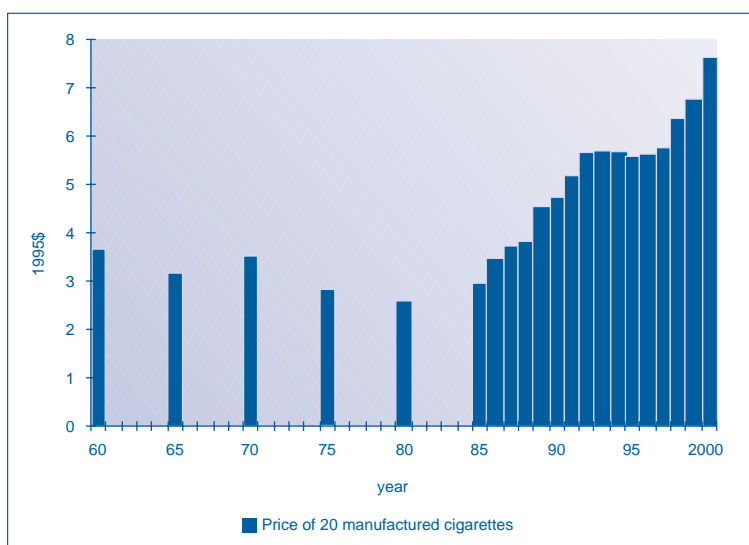
- Tax rates are from the Amendments to the Customs Act and Tobacco product indexation orders 1990-1999. Wellington: Government Print bookshops.
- Price indices are derived from the Cigarettes and Tobacco, and All Groups consumers price index, in Key Statistics, Statistics NZ.

**Comment**

- Prior to 1990 most tobacco excise increases were made in the Government’s annual budget.
- Since March 1990, indexation increases have automatically adjusted tobacco tax rates for inflation. Indexation does not rule out the possibility of further price increases lifting the real price to a new level. The tax increase in 2000 was announced ahead of the budget.
- In June 2000, tobacco tax was 24 cents per cigarette (0.8 grams weight), and 30 cents for a hand rolled cigarette of one gram. Tobacco products were taxed uniformly by tobacco weight.

**FIGURE 17** Price of a packet of 20 manufactured cigarettes, 1960-00, in 1995 dollars

- The price of cigarettes in constant (1995) dollars, fell from 1960 to 1980, rose steeply from 1985 through to 1991 due to budget tax increases, levelled 1991-7, and increased again with a further tax increase in the 1998 Budget.
- Tax rates on tobacco products were adjusted for inflation automatically every 6-12 months since 1990 as required by law. Budget-time increases can still be made, as in 1991, 1998, (and 2000).
- In March 2000, the average price of 20 cigarettes in supermarkets was \$6.70, in June, \$8.00 (\$7.60 in 1995\$)
- Cigarettes are now more than twice as expensive as in 1960 in real terms, but the increase in incomes since 1960 also has to be allowed for. (See Figure 19).



**Note**

- The annual prices are the average of four quarters, corrected for inflation, of a standard packet of 20 cigarettes. The price of loose tobacco is not considered.

**Source**

- Statistics NZ
- Tobacco Statistics 1991, Wellington: Department of Statistics and Department of Health, 1992.

**TABLE 16 Tobacco products: national consumer expenditure, revenue and excise fraction of the retail price, 1980-99**

Year ended March	Expenditure on tobacco products in millions of dollars*		Revenue from tobacco products (excises)** excluding GST		Excise as fraction of retail price not including GST	
	Calendar year	current \$	1995 \$#	current \$		1995\$#
1980		292	945	99	320	0.34
1981		351	980	173	483	0.49
1982		406	978	234	564	0.58
1983		464	1002	233	503	0.50
1984		512	1053	312	642	0.61
1985		563	1029	290	530	0.52
1986		687	1101	437	704	0.64
1987		852	1180	463	641	0.54
1988		914	1158	466	591	0.51
1989		1066	1284	566	682	0.53
1990		1142	1290	568	642	0.50
1991		1143	1242	568	617	0.50
1992		1149	1234	586	629	0.51
1993		1152	1223	584	620	0.5
1994		1148	1202	599	627	0.5
1995		not avail.	not avail.	602	611	not avail.
1996^		1258	1241	666	657	0.53
1997^		1273	1235	685	664	0.55
1998^		1290	1236	738	707	0.58
1999^		1420	1356	781	746	0.55

**Key** \* Year commencing April of the year stated.

# Deflated by the consumer price index.

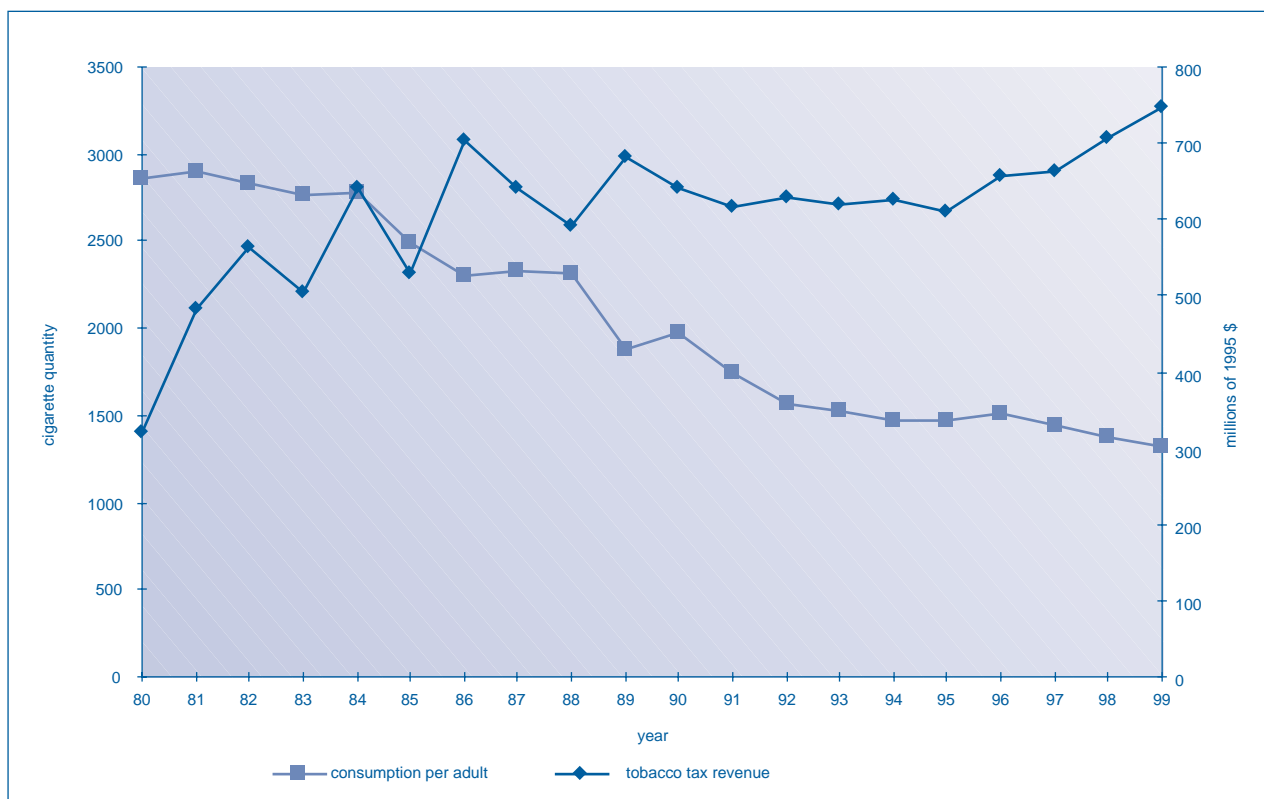
\*\* Year commencing April up to 1988, thereafter commencing July.

^ Calculated from manufacturers' returns to the Ministry of Health, and from tax rates, based on the calendar year, excluding pipe and cigar tobacco.

### Note

National expenditure on tobacco up to 1994-5 was calculated by Statistics New Zealand from price indices and tax-paid releases and imports into the domestic market. The GST rate was one ninth of the retail price.

FIGURE 18 Tobacco products, revenue and consumption, 1980-99

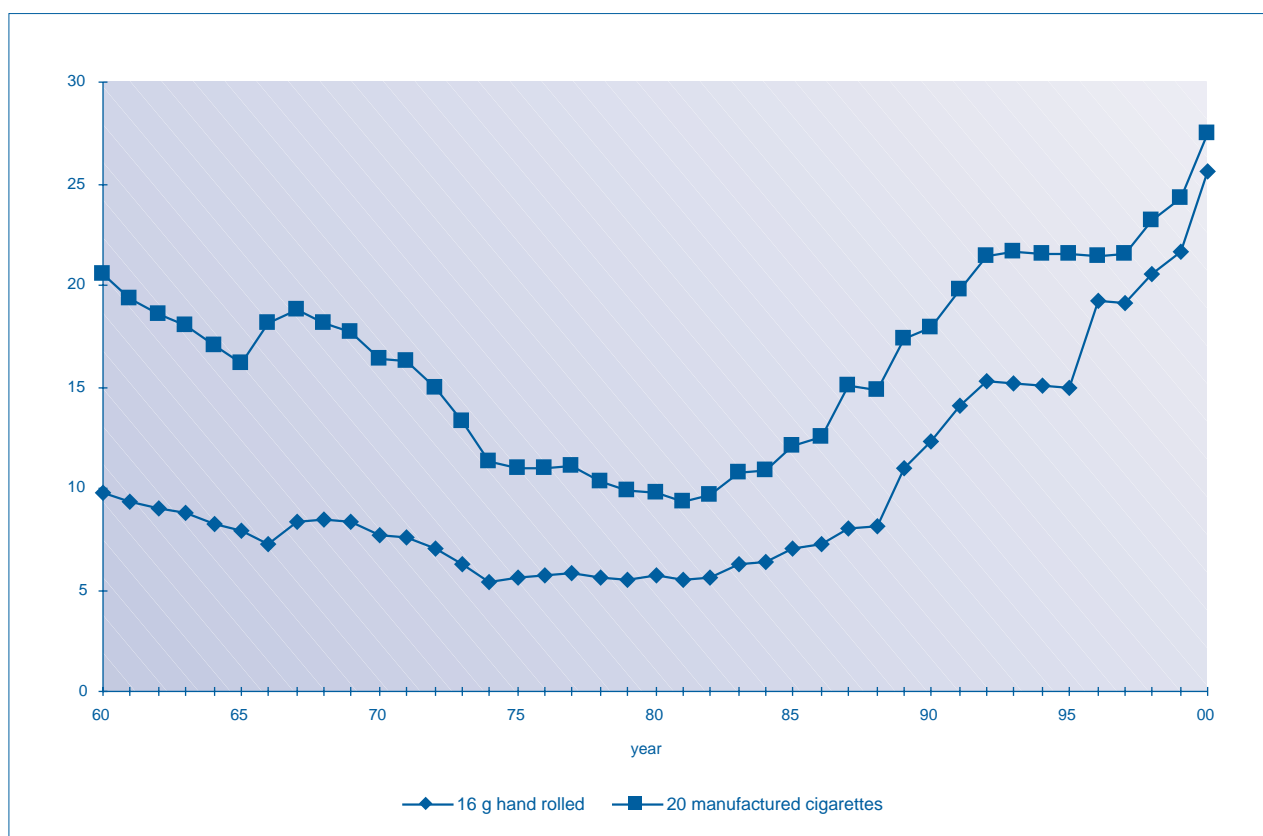


- Between 1980 and 1999, Government health and revenue objectives coincided. Successive governments more than doubled their revenue from tobacco tax, and more than halved tobacco consumption per adult, a major health gain.
- From 1990-1997, real tobacco tax revenue remained level at around \$590-\$600 million, and smoking prevalence remained the same. (Table 2).
- Government is becoming less dependent on tobacco excise as the tax base increases and less tobacco is consumed. Only 2 percent of total government tax revenue in 1994-95 came from tobacco excise.
- In 1999 the excise tax fraction of tobacco packet price was 55%, and is higher on cheaper brands, and lower for more expensive brands.
- Government also collects one-ninth of the retail price in goods and services tax. This tax is levied on virtually all goods and services.

**Note**

*Tobacco tax revenue in current dollars was deflated by the consumer price index to 1995\$*

FIGURE 19 Minutes to earn 20 cigarettes at average hourly wage rates, 1960-99



“Minutes to earn” measures costliness, and takes into account changes in price, income and inflation.

- **Manufactured cigarettes:** In 1960 it took 21 minutes to earn 20 cigarettes: in 1980, 10 minutes: and in 1999, 25 minutes.
- **Loose tobacco:** In 1960 16 grams took 10 minutes to earn: in 1980, 5 minutes: and in 1999, 20 minutes.
- After the May 2000 price increases it was expected that it would require 29 minutes to earn 20 cigarettes.

These changes in the costliness of cigarettes have been due to tobacco taxation, accompanied by cigarette company increases, in most cases of approximately equal magnitude.

**Note**

- Average hourly ordinary-time earnings for males and females combined are from Key Statistics (Statistics NZ).
- Price data are for a packet of standard 20 cigarettes.
- Cigarette tobacco is also shown. Sixteen grams is the same amount of tobacco as currently found in 20 manufactured cigarettes. The formula is:  

$$\text{Minutes to earn} = \frac{\text{price of 20 cigarettes} \times 60 \text{ minutes}}{\text{average ordinary time hourly earnings}}$$

**Source**

Statistics NZ.

**TABLE 17** Tar and nicotine yields from the smoke of manufactured cigarettes, popular brands, 1980-99, mg per cigarette

<i>brand</i>	<i>1980</i>	<i>1988</i>	<i>1990</i>	<i>1992</i>	<i>1994</i>	<i>1996</i>	<i>1998</i>	<i>1999</i>
<b>Tar</b>								
Rothmans 20s	14	15	15	15	15	15	14	15
Pall Mall 20s	14	16	15	15	15	15	15	15
Benson & Hedges	14	15	14	15	15	15	14	15
Sportsman 25s	15	15	15	15	15	15	15	14
Winfield 25s	14	15	15	15	15	15	15	15
<b>Nicotine</b>								
Rothmans 20s	1.2	1.5	1.4	1.5	1.4	1.3	1.3	1.3
Pall Mall 20s	1.4	1.5	1.5	1.4	1.4	1.5	1.4	1.3
Benson & Hedges	1.3	1.5	1.4	1.5	1.3	1.2	1.3	1.3
Sportsman 25s	1.3	1.5	1.5	1.5	1.3	1.3	1.2	1.3
Winfield 25s	1.3	1.5	1.5	1.5	1.4	1.4	1.4	1.3

**Note**

95 percent confidence limits for 1995 were within 0.3mg tar and 0.03mg nicotine.

**Source**

- 1980 Testing arranged by Department of Scientific and Industrial Research, for the Department of Health.
- 1988 Tests by manufacturers, reported to the Department of Health.
- 1990-9 Tests by manufacturers, conducted and reported as required by the Smoke-free Environments Act 1990.

**Comment**

- These results are confined to brands for which there was information since 1980. They show that once a brand is established in the market manufacturers are reluctant to change the formula - there is very little change in the machine measured nicotine or tar yield over many years. Nicotine yields tended to be higher in 1988 to 1990.
- Until testing of nicotine content and full disclosure of processes and additives is required (example: the use of ammonia in manufacturing) the nicotine impact of cigarette smoke cannot be gauged.
- The sales weighted average for tar was 12.4 mg in 1999, and for nicotine, 1.1 mg.
- Smoking machines were designed to compare brands as manufactured, and do not reflect the way smokers smoke cigarettes, which varies greatly between smokers, between brands according to the nicotine content, and with the length of abstinence since the previous cigarette. If cigarettes are costly in relation to income, as in the case of adolescents and beneficiaries, smokers may smoke fewer, but smoke them more intensively.

# The mortality cost of cigarette smoking

TABLE 18 Premature deaths due to cigarette smoking 1990, 1996

	<i>Year</i>	<i>Male</i>	<i>Female</i>	<i>Total</i>	<i>Ranking</i>
Smoking attributable deaths, calculated indirectly, using lung cancer rate*	1990	3100	1400	4500	1
Using same indirect method**	1996	2900	1800	4700	1
Attributable deaths by direct method using relative risks, and as % of all deaths#	1996	2780 (19%)	1520 (11%)	4300	1
Actual deaths from smoking after allowing for prior death from other causes##	1996			3500 (13% of all deaths)	1

Key \* *Peto R, Lopez AD, et al. , Mortality from smoking in developed countries, 1950-2000. Oxford. Oxford University Press, 1994. This method is preferred by the Ministry of Health for annual estimates. It makes allowance for cancers apart from lung cancers due to smoking.*

\*\* *Tobacco Facts 1999, Ministry of Health.*

# *Our Health Our Future, Ministry of Health 1999. Table 105a. This method was used as part of the Ministry of Health's Burden of Disease project, and facilitates estimates for each ethnic groups. It also allows for smoking as a part-cause of many cancers apart from lung cancers.*

## *Our Health Our Future, Ministry of Health 1999. Table 121.*

## Comment

- Cigarette smoking causes more deaths than alcohol, lack of fruit and vegetables, physical inactivity, diabetes, obesity, high blood pressure, or high blood cholesterol. All eight accounted for 40% of all deaths.
- 'Smoking-attributable' deaths are premature or early deaths caused by smoking, which would not have occurred if no one smoked. These attributed deaths include a fraction of those deaths due to several causes (for example, heart disease), and thus often preventable in other ways. The deaths of sedentary smokers for example, may be counted as attributed to smoking or to physical inactivity or partly to both, and preventable by either quitting smoking or increased physical activity. This is the method used internationally at present.
- 'Actual' deaths allows for the fact that, in some cases smokers who might otherwise for example, die from a smoking-caused heart attack, may die first from some other cause or unhealthy behaviour(s), such as a heart attack caused by physical inactivity. Actual deaths are more accurate than attributable deaths in deciding the actual effects of reduced smoking, but this assumes other risk factors have also been surveyed. Attributable deaths measures the total impact of eliminating smoking.
- 'Tobacco-related' is a commonly used loose term which would could for example, include all heart disease deaths, not just those due to smoking. Tobacco-related does not imply causality.
- By whichever method is used, smoking ranks as the leading killer among risk behaviours.

**TABLE 19** Percentage of deaths of women in their early forties attributable to cigarette smoking, 1996, by ethnicity<sup>#</sup>

At age 40-44 years	Maori	Pacific	European	Total
Lung cancer	86	75	75	77
Ischaemic heart disease	77	63	59	63
Stroke	53	36	33	36
Chronic obstructive respiratory disease (CORD)	85	73	75	77

# Our Health Our Future, Ministry of Health 1999. Table 104a, b, c, d.

*Comment*

- If no women smoked, most deaths from heart disease, lung cancer and airways disease in women of this age could be avoided.
- The proportion of heart disease deaths in women at this age across all ethnic groups that is attributable to smoking is very high, and is about 10 percentage points higher than for men.
- The proportion of deaths at this age due to smoking is slightly higher for men than women with respect to lung cancer, stroke and CORD.

# Tobacco *Statistics* 2000