
International Smoking Statistics

Web Edition

A collection of worldwide historical data

New Zealand

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Revised 24-Oct-2011 – Sales and population data updated (Tables 1-2, Figure 2). Source of menthol data corrected. Minor text changes. Tables 4Ext and 6Ext and Figure 3Ext added to Excel workbook. (Note that calculations of ‘% total sales’ and of ‘adult (15+) estimates’ (Tables 6-8) and of ‘adult (15+) estimates’ (Tables 4Ext, 6Ext and 8, Figures 3-4) have not been updated with the revised population data; there may be discrepancies for 2005-2007, but these will be very minor.)

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¹ See footnotes to Tables

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¹ See footnotes to Figures

Preface

International Smoking Statistics is a collection of smoking data covering most of Europe and various other economically developed countries. The second edition (published by Wolfson Institute of Preventive Medicine and OUP, 2002, www.oup.co.uk/isbn/0-19-850856-5) included data for 30 countries up to 1995. Since 2006, work has been ongoing to make individual country updates available online. Please register at www.pnlee.co.uk if you wish to be informed when updates are posted.

The methods used in the web edition are essentially unchanged from those of the second edition, although some minor changes are included in the online Methods chapter. Readers are strongly recommended to consult the Methods chapter.

The two main types of data presented are sales data and survey data. We give the results of the original authors as closely as possible, whilst presenting them in a uniform format.

Sales data give the total national consumption of tobacco. Data on sales of cigarettes and of all tobacco products are presented, usually from about 1920. Estimates of the consumption of hand-rolled cigarettes are included where possible, as are data on the types of manufactured cigarettes sold. The Tobacco Research Council provided most of the sales data until 1973, while later sales data were obtained from government and industry sources.

Survey data provide information on the prevalence and amount of smoking according to age and sex. These were obtained from a wide variety of surveys. Some survey data are available for the early part of the 20th century, but for most countries they are available only from the 1950s or 1960s onwards.

In additional tables we calculate further statistics by combining sales and survey data using certain standardized assumptions. The figures are intended to provide an easily interpretable summary of the data presented in the tables, and the commentary has deliberately been kept to a minimum.

Downloads

Updates currently available to download from www.pnlee.co.uk include:

Methods, including

Appendix I: *Estimated size of adult population;*

Appendix II: *Comparisons of manufactured and hand-rolled cigarettes and differences in the way they are smoked;*

Appendix III: *Consumption category estimation;*

Comparisons between countries;

Updated country chapters (see *Methods* for current list);

Tables from each updated chapter, in Excel format, including extended versions of Tables 4 and 6 and Figure 3 for chapters issued since January 2011;

Supplement 1: *Estimation of sex-specific smoking statistics by standardized age groups and time periods.* [The web edition comprises a brief Update

Note, together with tables (in Excel format only) for the countries with a chapter in the web edition. The original Supplement 1 to the second edition (an extended version of Appendix IV to the second edition) is also available and gives a full description and tables for the other countries].

Also available from the same source are:

Supplement 2 to the second edition: *Estimating past smoking habits by an indirect method. An investigation into a method based on recall, with application to Great Britain.* [This supplement is an extended version of Appendix V to the second edition];

IMASS, a comprehensive Excel database system, based on WHO mortality data and smoking statistics from Supplement 1. The IMASS system includes powerful routines for creating graphs and tables.

Acknowledgements

We would like to acknowledge the tobacco industry for their financial support and for providing some of the sales data in International Smoking Statistics.

We would also like to thank the many government and research organizations and individuals who supplied much of the information included.

We thank Yvonne Cooper, Pauline Wassell and Diana Morris for maintenance of our references database.

We are indebted to G. F. Todd, past director of the Tobacco Research Council, who, shortly before he died in 1988, had prepared a draft report from which the first edition of International Smoking Statistics developed.

Professor Nicholas Wald was an editor of earlier editions, and we thank him for his support and encouragement.

We alone bear the responsibility for the analysis and interpretation of the data presented.

Introduction

Sales data

See Tables 1-3 and *Notes on sources of sales data*.

From 1920 until the late 1970s the consumption of manufactured cigarettes per adult increased, with some fluctuations, from 1 to 8 cigarettes per day. It decreased to 2 cigarettes per day by the mid-2000s. Evidence on consumption of hand-rolled cigarettes is conflicting and relies on assumptions about the average weight of tobacco used in hand-rolled cigarettes; our estimates suggest that consumption per adult decreased from about 3.5 hand-rolled cigarettes per day in 1950 to 0.5 by the late 1970s, remained about that level for a decade, and has since increased to over 1. These estimates imply that total cigarette consumption per adult rose only slightly from 1950 to a peak around 8.5 cigarettes per day in the late 1970s; after falling steeply until the early 1990s, estimated consumption continued a slower decline and then levelled in the mid-2000s at just over 3 cigarettes per day. Laugesen (2007) suggested that the average weight of tobacco per hand-rolled cigarette may have decreased further than we assume, implying that total cigarette consumption may have levelled earlier or even increased.

Consumption of all tobacco products per adult fluctuated between 5 and 7 g per day from 1920 to 1945; after rising in the late 1940s, it remained at about 9-10 g through the 1950s and 1960s, and fell to about 2 g by the mid-2000s. In the 1920s and 1930s, 25-35% of all tobacco was consumed as manufactured cigarettes, increasing to 90% around 1980, but then decreasing again to 65% in the mid-2000s. The remainder was pipe and hand-rolling tobacco, of which the share used in hand-rolled cigarettes rose from around 75% in the 1970s to virtually 100% in the 2000s. Consumption of cigars was negligible.

Survey data

See Tables 4-8 and *Notes on sources of survey data*.

Little information is available on the prevalence of smoking among adults before the mid-1970s, except for small surveys in 1964 (sources 11, 12). These found that the prevalence of smoking in a sample of Europeans was over 50% among men and 30% among women, while the prevalence among Maori women was double that of European women.

Nationally-based results are available from several sources, notably the census (source 1) from 1976 and annual surveys by Nielsen for the Ministry of Health (source 15) from 1983. According to the census, the prevalence of regular cigarette smoking among those aged 15 years and over was around 40% in men and 32% in women in 1976, and fell to about 35% in men and 30% in women in 1981. The annual Nielsen surveys show that the prevalence of smoking (including occasional smokers) continued to fall among both men and women, with the gap between the sexes narrowing, until around 1990, when it was about 27% for males and one or two percentage points lower for women. Since then, there has been only a slight decline, to 24% among men and 23% among women in 2005. Other surveys, including the more recent censuses, health surveys (source 24) and NRB surveys (source 27) have considered regular smoking and give slightly lower estimates of prevalence than the Nielsen survey.

Very little information is available on prevalence by type of cigarette, but among cigarettes smokers (sexes combined) the percentage who smoked hand-rolled rose from 14% in 1989 to around 50% in the mid-2000s (see notes for sources 15, 25, 27). There is also little information on smoking of products other than cigarettes; the Nielsen survey (source 15) reported for various years that the prevalence (sexes combined) of all smoking was only one percentage point higher than of cigarette smoking.

The prevalence of smoking decreased among both men and women at all ages, with the exception of the most elderly women where prevalence remained low throughout the surveyed period. Among men, the decrease occurred mainly prior to 1990, and since then, the decline has continued only in those aged 55 or over; among women, decreases were more modest for those under 40 than for those aged 40-64. More men than women smoked in the older age groups, but in the younger age groups there is equality or the reverse, and the age at which this switch occurred gradually increased – 15-19 in 1976, 20-24 in 1981, and 25-34 in the mid-1980s. Since about 2000, the difference in prevalence between the sexes has become very narrow at all ages.

The prevalence of smoking among girls was lower than among boys when first surveyed in 1960. Although comparisons are difficult owing to different or unknown definitions of ‘a smoker’ and absence of repeat or nationally representative surveys before the 1990s, the prevalence between about 1970 and 1985 seems to have increased among girls but decreased among boys; most surveys indicate that the prevalence among girls has been higher than among boys since the mid-1970s. A series of surveys among pupils in Wellington (source 18) in the 1990s and the nationwide Year 10 snapshot survey (source 19) showed an increase in prevalence for both boys and girls through the 1990s and a decrease in the 2000s. In 2006, the Year 10 In-depth survey (source 21), reported that more pupils regularly smoked hand-rolled than manufactured cigarettes, and that 23% of smokers used products other than cigarettes; the following year, the GYTS (source 22) reported that 6% of boys and 7% of girls used products other than cigarettes.

Comparison of survey and sales data shows that many surveys under-reported consumption by 25-40%. Some more recent surveys, including the Nielsen surveys of 2001-2003, suggest a lower level of under-reporting (under 10%), and this may be related to the difficulty in estimating numbers of hand-rolled cigarettes. Between 1976 and the early 1990s, the estimated number of cigarettes smoked per person per day (sales-adjusted) decreased from about 10 to 5 for men, and from 6 to 4 for women; it continued to decline more slowly thereafter, to 3.5 for men and 3 for women by the mid-2000s.

Table 1.1 Total annual sales of tobacco products, 1920-1973, and of cigarette papers, 1935-1973

Year	Manufactured cigarettes		Pipe & HR tobacco tonnes	All tobacco products tonnes	Cigarette papers millions
	tonnes	millions			
1920	580	511	1 410	1 990	
1921	440	392	1 220	1 670	
1922	500	443	1 180	1 680	
1923	560	495	1 180	1 740	
1924	610	542	1 180	1 790	
1925	690	606	1 360	2 050	
1926	730	645	1 320	2 050	
1927	780	686	1 410	2 180	
1928	770	683	1 360	2 140	
1929	820	719	1 450	2 270	
1930	710	626	1 500	2 210	
1931	560	498	1 540	2 110	
1932	460	406	1 540	2 000	
1933	480	426	1 540	2 030	
1934	530	463	1 590	2 110	
1935	660	584	1 540	2 200	1 350
1936	810	712	1 680	2 490	1 589
1937	940	828	1 720	2 660	1 517
1938	1 040	916	1 770	2 810	1 980
1939	1 070	943	1 910	2 970	1 476
1940	970	852	1 910	2 870	1 808
1941	1 020	900	1 950	2 970	1 843
1942	1 130	1 000	1 720	2 860	1 670
1943	1 150	1 018	1 540	2 700	1 899
1944	1 290	1 134	1 450	2 740	1 656
1945	1 340	1 180	1 630	2 970	1 597
1946	1 790	1 582	1 860	3 650	1 455
1947	2 320	2 044	1 860	4 180	3 281
1948	1 910	1 682	2 000	3 900	2 155
1949	1 940	1 714	2 000	3 940	1 875
1950	2 250	1 984	2 310	4 560	2 383
1951	2 440	2 152	2 360	4 800	2 218
1952	2 360	2 080	2 360	4 720	2 782
1953	2 370	2 091	2 490	4 870	2 340
1954	2 610	2 306	2 450	5 060	2 282
1955	2 910	2 567	2 360	5 270	2 253
1956	2 980	2 629	2 040	5 020	2 823
1957	3 170	2 792	2 220	5 390	2 203
1958	2 960	2 606	2 130	5 090	2 287
1959	2 850	2 509	2 130	4 980	2 542
1960	3 490	3 082	2 180	5 670	2 377
1961	3 580	3 160	2 180	5 760	2 228
1962	3 810	3 360	2 040	5 850	2 070
1963	4 200	3 703	2 000	6 190	1 971
1964	4 300	3 796	1 770	6 070	1 680
1965	4 650	4 102	1 540	6 190	1 487
1966	5 170	4 557	1 450	6 620	1 324
1967	5 150	4 542	1 270	6 420	1 178
1968	5 270	4 649	1 180	6 450	1 125
1969	5 460	4 818	1 090	6 550	985
1970	5 620	4 952	1 040	6 690	911
1971	5 800	5 118	950	6 760	810
1972	6 130	5 405	950	7 080	1 000
1973	6 270	5 525	860	7 130	857

Source: see *Notes on sources of sales data: Sales data before 1974*, p. 32

Table 1.2 Total annual sales of tobacco products, 1974-2009

Year	Manufactured cigarettes		Loose tobacco tonnes	All tobacco products tonnes
	tonnes	millions		
1974	5 192	5 769	782	5 974
1975	5 606	6 229	749	6 355
1976	5 607	6 230	702	6 309
1977	5 711	6 346	666	6 377
1978	5 641	6 268	610	6 251
1979	5 517	6 130	575	6 092
1980	5 392	5 991	548	5 940
1981	5 551	6 168	553	6 104
1982	5 501	6 112	539	6 040
1983	5 480	6 089	546	6 026
1984	5 612	6 236	534	6 146
1985	4 523	5 654	493	5 016
1986	4 178	5 223	501	4 679
1987	4 289	5 361	511	4 800
1988	4 284	5 355	552	4 836
1989	3 416	4 270	554	3 970
1990	3 591	4 489	602	4 193
1991	3 211	4 014	652	3 863
1992	2 773	3 466	768	3 541
1993	2 705	3 381	810	3 515
1994	2 717	3 396	694	3 411
1995	2 670	3 338	808	3 478
1996	2 928	3 660	658	3 586
1997	2 759	3 449	733	3 492
1998	2 610	3 263	757	3 367
1999	2 495	3 119	736	3 231
2000	2 206	3 152	841	3 047
2001	1 826	2 608	780	2 606
2002	1 972	2 817	810	2 782
2003	1 657	2 367	795	2 452
2004	1 624	2 320	841	2 465
2005	1 705	2 436	889	2 594
2006	1 707	2 439	879	2 586
2007	1 712	2 445	904	2 616
2008	1 785	2 550	870	2 655
2009	1 705	2 436	856	2 561

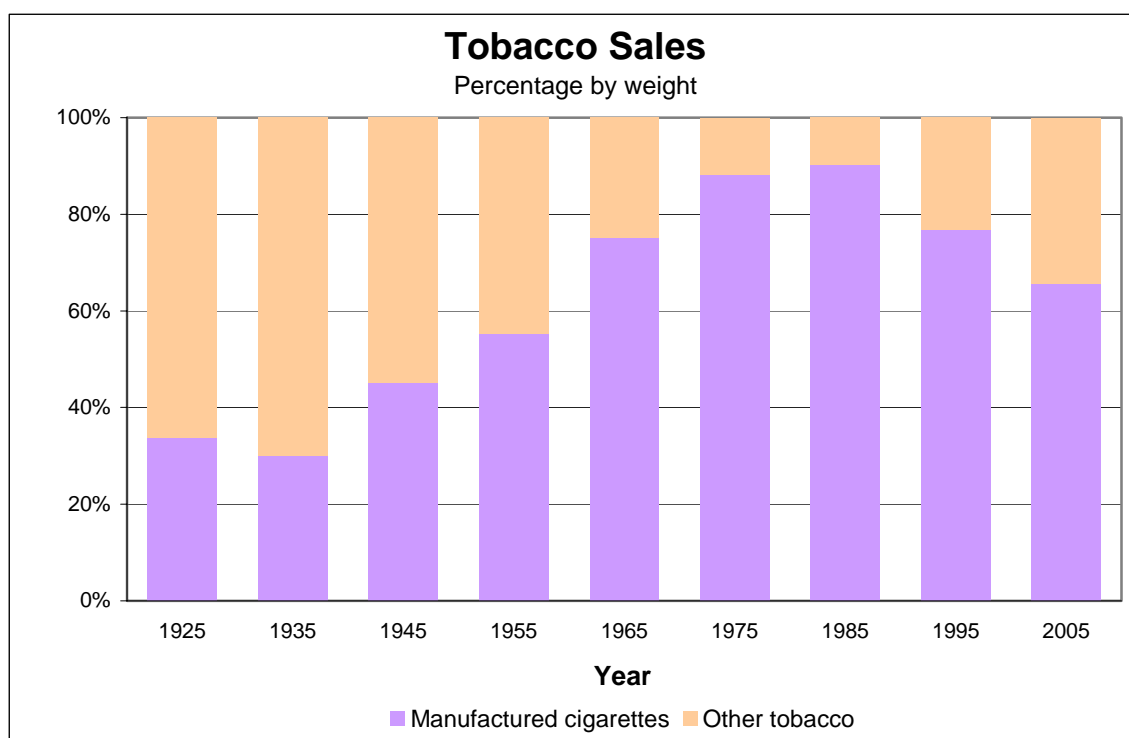
Source: see *Notes on sources of sales data: Sales data for 1974 onwards*, p. 32

Table 1.3 Percentage of sales of tobacco in different forms (by weight), selected years

Year	Manufactured cigarettes %	Other tobacco %
1925	33.7	66.3
1935	30.0	70.0
1945	45.1	54.9
1955	55.2	44.8
1965	75.1	24.9
1975	88.2	11.8
1985	90.2	9.8
1995	76.8	23.2
2005	65.7	34.3

Source: calculated from Tables 1.1 & 1.2

Figure 1 Percentage of sales of tobacco in different forms (by weight), selected years



Source: Table 1.3

Table 2 Sales of cigarettes (including estimated number of hand-rolled cigarettes) and of all tobacco products.
Annual total and average per adult (age 15 years and over) per day

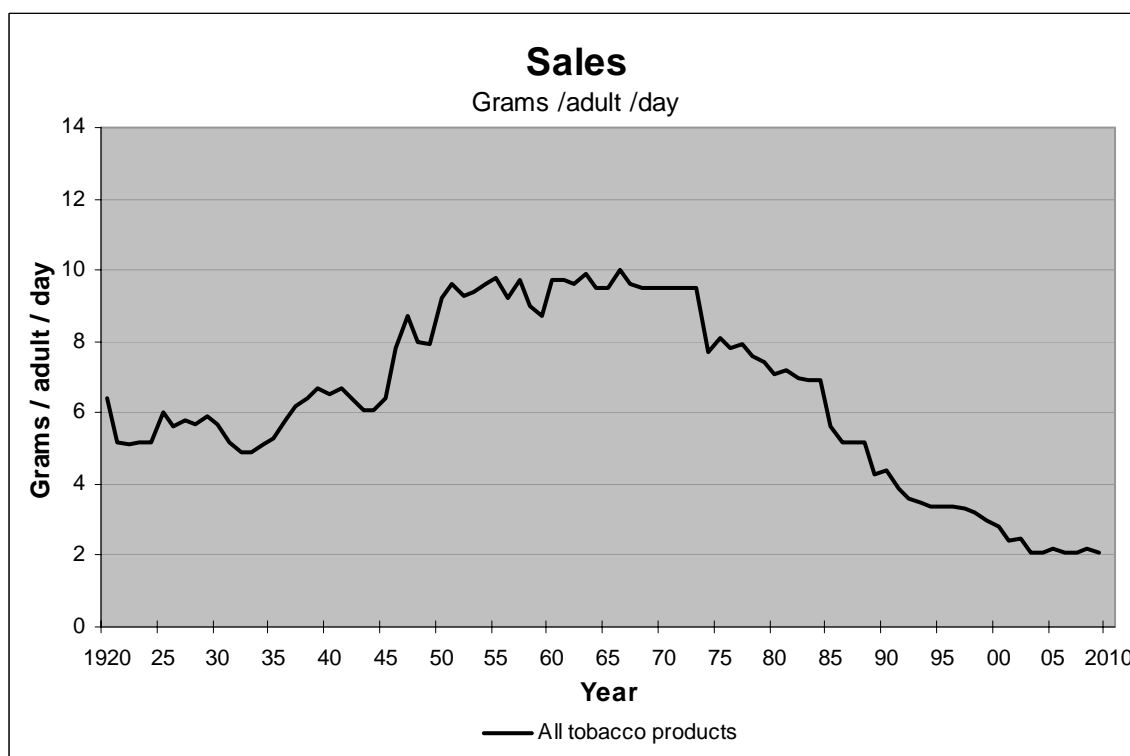
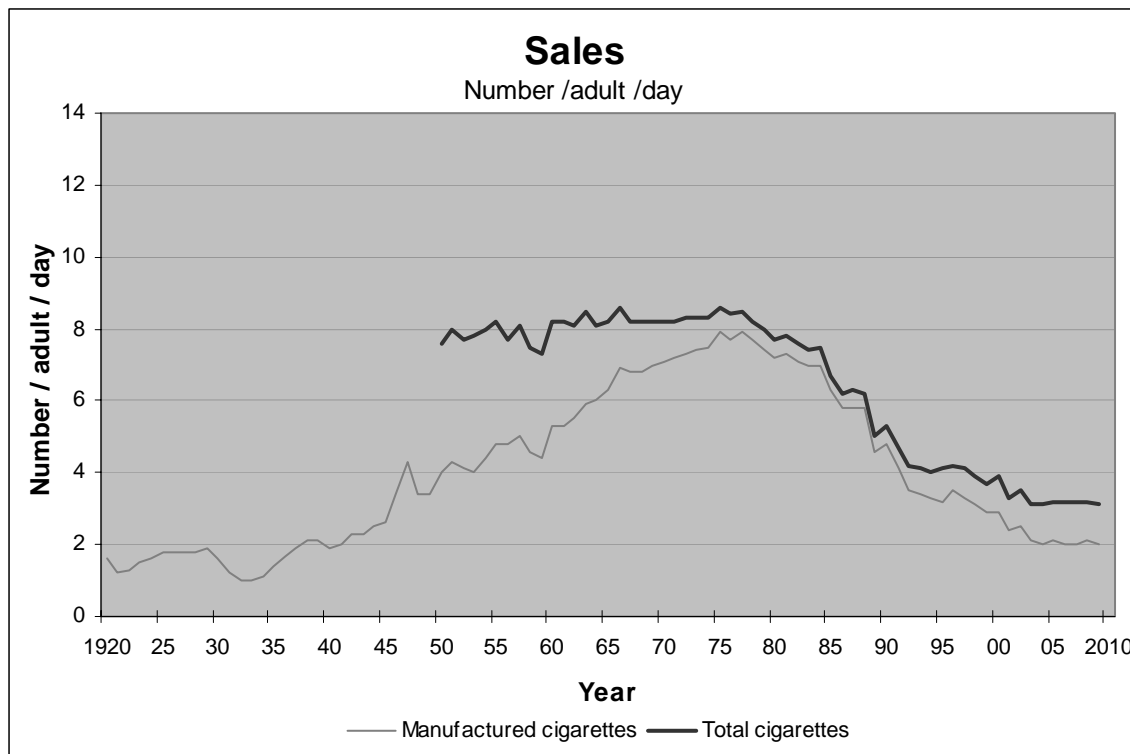
Year	Manufactured cigarettes		Hand-rolled cigarettes		Total cigarettes		All tobacco products	
	Total annual millions	Number/ adult/day	Total annual millions	Number/ adult/day	Total annual millions	Number/ adult/day	Total annual tonnes	Grams/ adult/day
1920	511	1.6					1 990	6.4
1921	392	1.2					1 670	5.2
1922	443	1.3					1 680	5.1
1923	495	1.5					1 740	5.2
1924	542	1.6					1 790	5.2
1925	606	1.8					2 050	6.0
1926	645	1.8					2 050	5.6
1927	686	1.8					2 180	5.8
1928	683	1.8					2 140	5.7
1929	719	1.9					2 270	5.9
1930	626	1.6					2 210	5.7
1931	498	1.2					2 110	5.2
1932	406	1.0					2 000	4.9
1933	426	1.0					2 030	4.9
1934	463	1.1					2 110	5.1
1935	584	1.4					2 200	5.3
1936	712	1.7					2 490	5.8
1937	828	1.9					2 660	6.2
1938	916	2.1					2 810	6.4
1939	943	2.1					2 970	6.7
1940	852	1.9					2 870	6.5
1941	900	2.0					2 970	6.7
1942	1 000	2.3					2 860	6.4
1943	1 018	2.3					2 700	6.1
1944	1 134	2.5					2 740	6.1
1945	1 180	2.6					2 970	6.4
1946	1 582	3.4					3 650	7.8
1947	2 044	4.3					4 180	8.7
1948	1 682	3.4					3 900	8.0
1949	1 714	3.4					3 940	7.9
1950	1 984	4.0	1 802	3.6	3 786	7.6	4 560	9.2
1951	2 152	4.3	1 841	3.7	3 993	8.0	4 800	9.6
1952	2 080	4.1	1 841	3.6	3 921	7.7	4 720	9.3
1953	2 091	4.0	1 942	3.7	4 033	7.8	4 870	9.4
1954	2 306	4.4	1 911	3.6	4 217	8.0	5 060	9.6
1955	2 567	4.8	1 841	3.4	4 408	8.2	5 270	9.8
1956	2 629	4.8	1 591	2.9	4 220	7.7	5 020	9.2
1957	2 792	5.0	1 732	3.1	4 524	8.1	5 390	9.7
1958	2 606	4.6	1 661	2.9	4 267	7.5	5 090	9.0
1959	2 509	4.4	1 661	2.9	4 170	7.3	4 980	8.7
1960	3 082	5.3	1 700	2.9	4 782	8.2	5 670	9.7
1961	3 160	5.3	1 700	2.9	4 860	8.2	5 760	9.7
1962	3 360	5.5	1 591	2.6	4 951	8.1	5 850	9.6
1963	3 703	5.9	1 560	2.5	5 263	8.5	6 190	9.9
1964	3 796	6.0	1 381	2.2	5 177	8.1	6 070	9.5
1965	4 102	6.3	1 201	1.8	5 303	8.2	6 190	9.5
1966	4 557	6.9	1 131	1.7	5 688	8.6	6 620	10.0
1967	4 542	6.8	991	1.5	5 533	8.2	6 420	9.6
1968	4 649	6.8	920	1.4	5 569	8.2	6 450	9.5
1969	4 818	7.0	850	1.2	5 668	8.2	6 550	9.5
1970	4 952	7.1	811	1.2	5 763	8.2	6 690	9.5
1971	5 118	7.2	741	1.0	5 859	8.2	6 760	9.5
1972	5 405	7.3	741	1.0	6 146	8.3	7 080	9.5
1973	5 525	7.4	671	0.9	6 196	8.3	7 130	9.5
1974	5 769	7.5	610	0.8	6 379	8.3	5 974	7.7
1975	6 229	7.9	584	0.7	6 813	8.6	6 355	8.1
1976	6 230	7.7	548	0.7	6 778	8.4	6 309	7.8
1977	6 346	7.9	519	0.6	6 865	8.5	6 377	7.9
1978	6 268	7.7	476	0.6	6 744	8.2	6 251	7.6
1979	6 130	7.4	449	0.5	6 579	8.0	6 092	7.4

Table 2 (continued)

Year	Manufactured cigarettes		Hand-rolled cigarettes		Total cigarettes		All tobacco products	
	Total annual millions	Number/ adult/day	Total annual millions	Number/ adult/day	Total annual millions	Number/ adult/day	Total annual tonnes	Grams/ adult/day
1980	5 991	7.2	427	0.5	6 418	7.7	5 940	7.1
1981	6 168	7.3	431	0.5	6 599	7.8	6 104	7.2
1982	6 112	7.1	420	0.5	6 532	7.6	6 040	7.0
1983	6 089	7.0	426	0.5	6 515	7.4	6 026	6.9
1984	6 236	7.0	417	0.5	6 653	7.5	6 146	6.9
1985	5 654	6.3	385	0.4	6 039	6.7	5 016	5.6
1986	5 223	5.8	391	0.4	5 614	6.2	4 679	5.2
1987	5 361	5.8	399	0.4	5 760	6.3	4 800	5.2
1988	5 355	5.8	431	0.5	5 786	6.2	4 836	5.2
1989	4 270	4.6	432	0.5	4 702	5.0	3 970	4.3
1990	4 489	4.8	482	0.5	4 971	5.3	4 193	4.4
1991	4 014	4.1	554	0.6	4 568	4.7	3 863	3.9
1992	3 466	3.5	691	0.7	4 157	4.2	3 541	3.6
1993	3 381	3.4	770	0.8	4 151	4.1	3 515	3.5
1994	3 396	3.3	694	0.7	4 090	4.0	3 411	3.4
1995	3 338	3.2	848	0.8	4 186	4.1	3 478	3.4
1996	3 660	3.5	724	0.7	4 384	4.2	3 586	3.4
1997	3 449	3.3	843	0.8	4 292	4.1	3 492	3.3
1998	3 263	3.1	908	0.9	4 171	3.9	3 367	3.2
1999	3 119	2.9	920	0.9	4 039	3.7	3 231	3.0
2000	3 152	2.9	1 093	1.0	4 245	3.9	3 047	2.8
2001	2 608	2.4	1 053	1.0	3 661	3.3	2 606	2.4
2002	2 817	2.5	1 134	1.0	3 951	3.5	2 782	2.5
2003	2 367	2.1	1 153	1.0	3 520	3.1	2 452	2.1
2004	2 320	2.0	1 262	1.1	3 582	3.1	2 465	2.1
2005	2 436	2.1	1 378	1.2	3 814	3.2	2 594	2.2
2006	2 439	2.0	1 406	1.2	3 845	3.2	2 586	2.1
2007	2 445	2.0	1 492	1.2	3 937	3.2	2 616	2.1
2008	2 550	2.1	1 436	1.2	3 986	3.2	2 655	2.2
2009	2 436	2.0	1 412	1.1	3 848	3.1	2 561	2.1

Source: Manufactured cigarettes and all tobacco products, Tables 1.1 and 1.2. Hand-rolled cigarettes, see *Notes on sources of sales data: Estimates of numbers of hand-rolled cigarettes*, p. 33. Population, see *Population, Methods* p. 14.

Figure 2 Sales of (i) manufactured and total¹ cigarettes and (ii) all tobacco products. Average per adult (aged 15 years and over) per day



¹ Includes estimated hand-rolled cigarette consumption
Source: Table 2

Table 3 Manufactured cigarettes: percentage of total sales as filter cigarettes; sales-weighted average machine yields per cigarette of tar (SWAT), nicotine (SWAN), and carbon monoxide (SWACO)

Year	Filter %	SWAT mg/cig	SWAN mg/cig	SWACO mg/cig
1961	42.7			
1962	48.0			
1963	52.7			
1964	55.0			
1965	60.0			
1973	90.7			
1974	92.4			
1975	93.0			
1976	94.0			
1977	94.6			
1978	95.4			
1990		13.2		
1994		13.3	1.19	
1995		13.7	1.18	
1999		12.4	1.1	
2001		12.4	1.1	12.1
2002		11.5	1.0	11.8
2003	99.7	11.7	1.05	11.5
2004	99.8	10.8	1.0	11.0
2005	99.8	11.0	0.97	11.75
2006	100.0	11.0	1.0	11.3

Source: see *Notes on sources of sales data: Plain/Filter cigarette sales*, p. 34 and *Tar, nicotine and carbon monoxide machine yields of cigarettes*, p. 34

Table 4M Prevalence of smoking, males: selected surveys by age
(continues on p. 18)

Year	Source	Product	Frequency	Age Groups																	All ages															
				12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60		65	70	75	80+											
60	7 UC *			24																																
60	7 UC R			35																																
60	7 UC A			40	53	54	41		37															47												
64	11 UC R																																			
64	12 A R			55																																
68	4 U *			15																																
68	4 U R			32																																
69	6 UC *			2	9	13		1																												
69	6 UC R			21	38	38		30																												
72	8 U U			30																																
74	3 UC R																																			
75	2 UC U			41																																
75	13 U A			35	46	48		56																45												
76	1 UC R			30																	42	43	44	43	44	45	44	41	38	35	31	27	20	40		
76	5 UC *			11		18																														
76	5 UC U			30		29																														
77	14 U U				35		50																													
81	1 UC R			27																	40	38	37	38	38	38	38	36	32	29	25	20	35			
81	4 U *			13																																
81	4 U R			24																																
82	10 UC R																				31		27		28									29		
82	10 UC A																				34		29		30									31		
82	10 A A																				37		32		32									34		
83	15 TC A			34																	38		37						29					35		
83	16 UC *			15																																
83	16 UC A			23																																
84	15 TC A			35																	39		35					27						34		
85	9 U R			16		14																														
85	15 TC A			31																	35		31				24						30			
85	17 UC *			1																																
85	17 U A			11																																
86	15 TC A			31																	32		29				24						29			
87	15 TC A			32																	34		34				22						31			
87	17 UC *			11																																
87	17 U A			21																																
88	15 TC A			27																	38		31				20							29		
89	13 U A			26																																
89	15 TC A			28																	30		28				20							27		
89	26 U U			22																	26		30		27		15							26		
89	27 UC R			24																																
90	15 TC A			30																	32		30				18							28		
90	17 UC *			28																																
90	17 U A			37																																
91	15 TC A			28																	35		27				18								27	
91	18 U *			8																																
91	18 U A			12																																
91	27 UC R			23																																
92	15 TC A			25																	34		29				18								27	
92	19 UC *			11																																
92	19 UC R			17																																
92	19 UC A			21																																
92	23 U U			22																	29		24				14								24	

Table 4F Prevalence of smoking, females: selected surveys by age
(continues on p. 19)

Year	Source	Product	Frequency	Age Groups																	All ages		
				12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60		65	70
60	7	UC *		6																			
60	7	UC R		13																			
60	7	UC A		17	28	29	25	20														25	
64	11	UC R		61																			
64	12	A R		35											0					31			
68	4	U *		7																			
68	4	U R		25																			
69	6	UC *		3	10	6	9																
69	6	UC R		21	37	32	25																
72	8	U U		31																			
74	3	UC R		33						37	36	40	19					31					
75	2	UC U																					
75	13	U A		38	43	51	63														46		
76	1	UC R		30						39	38	38	35	35	36	34	31	26	20	15	11	6	32
76	5	UC *		6	27																		
76	5	UC U		29	43																		
77	14	U U		35	40																		
81	1	UC R		30						40	35	33	33	31	31	31	28	25	20	15	8		30
81	4	U *		33																			
81	4	U R		47																			
82	10	UC R								25	26	21						25					
82	10	UC A								29	27	23						27					
82	10	A A								30	27	23						27					
83	15	TC A		40						35	31			21					31				
83	16	UC *		24																			
83	16	UC A		38																			
84	15	TC A		40						34	29			22					31				
85	9	U R		26	18																		
85	15	TC A		40						34	29			19					30				
85	17	UC *		1																			
85	17	U A		9																			
86	15	TC A		37						34	32			21					31				
87	15	TC A		36						35	26			19					28				
87	17	UC *		19																			
87	17	U A		33																			
88	15	TC A		39						35	28			16					29				
89	13	U A		43																			
89	15	TC A		37						33	25			16					27				
89	26	U U		29						29	28			22			9		24				
89	27	UC R		22																			
90	15	TC A		34						32	28			16					27				
90	17	UC *		35																			
90	17	U A		50																			
91	15	TC A		33						30	24			16					26				
91	18	U *		12																			
91	18	U A		22																			
91	27	UC R		24																			
92	15	TC A		33						36	27			14					27				
92	19	UC *		12																			
92	19	UC R		18																			
92	19	UC A		25																			
92	23	U U		27						25	22			10					22				

Table 4M (continued from p. 16, continues on p. 20)
Prevalence of smoking, males

Year	Source	Product	Frequency	Age Groups																	All ages						
				12	13	14	15	16	17	18	19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64		65 - 69	70 - 74	75 - 79	80+		
93	10	UC R											19		16		17					17					
93	10	UC A											20		17		18					19					
93	10	A A											22		18		18					20					
93	15	TC A							28					35			30				19	28					
93	18	U *				8																					
93	18	U A				15																					
94	15	TC A							28					36		30					17	28					
95	15	TC A							25					35		29					19	27					
95	18	U *				12																					
95	18	U A				18																					
96	1	UC R						20				31	33	30	29	26	25	24	22	19	16	13	10	8	6	25	
96	15	TC A							27				33		26						19		26				
96	27	UC R															21										
97	15	TC A							27				30		28						16		26				
97	18	U *				11																					
97	18	U A				18																					
97	19	UC *				14																					
97	19	UC R				19																					
97	19	UC A				24																					
97	24	UC R						25						33			23			19		11	26				
97	24*	UC R															27										
98	15	TC A							27				34		28						16		26				
98	19	UC *				13																					
98	19	UC R				18																					
98	19	UC A				23																					
98	28	U A							35		51	48	40	40	30	26							37				
99	15	TC A											30		27						16		26				
99	19	UC *				14																					
99	19	UC R				19																					
99	19	UC A				25																					
99	27	U R															18										
99	27	U A															25										
00	15	TC R												26		32		25			11		23				
00	15	TC A														28		35		27		12	25				
00	15	TC A									25	31															
00	19	UC *				14																					
00	19	UC R				19																					
00	19	UC A				24																					
00	20	U A				22																					
00	30	UC *		5																		11					
00	30	UC R		8																		18					
00	30	UC A		10																		23					
01	15	TC A																		31		33		26		13	25
01	15	TC A																			22		43				
01	19	UC *				12																					
01	19	UC R				16																					
01	19	UC A				21																					
01	27	UC R																						18			
01	28	U A									35	40	44	42	36	33	27							36			
01	29	A *		3	7	10	11	9																			
01	29	A R		6	12	16	17	14																			

Table 4F (continued from p. 17, continues on p. 21)
Prevalence of smoking, females

Year	Source	Product	Frequency	Age Groups																All ages			
				12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55		60	65	70
93	10	UC	R										18	12	13							14	
93	10	UC	A									20	13	14								16	
93	10	A	A									21	12	13								16	
93	15	TC	A				30			34			26				16					26	
93	18	U	*			11																	
93	18	U	A			25																	
94	15	TC	A				34			33			25				16					26	
95	15	TC	A				33			36			25				14					26	
95	18	U	*			14																	
95	18	U	A			29																	
96	1	UC	R				22		33	32	28	27	24	22	22	18	15	13	10	8	6	3	23
96	15	TC	A				36			35			26				13					26	
96	27	UC	R									22											
97	15	TC	A				35			36			26				14					27	
97	18	U	*			17																	
97	18	U	A			32																	
97	19	UC	*			17																	
97	19	UC	R			25																	
97	19	UC	A			32																	
97	24	UC	R				29			28			20			13	5					24	
97	24*	UC	R									24											
98	15	TC	A				30			31			26				12					24	
98	19	UC	*			15																	
98	19	UC	R			24																	
98	19	UC	A			31																	
98	28	U	A				38		47	40	40	31	30	27								35	
99	15	TC	A				33			32			26				13					25	
99	19	UC	*			17																	
99	19	UC	R			25																	
99	19	UC	A			32																	
99	27	U	R									17											
99	27	U	A									23											
00	15	TC	R				28			35			24				12					24	
00	15	TC	A				31			37			26				13					25	
00	15	TC	A				26		36														
00	19	UC	*			16																	
00	19	UC	R			24																	
00	19	UC	A			31																	
00	20	U	A			34																	
00	30	UC	*	3					17														
00	30	UC	R	4					24														
00	30	UC	A	5					29														
01	15	TC	A				32			34			25				13					25	
01	15	TC	A				27		38														
01	19	UC	*			15																	
01	19	UC	R			22																	
01	19	UC	A			28																	
01	27	UC	R									20											
01	28	U	A				40		55	41	36	30	29	22								33	
01	29	A	*	6	10	14	14	11														11	
01	29	A	R	11	16	22	22	18														19	

Table 4M (continued from p. 18)
Prevalence of smoking, males

Year	Source	Product	Frequency	Age Groups																All ages				
				12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55		60	65	70	75
02	15	TC	A					32			31			27					14				25	
02	15	TC	A					21			44			30			23		19			13	6	
02	19	UC	*				10																	
02	19	UC	R				14																	
02	19	UC	A				17																	
02	20	U	*				10																	
02	20	U	A				19																	
03	15	TC	A					32			36			26					13					25
03	19	UC	*				10																	
03	19	UC	R				13																	
03	19	UC	A				16																	
03	24	UC	R					27			33			27		24		15		12		6		24
03	24*	UC	R											24										
04	15	TC	R											24										
04	15	TC	A					25			34			28					14					25
04	15	TC	A					17			33													
04	19	UC	*				8																	
04	19	UC	R				11																	
04	19	UC	A				14																	
05	15	TC	A					24			35			26					13					24
05	19	UC	*				7																	
05	19	UC	R				10																	
05	19	UC	A				13																	
06	1	UC	R					18			32	31		28		24		20		16		9		22
06	19	UC	*				6																	
06	19	UC	R				9																	
06	19	UC	A				11																	
06	21	UC	*				7																	
06	25*	MC	A								11													
06	25	A	R					24			29	29		23		24		16		12				22
06	25	A	A					25			31	30		26		25		17		14				24
07	19	UC	*				6																	
07	19	UC	R				9																	
07	19	UC	A				11																	
07	22	UC	A				13																	
07	24*	UC	R											20										
07	24	A	R					21			27			21		22		13		10		5		19
07	24	A	A					23			31			24		23		14		11		5		21
07	24	A	A					16			27													
07	29	TC	R				6																	
07	29	TC	A				14																	

Source: see *Notes on sources of survey data*, p. 34
 Product: MC = manufactured cigarettes
 TC = total cigarettes (including hand-rolled)
 UC = cigarettes (type unspecified)
 A = all products

Frequency: A = all smokers (including occasional)
 R = regular or daily smokers
 U = unspecified
 * = refer to *Notes on sources of survey data*, p. 34
 All ages: relates to ages reported; as given in original source

Table 4F (continued from p. 19)
Prevalence of smoking, females

Year	Source	Product	Frequency	Age Groups																	All ages						
				12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60		65	70	75	80+		
02	15	TC	A				33				32			25							11						24
02	15	TC	A				30			37	32		27		23		15		11					5			
02	19	UC	*			15																					
02	19	UC	R			21																					
02	19	UC	A			27																					
02	20	U	*			15																					
02	20	U	A			27																					
03	15	TC	A				35				35		25						12							25	
03	19	UC	*			14																					
03	19	UC	R			20																					
03	19	UC	A			25																					
03	24	UC	R				27				27		26		25		15		12				4			22	
03	24*	UC	R										23														
04	15	TC	R												22												
04	15	TC	A				29				30		24						13							22	
04	15	TC	A				20			37																	
04	19	UC	*			11																					
04	19	UC	R			17																					
04	19	UC	A			21																					
05	15	TC	A				31				30		25						13							23	
05	19	UC	*			11																					
05	19	UC	R			15																					
05	19	UC	A			20																					
06	1	UC	R				20			28	27	24	22	18	14				7							20	
06	19	UC	*			10																					
06	19	UC	R			14																					
06	19	UC	A			18																					
06	21	UC	*			11																					
06	25*	MC	A										11														
06	25	A	R				25		25	25	25	18	17	17												21	
06	25	A	A				29		29	27	26	19	17	17												23	
07	19	UC	*			8																					
07	19	UC	R			12																					
07	19	UC	A			15																					
07	22	UC	A			24																					
07	24*	UC	R										18														
07	24	A	R				19				23	19	18	14	10	3										17	
07	24	A	A				23				25	20	20	16	11	3										19	
07	24	A	A				15			28																	
07	29	TC	R			10																					
07	29	TC	A			20																					

Source: see *Notes on sources of survey data*, p. 34
 Product: MC = manufactured cigarettes
 TC = total cigarettes (including hand-rolled)
 UC = cigarettes (type unspecified)
 A = all products
 Frequency: A = all smokers (including occasional)
 R = regular or daily smokers
 U = unspecified
 * = refer to *Notes on sources of survey data*, p. 34
 All ages: relates to ages reported; as given in original source

Table 5M Number of cigarettes smoked per smoker per day, males:
selected surveys by age

Year	Source	Product	Estimated	Age Groups																	All ages			
				12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60		65	70	75
60	7	UC	E	2.1																				
64	11	UC	E																					
64	12	A	E	23																				
69	6	UC	E*	1.9	2.6	3.0	1.9																	
74	3	UC	E																					
75	13	UC	E	2.8																				
76	1	UC	E	14				17	18	19	20	20	21	20	19	17	16	14	12	20				
81	1	UC	E	14				17	18	19	19	20	20	20	19	18	16	14	12	18				
82	10	UC							22			23		22							22			
87	17	UC	E	11																				
89	13	UC	E	3.9																				
89	26	UC		5.3				12	14				18				10				13			
89	27	UC		14																				
90	15	TC		15																				
90	17	UC	E							17														
91	27	UC		14																				
92	23	UC	E*	*				16				17				*				16				
93	10	UC							19	20		16							18					
96	27	UC		16																				
97	24	UC	E	13				17				18				14				16				
00	15	TC	E	13																				
01	15	TC	E	11				12				14				15				13				
02	15	TC	E	11				12				15				18				14				
04	15	TC	E	13				11				14				14				12				
06	25	UC	E	15																				
07	24	UC	E	11				12				14				16				18		16	*	14

Source: see *Notes on sources of survey data*, p. 34
 Product: MC = manufactured cigarettes
 TC = total cigarettes (including hand-rolled)
 UC = cigarettes (type unspecified)
 A = all products
 U = unspecified

Estimated: E = mean estimated from percentage distribution
 (see also *Consumption category estimation*, Methods p. 11, and Appendix III)
 * = refer to *Notes on sources of survey data*, p. 34
 All ages: relates to ages reported; as given in original source

Table 5F Number of cigarettes smoked per smoker per day, females:
selected surveys by age

Year	Source	Product	Estimated	Age Groups																	All ages					
				12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60		65	70	75	80+	
60	7	UC	E	1.3																						
64	11	UC	E	13																						
64	12	A	E	17																						
69	6	UC	E*	2.1	2.9	1.9	2.6																			
74	3	UC	E	12																						
75	13	UC	E	1.6																						
76	1	UC	E	13				15	15	15	16	16	16	15	14	13	12	11	9.8	16						
81	1	UC	E	12				15	15	16	16	16	16	15	14	14	12	11	10	14						
82	10	UC						17				15				18				17						
87	17	UC	E	10																						
89	13	UC	E	1.5																						
89	26	UC		4.2				9.1				12				14				10				11		
89	27	UC		12																						
90	15	TC		13																						
90	17	UC	E															12								
91	27	UC		12																						
92	23	UC	E*	*				14				14				*				13						
93	10	UC						16				18				14				16						
96	27	UC		13																						
97	24	UC	E	11				13				15				12				13						
00	15	TC	E	11																						
01	15	TC	E	10				11				13				12				12						
02	15	TC	E	10				11				12				12				11						
04	15	TC	E	10				10				12				12				10						
06	25	UC	E	12																						
07	24	UC	E	11				11				13				12				13				12	*	12

Source: see *Notes on sources of survey data*, p. 34
 Product: MC = manufactured cigarettes
 TC = total cigarettes (including hand-rolled)
 UC = cigarettes (type unspecified)
 A = all products
 U = unspecified

Estimated: E = mean estimated from percentage distribution
 (see also *Consumption category estimation*, Methods p. 11, and Appendix III)
 * = refer to *Notes on sources of survey data*, p. 34
 All ages: relates to ages reported; as given in original source

Table 6M Number of cigarettes smoked per person per day, males:
selected surveys by age; with percentage total sales

Year	Source	Product	Age Groups																	All ages	% Total sales		
			12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60			65	70
60	7	UC	0.7																		**		
64	11	UC																			**		
64	12	A	13																		85%A		
69	6	UC*	0.4	1.0	1.1	0.6																**	
74	3	UC																			**		
75	13	UC	1.3																		**		
76	1	UC	4.2				7.2	7.8	8.5	8.6	8.8	9.2	8.8	7.8	6.6	5.4	4.3	2.9	7.9	70%T			
81	1	UC	3.6				6.6	6.7	6.9	7.4	7.4	7.5	7.5	6.9	5.7	4.5	3.6	2.4	6.1	66%T			
82	10	UC																		6.3	**		
87	17	UC	1.2																		**		
89	13	UC	1.0																		**		
89	26	UC*	1.2				3.0	4.1				4.8				1.6				3.5	60%T		
89	27	UC	3.4																		60%T		
90	15	TC	4.1																		72%T		
90	17	UC	4.7																		**		
91	27	UC	3.1																		65%T		
92	23	UC*	*				4.5				4.1				*				3.7	79%T			
93	10	UC	3.6																	3.1	2.6	3.2	**
96	27	UC	3.3																		73%T		
97	24	UC	3.2				5.5				4.1				2.3				4.2	89%T			
00	15	TC	3.3																		77%T		
01	15	TC	3.5				3.9	3.5				1.9				3.3	90%T						
02	15	TC	3.5																		95%T		
04	15	TC	3.3																		99%T		
06	25	UC*	3.5																		94%T		
07	24	UC*	2.3				3.4	3.1	3.5	2.3	1.6	*	2.7	70%T									

Source: *Notes on sources of survey data*, p. 34
 Product: MC = manufactured cigarettes
 TC = total cigarettes (including hand-rolled)
 UC = cigarettes (type unspecified)
 A = all products
 U = unspecified

* = refer to *Notes on sources of survey data*, p. 34
 All ages: relates to ages reported; as given in original source
 % Total sales: estimated % of total sales of M = manufactured or T = total cigarette consumption implied by survey, sexes combined
 ** = cannot be calculated
 -- = adjusted by original author

Table 6F Number of cigarettes smoked per person per day, females:
selected surveys by age; with percentage total sales

Year	Source	Product	Age Groups																	All ages	% Total sales					
			12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60			65	70	75	80+	
60	7	UC	0.2																		**					
64	11	UC	7.6																		**					
64	12	A	5.8																	5.2	85%A					
69	6	UC*	0.5	1.1	0.6	0.6																**				
74	3	UC	3.7																		**					
75	13	UC	0.7																		**					
76	1	UC	3.8				5.7	5.7	5.8	5.5	5.6	5.6	5.0	4.2	3.4	2.4	1.6	0.8	5.1	70%T						
81	1	UC	3.6				5.9	5.3	5.1	5.3	5.0	4.9	4.7	4.0	3.3	2.5	1.7	0.8	4.2	66%T						
82	10	UC					4.3				3.9			3.8			4.0	**								
87	17	UC	1.9																			**				
89	13	UC	0.6																		**					
89	26	UC*	1.2				2.6			3.4				3.0				0.9		2.6	60%T					
89	27	UC	2.7																		60%T					
90	15	TC	3.5																		72%T					
90	17	UC					4.2																			**
91	27	UC	2.9																		65%T					
92	23	UC*	*				3.4				3.0				*				2.9	79%T						
93	10	UC					2.8				2.1		1.8						2.3	**						
96	27	UC	2.8																		73%T					
97	24	UC	3.2				3.7				3.0				1.2				3.1	89%T						
00	15	TC	2.8																		77%T					
01	15	TC	3.2				3.6				3.2				1.6				3.0	90%T						
02	15	TC	3.3																		95%T					
04	15	TC	2.8																		99%T					
06	25	UC*	3.1																		94%T					
07	24	UC*	2.1				2.5				2.4		2.2		1.8		1.2		*		2.0	70%T				

Source: *Notes on sources of survey data*, p. 34
 Product: MC = manufactured cigarettes
 TC = total cigarettes (including hand-rolled)
 UC = cigarettes (type unspecified)
 A = all products
 U = unspecified

* = refer to *Notes on sources of survey data*, p. 34
 All ages: relates to ages reported; as given in original source
 % Total sales: estimated % of total sales of M = manufactured or T = total cigarette consumption implied by survey, sexes combined,
 ** = cannot be calculated
 -- = adjusted by original author

Table 7M Number of cigarettes smoked per person per day, sales-adjusted, males: selected surveys¹ by age; with percentage total sales

Year	Source	Product	Age Groups																	All ages	% Total sales								
			12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60			65	70	75	80+				
64	12	A	15																		85%A								
76	1	UC	6.0						10	11	12	12	13	13	13	11	9.5	7.8	6.2	4.2	11	70%T							
81	1	UC	5.4						10	10	10	11	11	11	10	8.6	6.8	5.4	3.6	9.2	66%T								
89	26	UC*	1.9			5.0			6.7				7.9				2.6				5.7	60%T							
89	27	UC	5.7																		60%T								
90	15	TC	5.7																		72%T								
91	27	UC	4.8																		65%T								
92	23	UC*	*						5.7				5.1				*				4.8	79%T							
96	27	UC	4.5																		73%T								
97	24	UC	3.6						6.2				4.6				2.6				4.8	89%T							
00	15	TC	4.2																		77%T								
01	15	TC	3.8						4.4				3.9				2.2				3.6	90%T							
02	15	TC	3.7																		95%T								
04	15	TC	3.3																		99%T								
06	25	UC*	3.7																		94%T								
07	24	UC*	3.2						4.8				4.4				5.0				3.4				2.3		*	3.8	70%T

1 Based on those surveys in Table 6 with data for both sexes and age range at least 21-64 (see *Cigarette consumption per person*, Methods p. 11)

Source: *Notes on sources of survey data*, p. 34
 Product: MC = manufactured cigarettes
 TC = total cigarettes (including hand-rolled)
 UC = cigarettes (type unspecified)
 A = all products
 U = unspecified

* = refer to *Notes on sources of survey data*, p. 34
 All ages: relates to ages reported; as given in original source
 % Total sales: Adjustment factor used, estimated % of total sales of M = manufactured or T = total cigarette consumption implied by survey, sexes combined
 -- = adjusted by original author

Table 7F Number of cigarettes smoked per person per day, sales-adjusted, females: selected surveys¹ by age; with percentage total sales

Year	Source	Product	Age Groups																	All ages	% Total sales			
			12	13	14	15	16	17	18	19	20	25	30	35	40	45	50	55	60			65	70	75
64	12	A	6.8																	0.0	6.1	85%A		
76	1	UC	5.5					8.2	8.2	8.3	7.9	8.0	8.0	7.2	6.0	4.9	3.4	2.3	1.1			7.3	70%T	
81	1	UC	5.4					8.9	8.0	7.7	8.0	7.5	7.4	7.1	6.0	5.0	3.8	2.6	1.2			6.3	66%T	
89	26	UC*	2.0			4.4		5.6				5.0				1.5				4.3	60%T			
89	27	UC	4.5																		60%T			
90	15	TC	4.9																		72%T			
91	27	UC	4.5																		65%T			
92	23	UC*	*					4.3				3.8				*				3.7	79%T			
96	27	UC	3.9																		73%T			
97	24	UC	3.6					4.2				3.4				1.3				3.4	89%T			
00	15	TC	3.6																		77%T			
01	15	TC	3.6					4.0				3.6				1.8				3.3	90%T			
02	15	TC	3.4																		95%T			
04	15	TC	2.8																		99%T			
06	25	UC*	3.3																		94%T			
07	24	UC*	3.0					3.6				3.5				3.2				2.6	1.7	*	2.9	70%T

1 Based on those surveys in Table 6 with data for both sexes and age range at least 21-64 (see *Cigarette consumption per person*, Methods p. 11)

Source: See *Notes on sources of survey data*, p. 34
 Product: MC = manufactured cigarettes
 TC = total cigarettes (including hand-rolled)
 UC = cigarettes (type unspecified)
 A = all products
 U = unspecified

* = refer to *Notes on sources of survey data*, p. 34
 All ages: relates to ages reported; as given in original source
 % Total sales: Adjustment factor used, estimated % of total sales of M = manufactured or T = total cigarette consumption implied by survey, sexes combined
 -- = adjusted by original author

Table 8 Estimated¹ prevalence of smoking and estimated¹ number of cigarettes per person per day (unadjusted and sales-adjusted): summary of Tables 4, 6 and 7. Males and females aged 15 years and over

Year	Source ²	Product ³	Prevalence ⁴						Number of cigarettes								
			Manufactured cigarettes		Total cigarettes ⁵		All products ⁶		Unadjusted ⁷				Sales-adjusted ⁸				
			M	F	M	F	M	F	M	F	Total sales %	Manufactured cigarettes number/person/day		Total cigarettes ⁹ number/person/day			
									M	F	M	F					
1964	11	UC		61													
	12	A			52	31			11.4	4.9	85			13.4	5.7	/10	
1974	3	UC		31						3.7							
1975	2	UC		41													
1976	1	UC		40	32				7.2	4.6	70			10.3	6.5		
1981	1	UC		35	29				6.1	4.3	66			9.2	6.5		
1983	15	TC		35	31									(8.7	6.3)		
1984	15	TC		34	31									(8.7	6.3)		
1985	15	TC		30	30									(7.5	5.9)		
1986	15	TC		29	31									(6.7	5.7)		
1987	15	TC		31	28									(7.2	5.3)		
1988	15	TC		29	29									(7.0	5.5)		
1989	15	TC		27	27									(5.6	4.5)		
	26	UC+U				26	24		3.5	2.6	60			5.8	4.3		
	27	UC		24	22				3.4	2.7	60			5.7	4.5		
1990	15	TC		28	27				4.1	3.5	72			5.7	4.9		
1991	15	TC		27	25									(5.4	4.0)		
	27	UC		23	24				3.1	2.9	65			4.8	4.5		
1992	15	TC		27	27									(4.7	3.7)		
	23	UC+U				24	22		3.7	2.9	79			4.8	3.7		
1993	15	TC		28	26									(4.8	3.5)		
1994	15	TC		28	26									(4.6	3.5)		
1995	15	TC		27	26									(4.6	3.5)		
1996	1	UC		25	23									(4.9	3.6)		
	15	TC		26	26									(4.6	3.8)		
	27	UC		21	22				3.3	2.8	73			4.5	3.9		
1997	15	TC		25	26									(4.4	3.7)		
	24	UC		26	23				4.3	3.0	89			4.8	3.4		
	24*	UC		27	24												
1998	15	TC		26	24									(4.5	3.3)		
1999	15	TC		26	25									(4.3	3.3)		
	27	U				18	17							(4.3	3.2)		
	27	U				25	23										

Table 8 (continued)

Year	Source ²	Product ³	Prevalence ⁴				Number of cigarettes										
			Manufactured cigarettes		Total cigarettes ⁵		All products ⁶		Unadjusted ⁷			Sales-adjusted ⁸					
			M	F	M	F	M	F	M	F	Total sales %	Manufactured cigarettes number/person/day		Total cigarettes ⁹ number/person/day			
2000	15	TC			23	24			3.3	2.8	77					4.2	3.6
	15	TC			25	25											
2001	15	TC			25	25			3.2	2.8	90					3.5	3.2
	27	UC			18	20									(3.5	3.2)	
2002	15	TC			25	24			3.5	3.3	95					3.7	3.4
2003	15	TC			25	25										(3.5	2.7)
	24	UC			24	22										(3.6	2.6)
	24*	UC			24	23											
2004	15	TC			24	22			3.3	2.8	99					3.3	2.8
	15	TC			24	22											
2005	15	TC			24	23										(3.6	2.9)
2006/11	1	UC			22	20										(3.8	2.7)
	25	UC+A					20	19	3.3	2.8	94					3.5	3.0
	25	MC+A	10	10			22	20				(2.3	1.8)				
2007/11	24	UC+A					19	17	2.7	2.0	70					3.8	2.9
	24	A					21	19									
	24*	UC			20	18											

1 Surveys covering an age range of at least 21-64 are included. Any gaps in the data for ages 15-20 and 65 years and over are filled in by assumed extensions to the age distribution, given in *Notes on sources of survey data*, p. 34. Method: see *Summary of adult smoking*, Methods p. 13. Exceptionally, calculation is based on the *All ages* value from Tables 6 and 7 in those surveys for which some age-specific data are not available (age groups marked as * in Tables 6 and 7)

2 See *Notes on sources of survey data*, p. 34

3 Product: MC = manufactured cigarettes, TC = total cigarettes (including hand-rolled), UC = cigarettes (type unspecified), A = all products, U = unspecified. Frequency of smoking is indicated by: regular or daily smokers in normal type, all smokers (including occasional) in bold, unspecified in italics

4 From Table 4

5 This column includes prevalence of smoking classified as UC = cigarettes (type unspecified)

6 This column includes prevalence of smoking classified as U = unspecified product

7 From Table 6

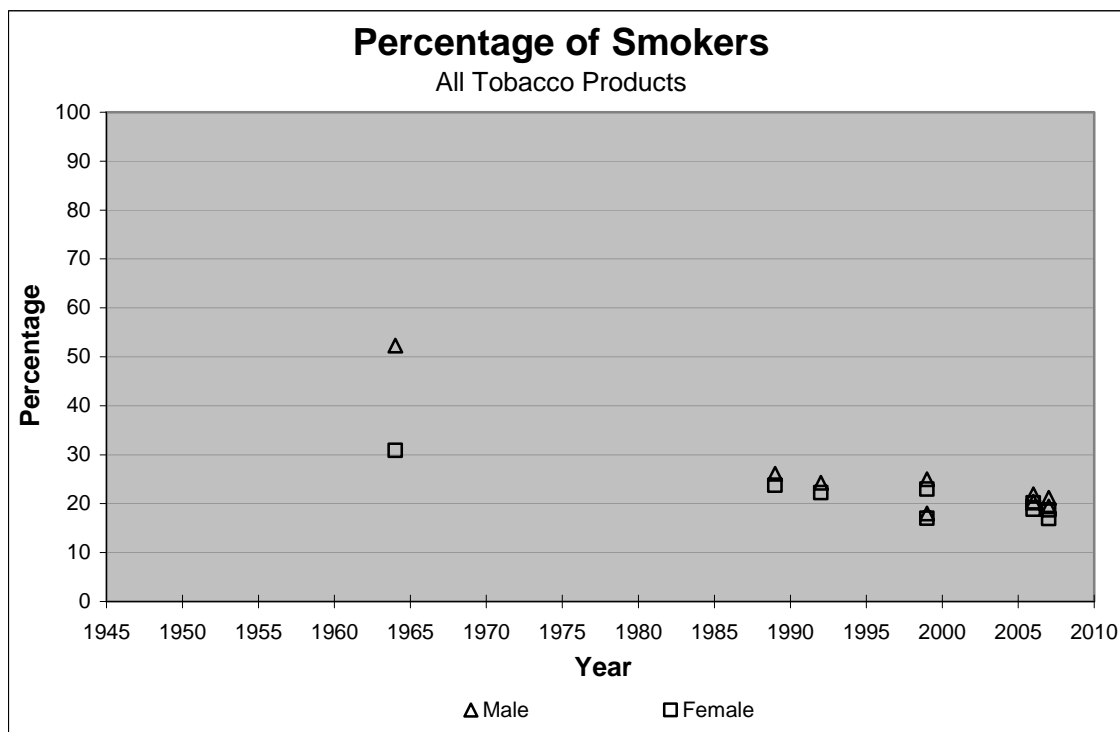
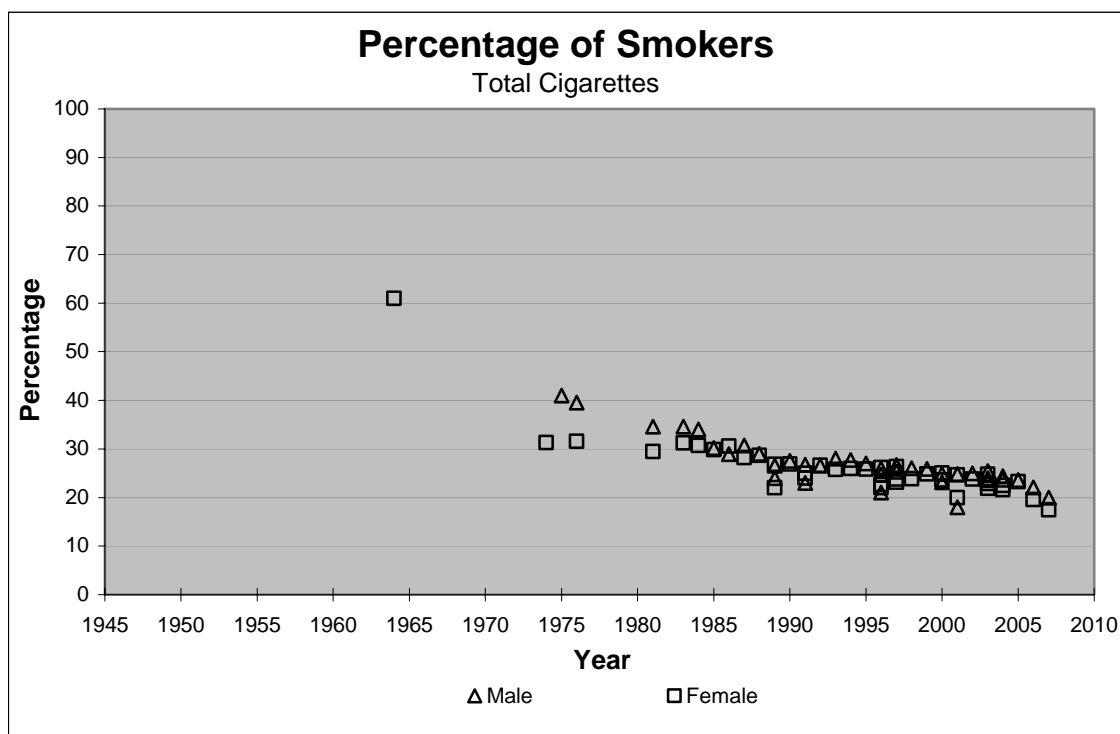
8 From Table 7, except data in parentheses, which are derived from the prevalence of smoking from Table 4 as described in *Summary of adult smoking*, Methods p. 13

9 Number of cigarettes classified as UC = cigarettes (type unspecified) has been adjusted to total cigarette sales and included in this column

10 All tobacco products, g/person/day

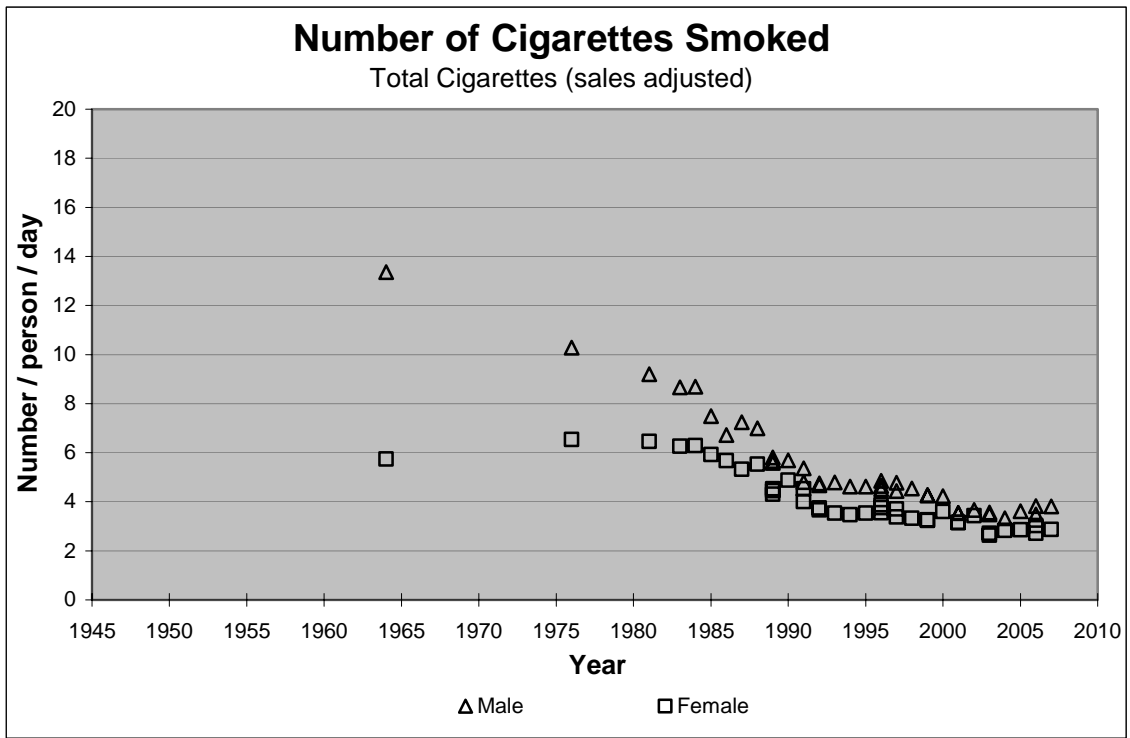
11 Calculations based on 2005 population

Figure 3 Estimated prevalence of smoking of (i) total cigarettes and (ii) all tobacco products; by year of survey. Males and females aged 15 years and over



Source: Table 8
See also customisable version of Figure 3 in the Excel workbook

Figure 4 Estimated number of total cigarettes smoked per person per day, sales-adjusted; by year of survey. Males and females aged 15 years and over



Source: Table 8

Notes

Notes on sources of sales data

The data presented in the tables and figures were obtained from several sources, details of which are given below, together with estimations and related assumptions. Full citations of the sources are given on p. 43 under *References*.

Sales data before 1974

RP6 (Lee (1975))

Data by weight, originally given to nearest 100 000 pounds, have been converted to tonnes and given to the nearest 10 tonnes (100 000 lbs = 45.359 tonnes). When weight conversion factors have been quoted in RP6, the weights have been re-calculated without rounding and then converted to tonnes.

Notes as given in RP6:

(a) Details of the weight of cigarettes and tobacco consumed were provided by the New Zealand Department of Statistics, Wellington.

(b) A factor of 2.5 lbs per 1 000 cigarettes, provided by the New Zealand Department of Statistics, was used for converting the weight of cigarettes consumed to numbers.

(c) The figures [on cigarette papers, produced in New Zealand and imported] show releases from bond of cigarette papers and tubes subject to Customs and Excise duties. These figures exclude cigarette papers for use in factory manufacture. This data provides an indication of the extent of the hand-rolling of cigarettes in New Zealand, but the retail sales do not, of course, take account of subsequent wastage.

Data from Laugesen (1996) (discussed in the next section) suggest that the conversion factor for cigarettes, equivalent to 1.13 g per cigarette, may have been too high in the later years.

Sales data for 1974 onwards

Ministry of Health (2006), Statistics New Zealand (2008, 2010)

Data in Table 1.2 refer to duty-paid tobacco products released for sale on the New Zealand market. Loose tobacco is stated to include a small amount of pipe tobacco. Data for cigars are excluded, and have not been included in our calculation of the total; however, as noted later in this section, Laugesen (2007) estimated that tobacco used in cigars represented less than 1% of total tobacco from 1990 to 2006, so this will have little effect.

Changes in the methods of collecting excise duty in 1986 and 1990 caused fluctuations in the data, as do indexation increases on excise rates which occurred on a half yearly basis until 1995, and thereafter annually.

Data for cigarettes were given in numbers. For conversion to weight, we assume an average cigarette weight of 0.9 g for 1974-1984, 0.8 g for 1985-1999 and 0.7 g thereafter based on the following data from Laugesen (1996, 2007):

Year	Tobacco/cigarette, g	Year	Tobacco/cigarette, g
1960	1.1	1997	0.775
1965	1.0	1998	0.767
1977-1978	0.9	1999	0.756
1990	0.840	2000	0.664
1991	0.785	2001	0.714
1992	0.787	2002	0.706
1993	0.767	2003	0.727
1994	0.765	2004	0.728
1995	0.772	2005	0.689
1996	0.750	2006	0.698

(This corrects data up to 1995 given in the previous edition of this report which should have used these conversion factors but erroneously used a constant conversion factor of 1.13g per cigarette.)

Alternative data are also available from 1997 based on the annual tobacco returns made by the tobacco industry as required by the Smoke-free Environments Act 1990 (Ministry of Health

(2006)). These data refer to sales to retailers. For manufactured cigarettes, the quantities (not shown) are within +/- 5% of the tobacco released (Table 1.2) except in 2000 when it was 14% lower. As shown below, loose cigarette tobacco and pipe tobacco data are given separately, and cigar tobacco data are also available; the cigarette and pipe tobacco combined was generally lower than the loose tobacco released, the largest differences being 13% in 2000 and 9% in 2001.

Year	Loose cigarette tobacco (tonnes)	Pipe tobacco (tonnes)	Cigar tobacco (tonnes)
1997	699	17	15
1998	724	16	17
1999	727	13	18
2000	721	9	24
2001	698	9	14
2002	742	9	16
2003	798	8	17
2004	809	7	16
2005	811	6	17

Also based on the tobacco returns, Laugesen (2007) estimated that tobacco used in cigars and pipe tobacco each represented less than 1% of total tobacco (dry weight) each year from 1990 to 2006; and snuffs represented 0.0%. Cigar sales were dominated by cigarillos, containing about 1 g of tobacco.

Menthol cigarettes accounted for 10-14% of the total cigarette market around 1999-2001 (Giovino *et al* (2004) quoting ERC Group PLC (1999, 2001)), and for 12% in 2006 (Laugesen (2007)).

Estimates of smuggling

According to Mackay *et al* (2006) quoting ERC (2004), smuggled cigarettes represented <10% of domestic sales in 2000-2004.

Estimates of numbers of hand-rolled cigarettes

We have estimated hand-rolled cigarette consumption for 1950-2009 by multiplying pipe and handrolling tobacco by:

up to 1989: a conversion factor of 0.78, representing 78% of pipe and hand-rolling tobacco/'other' tobacco sales, at 1 g per cigarette;

1990-2007: a conversion factor of 0.80 in 1990 increasing by 0.05 per year to 1.65 in 2007, representing both an increase in the percentage used as hand-rolled cigarettes to almost 100% and a concurrent reduction in the weight per cigarette to about 0.6 g.

2008-2009: a conversion factor of 1.65.

These estimates were based on sometimes conflicting information (discussed below).

Data on cigarette papers, available from 1935-1973 (see Table 1.1), provide an indication of the extent of hand-rolling of cigarettes, but the retail sales do not, of course, take account of subsequent wastage. However, the relationship between cigarette papers and tobacco consumption, does not suggest any steady trend, with papers as a % of cigarette equivalents (based on all tobacco at 1 g per cigarette) fluctuating between 85% and 120% (occasionally even higher).

Estimates of tobacco used in hand-rolled cigarettes, and estimated numbers of cigarette equivalents were also given in the introductions to successive editions of RP6 for the latest available year:

Year	Tobacco for hand-rolled cigarettes (tonnes)	Estimated cigarette equivalent (millions)
1966	1 090	1 200
1970	740	660
1973	610	548

Source: estimated from trade or other sources. Beese (1968), Beese (1972), Lee (1975)

From these, we derive:

Year	Weight of tobacco per hand-rolled cigarette (g)	Tobacco for hand-rolled cigarettes as % of pipe and handrolling tobacco	Cigarette equivalents as % of cigarette papers
1966	0.9	78	91
1970	1.2	74	72
1973	1.2	74	64

In the period 1970-1979 production figures were available separately for pipe and hand-rolling tobacco (in the Monthly Abstract of Statistics). Hand-rolling tobacco as a percentage of the total remained steady throughout this period, with a mean of 78%. Jackson and Beaglehole (1985) used the assumption that 50% of packet tobacco was used for hand-rolling. However more recently, data (shown above) from the tobacco returns (Ministry of Health (2006)) indicate a much higher percentage. All these sources assume a conversion rate of 1 g per cigarette. Laugesen (1996) suggested that between 1991 and 1995 some smokers changed from smoking manufactured cigarettes to using cheaper hand-rolled cigarettes, enabling them to use less tobacco for the same number of cigarettes. In 2007 he suggested that the tobacco per hand-rolled cigarette may lie between 0.36 g and 0.50 g, implying that hand-rolled cigarettes made up 40-48% of all cigarettes in 2006, and referred to 1 g as “the historical assumption”.

Plain/Filter cigarette sales

1961-1978: Maxwell, Jr. (Successive years)

2003-2006: Laugesen (2005, 2007)

Data shown for 2003-2006 are derived from data for the only “plain” brand listed in the annual tobacco returns, with sales of 7, 6 and 4 million in 2003-5 respectively, and no sales in 2006.

In a study of discarded cigarette butts collected from the street in urban areas in 2007, Thomson *et al* (2008) found that 14% of RYO butts had filters.

Tar, nicotine and carbon monoxide machine yields of cigarettes

1990-2006: Laugesen (1996, 2000, 2007)

Data are based on manufacturers’ or importers’ tests using ISO methods, reported in the annual tobacco returns. For 1990, sales-weighting was based on supermarket sales for the first 9 weeks of 1991.

Tar and nicotine yields confined to 5 manufactured cigarette brands which continued to be reported from 1980 to 1995 were given by Laugesen (1996). Tar yields were 14 or 15 mg per cigarette in 1980, and 15 or 16 in 1988; nicotine yields were 1.2-1.4 in 1980 and 1.5 in 1988. (Testing by Australian Government Analytical Laboratories in 1980 and by manufacturers’ laboratories in 1988.)

Fowles (2008) analysed samples of hand-rolled cigarettes using 5 leading brands of hand-rolling tobacco. Cigarettes were prepared using a rolling machine, both with and without filters, and contained 0.4 g of tobacco. They were tested under ISO machine testing conditions at two laboratories. The average yields per cigarette from one laboratory were 22.8 mg tar, 1.41 mg nicotine and 18.3 mg CO; the other laboratory reported 1.22 mg nicotine. Use of a filter made very little difference.

Notes on sources of survey data

Each source of survey data—either an individual survey or a series of surveys repeated over a number of years—is cited by a source number. This number is shown in the tables and corresponds to the source numbers given below, where details of the source publication and of the survey methodology are given. Full citations of the sources are given on p. 43 under *References*.

Due to constraints of space, we have usually only given results for all ethnic groups combined, although many of the sources cited also give results for ethnic groups separately. Smoking prevalence is generally higher among Maori, especially women, than among Europeans.

**Source
number**

- 1 Department of Statistics (1979, 1983), Hay and Foster (1984), Ministry of Health (1999a, 2007b)**
 - a. Census results. Completion of the census schedule is required by law. In 1976, visitors to New Zealand were included, but from 1981 only those usually resident were included. Response rate to smoking questions (1976) 97%, (1981) 99%, (1996) 93%, (2006) 95%.
 - b. Census returns were overseen by the head of household, which may have led to understatement of smoking by teenagers.
 - c. Number of cigarettes smoked refers to number smoked 'yesterday'.
 - d. For 1996, upper age groups shown in Table 4 are 80-84 and 85+.
 - e. Alternative results using age-groupings consistent with sources 15 and 23/24 are given by Sheppard *et al* (2001).
 - f. Consumption category estimation (not *All ages* results) based on 0-4, 5-9, 10-14, 15-19, ..., 45-49, and 50+ cigarettes/smoker/day. Estimated consumption for *All ages* (not shown) was lower than the direct means (shown in Table 5) by 1-2 cigarettes per smoker for 1976, but the same for 1981.
- 2 Hay (1976)**
 - a. No original reference. Age group not stated.
- 3 Hay and Christmas (1976), quoting National Research Bureau (1975)**
 - a. Surveys carried out in 1974 and 1975 for Cancer Society of New Zealand. Subjects randomly selected from 19 areas. Personal interviews at home. Only results for females available. Sample size (males) 1 200, (females) 1 200.
 - b. Smokers: smoked yesterday.
 - c. Consumption category estimation based on <10, 10-19, 20-29, 30-39, and 40+ cigarettes/smoker/day .
- 4 Mitchell (1983)**
 - a. Surveys in three Gisborne city high schools. Table 4 shows approximate ages corresponding to 5th form. Sample size (1968) 514, (1981) 583.
 - b. Results presented here have been combined over Maori and Europeans. Between the two surveys, there was an increase in the proportion of students who were Maori from 24% to 39%.
 - c. Smokers marked as frequency * : smoked often (at least a packet a week). Regular smokers: smoked often or 'occasionally (once a week)', but not 'rarely (a puff or two during the year)'.
- 5 Beaglehole *et al* (1978)**
 - a. Confidential interviews, baseline study for intervention programme at 2 high schools. Table 4 shows approximate ages corresponding to 3rd and 4th forms. Sample size (males) 552, (females) 436.
 - b. Smokers marked as frequency * : smoked more than 2 cigarettes per day.
 - c. The median number of cigarettes per week was 5 and 20 for 3rd and 4th form boys respectively, and 3 for 4th form girls (not stated for 3rd form girls).
- 6 Newman *et al* (1970)**
 - a. Study of high school students, representing urban and rural areas, all socio-economic levels and both North and South Islands. Confidential questionnaires. Tables 4-6 show approximate ages corresponding to 3rd-6th forms. Year not stated. Sample size (males) 975, (females) 1 049.
 - b. Smokers marked as frequency * : smoked "just about every day". Regular smokers: smoked regularly but not every day.
 - c. Consumption category estimation based on <1, 1, 2, 3+ packs/smoker/week (assumed means 10, 20, 40, 60 cigarettes). As these categories are not contiguous and as the lowest category includes occasional smokers, these estimates should be regarded with caution.
- 7 Gardiner *et al* (1961)**
 - a. Survey at 9 secondary schools, selected to give a variety of racial, social, urban/rural and regional coverage. Anonymous questionnaires completed by all pupils in class with teachers usually absent. Year not stated. Sample size (males) 2 407, (females) 1 867. Lower age limit 11.

- b. Smokers marked as frequency *: had smoked in last 4 weeks and usually smoked 5+ cigarettes per week. Regular smokers: had smoked in last 4 weeks and usually smoked 1+ cigarettes per week. All smokers: had smoked in last 4 weeks.
- c. Consumption category estimation based on 1-4, 5-9, 10-19, 20-39, 40+ cigarettes/smoker/week.

8 Stanhope and Prior (1975)

- a. Study of cardiorespiratory risk factors at a high school in Rotorua. Questionnaire completed with parental help before medical examination, but smoking information obtained by confidential interview. Sample size 294.

9 Ree (1986)

- a. Confidential questionnaire completed by all pupils at a high school in northern King Country, small town/rural area. Sample size (males) 145, (females) 182. Response rate 84%.
- b. Regular smokers: smoked at least 1 cigarette on most days of week.

10 Tolonen *et al* (2000), Kuulasmaa *et al* (1998), Wolf *et al* (1998), Molarius *et al* (1999)

- a. Regional surveys using interviews forming part of WHO MONICA Project. Carried out in two phases (of the three phases used internationally):

Region	Phase	Participation rate (%)		Sample used		Date
		Males	Females	Males	Females	
Auckland	1	82	79	1 018	568	Feb 1982-Jul 1982
	3	76	71	745	727	Jan 1993-Mar 1994

Only ages 35-64 were included.

- b. All ages column is standardized to world population.
- c. Regular cigarette smokers: smoked cigarettes daily. All smokers: smoked cigarettes daily or occasionally, or smoked 1 g pipe tobacco or 1 cigar per week.
- d. For phase 1, there are minor discrepancies between the data shown in this report and equivalent data taken from WHO (1989) and WHO MONICA Project (1988) used in earlier editions of this report.

11 Doll (1972) quoting Dr Ian Prior

- a. Maori women. Age group not stated. Sample size 384.
- b. Consumption category estimation based on 1-10 (assume 1-9), 10-19, 20+ cigarettes/smoker/day.

12 Prior *et al* (1968), Evans *et al* (1969), Doll (1972)

- a. Random sample of Europeans in Carterton, a country town. Interview before medical examination. Sample size (males) 210, (females) 228. Response rate 92%.
- b. Consumption category estimation based on 1-9, 10-20, 21+ cigarettes or <1, 1-3, >3 oz tobacco/smoker/day.
- c. Assumed extensions to age distribution for percentage smokers and for cigarettes/person/day are shown in the extended versions of Tables 4 and 6 respectively in the Excel tables workbook.

13 Stanhope (1978), Shaw *et al* (1991)

- a. Survey of rheumatic fever and coronary risk factors in 1975 at a secondary school in Wairoa, a rural area with largely Maori population. Medical examination and confidential interview of 3rd-5th form pupils. The tobacco related part of the survey was repeated in 1989.

Year	Sample size		Response rate (%)
	Males	Females	
1975	364	351	96
1989	237	198	87

- b. Smokers: smoked in last month.
- c. Consumption category estimation based on <20, 20-39, 40+ cigarettes/smoker/week. For 1975, these estimates can be compared with the weekly consumption medians (males 15.2, females 13.9) and geometric means (males 10.7, females 11.4) presented by Stanhope (1978).

14 Nye *et al* (1980)

- a. Study of pupils at a Dunedin high school. Table 4 shows approximate ages corresponding to 4th and 6th forms. Sample size 4th form (males) 53, (females) 49; 6th form (males) 34, (females) 55.
- b. Smokers: definition not stated. About a quarter of the male smokers and half of the female smokers were regular smokers: smoked more than one a week.

- 15 Laugesen and Sheerin (1992), Ministry of Health (1999b, 2000, 2001, 2002, 2003, 2005b, 2006)**
- a. Quarterly survey by A C Nielsen (formerly OTR Spectrum Research) for the Ministry of Health. Face-to-face interviews with about 10 000 people each year. Part of AGB McNair Omnibus survey. Laugesen (2000) reported that the participation rate fell from about 60% to just over 50% in the period 1982-1995, and Ministry of Health (2005a) reported it to be typically <50%.
 - b. For consistency, throughout Table 4 prevalence data have been shown for standard age groups, and in some years narrower age groups are also shown where available.
 - c. Regular cigarette smokers: smoked ready-made cigarettes and/or roll-your-own tobacco cigarettes daily. All cigarette smokers: now ever smokes ready-made cigarettes and/or roll-your-own tobacco cigarettes.
 - d. In 1991, the prevalence (sexes combined) for all smoking (including cigars and pipes) was less than one percentage point higher than the prevalence of cigarette smoking (Laugesen and Sheerin (1992)). In 2005, the prevalence of smoking was 13.6% for manufactured cigarettes, 13.1% for hand-rolled cigarettes, 23.4% for any cigarettes, 22.5% for daily cigarettes and 23.8% for all smoking (Ministry of Health (2006)).
 - e. Data for 1990 in Table 5 are as self-reported. Results sales-adjusted by the original author are also available (not shown), which by our method would correspond to 104% of total sales.
 - f. From July 1989 to June 1998 and in 2003, the youngest age reported was 16 or 18, but results have been adjusted (by original author) for the expected proportion from age 15.
 - g. Until 1999, prevalence estimates were calculated (by original authors) from the average quarterly results; from 2000 annual estimates were derived from the year's pooled data.
 - h. Consumption category estimation for 2000 by original author based on <1, 1-5, 6-10, 11-15, 16-20, 21-25, 26-30, 31-40, 41-60, 61+ cigarettes/smoker/day, using midpoint of the response categories. (Ministry of Health (2001)) Age-specific data in Table 5 for 2001, 2002, 2004 read from graph and *All ages* data for 2001 and 2002 given directly, assumed same method as for 2000 (Ministry of Health (2002, 2003)). Consumption category estimation for 2004 (*All ages*) based on 1-4, 5-9, 10-14, 15-19, 20-24 and 25+ cigarettes/smoker/day. Calculation of cigarettes per person (Table 6) is based on all smokers, with the exception of the *All ages* data for 2004 which is based on regular smokers.
 - i. Some results (1983-1995) shown in Tables 4 and 8 as frequency A were erroneously shown as frequency R in previous editions of this report.
- 16 Flight *et al* (1984)**
- a. Study of pupils at 9 randomly selected schools in Northland. At each school, a 1 in 4 random sample of 4th form pupils were interviewed and medically examined. Table 4 shows approximate age corresponding to school form. Year not stated. Sample size (males) 152, (females) 200. Response rate 86%.
 - b. Smokers marked as frequency *: smoked 7+ cigarettes per week. All smokers: self-defined.
- 17 Stanton *et al* (1989, 1996)**
- a. Dunedin Multidisciplinary Health and Development Study, a longitudinal study of children born at Dunedin's only obstetric hospital April 1972-March 1973. Over-representative of higher socio-economic levels and Europeans. Questions about smoking were included in confidential interviews from age 9. Sample size 1 139. Follow-up rate (age 13) 82%, (age 15) 95%, (age 18) 97%.
 - b. Smokers marked as frequency *: usually smoked at least one cigarette per day. All smokers: smoked in last month.
 - c. At age 9 (1982), 1% of children (sexes combined) had smoked in the last week, 3% in the last 4 weeks, and 17% in the last year (Oei *et al* (1984)). (See also *Additional Sources*, p. 42)
 - d. Consumption category estimation based on 1-4, 5-9, 10+ cigarettes/smoker/day. (Categories for age 18 were labelled 1-5, 6-10, 10+ but have been assumed the same as for age 15).
- 18 Reeder *et al* (1999)**
- a. Series of surveys of 4th form pupils at Wellington schools. All 35 secondary schools were invited and 15 participated (one school was missing from the 1993 survey and another withdrew after 1993). The participating schools represented higher socio-economic areas than the non-participating schools, and included the two schools with the highest number of Maori pupils. Anonymous questionnaires completed during school hours. Table 4 shows approximate ages corresponding to 4th form. Sample size (males) 2 944, (females) 2 890. Response rate approximately 70%.
 - b. Smokers marked as frequency *: smoked daily. All smokers: smoked in the last month.

19-22 In 2006, the New Zealand Youth Tobacco Monitor (NZYTM) was established to bring together the following 3 surveys : the ASH Year 10 Snapshot Survey (source 19), the Health Sponsorship Council (HSC) Youth Lifestyle Survey (YLS) (source 20) renamed as the Year 10 In-depth Survey (YIS) (source 21), and the Ministry of Health contribution to the Global Youth Tobacco Surveillance (GYTS) (source 22)

19 Laugesen and Scragg (2000), Paynter (2008)

- a. Series of surveys by Action on Smoking & Health New Zealand (ASH NZ) of 4th form school pupils, also known as the ASH Year 10 Snapshot Survey. In 1992, 1997 and 1998, schools were selected non-randomly to provide a representative sample of all school types with at least 100 pupils. Since 1999, all schools have been invited to participate. All 4th form pupils took part but analysis was restricted to those aged 14-15. Anonymous self-administered questionnaires completed in class with teachers present, but teachers did not examine the survey forms.
- b. For 1992, 1997 and 1998, results presented here are based on the 80 schools which participated in all 3 surveys (Laugesen and Scragg (2000)). Alternative results based on the 99 schools in the first survey were given by Ford *et al* (1995), on the 85 schools in both the 1992 and 1997 surveys by Laugesen and Scragg (1999), and on the 66 schools in all of the five surveys from 1992 to 2000 by ASH NZ (accessed October 2008).

Year	Schools		Pupils			
	number participating	response rate (%)	total returned questionnaires	response rate ^a (%)	aged 14-15	analysed ^b
1992	99	79	14 636	73 ^{c,d}		14 097 ^c /10 931 ^d
1997	114	88	12 273	70 ^d		11 350 ^e /10 584 ^d
1998	121	91		69 ^d		10 830 ^d
1999					30 075	29 032
2000	327	72	31 652	70	30 765	29 330
2001	332	72	31 002	71	30 120	29 398
2002	309	67	30 972		30 096	29 285
2003	312	66			33 661	32 927
2004	319	65			32 399	31 921
2005	278	58	34 038	77	33 219	32 761
2006	291	57			33 556	32 954
2007	241	47	27 110			25 921

^a questionnaires returned out of students on school roll

^b excludes incomplete questionnaires and age 13 or 16

^c Ford *et al* (1995), 99 schools

^d Laugesen and Scragg (2000), 80 schools

^e Laugesen and Scragg (1999), 85 schools

Additional information from <http://www.ash.org.nz/>

- b. Smokers marked frequency *: has ever smoked a cigarette (even a few puffs) and now smokes at least once a day. Regular smokers: has ever smoked a cigarette (even a few puffs) and now smokes at least once a week. All smokers: has ever smoked a cigarette (even a few puffs) and now smokes at least once a month.

20 McGee *et al* (2002), Darling *et al* (2004)

- a. Youth Lifestyle Survey (YLS), a biennial school-based survey by the Health Sponsorship Council (HSC) comparable to the GYTS (source 22). Multistage sampling with random selection of state or state-integrated secondary schools, and then randomly selected classes from years 10 and 12. Anonymous self-completion questionnaires administered in class by a trained interviewer. Results were weighted by region, sex and co-education status of school. The 2002 survey was conducted in two waves (May and November) due to disruption of the first wave by school closures for industrial action and bad weather.

Year	Schools		Pupils participating
	number participating	response rate (%)	
2000	53	54	2 711
2002	82	58	3 434

- b. Results are shown in Table 4 as age 14-16, which in 2002 included 91% of the students (with 1% age 12-13 and 8% age 17).
- c. Smokers marked frequency *: smoked at least once a day. All smokers: smoked at least once a month.

21 McDuff (2007)

- a. Year 10 In-depth Survey (YIS), formerly known as the Youth Lifestyle Survey (YLS, source 20), run by the HSC. Two-stage cluster sampling with random selection of schools (with all schools, both public and private, eligible), and random selection of one class within each participating school. Self-completion anonymous questionnaires completed in class, with survey fieldworkers present, and students discouraged from interacting with each other or with teachers. Sample size (schools) 145, (students) 3 200. Response rate (schools) 78%, (students) 84%, (overall) 65%. Results are weighted to adjust for sample selection (school and class), non-response (school, class and student), and sex and ethnicity.
- b. Results are shown in Table 4 as age 14-15; 1% of students were age 13 and 1% age 16 or older.
- c. Smokers marked frequency *: has ever smoked a cigarette (even a puff) and now smokes at least once a day.
- d. Among current smokers (smoked at least monthly, sexes combined), 60% usually smoked roll-your own cigarettes and 37% usually smoked manufactured cigarettes; 23% had used a tobacco product other than cigarettes (e.g. chewing tobacco, snuff, dip, cigars, cigarillos, little cigars or pipe) in the last month.

22 Warren *et al* (2008)

- a. School-based survey forming part of the WHO Global Youth Tobacco Surveillance (GYTS), targeting ages 13-15. 2-stage cluster sampling, covering all schools (public and private), with schools randomly selected in proportion to number of students enrolled. Classes randomly selected and all enrolled students in those classes eligible to participate. Anonymous self-administered data collection procedures. Response rate (schools) 73%, (classes) 100%, (students) 83%, (overall) 61%. Sample size 1 157. Results weighted to adjust for non-response, and for sex and school grade.
- b. Cigarette smokers: smoked cigarettes at least 1 day in last month.
- c. It is also reported that 6% of boys and 7% of girls had used tobacco products other than cigarettes in the last month.

23 Ministry of Health (1995)

- a. Household Health Survey, a nationally representative survey in 1992/93 by the Department of Statistics and the Department of Health. Based on households in the Statistics New Zealand Household Labour Force Survey, covering the usually-resident non-institutionalised civilian population, with the health interview conducted at the end of the labour force interview. One randomly selected respondent per household; proxy responses for those aged <15 not included in the results for smoking. Interviews usually conducted by telephone, but face-to-face interviews for those without a telephone or refusing a telephone interview. Sample size (all ages) 7 065, response rate 89%.
- b. Results shown in the *All ages* column are age-adjusted.
- c. Consumption category estimation based on ≤10, 11-20, 21+ cigarettes/smoker/day; estimation includes those smoking cigarettes less than daily, and excludes those who did not answer (up to 25% of current smokers in some age groups) and should be regarded with caution; age-specific results not available for the age groups marked * in Table 5. Calculation of cigarettes per person based on % smokers of any tobacco and number of cigarettes per day, and should also be regarded with caution.

24 Sarfati and Scott (1999), Ministry of Health (2004, 2008b)

- a. New Zealand Health Surveys (NZHS), of the resident population living in permanent private dwellings (i.e. excluding people resident in hospitals, care homes, prisons and schools, the homeless, and short-term visitors and tourists). Stratified cluster sampling, with over-sampling of Maori, Pacific and Asian people. Face-to-face interview at home with one adult per household. (In some years there were also interviews of children but these did not include questions on smoking.) Estimates are weighted to the national population.

Date	Sample size	Response rate (%)
1996/97	11 921	74
2002/03	12 929	72
2006/07	12 488	68

- b. Results shown marked * against source in Tables 4 and 8 are age-standardised to WHO world population (Ministry of Health (2008b), Ahmad *et al* (2001)).
- c. The wording of questions changed in 2006/07 so that only the definition of regular cigarette smoker is consistent throughout. Regular cigarette smokers: smoked one or more cigarettes per day. Regular smokers (2006/07): smoked more than 100 cigarettes in lifetime and currently smokes cigarettes or tobacco daily. Smokers (2006/07): smoked more than 100 cigarettes in lifetime and currently smokes cigarettes or tobacco at least one a month.
- d. For 2002/3, age-specific data (Table 4) read from graph.
- e. For 1996/97, consumption category estimation based on 1-10, 11-20, 21+ cigarettes/smoker/day.
- f. For 2006/7, consumption category estimation based on 1-5, 6-10, 11-15, 16-20, 21-25, 26-30, 31+ cigarettes/smoker/day. Age-specific data not available for the age groups marked * in Table 5. Calculation of cigarettes per person based on daily smokers of any product and number of cigarettes per daily cigarette smoker, but as only 1% of male and 0.5% of female tobacco smokers smoked <1 cigarette per day any overestimation is likely to be minimal.

25 Ministry of Health (2006, 2007a, 2008a)

- a. New Zealand Tobacco Use Survey (NZTUS). Nationally representative survey of persons living in permanent private dwellings. Oversampling of Maori, Pacific and Asian people, and of age group 15-24. Face-to-face survey using CAPI (computer-assisted personal interview) of one adult per household. Sample size (2006) 5 703, (2008) 5 100. First conducted in 2006 and planned for two out of every three years (i.e. not in years when NZHS is conducted).
- b. In the 2008 survey, the prevalence of smoking (sexes combined, age 15-64) was 23.9%. Sex-specific results not yet available.
- c. The prevalence of manufactured cigarette smoking (source marked * in Table 4) was derived from the prevalence of smoking and the proportion of current smokers reporting manufactured cigarette smoking standardised to the WHO world population, and should be regarded with caution. It is also reported that, among Maori, more smokers (both male and female) smoke hand-rolled than manufactured cigarettes in all age groups except 60-64. Among non-Maori, more young smokers smoke hand-rolled, there is no marked difference in the middle age groups and more older smokers smoke manufactured cigarettes.
- d. The average daily cigarette consumption for all cigarette smokers is shown in Table 5 (see also note e). The consumption per smoker (age 15+) by type of cigarette smoked was:

	Males	Females
Manufactured cigarettes only	11.8	9.8
Hand-rolled cigarettes only	15.2	12.2
Both	10.3	11.7

- e. Consumption category estimation based on 1-15, 16-30, 31+ cigarettes/smoker/day, using results age-standardised to the WHO world population. Calculation of cigarettes per person based on daily smokers of any product and number of cigarettes per daily cigarette smoker, so may overestimate.
- f. Assumed extensions to age distribution for percentage smokers and for cigarettes/person/day are shown in the extended versions of Tables 4 and 6 respectively in the Excel tables workbook.

26 Russell and Wilson (1991)

- a. Hillary Commission Life in New Zealand (LINZ) survey. The adult sample was drawn from the electoral register, with "snowball" technique used to generate sample of 15-18 year olds. Some participants completed postal questionnaires while others were invited to a health check and completed the questionnaires then. All participants completed a core questionnaire and two of four supplementary questionnaires. Smoking questions were included in the core and in the supplementary health questionnaire.

	Number selected	Date	Number participated	Response rate (%)
Adult sample	17 915			
Snowball sample	2 176			
Postal survey	12 463	Apr1989-Mar 1990	7 942	64
Health check survey	7 628	Jun-Aug 1989	3 363	44
Total (core questionnaire)			11 305	
Health questionnaire			4 706	

- b. It is unclear whether the prevalence results (Table 4) come from the core questionnaire (daily cigarette smokers: cigarettes per day) or from the health questionnaire (regular or occasional smokers).
- c. Calculation of cigarettes per person based on percentage smokers (product and frequency unspecified) and number of cigarettes per daily cigarette smoker, so may overestimate.

27 National Research Bureau Ltd. (1989, 1991, 1996, 1999, 2001)

- a. Series of nationally representative telephone surveys by the National Research Bureau (NRB) for the Health Department/Ministry of Health. In 1989, the survey included residents of dwellings listed in White pages of telephone directories, interviewing every third person (age 15+). Later surveys used a random dialling method to include all dwellings with a connected landline telephone (listed and unlisted), and interviewed one person per household. In 1989 and 1991, there was oversampling of Maori and Pacific Island people (known to have lower incidence of telephone ownership than Europeans), and in 1996 of Maori. Results were weighted to the age, sex and ethnicity distribution of census population; from 1999, they were additionally weighted for geographic area and household size.

Survey	Sample size	Response rate (%)	Date of interviews
Heart Health Behaviour	2 300	78	Sep-Oct 1989
Heart Health Behaviour (second reading)	2 005	70	Oct-Nov 1991
Environmental Tobacco Smoke Study	2 020		May-Jun 1996
Attitudes to Environmental Tobacco Smoke	2 698	68	Jun-Jul 1999
Exposure to Second-hand Cigarette Smoke	2 087	76	Jul-Aug 2001

- b. In the second survey (1991) the block of smoking behaviour questions was moved to near the start of the questionnaire, so that ‘smokers would feel more comfortable about answering these questions honestly, rather than further through what was obviously a “health”-oriented survey’.
- c. Regular cigarette smokers (1989-1996, 2001): smoked one or more cigarettes a day. Regular smokers (1999): smoked each day. All smokers (1999): smoked each day or occasionally.
- d. Among cigarette smokers (sexes combined) who named their current brand, the percentage naming a roll-your-own brand was (1989) 14%, (1991) 21% and (1996) 28%.

28 Wilkins *et al* (2002)

- a. National Drug Survey, conducted by the Alcohol & Public Health Research Unit (APHRU), University of Auckland. Nationally representative surveys of persons living in dwellings with a telephone. Stratified sampling using random-digit dialling, and randomly selecting one person per household. Respondents were told the survey was confidential and voluntary. CATI (computer assisted telephone interviewing). Response rates (1998) 79%, (2001) 80%. Sample size (1998) 5 475, (2001) 5 504. Results were weighted for household size.
- b. 13-14 year olds were included in the second (2001) survey, but were excluded from analysis.
- c. Sex-specific results are not available for the 2003 or 2006 surveys. The prevalence of tobacco usage (sexes combined) was (1998) 35.8, (2001) 34.5, (2003) 31.1, (2006) 35.8. (Wilkins and Sweetser (2008))
- d. Smokers: used tobacco in last year.

29 Adolescent Health Research Group (2003, 2008)

- a. Nationally representative health and wellbeing surveys conducted in secondary schools. The first survey was known as Youth2000, conducted March-October 2001. Schools were randomly selected from all schools with >50 students enrolled in years 9-13, and then 15% of pupils were randomly selected from each participating school, subject to residence, and adequate English language and physical ability. Substitutes were selected in the event of non-attendance on the survey day. Questionnaires were completed anonymously using M-CASI (Multimedia Computer Assisted Self Interview). Sample size (schools) 114, (students analysed) 9 570. Response rate (schools) 86%, (students) 75%. Of those not participating, 28% were sick on the day and 3% refused, but for most the reason was unknown; a further 1% of participants were not analysed due to computer problems.
- b. The second survey, Youth’07, was conducted March – October 2007, with similar methodology, except that Wharekura (Maori-language schools) were surveyed separately and not included in the main results, and there was no substitution of non-attending students. The questions were available in English or Maori. Sample size (schools) 96, (students analysed) 9 107. Response rate (schools) 84%, (students) 74%. Of those not participating, 22% were absent, 10% refused, 10% were unavailable, 1% were unable to use the language or computer, and 1% were omitted due to technical difficulties. The age distribution was similar to the earlier survey.
- c. In 2001, a cigarette was defined as “also meaning tobacco, roll-your-own etc.”, and in 2007, it was defined as “including roll-your-owns”. Smokers marked frequency * (2001): has ever smoked a whole cigarette and now smokes most days. Regular smokers: has ever smoked a

whole cigarette and now smokes once or twice a week, or more. All smokers (2007): has ever smoked a whole cigarette and now smokes occasionally, once or twice a month or more.

30 McCool *et al* (2003)

- a. Survey in Auckland schools. Two-stage sampling, with schools selected from each socioeconomic decile rank, and all students in forms 2 and 6 attending on the day invited to participate. Sample size (schools, primary/intermediate) 15, (secondary) 10; (students, form 2) 1 464, (form 6) 1 576. Response rate (schools, primary/intermediate) 68%, (secondary) 76%; student attendance rate not collected, but no students were refused parental consent. Self-completion questionnaire, with researcher present, in class time or school assembly.
- b. Table 4 shows ages corresponding to median age of class. Prevalence estimates have been adjusted to exclude 'missing' category from base.
- c. Smokers marked as frequency *: has ever smoked a cigarette and now smokes at least once a day. Regular smoker: has ever smoked a cigarette and now smokes at least once a week. All smokers: has ever smoked a cigarette and now smokes at least once a month.

Additional sources (not presented in tables)

Oei *et al* (1990)

A study of 361 children age 8-9 attending primary schools in Dunedin was conducted in 1984 to replicate the 1982 results (see Source 17 note c above). 4% of children (sexes combined) had smoked in the last week, 6% in the last 4 weeks, and 18% in the last year.

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