Figure 65: Standardised rates of stomach cancer for 25+ year-olds, by income by sex
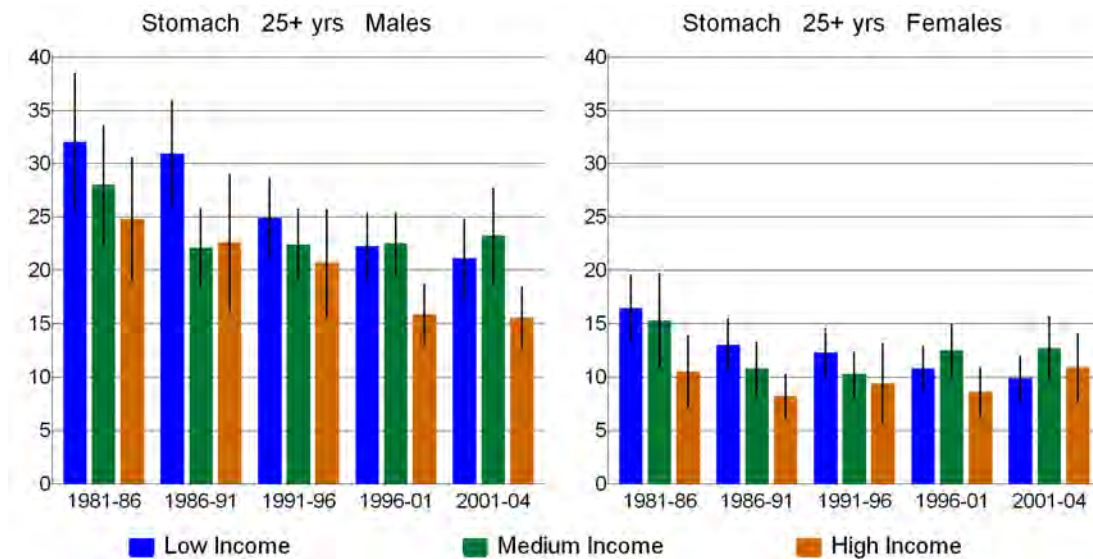

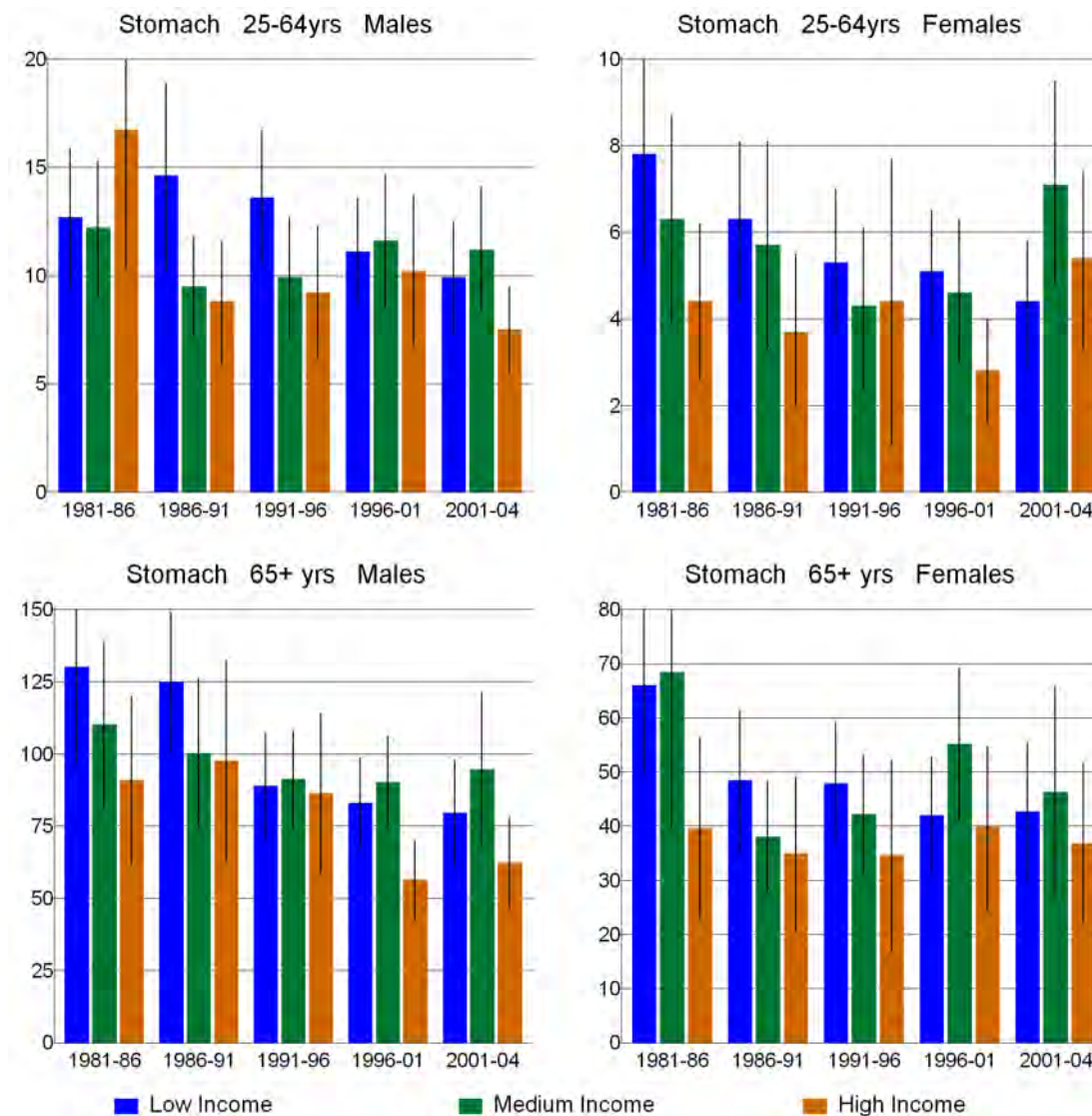**Figure 66:** Standardised rates of stomach cancer, by income by sex and age group

Table 63: Age- and ethnicity-standardised income rate ratios (SRR), rate differences (SRD), relative indices of inequality (RII) and slope indices of inequality (SII) of stomach cancer, by sex

Age group	Cohort	Males				Females			
		Relative inequalities		Absolute inequalities		Relative inequalities		Absolute inequalities	
		SRR	RII (95% CI)	SRD	SII (95% CI)	SRR	RII (95% CI)	SRD	SII (95% CI)
Stomach									
25+ years	1981–1986	1.29	1.4 (0.9–2.2)	7.2	9.0 (-3.5–21)	1.56	1.6 (0.9–2.9)	6.0	7.0 (-0.1–14)
	1986–1991	1.37	1.7 (1.1–2.6)	8.4	12 (3.5–21)	1.58	1.9 (1.2–3.1)	4.8	7.0 (2.8–11)
	1991–1996	1.20	1.3 (0.9–1.9)	4.2	6.0 (1.3–9.9)	1.30	1.8 (0.6–5.9)	2.9	7.0 (-6.4–20)
	1996–2001	1.39	1.9 (1.3–2.7)	6.2	12 (2.2–22)	1.26	1.6 (1.0–2.5)	2.3	5.0 (0.8–8.4)
	2001–2004	1.35	1.6 (1.1–2.4)	5.5	9.0 (-1.4–19)	0.90	0.8 (0.5–1.4)	-1.1	-2.0 (-8.9–4.4)
	P (trend)	0.55	0.48	0.44	0.98	0.02	0.15	<.01	0.11
	Pooled	1.31	1.5 (1.2–1.8)	6.3	9.0 (4.8–14)	1.34	1.6 (1.2–2.2)	3.2	5.0 (-0.2–11)
25–64 years	1981–1986	0.76	0.6 (0.3–1.3)	-4.0	-7.0 (-15–1.6)	1.78	2.0 (0.9–4.7)	3.4	4.0 (-1.3–9.7)
	1986–1991	1.66	2.2 (1.1–4.6)	5.8	8.0 (6.1–10)	1.69	2.0 (0.8–4.9)	2.6	4.0 (-0.8–8.1)
	1991–1996	1.47	1.9 (1.0–3.6)	4.4	7.0 (2.3–11)	1.21	1.9 (0.7–5.0)	0.9	3.0 (-2.0–7.4)
	1996–2001	1.09	1.4 (0.7–2.5)	0.9	3.0 (-8.2–15)	1.81	2.5 (1.0–6.1)	2.3	3.0 (-1.4–8.3)
	2001–2004	1.32	1.8 (1.0–3.2)	2.4	5.0 (-1.9–12)	0.81	0.8 (0.4–1.7)	-1.0	-1.0 (-4.2–1.7)
	P (trend)	0.75	0.47	0.97	0.94	0.21	0.23	0.14	0.04
	Pooled	1.18	1.3 (1.0–1.8)	1.9	3.0 (-1.1–7.5)	1.43	1.8 (1.3–2.7)	1.8	3.0 (1.2–4.8)
65+ years	1981–1986	1.43	1.6 (0.9–2.9)	39	53 (-1.6–108)	1.67	1.6 (0.7–3.6)	26	29 (-3.0–61)
	1986–1991	1.28	1.5 (0.9–2.7)	27	44 (-4.8–93)	1.39	1.9 (1.0–3.6)	14	25 (1.2–50)
	1991–1996	1.03	1.1 (0.7–1.7)	2.6	5.0 (-12–21)	1.38	2.0 (0.4–9.4)	13	32 (-30–93)
	1996–2001	1.47	1.9 (1.1–3.1)	27	49 (6.0–92)	1.06	1.3 (0.7–2.5)	2.2	13 (-2.0–28)
	2001–2004	1.27	1.3 (0.8–2.3)	17	22 (-23–68)	1.16	1.4 (0.6–3.0)	5.8	13 (-34–60)
	P (trend)	0.97	0.90	0.59	0.81	0.04	0.13	0.05	0.03
	Pooled	1.29	1.4 (1.1–1.9)	23	34 (13–54)	1.34	1.7 (1.1–2.7)	13	24 (-2.2–51)

Notes: 95 percent confidence intervals in brackets. SRRs and SRDs compare low- and high-income tertiles.
Underlying non-linear trends mean the p for trend value must be interpreted cautiously.

Chapter 26: Testicular Cancer

There are two main subtypes of testicular cancer: seminomas and non-seminomas. Testicular cancer is relatively rare – 141 cases were diagnosed in New Zealand in 2005 – however, it is the most common cancer among young men.[57] As in most developed countries, the incidence of testicular cancer is increasing in New Zealand (the rate rising by 143 percent between 1956 and 1996).[3][82]

There are only a few well-established risk factors for testicular cancer. Age is the best documented: peak incidence occurs at 25–35 years. Close relatives of men with testicular cancer are at a significantly increased risk. However, family clusters only account for a small proportion of total cases. Ethnicity is also an important factor; in the United States the rate of testicular cancer is six times higher in whites than it is in blacks.[83] Place of birth is also strongly linked with risk: there are considerable differences in incidence rates between countries.[84]

Cryptorchidism (undescended testes) is a well-established risk factor for testicular cancer. Recently interest has focused on a possible relationship between subfertility and hypospadias, cryptorchidism and testicular cancer. The incidence of all these conditions has been increasing recently, leading to some researchers suggesting they have a common origin. As testicular cancer is commonly a disease of young men, considerable research effort has focused on the prenatal environment, particularly in utero exposure of the foetus to oestrogens.[85-88] To date, research findings have been somewhat inconsistent. Environmental exposures later in life are also likely to influence the development of testicular cancer. Some infections may be related to increased risk, possibly including infection with the mumps, rubella or Epstein-Barr viruses. A variety of occupational exposures have been investigated, again with inconsistent results.

Note that the age range for testicular cancer in this report is from 15 years of age, not 25, due to the cancer's high incidence in the 15–24 year age range.

26.1 Ethnic trends

Rates among men aged 15+ years increased over the period surveyed by one-quarter among Māori, and by one-half among European/Other, but neither trend was statistically significant (Figure 67 and Table 121 in Appendix 1). There was little apparent change in rates among Pacific and Asian males – although a marked imprecision of rates must be noted.

Pooled over time, rates among Māori were 1.39 (95 percent confidence interval 1.22–1.59) times that of European/Other, Pacific 0.47 (0.28–0.80) times that rate, and Asian 0.45 times (0.26–0.78) (Table 64). No trends over time in inequalities were evident.

Figure 67: Standardised rates of testicular cancer for 15+ year-olds, by ethnicity
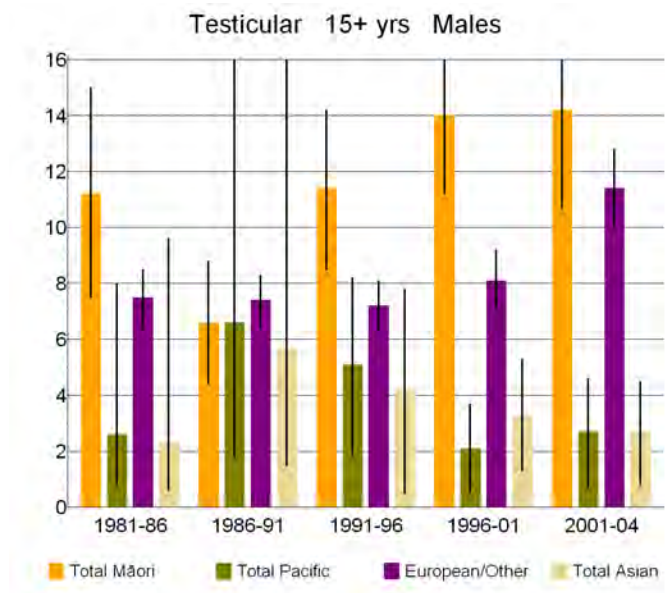

Figure 68: Standardised rates of testicular cancer, by ethnicity by age group
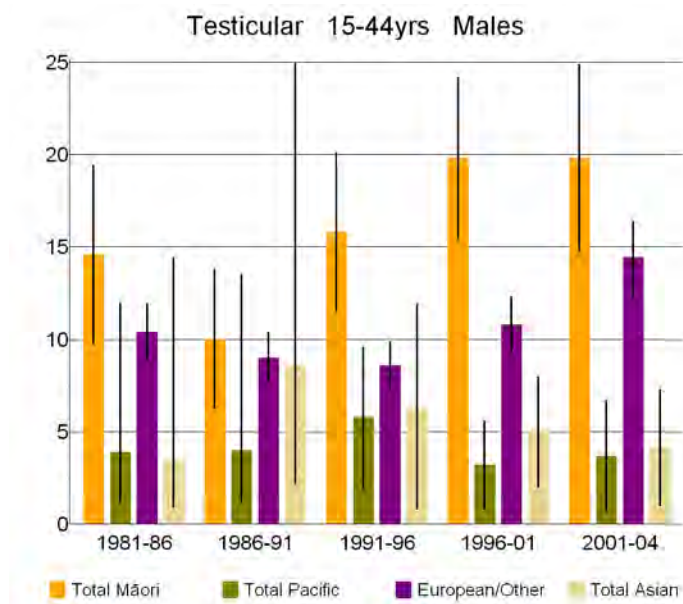
Table 64: Age-standardised rate ratios (SRR) of testicular cancer, for Māori, Pacific and Asian compared to European/Other

Exposure Testicular Total ethnicity	Cohort	15+ years SRR (95% CI)	15–44 years SRR (95% CI)
Males			
Total Māori vs European	1981–1986	1.50 (1.05–2.16)	1.40 (0.98–2.02)
	1986–1991	0.90 (0.62–1.29)	1.11 (0.74–1.66)
	1991–1996	1.58 (1.19–2.10)	1.84 (1.35–2.51)
	1996–2001	1.72 (1.36–2.18)	1.83 (1.41–2.38)
	2001–2004	1.25 (0.95–1.64)	1.38 (1.03–1.85)
	P (trend)	0.82	0.69
	Pooled	1.39 (1.22–1.59)	1.51 (1.31–1.74)
Total Pacific vs European	1981–1986	0.34 (0.11–1.07)	0.37 (0.12–1.17)
	1986–1991	0.89 (0.25–3.20)	0.44 (0.13–1.51)
	1991–1996	0.71 (0.38–1.33)	0.67 (0.34–1.33)
	1996–2001	0.26 (0.12–0.55)	0.30 (0.14–0.63)
	2001–2004	0.23 (0.11–0.49)	0.26 (0.11–0.59)
	P (trend)	0.32	0.45
	Pooled	0.47 (0.28–0.80)	0.40 (0.26–0.61)
Total Asian vs European	1981–1986	0.31 (0.08–1.29)	0.34 (0.08–1.40)
	1986–1991	0.78 (0.20–3.02)	0.95 (0.24–3.73)
	1991–1996	0.58 (0.24–1.41)	0.74 (0.30–1.80)
	1996–2001	0.41 (0.22–0.75)	0.46 (0.25–0.86)
	2001–2004	0.23 (0.11–0.47)	0.29 (0.13–0.63)
	P (trend)	0.25	0.31
	Pooled	0.45 (0.26–0.78)	0.53 (0.31–0.92)

Notes: 95 percent confidence intervals in brackets. Underlying non-linear trends mean the p for trend value must be interpreted cautiously.

Table 65: Age-standardised rate differences (SRD) of testicular cancer, for Māori, Pacific and Asian compared to European/Other

Exposure Testicular Total ethnicity	Cohort	15+ years SRD (95% CI)	15–44 years SRD (95% CI)
Males			
Total Māori vs European	1981–1986	3.8 (-0.1–7.6)	4.2 (-0.8–9.2)
	1986–1991	-0.8 (-3.2–1.6)	1.0 (-3.0–5.0)
	1991–1996	4.2 (1.2–7.2)	7.2 (2.7–12)
	1996–2001	5.9 (2.9–8.9)	9.0 (4.3–14)
	2001–2004	2.8 (-1.0–6.6)	5.5 (0.0–11)
	P (trend)	0.41	0.29
	Pooled	3.2 (1.7–4.6)	5.4 (3.3–7.5)
Total Pacific vs European	1981–1986	-4.9 (-8.0– -1.8)	-6.5 (-11– -1.9)
	1986–1991	-0.8 (-9.2–7.6)	-5.0 (-10–0.0)
	1991–1996	-2.1 (-5.4–1.2)	-2.8 (-6.9–1.2)
	1996–2001	-6.0 (-7.9– -4.2)	-7.6 (-11– -4.8)
	2001–2004	-8.8 (-11– -6.4)	-11 (-14– -7.0)
	P (trend)	0.22	0.24
	Pooled	-4.3 (-6.4– -2.2)	-6.3 (-8.2– -4.4)
Total Asian vs European	1981–1986	-5.1 (-8.6– -1.7)	-6.9 (-12– -1.7)
	1986–1991	-1.7 (-9.4–6.1)	-0.4 (-12–11)
	1991–1996	-3.0 (-6.8–0.8)	-2.3 (-8.0–3.4)
	1996–2001	-4.8 (-7.1– -2.6)	-5.8 (-9.2– -2.4)
	2001–2004	-8.8 (-11– -6.4)	-10 (-14– -6.4)
	P (trend)	0.25	0.39
	Pooled	-4.5 (-6.5– -2.4)	-4.9 (-8.0– -1.8)

Notes: 95 percent confidence intervals in brackets. Underlying non-linear trends mean the p for trend value must be interpreted cautiously.

26.2 Socioeconomic trends

Testicular cancer rates increased over time in all income groups, but none of the trends were statistically significant (Figure 69 and Table 122 in Appendix 1).

Pooled over time, there was an approximately 20 percent greater incidence among males of low income, although confidence intervals just included the null (Table 66). There was no strong evidence of changing differences in rates by income over time.

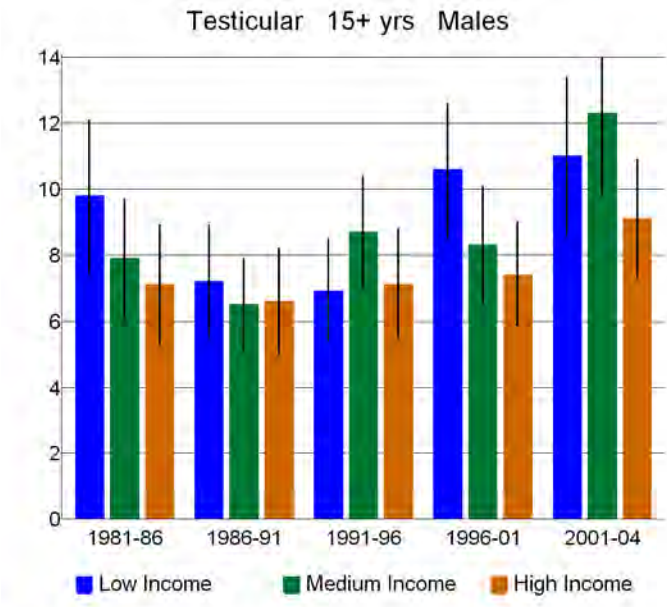**Figure 69:** Standardised rates of testicular cancer for 15+ year-olds, by income

Testicular 15+ yrs Males

Figure 70: Standardised rates of testicular cancer, by income by age group

Testicular 15-24yrs Males
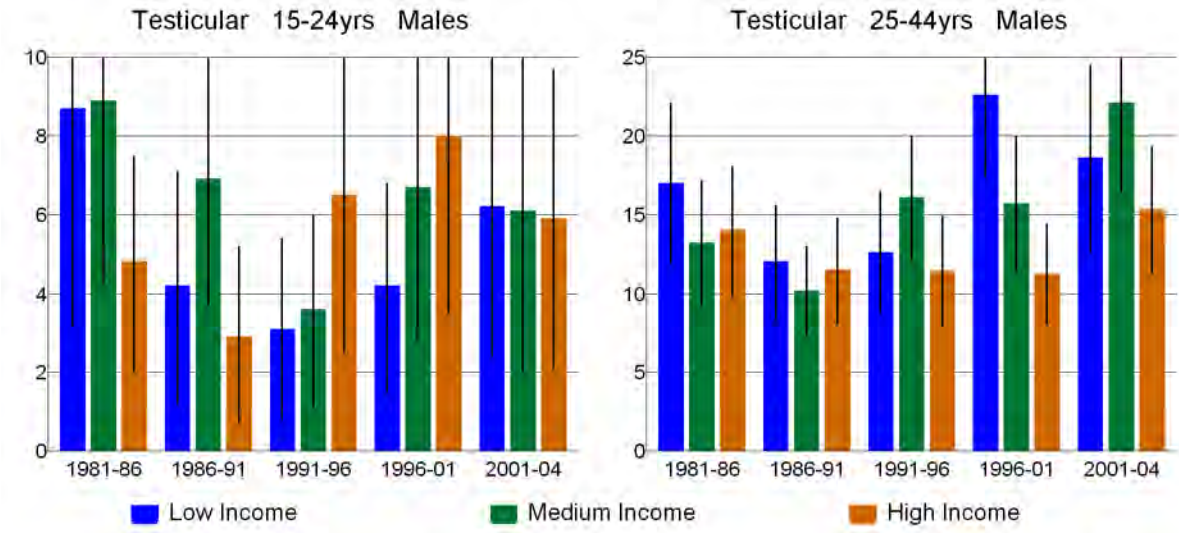
Testicular 25-44yrs Males

Table 66: Age- and ethnicity-standardised income rate ratios (SRR), rate differences (SRD), relative indices of inequality (RII) and slope indices of inequality (SII) of testicular cancer

Age group	Cohort	Males			
		Relative inequalities		Absolute inequalities	
		SRR	RII (95% CI)	SRD	SII (95% CI)
Testicular					
15+ years	1981–1986	1.38	1.3 (0.8–2.2)	2.7	2.0 (0.3–3.6)
	1986–1991	1.10	1.0 (0.6–1.6)	0.6	0.0 (-1.1–0.6)
	1991–1996	0.98	1.0 (0.6–1.6)	-0.2	0.0 (-5.2–5.1)
	1996–2001	1.42	1.7 (1.1–2.7)	3.1	4.0 (0.9–7.8)
	2001–2004	1.21	1.5 (1.0–2.4)	1.9	4.0 (-1.3–9.8)
	P (trend)	0.93	0.29	0.77	0.70
	Pooled	1.22	1.2 (1.0–1.5)	1.6	2.0 (0.3–3.1)
15–24 years	1981–1986	1.83	2.0 (0.5–9.0)	4.0	5.0 (-0.2–10)
	1986–1991	1.43	1.0 (0.3–3.3)	1.3	0.0 (-6.5–5.9)
	1991–1996	0.48	0.3 (0.1–2.2)	-3.4	-5.0 (-7.2– -1.9)
	1996–2001	0.52	0.5 (0.1–2.1)	-3.8	-4.0 (-8.9–1.2)
	2001–2004	1.04	1.0 (0.3–3.6)	0.2	0.0 (-6.5–5.9)
	P (trend)	0.20	0.38	0.30	0.35
	Pooled	0.93	0.8 (0.5–1.5)	-0.4	-1.0 (-4.4–2.4)
25–44 years	1981–1986	1.22	1.2 (0.6–2.3)	3.0	3.0 (-1.2–7.2)
	1986–1991	1.05	1.0 (0.5–1.8)	0.5	0.0 (-2.5–1.6)
	1991–1996	1.11	1.2 (0.7–2.1)	1.2	2.0 (-9.0–14)
	1996–2001	2.02	2.8 (1.4–5.8)	11	15 (7.6–22)
	2001–2004	1.21	1.7 (0.9–3.2)	3.3	10 (-2.0–21)
	P (trend)	0.50	0.23	0.41	0.25
	Pooled	1.31	1.4 (1.1–1.9)	3.9	5.0 (2.0–8.1)

Notes: 95 percent confidence intervals in brackets. SRRs and SRDs compare low- and high-income tertiles. Underlying non-linear trends mean the p for trend value must be interpreted cautiously.

Chapter 27: Thyroid Cancer

There are four main types of thyroid cancer: papillary (50–80 percent of cases), follicular (15–20 percent of cases), medullary and anaplastic (both <10 percent of cases). These subtypes differ in terms of their clinical behaviour, and are also likely to differ in terms of their aetiologies. Thyroid cancers are relatively uncommon – 166 cases were diagnosed in New Zealand in 2005 – although they are among the most common cancers diagnosed among children and young people.[57][89] In the United States there has been an increase in thyroid cancer incidence since the 1970s, which is thought to be due at least partly to improvements in diagnosis.[89]

Thyroid cancer is more common among women, and peak incidence occurs at 20–60 years of age. There are a number of inherited syndromes that increase the risk of thyroid cancer, including multiple endocrine neoplasia, familial medullary thyroid cancer and familial adenomatous polyposis. Those with a family history of thyroid cancer are at increased risk.

Ionising radiation is the only fully established environmental risk factor for thyroid cancer. Other possible causes include a diet either low or high in iodine, a history of benign thyroid disease such as goitre, reproductive factors and sudden changes in weight. Smoking may be protective against thyroid cancer.[89]

27.1 Ethnic trends

Thyroid cancer rates increased by about two-thirds among European/Other for both sexes (p for trend ≤0.05), but were unstable over time for other ethnic groups (Figure 71 and Table 123 in Appendix 1).

Pooled over time, Māori thyroid cancer rates were 1.55 (95 percent confidence interval 1.11–2.18) and 1.61 (1.35–1.92) times, Pacific rates 1.27 (0.74–2.18) and 3.58 (2.87–4.47) times and Asian rates 1.46 (0.85–2.49) and 2.10 (1.50–2.93) times greater than European/Other rates, for males and females respectively (Table 67).

Differences in rates between the sexes were marked, but varied by ethnic group, such that rates among European/Other females were twice, Asian and Māori females three times, and Pacific females six or more times the male rate (Table 123 in Appendix 1). Pacific female rates of thyroid cancer were particularly high, at 18.5 per 100,000 (95 percent confidence interval 14.6–22.4).

There was no evidence of changing inequalities in thyroid cancer incidence over time by ethnicity.

Figure 71: Standardised rates of thyroid cancer for 15+ year-olds, by ethnicity by sex
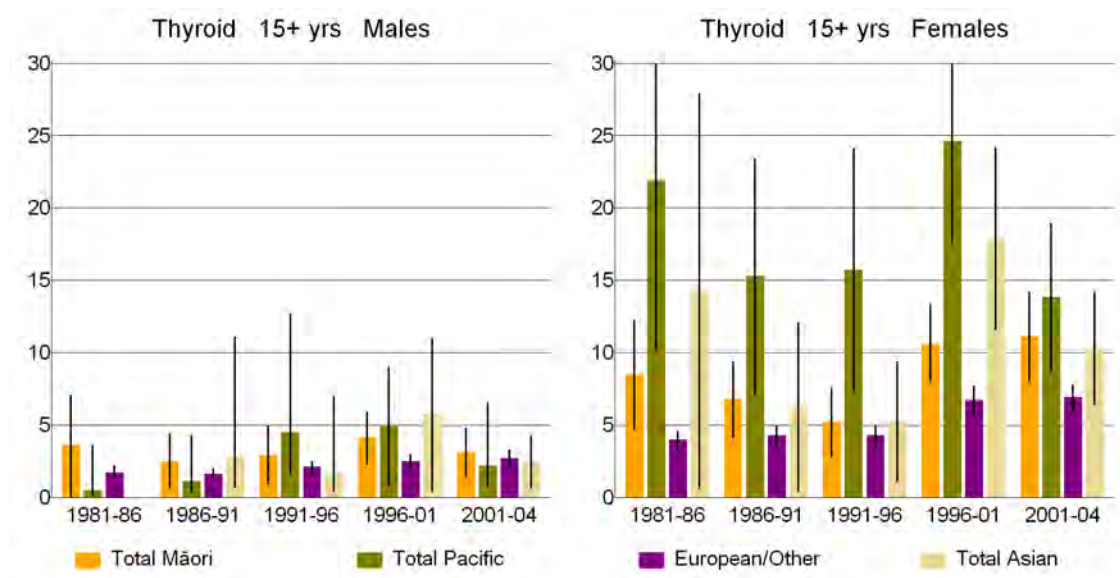

Table 67: Age-standardised rate ratios (SRR) and rate differences (SRD) of thyroid cancer, for Māori, Pacific and Asian compared to European/Other, by sex

Exposure Thyroid 15+ years	Cohort	Males		Females	
		SRR (95% CI)	SRD (95% CI)	SRR (95% CI)	SRD (95% CI)
Total Māori vs European	1981–1986	2.05 (0.73–5.73)	1.8 (-1.7–5.4)	2.14 (1.33–3.46)	4.5 (0.7–8.4)
	1986–1991	1.55 (0.71–3.42)	0.9 (-1.0–2.8)	1.56 (1.02–2.39)	2.4 (-0.3–5.2)
	1991–1996	1.41 (0.67–2.96)	0.9 (-1.3–3.0)	1.22 (0.74–1.99)	0.9 (-1.6–3.4)
	1996–2001	1.63 (1.01–2.63)	1.6 (-0.3–3.5)	1.58 (1.18–2.12)	3.9 (1.1–6.8)
	2001–2004	1.16 (0.65–2.07)	0.4 (-1.3–2.2)	1.62 (1.18–2.22)	4.2 (0.9–7.5)
	P (trend)	0.17	0.48	0.49	0.72
	Pooled	1.55 (1.11–2.18)	1.2 (0.1–2.2)	1.61 (1.35–1.92)	3.2 (1.8–4.5)
Total Pacific vs European	1981–1986	0.29 (0.04–2.11)	-1.2 (-2.3– -0.1)	5.52 (3.15–9.68)	18 (6.2–30)
	1986–1991	0.67 (0.16–2.73)	-0.5 (-2.1–1.0)	3.54 (2.03–6.15)	11 (2.8–19)
	1991–1996	2.17 (0.75–6.25)	2.4 (-2.2–7.1)	3.67 (2.09–6.43)	11 (3.0–20)
	1996–2001	1.93 (0.81–4.59)	2.3 (-1.8–6.5)	3.66 (2.64–5.07)	18 (11–25)
	2001–2004	0.80 (0.26–2.49)	-0.5 (-3.0–1.9)	2.01 (1.35–2.99)	7.0 (1.8–12)
	P (trend)	0.76	0.31	0.06	0.36
	Pooled	1.27 (0.74–2.18)	0.6 (-0.9–2.0)	3.58 (2.87–4.47)	13 (9.4–17)
Total Asian vs European	1981–1986			3.58 (1.35–9.49)	10 (-3.4–24)
	1986–1991	1.72 (0.42–7.05)	1.2 (-2.7–5.0)	1.45 (0.56–3.76)	1.9 (-4.0–7.9)
	1991–1996	0.80 (0.18–3.43)	-0.4 (-2.9–2.0)	1.23 (0.55–2.76)	1.0 (-3.2–5.2)
	1996–2001	2.24 (0.86–5.85)	3.1 (-2.2–8.5)	2.66 (1.82–3.89)	11 (4.8–18)
	2001–2004	0.91 (0.42–1.97)	-0.3 (-2.2–1.7)	1.50 (1.00–2.25)	3.4 (-0.6–7.5)
	P (trend)			0.48	0.78
	Pooled	1.46 (0.85–2.49)	1.0 (-0.7–2.7)	2.10 (1.50–2.93)	5.6 (2.1–9.2)

Notes: 95 percent confidence intervals in brackets. Underlying non-linear trends mean the p for trend value must be interpreted cautiously.

27.2 Socioeconomic trends

Thyroid cancer rates increased by about three-quarters in the high-income tertile for both males and females, and by about one-half in the medium-income tertile over the period surveyed (Figure 72 and Table 124 of Appendix 1). However, rates were imprecise and hence trends unstable over time.

Despite the pattern of varying changes over time by income in thyroid cancer, there was no strong evidence of changing inequalities in incidence over time by income. Although rates may have been higher in the low- compared to the high-income tertile in 1981–1986, they were similar across all income tertiles by 2001–2004 (Table 68).

Pooled over time, there was little evidence of any differences in rates by income.

Figure 72: Standardised rates of thyroid cancer for 25+ year-olds, by income by sex
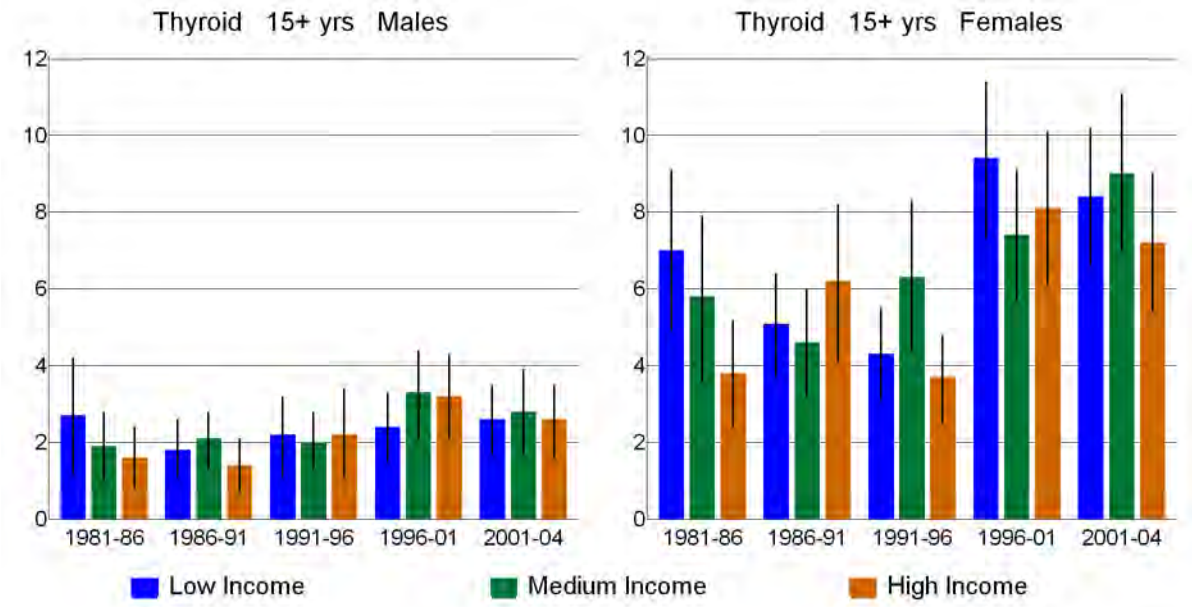
Table 68: Age- and ethnicity-standardised income rate ratios (SRR), rate differences (SRD), relative indices of inequality (RII) and slope indices of inequality (SII) of thyroid cancer, by sex

Age group	Cohort	Males				Females			
		Relative inequalities		Absolute inequalities		Relative inequalities		Absolute inequalities	
		SRR	RII (95% CI)	SRD	SII (95% CI)	SRR	RII (95% CI)	SRD	SII (95% CI)
Thyroid									
15+ years	1981–1986	1.65	1.5 (0.5–4.3)	1.1	1.0 (-1.4–2.8)	1.83	1.9 (0.8–4.1)	3.2	3.0 (-0.8–7.4)
	1986–1991	1.29	1.3 (0.5–3.1)	0.4	0.0 (-1.2–2.1)	0.82	0.7 (0.3–1.3)	-1.1	-2.0 (-4.0– -0.5)
	1991–1996	0.98	0.9 (0.3–2.4)	-0.1	0.0 (-0.6–0.2)	1.18	1.1 (0.6–2.0)	0.6	0.0 (-6.8–7.3)
	1996–2001	0.74	0.6 (0.3–1.3)	-0.8	-2.0 (-4.0–0.7)	1.16	1.3 (0.8–2.0)	1.3	2.0 (-2.3–6.4)
	2001–2004	1.01	1.0 (0.5–2.0)	0.0	0.0 (-2.1–1.9)	1.16	1.3 (0.8–2.1)	1.2	2.0 (-2.9–7.4)
	P (trend)	0.13	0.26	0.16	0.34	0.55	0.70	0.79	0.57
	Pooled	1.07	1.0 (0.6–1.4)	0.1	0.0 (-1.1–0.9)	1.18	1.2 (0.9–1.5)	1.0	1.0 (-1.2–3.4)

Notes: 95 percent confidence intervals in brackets. SRRs and SRDs compare low- and high-income tertiles.
Underlying non-linear trends mean the p for trend value must be interpreted cautiously.

Chapter 28: Ill-defined Sites

Ill-defined cancer sites include those in which the source of the primary tumour is unclear. Because of improvements over time in diagnosis and reporting, the mix of cancer types included under this rubric has probably changed, and may vary between ethnic and income groups, rendering interpretation of trends and inequalities problematic.

28.1 Ethnic trends

Ill-defined cancer rates tended to decrease over time across ethnic groups, but rates were inherently unstable (Figure 73 and Table 123 in Appendix 1).

Pooled over time, rates of ill-defined cancers were one-and-a-half times as high among Māori and Pacific as they were among European/Other, but lower among Asian (Table 69). There was no evidence that rates of Māori, Pacific or Asian ill-defined cancer diagnosis were converging with European/Other over time.

Figure 73:   Standardised rates of ill-defined sites cancer for 25+ year-olds, by ethnicity by sex
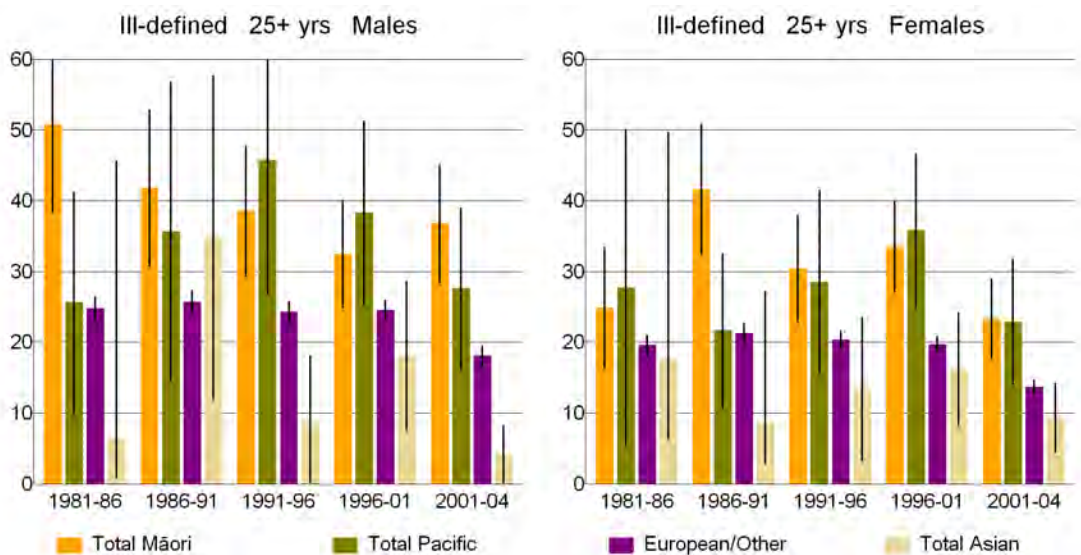
Table 69: Age-standardised rate ratios (SRR) and rate differences (SRD) of ill-defined sites cancer, for Māori, Pacific and Asian compared to European/Other, by sex

Exposure Ill-defined 25+ years	Cohort	Males		Females	
		SRR (95% CI)	SRD (95% CI)	SRR (95% CI)	SRD (95% CI)
Total Māori vs European	1981–1986	2.05 (1.59–2.65)	26 (13–39)	1.27 (0.89–1.81)	5.3 (-3.4–14)
	1986–1991	1.63 (1.24–2.13)	16 (4.9–27)	1.95 (1.55–2.46)	20 (11–30)
	1991–1996	1.59 (1.24–2.04)	14 (4.8–24)	1.49 (1.15–1.93)	10 (2.3–18)
	1996–2001	1.33 (1.04–1.69)	8.0 (0.2–16)	1.71 (1.39–2.09)	14 (7.3–20)
	2001–2004	2.03 (1.60–2.58)	19 (10–27)	1.71 (1.32–2.21)	9.7 (3.9–16)
	P (trend)	0.82	0.51	0.80	0.97
	Pooled	1.70 (1.51–1.90)	17 (12–21)	1.62 (1.44–1.82)	12 (8.4–15)
Total Pacific vs European	1981–1986	1.03 (0.55–1.92)	0.8 (-15–17)	1.42 (0.63–3.19)	8.1 (-14–31)
	1986–1991	1.39 (0.76–2.52)	10 (-11–31)	1.02 (0.61–1.69)	0.3 (-11–11)
	1991–1996	1.89 (1.24–2.87)	22 (2.4–41)	1.40 (0.88–2.21)	8.1 (-4.9–21)
	1996–2001	1.56 (1.11–2.20)	14 (0.7–27)	1.82 (1.33–2.49)	16 (5.1–27)
	2001–2004	1.52 (1.00–2.32)	9.5 (-2.0–21)	1.68 (1.13–2.49)	9.3 (0.4–18)
	P (trend)	0.52	0.49	0.14	0.29
	Pooled	1.47 (1.18–1.83)	11 (3.6–19)	1.43 (1.13–1.82)	8.3 (1.8–15)
Total Asian vs European	1981–1986	0.26 (0.04–1.85)	-18 (-31– -5.6)	0.90 (0.32–2.55)	-1.9 (-20–17)
	1986–1991	1.35 (0.69–2.62)	9.0 (-14–32)	0.41 (0.13–1.28)	-13 (-23– -2.6)
	1991–1996	0.38 (0.14–1.01)	-15 (-24– -6.0)	0.65 (0.30–1.40)	-7.1 (-17–3.1)
	1996–2001	0.74 (0.41–1.32)	-6.5 (-17–4.2)	0.82 (0.50–1.36)	-3.5 (-12–4.6)
	2001–2004	0.23 (0.09–0.61)	-14 (-18– -9.7)	0.69 (0.41–1.17)	-4.2 (-9.2–0.8)
	P (trend)	0.24	0.98	0.99	0.26
	Pooled	0.63 (0.42–0.96)	-8.7 (-15– -2.4)	0.69 (0.47–1.02)	-6.0 (-11– -0.7)

Notes: 95 percent confidence intervals in brackets. Underlying non-linear trends mean the p for trend value must be interpreted cautiously.

28.2 Socioeconomic trends

Rates of ill-defined cancer tended to decrease over time across all income groups – but less so in the low-income tertile (Figure 74 and Table 126 in Appendix 1).

Pooled over time, rates of ill-defined cancer incidence were 20–40 percent higher among low-income people. The difference in rates of male ill-defined cancer incidence by income widened over time, such that by 2001–2004 rates among low-income people were at least one-half greater than those of high-income people (Table 70).

Figure 74: Standardised rates of ill-defined sites cancer for 25+ year-olds, by income by sex
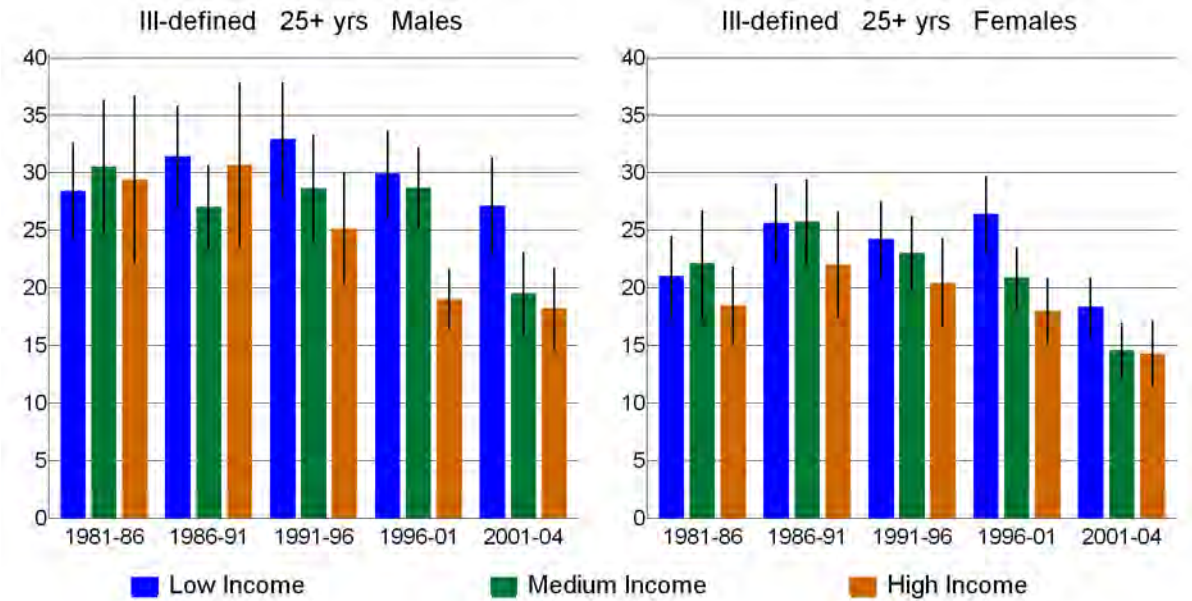
Table 70: Age- and ethnicity-standardised income rate ratios (SRR), rate differences (SRD), relative indices of inequality (RII) and slope indices of inequality (SII) of ill-defined sites cancer, by sex

Age group	Cohort	Males				Females			
		Relative inequalities		Absolute inequalities		Relative inequalities		Absolute inequalities	
		SRR	RII (95% CI)	SRD	SII (95% CI)	SRR	RII (95% CI)	SRD	SII (95% CI)
Ill-defined									
25+ years	1981–1986	0.97	0.9 (0.6–1.4)	-0.9	-4.0 (-8.2–1.2)	1.14	1.0 (0.6–1.6)	2.6	0.0 (-11–12)
	1986–1991	1.02	1.2 (0.8–1.7)	0.7	5.0 (-0.8–11)	1.16	1.3 (0.9–1.8)	3.6	6.0 (-4.4–17)
	1991–1996	1.31	1.2 (0.8–1.9)	7.8	6.0 (-2.9–15)	1.18	1.4 (0.9–2.1)	3.8	7.0 (-5.4–20)
	1996–2001	1.57	1.9 (1.4–2.7)	11	17 (6.4–27)	1.46	1.8 (1.3–2.5)	8.4	13 (6.3–19)
	2001–2004	1.49	1.6 (1.1–2.5)	8.9	10 (-3.4–24)	1.28	1.3 (0.9–1.8)	4.0	4.0 (-0.7–8.1)
	P (trend)	0.03	0.05	0.07	0.03	0.19	0.38	0.45	0.94
	Pooled	1.21	1.3 (1.1–1.5)	5.3	7.0 (3.6–10)	1.24	1.4 (1.2–1.7)	4.5	7.0 (2.0–12)

Notes: 95 percent confidence intervals in brackets. SRRs and SRDs compare low- and high-income tertiles.
Underlying non-linear trends mean the p for trend value must be interpreted cautiously.

Part C: Child and Adolescent Cancers

Chapter 29: Childhood Cancer

Cancer in childhood (ages 0–14 years) is relatively rare. About 40 percent of child cancers are leukaemias (in particular acute lymphoblastic leukaemia), and one-quarter are brain cancers (in particular neuroblastoma), with the remainder composed largely of other germ cell tumours. Given this heterogeneity, trends and inequalities in overall childhood cancer rates should be interpreted with caution.

29.1 Ethnic trends

There was no trend in childhood cancer incidence over time within ethnic groups (Figure 75 and Table 127 in Appendix 1).

Pooled over time, Māori and European/Other rates were similar, but Pacific and Asian rates were elevated compared to those of European/Other, by over one-quarter for both Pacific (1.29, 95 percent confidence interval 1.06–1.57) and Asian (1.22, 0.87–1.73) (Table 71).

There were no discernable trends in ethnic inequalities in childhood cancer incidence over the 1981–2004 period.

Figure 75:   Standardised rates of childhood cancer (1–14 year-olds) by ethnicity
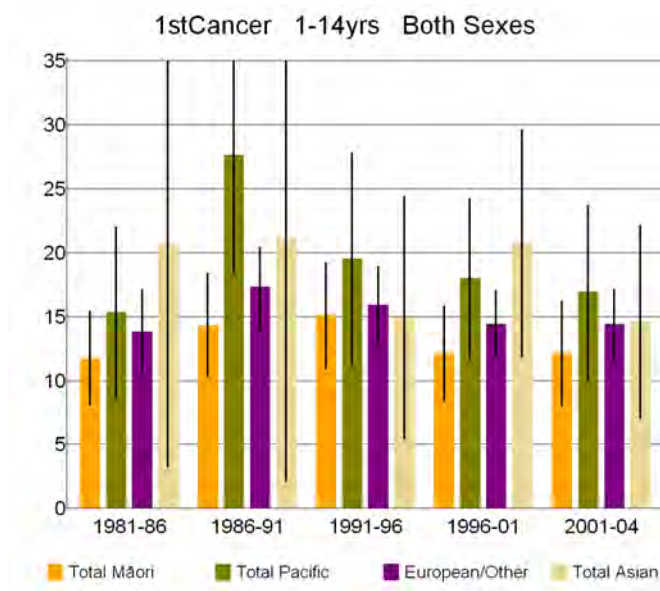
Table 71: Age-standardised rate ratios (SRR) and standardised rate differences (SRD) of childhood cancer, for Māori, Pacific and Asian compared to European/Other

Exposure 1st cancer 1–14 years	Cohort	Both sexes	
		SRR (95% CI)	SRD (95% CI)
Total Māori vs European	1981–1986	0.85 (0.57–1.26)	-2.1 (-7.0–2.8)
	1986–1991	0.83 (0.59–1.16)	-2.9 (-8.1–2.2)
	1991–1996	0.94 (0.68–1.32)	-0.9 (-6.0–4.2)
	1996–2001	0.84 (0.59–1.20)	-2.3 (-6.8–2.2)
	2001–2004	0.84 (0.57–1.24)	-2.3 (-7.2–2.7)
	P (trend)	0.98	0.97
	Pooled	0.86 (0.73–1.01)	-2.1 (-4.3–0.1)
Total Pacific vs European	1981–1986	1.11 (0.67–1.82)	1.5 (-6.0–8.9)
	1986–1991	1.60 (1.09–2.34)	10 (0.6–20)
	1991–1996	1.22 (0.77–1.95)	3.6 (-5.3–12)
	1996–2001	1.25 (0.84–1.84)	3.5 (-3.2–10)
	2001–2004	1.17 (0.75–1.84)	2.5 (-4.9–9.9)
	P (trend)	0.59	0.84
	Pooled	1.29 (1.06–1.57)	4.4 (0.7–8.1)
Total Asian vs European	1981–1986	1.49 (0.62–3.59)	6.8 (-11–25)
	1986–1991	1.23 (0.49–3.08)	3.9 (-15–23)
	1991–1996	0.94 (0.48–1.82)	-1.0 (-11–9.0)
	1996–2001	1.44 (0.90–2.29)	6.3 (-3.0–16)
	2001–2004	1.01 (0.58–1.77)	0.2 (-7.9–8.3)
	P (trend)	0.61	0.62
	Pooled	1.22 (0.87–1.73)	3.4 (-3.0–9.7)

Notes: 95 percent confidence intervals in brackets. Underlying non-linear trends mean the p for trend value must be interpreted cautiously.

29.2 Socioeconomic trends

Rates decreased by 16 percent among the high-income tertile over the period surveyed (p for trend 0.04), but no clear trends were evident in the other tertiles (Figure 76 and Table 128 in Appendix 1).

Pooled over time, children from low-income backgrounds had between one-half and two-thirds the rate of cancer of children from high-income backgrounds (for example, the RII was 0.5, 95 percent confidence interval 0.4–0.7) (Table 72). There was no trend in this inequality over time.

Figure 76: Standardised rates of childhood cancer (1–14 year-olds) by income

Table 72: Age- and ethnicity-standardised income rate ratios (SRR), rate differences (SRD), relative indices of inequality (RII) and slope indices of inequality (SII) of childhood cancer

Age group	Cohort	Both sexes			
		Relative inequalities		Absolute inequalities	
		SRR	RII (95% CI)	SRD	SII (95% CI)
1st cancer					
1–14 years	1981–1986	0.62	0.5 (0.2–1.2)	-7.1	-9.0 (-16– -2.9)
	1986–1991	0.76	0.6 (0.3–1.1)	-4.5	-9.0 (-18– -0.6)
	1991–1996	0.77	0.7 (0.4–1.4)	-4.2	-5.0 (-14–4.1)
	1996–2001	0.60	0.4 (0.2–0.8)	-7.1	-13 (-18– -7.8)
	2001–2004	0.73	0.6 (0.3–1.2)	-4.2	-7.0 (-10– -3.1)
	P (trend)	0.92	0.92	0.75	0.78
	Pooled	0.69	0.5 (0.4–0.7)	-5.5	-9.0 (-13– -5.7)

Notes: 95 percent confidence intervals in brackets. SRRs and SRDs compare low- and high-income tertiles.
Underlying non-linear trends mean the p for trend value must be interpreted cautiously.

Chapter 30: Adolescent Cancer

About 20 percent of adolescent (here defined as the 15–24 age group) cancers are lymphomas, another 20 percent are germ-cell tumours and approximately 10 percent each are brain cancers, melanomas and leukaemias. Given this heterogeneity, trends and inequalities in overall adolescent cancer rates should be interpreted with caution.

30.1 Ethnic trends

European/Other adolescent cancer rates increased by 37 percent over the period surveyed. Pacific rates decreased by 58 percent, and Asian rates by 37 percent (Figure 77 and Table 129 in Appendix 1).

Pooled over time, Māori rates were 0.79 times those of European/Other (95 percent confidence interval 0.70–0.89), but there was no substantial difference in rates between Pacific, Asian and European/Other. However, due to the above-mentioned divergent trends over time in rates by ethnic group, European rates were about twice Pacific and Asian rates by 2001–2004 (Table 73), although none of the trends in SRR or SRD had p values less than 0.05.

Figure 77: Standardised rates of adolescent cancer (15–24 year-olds) by ethnicity
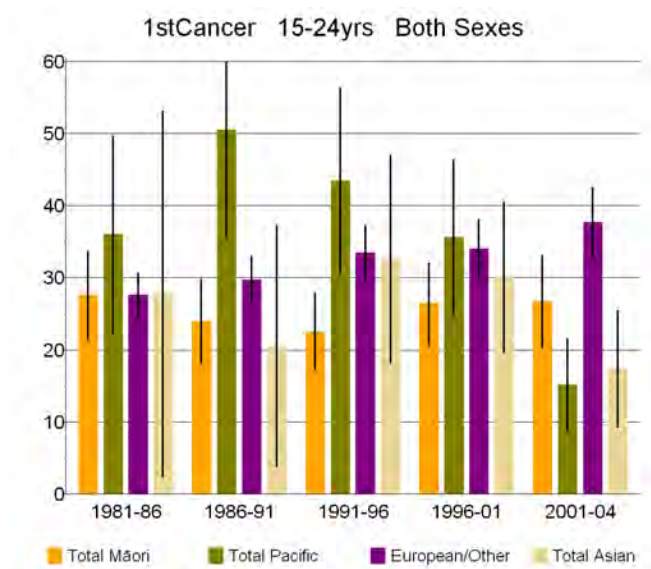
Table 73: Age-standardised rate ratios (SRR) and standardised rate differences (SRD) of adolescent cancer, for Māori, Pacific and Asian compared to European/Other

Exposure 1st cancer 15–24 years	Cohort	Both sexes	
		SRR (95% CI)	SRD (95% CI)
Total Māori vs European	1981–1986	1.00 (0.78–1.28)	-0.1 (-7.0–6.8)
	1986–1991	0.81 (0.62–1.06)	-5.7 (-12–1.0)
	1991–1996	0.68 (0.52–0.88)	-11 (-17– -4.3)
	1996–2001	0.77 (0.61–0.99)	-7.7 (-15– -0.8)
	2001–2004	0.71 (0.54–0.93)	-11 (-19– -3.0)
	P (trend)	0.12	0.09
	Pooled	0.79 (0.70–0.89)	-6.8 (-9.9– -3.7)
Total Pacific vs European	1981–1986	1.30 (0.88–1.93)	8.4 (-5.7–22)
	1986–1991	1.70 (1.24–2.33)	21 (5.5–36)
	1991–1996	1.30 (0.95–1.78)	10 (-3.4–23)
	1996–2001	1.05 (0.76–1.45)	1.6 (-9.9–13)
	2001–2004	0.40 (0.26–0.63)	-23 (-31– -15)
	P (trend)	0.11	0.06
	Pooled	1.15 (0.98–1.35)	5.0 (-0.9–11)
Total Asian vs European	1981–1986	1.01 (0.40–2.52)	0.2 (-25–26)
	1986–1991	0.69 (0.30–1.58)	-9.1 (-26–7.9)
	1991–1996	0.97 (0.62–1.54)	-0.9 (-16–14)
	1996–2001	0.88 (0.61–1.28)	-3.9 (-15–7.2)
	2001–2004	0.46 (0.28–0.75)	-20 (-30– -11)
	P (trend)	0.24	0.17
	Pooled	0.81 (0.61–1.09)	-6.1 (-14–1.6)

Notes: 95 percent confidence intervals in brackets. Underlying non-linear trends mean the p for trend value must be interpreted cautiously.

30.2 Socioeconomic trends

Rates increased in all income groups over the period surveyed, increases ranging from 3 percent in the medium-income tertile to 35 percent in the low-income tertile (Figure 78 and Table 130 in Appendix 1).

Rates of adolescent cancer were about 20 percent to one-third lower in adolescents with low-income backgrounds, with no evidence of change in this inequality over time (Table 74).

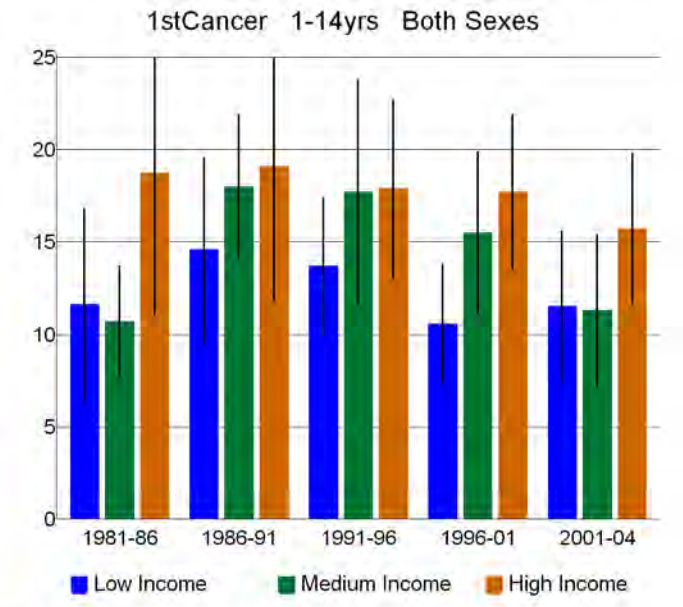**Figure 78:** Standardised rates of adolescent cancer (15–24 year-olds) by income
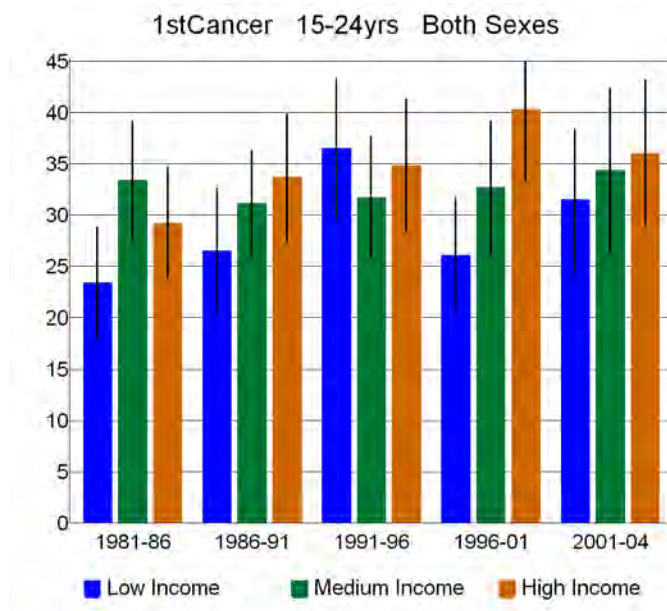
Table 74: Age- and ethnicity-standardised income rate ratios (SRR), rate differences (SRD), relative indices of inequality (RII) and slope indices of inequality (SII) of adolescent cancer

Age group	Cohort	Both sexes			
		Relative inequalities		Absolute inequalities	
		SRR	RII (95% CI)	SRD	SII (95% CI)
1st cancer					
15–24 years	1981–1986	0.80	0.8 (0.6–1.2)	-5.8	-6.0 (-19–7.0)
	1986–1991	0.79	0.7 (0.5–1.0)	-7.2	-11 (-19– -3.4)
	1991–1996	1.05	1.0 (0.7–1.4)	1.7	-1.0 (-19–17)
	1996–2001	0.65	0.5 (0.3–0.8)	-14	-22 (-30– -15)
	2001–2004	0.87	0.9 (0.6–1.3)	-4.6	-5.0 (-17–6.3)
	P (trend)	0.96	0.82	0.81	0.58
	Pooled	0.83	0.7 (0.6–0.9)	-6.1	-10 (-13– -5.7)

Notes: 95 percent confidence intervals in brackets. SRRs and SRDs compare low- and high-income tertiles. Underlying non-linear trends mean the p for trend value must be interpreted cautiously.

Part D: Conclusions

Conclusions

Social inequalities in cancer incidence reflect socially patterned differences in exposure and susceptibility to environmental carcinogens (for example tobacco smoke, some industrial chemicals, ultraviolet radiation, and certain viruses and bacteria) and lifestyles (for example drug use, including alcohol and tobacco, dietary carcinogens, low fruit and vegetable intake, sedentary behaviour, obesity, and sexual and reproductive behaviours). Differences in access to and quality of health services may generate inequalities in cancer survival, but generally not incidence (the major exception is cervical cancer, and to a much lesser extent colorectal and breast cancers, for which screening can detect pre-cancerous lesions, leading to a reduction in cancer incidence).

For this reason differences in cancer incidence between ethnic or income groups largely reflect differences in social conditions and lifestyles, and can be used as an 'integrator' or marker of such differences. So analysis of trends in inequalities in cancer incidence can assist in evaluation of our success in reducing social inequality and in the development of health and broader social policy. Such analyses also provide a planning tool with regard to future development and funding of cancer services – to the extent that past trends can predict future trajectories. Information about trends in risk factors (in the case of those cancers for which risk factors are understood) can also be incorporated into predictive models to improve the accuracy of forecasts.

This section will briefly summarise this report's findings with regard to trends in inequalities in cancer incidence. Lung cancer, as representative of smoking-related cancers, is first reviewed, followed by those non-smoking-related cancers for which this analysis has revealed potentially significant inequalities or trends in inequalities. Finally, implications of these findings for health monitoring and policy are briefly commented on.

It should be noted that the purpose of this report is to provide a broad overview of findings, rather than an in-depth interpretation of patterns for each cancer. Future publications from CancerTrends data will provide more detailed analysis and interpretation for selected cancers of interest.

Figures 79 and 80 summarise at a glance the underlying incidence rates over time for 15 major cancer types, pooling ages and sexes and adjusting for ethnicity as regards the income analyses.

Figure 79: Summary of incidence by ethnicity for main cancers, sexes combined

Total Māori   Total Pacific   European/Other   Total Asian
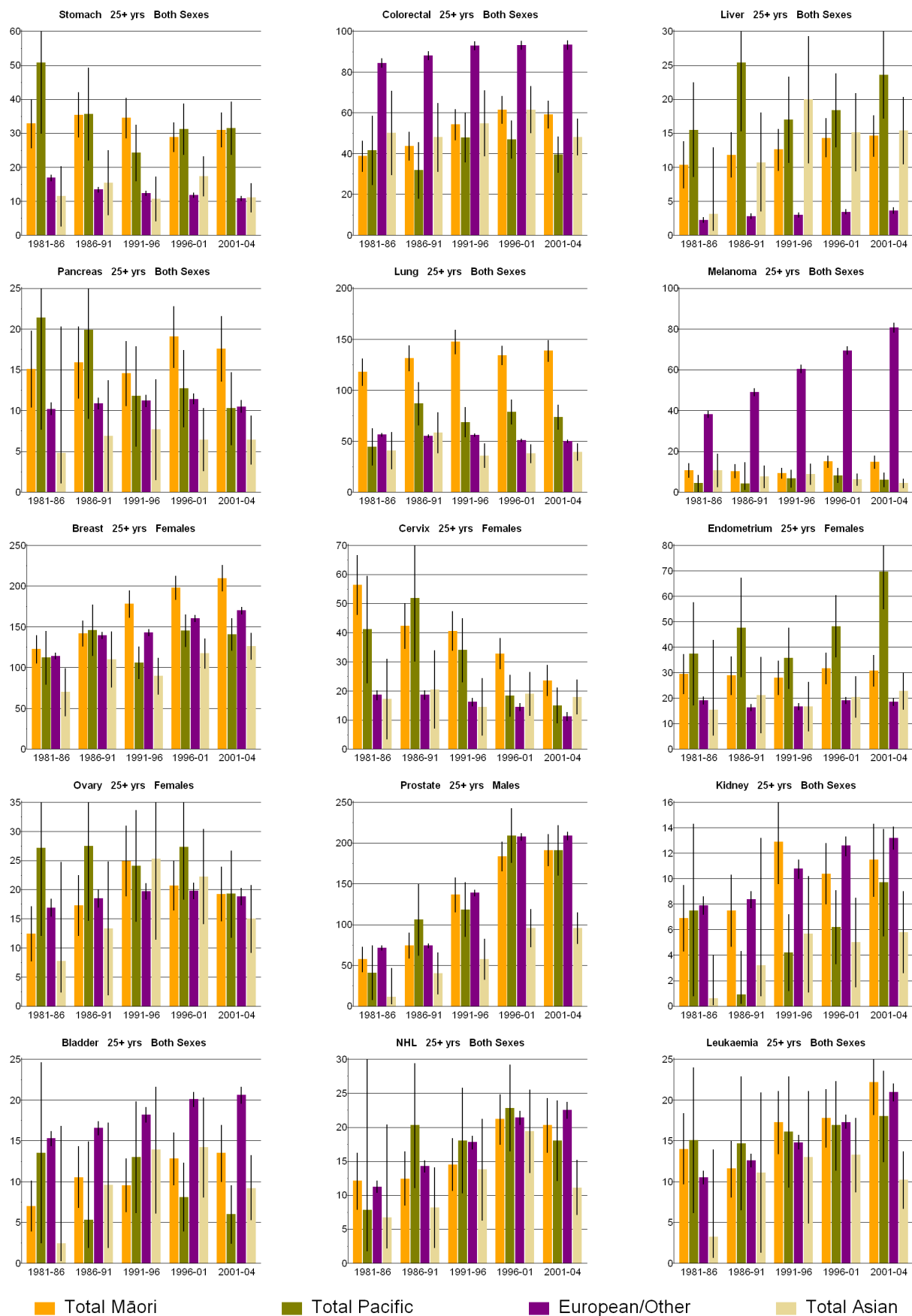
Figure 80: Summary of incidence by income tertile for main cancers, sexes combined

Low Income   Medium Income   High Income
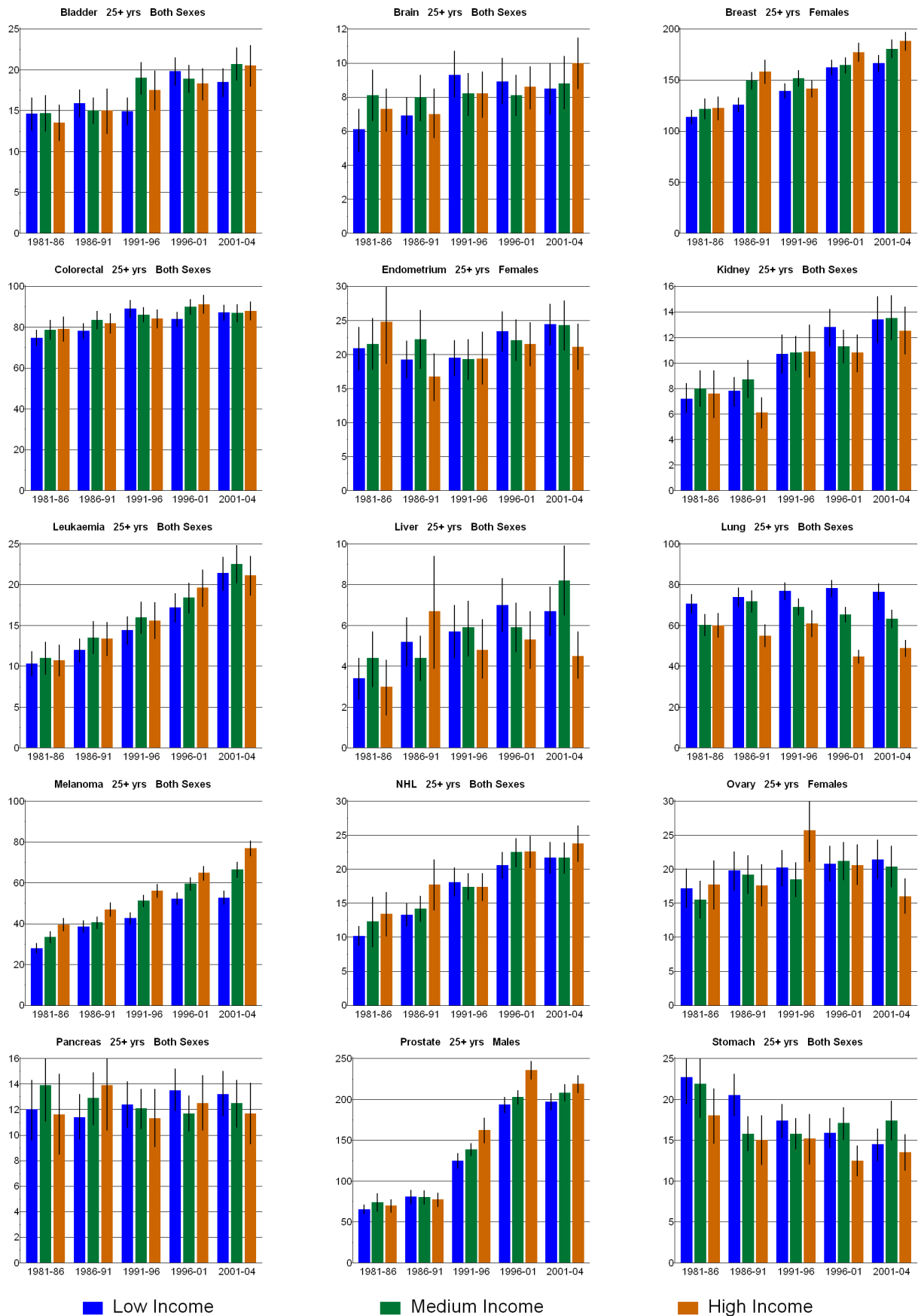
Smoking-related cancers

Smoking-related cancers include the vast majority (more than 80 percent) of lung cancers, but also substantial proportions of upper aerodigestive cancers as well as pancreatic and bladder cancers. Here lung cancer is used to represent the wider group of smoking-related cancers.

Wide ethnic differences and socioeconomic gradients in tobacco use are well recognised in New Zealand,[90] and are reflected in inequalities in lung cancer incidence. Pooling over time and adjusting for age, Māori were over twice (for males) or three times (for females) as likely to develop lung cancer as European/Other people; moreover, the gap widened over time. Pacific people (of both sexes) were also at higher risk (about 1.5-fold overall), and female (but not male) rates increased over time (Table 103 in Appendix 1), such that inequalities between Pacific and European/Other females tended to widen over time. There was no significant inequality, or any trend, in rates for Asian people (of both sexes).

Unsurprisingly, low-income people (of both sexes) were at least 1½ times as likely to develop lung cancer as high-income counterparts, pooling over age and time and adjusting for differences in ethnic composition. The size of this gap increased over time, especially among females and when measured on an absolute scale, most probably reflecting the differential phasing of the tobacco epidemic by both sex and SEP.

Roughly similar inequalities and trends in inequalities were seen in the other smoking-related cancers, although differences were not always statistically significant. This may reflect the smaller fraction of these cancers (compared to lung cancer) attributable to smoking alone, such that differences in magnitude and timing of the tobacco epidemic between social groups were less clearly reflected in incidence rates. Interestingly, non-European/Other ethnic groups had significantly lower (and stable) incidence rates of bladder cancer than the European/Other group (for which rates increased over time), despite tobacco smoking being an established major risk factor for this cancer; the reasons for this are unclear.

Non-smoking-related cancers

With some exceptions, social inequalities in non-smoking related cancer incidence were smaller than those in smoking-related cancer incidence; often surprisingly so in terms of income inequalities. The following analysis is restricted to 12 cancers for which incidence was sufficient to generate stable group-specific rates for comparison: breast, cervix, colorectal, endometrial, kidney, leukaemia, liver, melanoma, NHL, ovary, prostate and stomach. Less emphasis has been placed on Asian inequalities, as the generally low incidence rates among Asian people are thought to largely reflect a healthy migrant effect (which will wash out over time).

Cancers showing relatively large social inequalities in incidence

Six cancers were found to exhibit large ethnic and/or socioeconomic inequalities in their incidence: cervix, colorectal, endometrial, liver, melanoma and stomach. Note that in the case of several of these cancers (stomach, cervix and colorectal), smoking may in fact make a contribution, albeit minor, to observed inequalities, or trends in inequalities.

Cervix

Pooling over age and time, incidence rates of invasive cervical cancer among Māori and Pacific women were at least twice those of their European/Other counterparts. However, among younger women (aged less than 65 years) at least, the gap has narrowed dramatically and steadily since 1991, coinciding with the introduction of the NCSP. By contrast, an inequality may now be emerging between European/Other and Asian women (who have relatively low rates of participation in screening; coverage rates are also lower for Māori and Pacific than European/Other women, but are improving). Income inequalities are also evident (approximately 1.5 fold-overall), again most probably reflecting differences in participation in screening between income strata. These inequalities were stable over the observation period when measured on a relative scale, yet absolute differences in incidence reduced over time. Given the concern that screening programmes may lead to a widening of inequalities (because disadvantaged groups generally participate to a lesser extent), this finding represents a major public health success; having said this, inequalities in cervical cancer incidence (or participation in screening) are still a long way from being eliminated.

Colorectal

No income gradient is evident in colorectal cancer incidence, but ethnic differences are marked. Māori, Pacific people and Asian people (of both sexes) are only half as likely to develop colorectal cancer as European/Other people, adjusting for age. For Māori, this gap appears to be narrowing, although the trend is statistically significant only for males. Contrary to earlier findings on colorectal cancer mortality,[40 91] this study found no evidence that inequalities in incidence are narrowing for Pacific people. The reason for the lower incidence of colorectal cancer among Māori and Pacific people is not clear; however, the finding that this differential may be narrowing (at least for Māori) is of concern. The trend appears to be driven by an absolute increase in incidence rates among Māori males, but may also reflect declining rates among younger European/Other males (and females) – possibly resulting from a cohort effect involving the latter ethnic group in particular.[92]

Endometrial

No consistent income gradient is evident in endometrial cancer incidence, but large ethnic inequalities exist, with Māori rates about one-and-a-half times and Pacific rates nearly twice European/Other rates, pooled over time and adjusting for age. This inequality may have increased over the observation period for Pacific compared to European/Other women, although the trend did not quite reach statistical significance. Obesity is a major risk factor for this cancer, and may explain (part of) the ethnic inequality observed.

Liver

Primary liver cancer is relatively uncommon, so group-specific rates are not particularly stable. Nevertheless, it is clear that moderate income inequalities exist: rates are 20–50 percent higher among low-income compared to high-income groups, pooling over age and time and adjusting for ethnicity. By contrast, ethnic inequalities are large (between three- and eight-fold higher than the European/Other reference group, depending on ethnicity and sex), which is consistent with previous research,[27][28] although trends in inequalities are unclear. The most likely explanation for this relates to differences in rates of chronic infection with hepatitis B virus between social groups (largely antedating the introduction of immunisation against this infection). If this is the case, it could be that, at some future date, primary liver cancer incidence rates will begin to decline in all ethnic groups, and absolute inequalities will ultimately disappear.

Melanoma

Māori and Pacific people were one-fifth to one-tenth as likely to develop melanoma as European/Other people (pooling over age and time), and trends in these relative inequalities were non-significant. That is, melanoma rates increased similarly in all ethnic groups over time. Rates in low-income strata were about one-quarter lower than in high-income strata, again with similar increases across income groups over time, resulting in essentially stable relative inequalities. Explanations for these inequalities most likely relate to differences in susceptibility (especially by ethnicity) and exposure (especially by socioeconomic group) to episodic ultraviolet radiation.

Stomach

Stomach cancer rates are falling over time, but large ethnic inequalities persist, Māori and Pacific peoples being two to three times as likely to develop this cancer as European/Other people (pooling over age and time). Furthermore, for Māori females (and possibly for Pacific females) this inequality widened over the observation period when measured on a relative scale. Low-income people (of both sexes) had slightly higher rates of stomach cancer than high-income counterparts (of both sexes, pooled over age and time), but for females the inequality narrowed on both absolute and relative scales, driven largely by women older than 65 years. Inequalities, and trends in inequalities, may reflect cohort differences in *Helicobacter pylori* infection rates, among other factors (including tobacco smoking).

Cancers showing relatively small or no social inequalities in incidence

All other non-smoking-related cancers showed small or no ethnic and income inequalities in incidence rates, or exhibited unstable rates (due to small numbers), making inequality analysis difficult. However, given their relatively large numbers, some mention should be made of female breast cancer and prostate cancer.

Breast

Pooling over age and time, Māori women were slightly more likely to be diagnosed with breast cancer than European/Other women (the SRR was 1.17, and the SRD 24 per 100,000). Moreover, Māori rates increased faster than European/Other rates, resulting in widening relative inequalities (an SRR of 1.07–1.23), but did not increase in a monotonic manner, with the result that the trend was not statistically significant (p for trend 0.13). At the same time, Māori women experienced a four-fold increase in absolute inequalities compared to European/Other women (the SRD increasing from 8.4 to 39 per 100,000, p for trend 0.06). By contrast, Pacific women had slightly lower rates (an SRR of 0.90), and there was no trend towards inequality. Asian women experienced moderately lower risk (an SRR of 0.71), which did not vary over time. Low-income women were slightly less likely to develop breast cancer than high-income counterparts (with a pooled of SRR 0.90); this ratio did not vary over time.

Explanations for these ethnic trends are unclear, but most likely are unrelated to differential participation by ethnicity in the BreastScreen Aotearoa programme (which was only introduced recently). It must also be noted that most of what we know about breast cancer risk factors would predict that European/Other breast cancer incidence rates should be higher than the corresponding Māori rates, yet the converse is true. Further research is needed in this respect.

Prostate

Large increases in prostate cancer incidence have occurred among all ethnic and income groups in recent times, probably mostly due to opportunistic PSA testing. Few differences were found in observed prostate cancer incidence rates by ethnicity (adjusting for age and time), except for a lower rate among Asian men. Indeed, the 'step-lock' increases in Māori, Pacific and European/Other prostate cancer incidence rates might be considered surprising, as, although PSA testing rates have so far been lower among Māori and Pacific than European men (by one-half to one-third, depending on age and period),[93] no significant trends in ethnic inequalities in prostate cancer incidence have been observed, except for an increasing inequality over time favouring Asian men when measured on an absolute scale.

Low-income men were about 10–20 percent less likely to be diagnosed with this cancer than their high-income counterparts, with little suggestion that the difference has changed over the past quarter-century – again, despite the likelihood that PSA testing rates have thus far been lower among low income than high income men.

Implications for policy

Inequalities in cancer incidence are an important consideration in regard to health policy development, service planning and resource allocation for cancer services. This report indicates that the major driver of inequalities across all cancers is tobacco smoking. This finding reinforces the need to refresh efforts aimed at reducing tobacco consumption by Māori and low-income groups in particular. There are currently also substantial inequalities in the incidence of several cancers unrelated to exposure to tobacco smoke. Some of these cancers, such as endometrial cancer, are linked to obesity, and the observed inequalities reinforce the need to address differential

exposure to the 'obesogenic' environment by ethnicity and SEP.[94] Inequalities in incidence of other cancers, such colorectal and primary liver cancer, may reflect strong cohort effects. Incidence of liver cancer in particular should dissipate as birth cohorts immunised against hepatitis B replace earlier non-immunised cohorts with differentially high infection rates by ethnicity and SEP. Inequalities in the incidence of cancers attributable to other infectious agents, such as stomach cancer (*Helicobacter pylori*) and cervical cancer (oncogenic HPV), may also narrow in the future as chronic infection rates reduce overall and simultaneously converge across social groups. This is already happening in the case of cervical cancer, reflecting the success of the National Cervical Screening Programme in enhancing coverage across most social groups (although screening coverage still remains lower among some ethnic groups than among others). A key policy aim for the future should be to mitigate the rising trend in colorectal cancer incidence among Māori – a reduction in ethnic inequality here represents success if it results from falling incidence among Europeans, but failure if it reflects increasing incidence among Māori (which appears to be the case currently).

Implications for monitoring

Inequalities in cancer cannot be interpreted without simultaneous consideration of incidence, survival and mortality (for each major cancer, by age, cohort and period). The NZCMS provides a means of monitoring inequalities in mortality, as previously reported.[39 40 95] By linking cancer registrations to Census records (anonymously and probabilistically), this report performs the same function for incidence. Unfortunately, time series data for cancer survival, with sufficient information to analyse inequalities directly or (again) by linkage to Census data, have only recently become available from the NZCR, In the near future it will thus be possible to monitor trends in all three epidemiological variables (cancer incidence, survival and mortality) simultaneously, allowing fuller interpretation of the drivers of difference. Greater understanding and more robust measurement of inequalities can help to optimise cancer policy and resource allocation, ensuring better, sooner and more convenient cancer services for all.

References

1. Minister of Health. The New Zealand Cancer Control Strategy. Wellington: Ministry of Health and the New Zealand Cancer Control Trust, 2003.
2. Danaei G, Vander Hoorn S, Lopez AD, Murray CJL, Ezzati M. Causes of cancer in the world: comparative risk assessment of nine behavioural and environmental risk factors. *Lancet* 2005;366(9499):1784-93.
3. Ministry of Health. Cancer in New Zealand. Trends and Projections. Wellington: Ministry of Health, 2002.
4. Jeffreys M, Stevanovic V, Tobias M, Lewis C, Ellison-Loschmann L, Pearce N, et al. Ethnic inequalities in cancer survival in New Zealand: linkage study. *American Journal of Public Health* 2005;95(5):834-7.
5. Cormack D, Ratima M, Robson B, Brown R, Purdie G. Access to cancer services for Māori: A report prepared for the Ministry of Health. Wellington: Te Rōpū Rangahau Hauora a Eru Pōmare, University of Otago, 2005.
6. Jeffreys M, Sarfati D, Stevanovic V, Tobias M, Lewis C, Pearce N, et al. Socioeconomic inequalities in cancer survival in New Zealand: the role of extent of disease at diagnosis. *Cancer Epidemiology, Biomarkers and Prevention* 2009;18(3):915-21.
7. Ajwani S, Blakely T, Robson B, Bonne M, Tobias M. Decades of Disparity: Ethnic mortality trends in New Zealand 1980-1999 (also available at http://www.wnmeds.ac.nz/nzcms-info.html). Wellington: Ministry of Health, 2003.
8. Blakely T, Ajwani S, Robson B, Tobias M, Bonne M. Decades of Disparity: Widening ethnic mortality gaps from 1980 to 1999. *NZ Med J* 2004;117(1199):U995.
9. Shaw C, Blakely T, Sarfati D, Fawcett J, Hill S. Varying evolution of the New Zealand lung cancer epidemic by ethnicity and socioeconomic position (1981-1999).[see comment]. *NZ Med J* 2005;118(1213):U1411.
10. Foster FH. Cancer registry in New Zealand. *National Cancer Institute Monographs.* 1977;47:41-4.
11. Tukuitonga CF, Solomon N, Stewart A. Incidence of cancer among Pacific Island people in New Zealand.[comment]. *NZ Med J* 1992;105(946):463-6.
12. Newman PD, Mason BH, Holdaway IM, Kay RG, Arthur JF, Hitchcock GC. Incidence and clinical features of breast cancer in the Auckland region. *NZ Med J* 1992;105(931):117-20.
13. Armstrong W, Borman B. Breast cancer in New Zealand: trends, patterns, and data quality. *NZ MedJ* 1996;109:221-24.
14. Lawes C, Tukuitonga C.F, Scragg R K,. The epidemiology of breast cancer in Pacific Women in New Zealand. *NZ Med J* 1999;112:354-57.
15. McCredie M, Paul C, Skegg DC, Williams S. Breast cancer in Maori and non-Maori women. *Int J Epidemiol* 1999;28:189-95.
16. Foster FH. Colon and rectum cancer in the New Zealand population. *National Cancer Institute Monographs.* 1977;47:173-5.
17. Sutton TD, Eide TJ, Jass JR. Trends in colorectal cancer incidence and histologic findings in Maori and Polynesian residents of New Zealand. *Cancer.* 1993;71(12):3839-45.
18. Thompson AG. Regional differences in incidence of gastric and colonic cancer in the Maori of New Zealand. *Postgraduate Medical Journal.* 2002;78(921):419-21.
19. Smith AH, Pearce NE, Joseph JG. Major colorectal cancer aetiological hypotheses do not explain mortality trends among Maori and non-Maori New Zealanders. *International Journal of Epidemiology.* 1985;14(1):79-85.
20. Pearce N, Bethwaite P. Social class and male cancer mortality in New Zealand, 1984-7. *NZ Med J* 1997;110:200-02.
21. Pearce N, Howard J. Occupation, social class and male cancer mortality in New Zealand, 1974-78. *Int J Epidemiol* 1986;15:456-62.
22. Pearce N, Sheppard R, Howard J, et al. Time trends and occupational differences in cancer of the testis in New Zealand. *Cancer* 1987;59(9):1677-82.
23. Stewart RJ, Stewart AW, Stewart JM, Isbister WH. Cancer of the stomach in New Zealand: 1970-74. *Australian & New Zealand Journal of Surgery.* 1982;52(4):363-9.
24. Dockerty JD, Marshall S, Fraser J, Pearce N. Stomach cancer in New Zealand: time trends, ethnic group differences and a cancer registry-based case-control study. *International Journal of Epidemiology.* 1991;20(1):45-53.

25. Dockerty JD, Cox B, Cockburn MG. Childhood leukaemias in New Zealand: time trends and ethnic differences. *British Journal of Cancer.* 1996;73(9):1141-7.
26. Simmons GC, Yeong ML, Lee SP. The association of hepatitis B viral infection and hepatocellular carcinoma in New Zealand. *NZ Med J* 1983;96(739):669-71.
27. Blakely T, Bates M, Garrett N, Robson B. The incidence of hepatocellular carcinoma in New Zealand. *NZ Med J* 1998;111:471-74.
28. Blakely T, Bates M, Baker M, Tobias M. Hepatitis B carriage explains the excess rate of hepatocellular carcinoma for Maori, Pacific Island, and Asian people compared to Europeans in New Zealand. *Int J Epidemiol* 1999;28:204-10.
29. Blakely T, Robson B, Atkinson J, Sporle A, Kiro C. Unlocking the numerator-denominator bias. I: Adjustment ratios by ethnicity for 1991-94 mortality data. *NZ Med J* 2002;115:39-43.
30. Blakely T, Atkinson J. Unlocking the Numerator-Denominator Bias, 1991-94 Deaths. NZCMS Technical Report No. 2. *(Also at http://www.wnmeds.ac.nz/nzcms-info.html)*. Wellington: Department of Public Health, Wellington School of Medicine, University of Otago, 2001.
31. Ajwani S, Blakely T, Robson B, Atkinson J, Fawcett J, Kiro K. Unlocking the numerator-denominator bias for the 1980s and 1990s. NZCMS Technical Report No. 4. ISBN 0-473-09111-9 (Also at http://www.wnmeds.ac.nz/nzcms-info.html). Wellington: Department of Public Health, Wellington School of Medicine and Health Sciences, University of Otago, 2002.
32. Ajwani S, Blakely T, Robson B, Atkinson J, Kiro C. Unlocking the numerator-denominator bias III: adjustment ratios by ethnicity for 1981-1999 mortality data. The New Zealand Census-Mortality Study. *NZ Med J* 2004;116(1175):6.
33. Shaw C, Atkinson J, Blakely T. (Mis)classification of ethnicity on the New Zealand Cancer Registry: 1981-2004. *NZ Med J* 2009;122(1294):10-22.
34. Pomare E, Keefe-Ormsby V, Ormsby C, Pearce N, Reid P, Robson B, et al. *Hauora: Maori Standards of Health III*. Wellington: Eru Pomare Maori Health Research Centre, 1995.
35. Ministry of Health. Our Health, Our Future. Wellington, NZ: Ministry of Health, 1999.
36. Blakely T, Tobias M, Robson B, Ajwani S, Bonne M, Woodward A. Widening ethnic mortality disparities in New Zealand 1981-99. *Soc Sci Med* 2005;61(10):2233-51.
37. Howden-Chapman P, Tobias M, editors. *Social Inequalities in Health: New Zealand 1999*. Wellington, NZ: Ministry of Health, 2000.
38. Blakely T, Fawcett J, Atkinson J, Tobias M, Cheung J. Decades of Disparity II: Socioeconomic mortality trends in New Zealand 1981-1999. Wellington: Ministry of Health, 2005.
39. Blakely T, Tobias M, Atkinson J. Inequalities in mortality during and after restructuring of the New Zealand economy: repeated cohort studies. *BMJ* 2008;336:371-75.
40. Blakely T, Tobias M, Atkinson J, Yeh L-C, Huang K. Tracking Disparity: Trends in ethnic and socioeconomic inequalities in mortality, 1981-2004. Wellington: Ministry of Health, 2007.
41. Martikainen P, Valkonen T. Diminishing educational differences in breast cancer mortality among Finnish women: a register-based 25-year follow-up. *ajph* 2000;90:277-80.
42. Singh GK, Miller BA, Hankey BF. Changing Area Socioeconomic Patterns in U.S. Cancer Mortality, 1950-1998: Part II--Lung and Colorectal Cancers. *J Natl Cancer Inst* 2002;94(12):916-25.
43. New Zealand Health Information Service. Cancer:New Registrations and Deaths 1996. Wellington: Ministry of Health, 2000.
44. Statistics New Zealand. Statistical standard for ethnicity: Statistics New Zealand, 2005.
45. Statistics New Zealand. A Report on the Post-enumeration Survey 2001. Wellington: Statistics New Zealand, 2002.
46. Fawcett J, Atkinson J, Blakely T. Record linkage of census and mortality 2001-04 records. *New Zealand Census-Mortality Study Technical Report No. 6*. Wellington: Health Inequalities Research Programme, University of Otago, Wellington, 2008.
47. Blakely T, Salmond C. Probabilistic record linkage and a method to calculate the positive predictive value. *Int J Epidemiol* 2002;31:1246-52.
48. Blakely T, Salmond C, Woodward A. Anonymous linkage of New Zealand mortality and Census data. *Aust NZ J Public Health* 2000;24:92-95.
49. Hill S, Atkinson J, Blakely T. Anonymous record linkage of census and mortality records: 1981, 1986, 1991, 1996 census cohorts. NZCMS Technical Report No. 3. ISBN 0-473-09110 (Also at http://www.wnmeds.ac.nz/nzcms-info.html). Wellington: Department of Public Health, Wellington School of Medicine and Health Sciences, University of Otago, 2002.
50. Lash B. Documentation of the process and results of linking cancer data with census data 1981 to 2001. Wellington: Statistics New Zealand, 2008.

51. Atkinson J, Shaw C, Blakely T, Stanley J, Sloane K. Linkage of Census and Cancer Registrations, 1981-2004: CancerTrends Technical Report No. 1. Wellington: Department of Public Health, University of Otago, Wellington, 2010.

52. Jensen J. Income equivalences and the estimation of family expenditure on children. Wellington: Department of Social Welfare (unpublished), 1988.

53. Blakely T. The New Zealand Census-Mortality Study: Socioeconomic inequalities and adult mortality 1991-94. *Also at http://www.wnmeds.ac.nz/nzcms-info.html*. Wellington: Ministry of Health, 2002:258.

54. Hayes L, Berry G. Sampling variability of the Kunst-Mackenbach relative index of inequality. *J Epidemiol Community Health* 2002;56:762-65.

55. Mackenbach J, Kunst A. Measuring the magnitude of socio-economic inequalities in health: an overview of available measures illustrated with two examples from Europe. *Soc Sci Med* 1997;44:757-71.

56. Rothman K, Greenland S, Lash T. *Modern Epidemiology*. 3rd ed. Philadelphia: Lippincott WIlliams & Wilkins, 2008.

57. Ministry of Health. Cancer: New Registrations and Deaths 2005. Wellington: Ministry of Health, 2008.

58. New Zealand Health Information Services. Cancer Patient Survival Covering the Period 1994 to 2003. Wellington: Ministry of Health, 2006.

59. Kogevinas M, Garcia-Closas M, Trichopoulos D. Urinary Bladder Cancer. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology*. Second ed. Oxford: Oxford University Press, 2008.

60. World Cancer Research Fund/American Institute for Cancer Research. Food, Nutrition, Physical Activity and the Prevention of cancer: A Global Perspective. Washington DC: American Institute for Cancer Research, 2007.

61. Savitz D, Trichopoulos D. Brain Cancer. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology. Second Edition*. New York: Oxford University Press, 2008.

62. Hankinson S, Tamimi R, Hunter D. Breast Cancer. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology, second edition.* . New York: Oxford University Press, 2008.

63. Richardson A, Cox B, Brown T, Smale P, al. e. The impact of breast cancer screening on breast cancer registrations in New Zealand. . *NZ Med J* 2005;118(1209):U1291.

64. Ylitalo N, Stuver S, Adami H. Cervical Cancer. In: Adami H, Hunter D, trichopoulos D, editors. *A Textbook of Cancer Epidemiology, Second edition*. New York: Oxford University Press, 2008.

65. Potter J, Hunter D. Colorectal Cancer. In: Adami H, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology*. Second ed. New York: Oxford University Press, 2008.

66. Devivo I, Persson I, Adami H. Endometrial Cancer. In: Adami H, Hunter D, trichopoulos D, editors. *A Textbook of Cancer Epidemiology, second edition*. New York: Oxford University Press, 2008.

67. Stuver S, Trichopoulos D. Cancer of the liver and biliary tract. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology. Second Edition*. New York: Oxford University Press, 2008.

68. Melbye M, Smedby K, Trichopoulos D. Non-Hodgkin Lymphoma. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology*. Second ed. Oxford: Oxford University Press, 2008.

69. Cho E, Lindblad P, Adami HO. Kidney Cancer. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology. Second Edition*. New York: Oxford University Press, 2008.

70. Boffetta P, Trichopoulos D. Cancer of the lung, larynx and pleura. In: Adami H, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology*. Second ed. New York: Oxford University Press, 2008.

71. Petridou E, Pourtsidis A, Trichopoulos D. Leukemias. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology*. Second ed. Oxford: Oxford University Press, 2008.

72. Brennan P, Mucci L, Adami HO. Oral and Pharyngeal Cancer. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology* Second ed. Oxford: Oxford University Press, 2008.

73. Chang E, Adami HO. Nasopharyngeal Carcinoma. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology*. Second ed. Oxford: Oxford University Press, 2008.

74. Green A, Van Der Pols J, Hunter D. Skin cancer. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology. Second Edition*. New York: Oxford University Press, 2008.

75. De Roos A, Baris D, Weiss NS, L. H. Multiple Myeloma. In: Schottenfield D, Fraumeni JF, Jr., editors. *Cancer Epidemiology and Prevention*. Third ed. Oxford: Oxford University Press, 2006.

76. Melbye M, Hjalgrim H, Adami HO. Hodgkin Lymphoma. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology*. Second ed. Oxford: Oxford University Press, 2008.

77. Nyren O, Adami HO. Esophageal Cancer. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology*. Second ed. Oxford: Oxford University Press, 2008.

78. Webb P, Gertig D, Hunter D. Ovarian Cancer. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology, Second Edition*. New York: Oxford University Press, 2008.

79. Ekbom A, Trichopoulos D. Pancreatic cancer. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology. Second Edition*. New York: Oxford University Press, 2008.

80. Mucci L, Signorello L, Adami HO. Prostate Cancer. In: Adami HO, Hunter D, Trichopoulos D, editors. *textbook of cancer Epidemiology*. Second ed. Oxford: Oxford University Press, 2008.

81. Nyren O, Adami HO. Stomach Cancer. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology*. Second ed. Oxford: Oxford University Press, 2008.

82. Ministry of Health. Cancer Incidence Projections: 1999–2003 update. Wellington: Ministry of Health, 2008.

83. Richiardi L, Tamimi R, Adami H. Testicular Cancer. In: Adami H, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology*. Second ed. New York: Oxford University Press, 2008.

84. Research. IAoC. GLOBOCAN 2002. Lyon: IARC, 2005.

85. Garner M, Turner M, Ghadirian P, Krewski D. Epidemiology of testicular cancer: an overview. *International Journal of Cancer* 2005;116(3):331-9.

86. Coupland CAC, Forman D, Chilvers CED, Davey G, Pike MC, Oliver RTD. Maternal risk factors for testicular cancer: a population-based case-control study (UK). *Cancer Causes & Control* 2004;15(3):277-83.

87. Grotmol T, Weiderpass E, Tretli S. Conditions in utero and cancer risk. *European Journal of Epidemiology* 2006;21(8):561-70.

88. Weir HK, Marrett LD, Kreiger N, Darlington GA, Sugar L. Pre-natal and peri-natal exposures and risk of testicular germ-cell cancer. *International Journal of Cancer* 2000;87(3):438-43.

89. Hall P, Adami HO. Thyroid Cancer. In: Adami HO, Hunter D, Trichopoulos D, editors. *Textbook of Cancer Epidemiology. Second Edition*. New York: Oxford University Press, 2008.

90. Ministry of Health. Inhaling Inequality - Tobacco's contribution to health inequality in New Zealand. Wellington: Ministry of Health, 2001.

91. Shaw C, Blakely T, Sarfati D, Fawcett J, Peace J. Trends in colorectal cancer mortality by ethnicity and socio-economic position in New Zealand, 1981-99: one country, many stories. *Aust NZ J Public Health* 2006;30(1):64-70.

92. Cox B, Little J. Reduced risk of colorectal cancer among recent generations in New Zealand. *British Journal of Cancer* 1992;66(2):386-90.

93. Ministry of Health. Incidence and Prevalence of PSA Testing in New Zealand Men >50 Years. Unpublished report, 2008.

94. Ministry of Health. Embodying Social Rank: How body fat varies with social status, gender and ethnicity in New Zealand. *Public Health Intelligence Occasional Bulletin*. Wellington: Ministry of Health, 2006.

95. Tobias M, Blakely T, Matheson D, Rasanathan K, Atkinson J. Changing trends in indigenous inequalities in mortality: lessons from New Zealand. *Int. J. Epidemiol.* 2009;38(6):1711-22.

Appendices

Appendix 1: Tables of Rates

This appendix includes tables of all standardised rates that are graphed in figures earlier in the report. The tables also include standardised rates pooled over time, and p values for statistical tests of trend.

Rather than list notes after every table, the following is noted here.

- The standard population used for the age- and ethnicity-standardised rates by income was the World Health Organization world standard, further stratified by ethnic proportions in New Zealand.
- 95 percent confidence intervals are symmetric, except in cases where the lower confidence limit would be less than zero. In these instances, confidence intervals are determined for the log transformation of the rate, then exponentiated.
- 95 percent confidence intervals are shown in parentheses.
- p values for trend assume a linear trend. In instances where non-linear trends are expected (for example for rates that rise then fall) the p for trend is misleading, and cohort-specific confidence intervals should be examined instead.
- p values are only presented when estimates are available for all five cohorts.

Table 75:   Age-standardised rates of first cancer, by ethnic group

1st cancer Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males					
25+ years	1981–1986	555 (512–598)	506 (404–608)	292 (219–365)	507 (499–515)
	1986–1991	554 (515–592)	622 (530–714)	422 (344–501)	527 (519–535)
	1991–1996	684 (644–724)	575 (510–641)	393 (329–457)	625 (617–633)
	1996–2001	752 (717–787)	723 (664–781)	463 (415–512)	708 (700–716)
	2001–2004	759 (722–797)	596 (544–649)	379 (342–415)	721 (712–730)
	% change	37%	18%	30%	42%
	P (trend)	0.02	0.55	0.60	<.01
	Pooled	656 (638–674)	605 (570–640)	390 (362–419)	612 (609–616)
25–44 years	1981–1986	88.3 (71.9–105)	89.9 (61.4–118)	86.6 (41.9–131)	83.8 (78.0–89.5)
	1986–1991	84.5 (68.7–100)	120 (92–148)	79.6 (43.8–115)	84.9 (79.4–90.3)
	1991–1996	105 (89–120)	79.9 (58.8–101)	69.1 (46.1–92.0)	89.9 (84.4–95.5)
	1996–2001	113 (98–128)	89.5 (70.3–109)	95.3 (75.9–115)	94.4 (88.6–100)
	2001–2004	105 (89–120)	56.0 (40.6–71.3)	59.7 (44.1–75.3)	103 (96–110)
	% change	18%	-38%	-31%	23%
	P (trend)	0.11	0.13	0.45	<.01
	Pooled	98.7 (91.7–106)	88.5 (78.0–99.1)	79.0 (65.2–92.8)	90.7 (88.0–93.3)
45–64 years	1981–1986	663 (592–734)	669 (513–825)	325 (191–458)	512 (497–527)
	1986–1991	633 (574–693)	634 (504–763)	413 (290–535)	519 (505–533)
	1991–1996	710 (652–768)	614 (519–709)	370 (278–462)	591 (576–606)
	1996–2001	764 (711–817)	673 (588–758)	429 (358–499)	691 (675–708)
	2001–2004	766 (712–821)	536 (461–610)	388 (333–443)	727 (709–744)
	% change	16%	-20%	19%	42%
	P (trend)	0.04	0.26	0.55	<.01
	Pooled	704 (677–731)	629 (578–681)	385 (339–431)	602 (595–609)

1st cancer Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
65–74 years	1981–1986	1741 (1475–2006)	1621 (975–2268)	1207 (571–1843)	1617 (1571–1663)
	1986–1991	1918 (1657–2179)	2398 (1746–3051)	1114 (610–1618)	1701 (1658–1745)
	1991–1996	2323 (2075–2570)	2258 (1796–2720)	1307 (875–1738)	2095 (2049–2141)
	1996–2001	2549 (2342–2756)	2557 (2193–2922)	1607 (1281–1932)	2488 (2437–2539)
	2001–2004	2857 (2612–3101)	2509 (2114–2903)	1231 (994–1468)	2529 (2467–2591)
	% change	64%	55%	2%	56%
	P (trend)	<.01	0.09	0.86	<.01
	Pooled	2248 (2138–2359)	2257 (2019–2494)	1296 (1088–1504)	2064 (2042–2086)
75+ years	1981–1986	2189 (1731–2648)	1710 (440–2980)	786 (299–1274)	2389 (2316–2462)
	1986–1991	2208 (1779–2637)	2724 (1593–3855)	2423 (1482–3365)	2537 (2471–2604)
	1991–1996	2889 (2446–3332)	2364 (1603–3125)	1913 (1176–2651)	3063 (2994–3132)
	1996–2001	3561 (3157–3965)	3646 (2968–4324)	1934 (1416–2453)	3325 (3258–3393)
	2001–2004	3164 (2750–3578)	2980 (2364–3597)	1762 (1342–2183)	3346 (3266–3426)
	% change	45%	74%	124%	40%
	P (trend)	0.06	0.24	0.22	0.01
	Pooled	2784 (2590–2978)	2670 (2242–3098)	1764 (1464–2064)	2911 (2880–2943)
Females					
25+ years	1981–1986	499 (464–534)	438 (370–506)	266 (205–326)	439 (431–446)
	1986–1991	568 (535–601)	532 (466–598)	333 (274–392)	487 (480–495)
	1991–1996	635 (602–668)	453 (408–499)	327 (281–372)	516 (509–524)
	1996–2001	667 (640–695)	531 (490–571)	425 (387–463)	551 (543–558)
	2001–2004	677 (648–707)	544 (503–586)	367 (338–397)	569 (561–577)
	% change	36%	24%	38%	30%
	P (trend)	0.01	0.17	0.22	<.01
	Pooled	606 (592–620)	497 (473–522)	342 (320–365)	510 (506–513)
25–44 years	1981–1986	171 (149–192)	164 (125–203)	123 (76–170)	155 (147–163)
	1986–1991	183 (162–205)	197 (159–235)	112 (74–151)	173 (165–180)
	1991–1996	184 (165–203)	171 (143–199)	108 (82–134)	159 (151–166)
	1996–2001	190 (173–207)	190 (163–217)	152 (128–175)	171 (163–178)
	2001–2004	173 (157–190)	137 (114–159)	129 (110–148)	173 (164–181)
	% change	2%	-17%	5%	11%
	P (trend)	0.83	0.33	0.45	0.28
	Pooled	181 (172–189)	173 (159–188)	125 (110–140)	166 (162–169)
45–64 years	1981–1986	688 (620–756)	727 (573–880)	347 (220–475)	547 (532–563)
	1986–1991	797 (730–863)	754 (624–883)	429 (314–543)	618 (602–634)
	1991–1996	893 (830–956)	561 (476–647)	483 (387–579)	667 (651–683)
	1996–2001	900 (847–953)	691 (610–771)	550 (477–624)	712 (695–728)
	2001–2004	930 (872–988)	727 (645–808)	465 (411–519)	732 (715–749)
	% change	35%	0%	34%	34%
	P (trend)	0.02	0.78	0.41	<.01
	Pooled	837 (809–865)	690 (639–741)	454 (409–499)	651 (644–658)
65–74 years	1981–1986	1367 (1136–1597)	896 (494–1298)	681 (261–1101)	1058 (1023–1092)
	1986–1991	1586 (1374–1799)	1261 (866–1656)	826 (478–1174)	1201 (1167–1235)
	1991–1996	1514 (1328–1699)	1388 (1088–1688)	637 (379–895)	1279 (1244–1313)
	1996–2001	1827 (1659–1994)	1337 (1097–1578)	963 (743–1184)	1393 (1357–1430)
	2001–2004	1954 (1761–2147)	1558 (1292–1824)	968 (774–1162)	1474 (1429–1519)
	% change	43%	74%	42%	39%
	P (trend)	0.02	0.04	0.14	<.01
	Pooled	1634 (1545–1724)	1274 (1125–1424)	807 (669–946)	1271 (1255–1288)

1st cancer Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
75+ years	1981–1986	1189 (873–1505)	962 (383–1540)	570 (166–974)	1362 (1317–1407)
	1986–1991	1401 (1101–1700)	1527 (804–2249)	764 (359–1170)	1479 (1438–1521)
	1991–1996	1872 (1574–2171)	965 (573–1358)	980 (568–1392)	1660 (1618–1701)
	1996–2001	1734 (1500–1969)	1485 (1127–1843)	1292 (975–1609)	1735 (1694–1775)
	2001–2004	2005 (1708–2302)	1656 (1239–2074)	957 (687–1227)	1820 (1769–1872)
	% change	69%	72%	68%	34%
	P (trend)	0.03	0.15	0.22	<.01
	Pooled	1622 (1492–1752)	1302 (1068–1536)	910 (742–1078)	1601 (1581–1620)

Table 76: Age- and ethnicity-standardised rates of first cancer, by income group

1st cancer Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males				
25+ years	1981–1986	536 (517–555)	535 (487–583)	518 (493–542)
	1986–1991	569 (550–588)	555 (535–575)	523 (500–546)
	1991–1996	644 (624–663)	650 (634–667)	621 (598–644)
	1996–2001	733 (715–752)	740 (722–757)	714 (694–734)
	2001–2004	750 (730–770)	732 (713–752)	707 (688–727)
	% change	40%	37%	37%
	P (trend)	<.01	0.02	0.02
	Pooled	641 (633–650)	638 (626–651)	612 (602–622)
25–44 years	1981–1986	86.2 (74.9–97.4)	79.8 (70.4–89.1)	88.8 (77.9–99.8)
	1986–1991	83.4 (73.7–93.1)	89.2 (79.9–98.4)	91.1 (78.5–104)
	1991–1996	89.7 (79.8–99.6)	92.9 (83.4–102)	88.7 (78.8–98.6)
	1996–2001	111 (100–122)	95.4 (85.4–105)	91.8 (82.5–101)
	2001–2004	101 (88–115)	98.9 (87.4–110)	99.0 (89.3–109)
	% change	18%	24%	11%
	P (trend)	0.11	0.01	0.11
	Pooled	94.0 (89.1–98.9)	90.9 (86.5–95.3)	91.5 (86.7–96.3)
45–64 years	1981–1986	542 (508–577)	538 (505–571)	546 (502–591)
	1986–1991	570 (539–601)	549 (520–577)	513 (476–550)
	1991–1996	678 (647–708)	594 (565–623)	574 (539–608)
	1996–2001	691 (660–721)	723 (691–754)	682 (653–712)
	2001–2004	749 (714–784)	699 (666–732)	707 (679–736)
	% change	38%	30%	29%
	P (trend)	<.01	0.03	0.02
	Pooled	641 (626–655)	617 (603–630)	599 (583–615)
65–74 years	1981–1986	1784 (1656–1912)	1620 (1486–1754)	1526 (1409–1644)
	1986–1991	1831 (1724–1938)	1804 (1672–1936)	1737 (1583–1890)
	1991–1996	2118 (2004–2232)	2229 (2127–2331)	2089 (1950–2227)
	1996–2001	2514 (2412–2617)	2538 (2438–2639)	2539 (2417–2662)
	2001–2004	2653 (2529–2777)	2599 (2471–2728)	2483 (2358–2608)
	% change	49%	60%	63%
	P (trend)	<.01	<.01	<.01
	Pooled	2156 (2105–2208)	2136 (2082–2190)	2054 (1995–2114)

1st cancer Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
75+ years	1981–1986	2414 (2245–2583)	2549 (1969–3128)	2499 (2203–2795)
	1986–1991	2738 (2528–2948)	2699 (2492–2906)	2537 (2267–2806)
	1991–1996	2903 (2694–3112)	3221 (3067–3375)	3171 (2889–3453)
	1996–2001	3545 (3362–3727)	3584 (3417–3750)	3456 (3241–3671)
	2001–2004	3434 (3253–3614)	3548 (3346–3750)	3386 (3152–3620)
	% change	42%	39%	35%
	P (trend)	0.01	0.03	0.03
	Pooled	2985 (2899–3071)	3099 (2957–3240)	2991 (2873–3109)
75–84 years	1981–1986	2433 (2247–2619)	2914 (1608–4220)	2395 (2083–2707)
	1986–1991	2751 (2525–2977)	2775 (2534–3015)	2626 (2321–2931)
	1991–1996	2903 (2673–3133)	3246 (3071–3420)	3150 (2851–3449)
	1996–2001	3621 (3413–3828)	3530 (3352–3707)	3565 (3308–3821)
	2001–2004	3444 (3254–3634)	3513 (3300–3726)	3372 (3116–3628)
	% change	42%	21%	41%
	P (trend)	0.02	0.04	0.03
	Pooled	3010 (2915–3104)	3180 (2894–3465)	3004 (2874–3134)
85+ years	1981–1986	2463 (2096–2831)	2232 (1712–2752)	3386 (2195–4578)
	1986–1991	2728 (2193–3263)	2565 (2207–2924)	2309 (2011–2607)
	1991–1996	3349 (2758–3939)	3325 (2942–3709)	3402 (2453–4352)
	1996–2001	3308 (2880–3736)	3960 (3452–4468)	3266 (2732–3799)
	2001–2004	3309 (2837–3781)	3756 (3221–4291)	3465 (2744–4186)
	% change	34%	68%	2%
	P (trend)	0.02	0.02	0.11
	Pooled	3017 (2799–3236)	3138 (2932–3345)	3151 (2787–3514)
Females				
25+ years	1981–1986	453 (439–467)	457 (438–476)	447 (426–468)
	1986–1991	499 (484–514)	514 (497–530)	520 (499–542)
	1991–1996	547 (532–561)	533 (518–547)	512 (493–531)
	1996–2001	586 (572–600)	563 (549–577)	555 (539–571)
	2001–2004	584 (569–599)	600 (583–617)	581 (564–598)
	% change	29%	31%	30%
	P (trend)	<.01	<.01	0.01
	Pooled	531 (525–538)	530 (523–537)	520 (512–529)
25–44 years	1981–1986	154 (141–167)	166 (152–181)	165 (148–181)
	1986–1991	163 (151–176)	181 (167–194)	181 (163–199)
	1991–1996	153 (141–164)	167 (154–181)	160 (147–174)
	1996–2001	168 (156–179)	181 (168–194)	185 (171–198)
	2001–2004	155 (143–168)	175 (160–189)	171 (158–184)
	% change	1%	5%	4%
	P (trend)	0.79	0.55	0.66
	Pooled	159 (153–164)	174 (168–180)	172 (166–179)
45–64 years	1981–1986	593 (560–625)	574 (539–609)	569 (525–613)
	1986–1991	653 (621–684)	646 (615–678)	672 (627–717)
	1991–1996	735 (706–763)	671 (640–703)	655 (618–691)
	1996–2001	758 (730–787)	710 (680–741)	714 (683–746)
	2001–2004	773 (742–805)	762 (728–796)	745 (713–777)
	% change	30%	33%	31%
	P (trend)	0.01	<.01	0.02
	Pooled	699 (685–713)	668 (654–683)	667 (650–685)

1st cancer Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
65–74 years	1981–1986	1065 (998–1131)	1139 (1012–1266)	1038 (940–1136)
	1986–1991	1234 (1162–1307)	1275 (1187–1363)	1294 (1172–1416)
	1991–1996	1333 (1259–1408)	1343 (1270–1415)	1255 (1147–1363)
	1996–2001	1530 (1456–1605)	1480 (1405–1555)	1282 (1195–1369)
	2001–2004	1590 (1503–1677)	1550 (1455–1644)	1496 (1392–1600)
	% change	49%	36%	44%
	P (trend)	<.01	<.01	0.04
	Pooled	1338 (1305–1372)	1348 (1306–1390)	1262 (1215–1309)
75+ years	1981–1986	1315 (1230–1401)	1431 (1249–1612)	1424 (1229–1620)
	1986–1991	1533 (1411–1654)	1573 (1445–1700)	1588 (1392–1784)
	1991–1996	1694 (1582–1806)	1736 (1637–1835)	1739 (1582–1897)
	1996–2001	1866 (1747–1985)	1682 (1608–1756)	1777 (1654–1899)
	2001–2004	1917 (1801–2033)	1965 (1829–2101)	1951 (1777–2126)
	% change	46%	37%	37%
	P (trend)	<.01	0.09	<.01
	Pooled	1652 (1602–1702)	1663 (1605–1720)	1683 (1606–1760)
75–84 years	1981–1986	1355 (1252–1459)	1520 (1285–1755)	1447 (1228–1667)
	1986–1991	1527 (1399–1656)	1571 (1423–1720)	1680 (1448–1911)
	1991–1996	1736 (1602–1871)	1766 (1649–1883)	1743 (1565–1921)
	1996–2001	1855 (1721–1989)	1719 (1631–1806)	1803 (1663–1943)
	2001–2004	1879 (1752–2006)	1966 (1811–2121)	1918 (1727–2109)
	% change	39%	29%	33%
	P (trend)	<.01	0.08	<.01
	Pooled	1660 (1604–1717)	1696 (1625–1766)	1708 (1620–1796)
85+ years	1981–1986	1358 (1183–1534)	1328 (1113–1543)	1370 (1066–1674)
	1986–1991	1606 (1344–1867)	1605 (1364–1846)	1304 (1065–1543)
	1991–1996	1716 (1483–1949)	1760 (1529–1992)	1817 (1454–2181)
	1996–2001	2012 (1743–2282)	1692 (1529–1856)	1803 (1551–2055)
	2001–2004	2211 (1937–2485)	2089 (1747–2431)	2189 (1734–2644)
	% change	63%	57%	60%
	P (trend)	<.01	0.05	0.03
	Pooled	1759 (1650–1868)	1675 (1570–1781)	1672 (1529–1815)

Table 77: Age-standardised rates of bladder cancer, by ethnic group

Bladder Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	11.0 (4.9–17.0)	28.7 (1.6–55.9)	5.2 (0.7–37.1)	25.1 (23.3–26.8)
	1986–1991	15.5 (9.0–22.0)	8.4 (2.4–30.0)	16.0 (1.7–30.2)	27.7 (26.0–29.4)
	1991–1996	14.2 (8.5–19.9)	23.4 (8.6–38.2)	24.4 (9.0–39.8)	29.7 (28.1–31.4)
	1996–2001	21.2 (14.5–28.0)	13.1 (4.8–21.5)	23.1 (10.9–35.4)	32.5 (30.9–34.2)
	2001–2004	18.7 (12.8–24.6)	8.7 (2.2–15.2)	15.2 (7.6–22.7)	34.0 (32.1–35.9)
	% change	70%	-70%	192%	35%
	P (trend)	0.07	0.48	0.34	<.01
	Pooled	16.0 (13.2–18.8)	16.8 (9.7–24.0)	16.9 (11.2–22.5)	29.6 (28.8–30.4)
Females 25+ years	1981–1986	3.5 (0.8–6.1)	3.1 (0.4–22.2)		7.4 (6.5–8.3)
	1986–1991	6.0 (1.6–10.4)	2.7 (0.4–19.0)	3.2 (0.5–22.7)	7.5 (6.7–8.3)
	1991–1996	5.4 (1.9–9.0)	5.6 (0.2–11.1)	4.7 (1.4–15.7)	8.8 (8.0–9.7)
	1996–2001	6.3 (3.6–9.0)	3.8 (1.4–10.3)	7.1 (1.5–12.7)	9.7 (8.9–10.6)
	2001–2004	8.6 (4.8–12.4)	3.8 (0.0–7.6)	4.2 (0.5–7.9)	9.4 (8.5–10.3)
	% change	146%	23%		27%
	P (trend)	0.02	0.64		0.03
	Pooled	5.8 (4.3–7.4)	3.8 (1.5–6.1)	4.8 (2.4–7.3)	8.8 (8.4–9.2)

Table 78: Age- and ethnicity-standardised rates of bladder cancer, by income group

Bladder Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	24.9 (20.4–29.5)	25.6 (21.1–30.1)	21.9 (17.7–26.1)
	1986–1991	27.3 (23.8–30.8)	25.8 (22.9–28.6)	23.6 (18.1–29.1)
	1991–1996	24.9 (21.4–28.3)	31.4 (27.7–35.1)	25.7 (21.7–29.7)
	1996–2001	32.4 (29.2–35.6)	31.7 (28.1–35.3)	28.0 (24.5–31.6)
	2001–2004	31.9 (28.5–35.4)	33.9 (30.0–37.8)	31.4 (26.9–35.9)
	% change	28%	32%	43%
	P (trend)	0.10	0.02	<.01
	Pooled	28.1 (26.4–29.8)	29.5 (27.8–31.1)	25.9 (23.9–27.8)
Females 25+ years	1981–1986	7.8 (6.1–9.6)	5.2 (3.9–6.6)	5.3 (3.9–6.8)
	1986–1991	7.7 (6.3–9.0)	6.6 (4.6–8.5)	6.3 (4.9–7.7)
	1991–1996	8.9 (7.3–10.6)	8.5 (6.5–10.5)	9.1 (6.4–11.7)
	1996–2001	9.3 (7.6–11.0)	9.5 (7.9–11.0)	8.4 (6.6–10.1)
	2001–2004	9.5 (7.8–11.3)	9.0 (7.3–10.7)	8.9 (6.4–11.4)
	% change	22%	73%	68%
	P (trend)	0.02	0.02	0.02
	Pooled	8.6 (7.9–9.3)	7.7 (6.9–8.5)	7.5 (6.7–8.4)

Table 79: Age-standardised rates of brain cancer, by ethnic group

Brain Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	4.7 (1.7–7.8)	8.6 (0.4–16.8)	4.0 (0.6–28.7)	10.2 (8.9–11.5)
	1986–1991	7.9 (3.7–12.2)	2.4 (0.0–4.7)	4.6 (1.1–19.5)	9.8 (8.7–11.0)
	1991–1996	6.5 (3.6–9.5)	7.0 (1.3–12.7)	6.2 (1.0–11.3)	10.4 (9.3–11.6)
	1996–2001	7.0 (3.8–10.1)	10.4 (4.4–16.4)	8.6 (3.0–14.2)	11.3 (10.2–12.5)
	2001–2004	11.9 (7.4–16.3)	7.0 (2.0–12.0)	8.9 (3.7–14.1)	11.1 (9.8–12.4)
	% change	153%	-19%	123%	9%
	P (trend)	0.12	0.24	<.01	0.08
	Pooled	7.4 (5.8–9.0)	7.1 (4.5–9.7)	6.3 (3.5–9.2)	10.5 (10.0–11.1)
Females 25+ years	1981–1986	2.6 (0.4–4.8)		8.7 (2.7–28.0)	6.3 (5.3–7.2)
	1986–1991	3.4 (1.3–5.6)	6.0 (2.0–17.5)	1.9 (0.3–13.2)	6.6 (5.7–7.6)
	1991–1996	5.5 (2.5–8.4)	2.1 (0.5–8.0)	3.7 (1.1–12.3)	8.4 (7.4–9.5)
	1996–2001	3.3 (1.4–5.2)	5.0 (0.5–9.4)	7.2 (1.9–12.5)	7.1 (6.2–8.1)
	2001–2004	7.3 (4.3–10.4)	6.6 (2.4–10.9)	1.6 (0.5–5.3)	7.0 (6.0–8.1)
	% change	181%		-82%	11%
	P (trend)	0.24		0.52	0.49
	Pooled	4.3 (3.2–5.4)	4.8 (2.7–6.9)	4.8 (2.1–7.5)	7.1 (6.6–7.5)

Table 80: Age- and ethnicity-standardised rates of brain cancer, by income group

Brain Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	8.1 (5.7–10.5)	9.3 (7.1–11.4)	9.4 (7.4–11.4)
	1986–1991	8.6 (6.7–10.4)	8.4 (6.7–10.1)	10.0 (7.5–12.5)
	1991–1996	11.4 (8.9–14.0)	8.4 (6.7–10.2)	9.2 (7.3–11.0)
	1996–2001	11.5 (9.2–13.9)	10.4 (8.4–12.4)	10.9 (8.9–12.8)
	2001–2004	9.1 (6.9–11.3)	11.0 (8.7–13.4)	12.9 (10.4–15.4)
	% change	12%	18%	37%
	P (trend)	0.40	0.20	0.12
	Pooled	9.8 (8.7–10.8)	9.4 (8.5–10.3)	10.4 (9.4–11.3)
25+ years	1981–1986	4.4 (3.2–5.6)	6.9 (4.7–9.0)	4.9 (3.5–6.4)
	1986–1991	5.5 (4.2–6.8)	7.5 (5.5–9.4)	3.9 (2.6–5.1)
	1991–1996	8.0 (6.4–9.5)	8.0 (6.1–9.9)	7.1 (5.0–9.2)
	1996–2001	6.8 (5.2–8.4)	6.1 (4.6–7.7)	6.0 (4.5–7.5)
	2001–2004	8.1 (5.9–10.3)	6.7 (4.8–8.7)	7.0 (5.3–8.7)
	% change	84%	-3%	43%
	P (trend)	0.05	0.44	0.14
	Pooled	6.5 (5.8–7.2)	7.1 (6.2–7.9)	5.7 (5.0–6.5)

Table 81: Age-standardised rates of breast cancer, by ethnic group

Breast Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Females 25+ years	1981–1986	123 (105–140)	112 (79–145)	69.9 (40.5–99.3)	114 (110–118)
	1986–1991	142 (126–157)	146 (115–177)	110 (76–144)	140 (136–144)
	1991–1996	178 (162–194)	106 (86–126)	89.6 (67.5–112)	143 (139–147)
	1996–2001	198 (184–212)	145 (126–165)	117 (99–135)	160 (156–164)
	2001–2004	210 (194–225)	141 (121–161)	126 (110–142)	170 (166–175)
	% change	71%	25%	80%	49%
	P (trend)	<.01	0.38	0.04	<.01
	Pooled	168 (161–175)	129 (118–141)	101 (90–113)	144 (142–146)
25–44 years	1981–1986	38.9 (28.6–49.3)	58.3 (35.5–81.2)	56.0 (22.7–89.3)	47.1 (42.9–51.3)
	1986–1991	66.8 (53.3–80.3)	79.2 (53.6–105)	20.5 (6.3–34.7)	57.3 (53.0–61.6)
	1991–1996	71.5 (59.0–84.0)	68.3 (49.1–87.5)	49.3 (32.2–66.3)	54.5 (50.4–58.6)
	1996–2001	75.8 (65.0–86.7)	63.8 (48.1–79.5)	55.7 (42.0–69.4)	57.5 (53.3–61.6)
	2001–2004	66.1 (56.1–76.1)	45.5 (32.3–58.7)	55.2 (43.1–67.2)	59.0 (54.8–63.3)
	% change	70%	-22%	-1%	25%
	P (trend)	0.16	0.22	0.17	0.10
	Pooled	63.7 (58.5–68.9)	63.9 (54.8–73.0)	46.9 (37.9–56.0)	54.9 (53.0–56.8)
45–64 years	1981–1986	179 (147–211)	184 (112–255)	84.5 (19.1–150)	171 (163–180)
	1986–1991	237 (202–273)	281 (197–365)	167 (98–235)	219 (209–229)
	1991–1996	285 (250–321)	145 (102–188)	133 (86–180)	226 (217–235)
	1996–2001	321 (289–352)	240 (193–288)	193 (151–236)	265 (255–275)
	2001–2004	341 (307–375)	236 (191–281)	199 (165–233)	285 (275–296)
	% change	91%	29%	136%	67%
	P (trend)	<.01	0.51	0.05	<.01
	Pooled	269 (254–284)	216 (189–244)	153 (128–178)	231 (226–235)
65+ years	1981–1986	276 (192–360)	152 (28–277)	91.1 (1.1–181)	232 (220–244)
	1986–1991	227 (166–287)	192 (71–313)	287 (110–464)	280 (267–292)
	1991–1996	343 (273–413)	212 (122–301)	113 (43–183)	282 (270–294)
	1996–2001	365 (307–423)	264 (177–352)	180 (108–252)	303 (291–316)
	2001–2004	430 (357–504)	284 (188–380)	230 (150–310)	326 (309–342)
	% change	56%	87%	153%	40%
	P (trend)	0.04	<.01	0.19	0.01
	Pooled	323 (292–354)	218 (170–265)	178 (129–226)	282 (277–288)

Table 82: Age- and ethnicity-standardised rates of breast cancer, by income group

Breast Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Females 25+ years	1981–1986	114 (107–121)	122 (112–132)	122 (111–134)
	1986–1991	126 (119–133)	149 (141–158)	158 (147–170)
	1991–1996	139 (132–147)	152 (144–159)	141 (133–150)
	1996–2001	162 (155–170)	165 (157–172)	177 (169–186)
	2001–2004	167 (159–174)	181 (171–190)	188 (179–197)
	% change	47%	48%	54%
	P (trend)	<.01	<.01	0.04
	Pooled	140 (137–143)	152 (148–156)	156 (151–160)
25–44 years	1981–1986	46.7 (39.2–54.2)	47.7 (40.0–55.4)	51.4 (42.7–60.1)
	1986–1991	55.7 (48.3–63.2)	60.2 (52.6–67.8)	61.2 (50.7–71.7)
	1991–1996	53.0 (46.3–59.7)	59.3 (51.4–67.2)	61.8 (52.9–70.6)
	1996–2001	56.5 (50.0–63.0)	64.8 (57.0–72.6)	67.7 (59.5–75.8)
	2001–2004	54.6 (47.8–61.5)	61.4 (53.7–69.1)	64.1 (57.1–71.2)
	% change	17%	29%	25%
	P (trend)	0.21	0.12	0.08
	Pooled	53.2 (50.1–56.4)	58.5 (55.1–62.0)	61.1 (57.1–65.1)
45–64 years	1981–1986	164 (148–179)	188 (167–208)	177 (156–198)
	1986–1991	198 (181–216)	228 (209–248)	274 (244–305)
	1991–1996	224 (207–240)	230 (211–248)	231 (211–251)
	1996–2001	267 (250–285)	264 (246–282)	297 (277–318)
	2001–2004	284 (265–303)	289 (268–310)	307 (287–328)
	% change	74%	54%	74%
	P (trend)	<.01	<.01	0.04
	Pooled	225 (217–232)	237 (228–246)	255 (245–265)
65–74 years	1981–1986	218 (188–248)	221 (186–257)	221 (174–268)
	1986–1991	243 (213–273)	302 (264–339)	263 (228–297)
	1991–1996	254 (221–287)	304 (271–338)	245 (209–281)
	1996–2001	314 (280–347)	319 (285–354)	288 (246–330)
	2001–2004	335 (293–376)	341 (299–383)	396 (343–450)
	% change	54%	54%	79%
	P (trend)	<.01	0.04	0.09
	Pooled	269 (255–284)	295 (279–312)	277 (258–296)
75+ years	1981–1986	251 (217–285)	334 (208–461)	331 (200–462)
	1986–1991	267 (225–308)	304 (255–354)	317 (222–412)
	1991–1996	297 (251–344)	326 (284–367)	281 (228–335)
	1996–2001	316 (269–364)	280 (251–309)	339 (286–393)
	2001–2004	320 (272–368)	352 (297–407)	362 (267–458)
	% change	28%	5%	9%
	P (trend)	<.01	0.96	0.35
	Pooled	289 (269–308)	317 (286–349)	324 (284–365)

Table 83: Age-standardised rates of cervical cancer, by ethnic group

Cervix Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Females 25+ years	1981–1986	56.4 (46.2–66.6)	41.2 (22.8–59.5)	17.2 (3.5–30.9)	18.6 (16.9–20.2)
	1986–1991	42.3 (34.6–50.0)	51.8 (30.1–73.6)	20.5 (7.2–33.9)	18.6 (17.0–20.1)
	1991–1996	40.6 (33.9–47.3)	34.0 (23.1–44.9)	14.5 (4.8–24.3)	16.2 (14.8–17.6)
	1996–2001	32.8 (27.6–38.1)	18.3 (11.2–25.4)	19.0 (11.5–26.5)	14.4 (13.1–15.7)
	2001–2004	23.6 (18.3–28.9)	15.0 (8.9–21.1)	17.9 (12.0–23.8)	11.2 (9.7–12.7)
	% change	-58%	-64%	4%	-40%
	P (trend)	<.01	0.03	0.85	<.01
	Pooled	39.9 (36.6–43.3)	32.9 (26.3–39.6)	17.8 (13.0–22.7)	16.0 (15.4–16.7)
25–44 years	1981–1986	45.4 (34.6–56.2)	23.0 (7.4–38.6)	15.3 (5.2–45.1)	16.6 (14.3–19.0)
	1986–1991	30.8 (22.8–38.9)	28.7 (12.8–44.6)	3.8 (0.9–15.5)	18.0 (15.8–20.3)
	1991–1996	29.1 (22.1–36.2)	19.7 (9.2–30.1)	8.1 (1.3–15.0)	14.3 (12.2–16.3)
	1996–2001	30.1 (22.8–37.3)	9.6 (4.1–15.2)	14.6 (6.5–22.8)	14.6 (12.5–16.7)
	2001–2004	16.9 (12.0–21.9)	9.2 (3.7–14.7)	11.3 (5.9–16.7)	11.8 (9.5–14.2)
	% change	-63%	-60%	-26%	-29%
	P (trend)	0.03	0.05	0.22	0.06
	Pooled	31.1 (27.5–34.8)	18.5 (13.1–23.8)	10.6 (6.2–15.0)	15.2 (14.2–16.2)
45–64 years	1981–1986	72.8 (52.1–93.5)	100 (37.9–162)	26.2 (5.4–127)	21.4 (18.3–24.5)
	1986–1991	64.6 (47.0–82.3)	50.5 (19.2–81.9)	44.6 (9.2–80.0)	19.7 (16.7–22.6)
	1991–1996	58.6 (44.0–73.2)	56.6 (30.6–82.6)	20.3 (0.4–40.2)	19.5 (16.8–22.1)
	1996–2001	46.2 (34.6–57.7)	22.8 (9.5–36.1)	23.3 (10.1–36.5)	15.0 (12.6–17.4)
	2001–2004	27.0 (16.5–37.5)	18.8 (6.7–30.9)	21.9 (10.3–33.5)	10.6 (8.4–12.9)
	% change	-63%	-81%	-16%	-50%
	P (trend)	<.01	0.05	0.40	0.01
	Pooled	55.2 (48.1–62.3)	51.3 (35.3–67.3)	27.5 (14.9–40.1)	17.6 (16.3–18.8)
65+ years	1981–1986	82.9 (33.6–132)	19.0 (2.7–135)	19.0 (2.7–135)	20.2 (16.6–23.8)
	1986–1991	45.2 (12.4–77.9)	156 (44–267)	14.0 (2.0–99.5)	20.5 (17.1–23.9)
	1991–1996	46.4 (23.3–69.6)	45.1 (4.0–86.1)	12.0 (1.7–84.9)	18.2 (15.1–21.3)
	1996–2001	19.1 (7.5–30.7)	30.5 (3.8–57.2)	25.0 (7.3–85.2)	15.4 (12.4–18.3)
	2001–2004	33.7 (13.1–54.3)	18.2 (0.3–36.1)	51.9 (8.2–95.7)	9.8 (7.1–12.5)
	% change	-59%	-4%	173%	-51%
	P (trend)	0.22	0.62	0.23	0.02
	Pooled	46.0 (32.1–60.0)	55.5 (28.5–82.4)	23.0 (8.6–37.4)	17.2 (15.7–18.6)

Table 84: Age-standardised rates of cervical cancer, by income group

Cervix Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Females 25+ years	1981–1986	29.1 (24.9–33.3)	24.4 (19.7–29.0)	20.8 (15.7–26.0)
	1986–1991	28.5 (23.6–33.5)	22.3 (18.1–26.5)	23.2 (17.5–28.9)
	1991–1996	23.5 (20.6–26.3)	19.7 (16.5–22.8)	14.8 (11.3–18.3)
	1996–2001	19.9 (17.3–22.5)	17.0 (14.4–19.7)	14.2 (11.3–17.1)
	2001–2004	13.2 (10.7–15.8)	13.6 (10.7–16.5)	11.9 (9.3–14.5)
	% change	-55%	-44%	-43%
	P (trend)	<.01	<.01	0.03
	Pooled	23.3 (21.7–25.0)	19.7 (18.0–21.3)	17.2 (15.3–19.2)
25–44 years	1981–1986	24.4 (19.2–29.7)	18.4 (14.2–22.6)	19.3 (11.8–26.9)
	1986–1991	22.7 (18.2–27.1)	19.8 (15.5–24.1)	18.5 (10.1–26.8)
	1991–1996	18.6 (14.9–22.2)	17.3 (13.1–21.6)	10.9 (7.4–14.4)
	1996–2001	19.1 (15.2–22.9)	19.1 (14.6–23.5)	14.9 (10.6–19.2)
	2001–2004	9.5 (6.8–12.3)	15.0 (10.6–19.3)	12.7 (8.9–16.6)
	% change	-61%	-18%	-34%
	P (trend)	0.02	0.25	0.50
	Pooled	19.3 (17.5–21.2)	18.1 (16.1–20.0)	15.4 (12.7–18.1)
45–64 years	1981–1986	39.4 (29.0–49.8)	27.6 (18.7–36.5)	33.3 (17.2–49.4)
	1986–1991	34.3 (26.2–42.4)	24.0 (17.7–30.3)	27.4 (16.4–38.5)
	1991–1996	30.9 (25.3–36.6)	23.7 (17.4–30.0)	22.3 (13.3–31.3)
	1996–2001	25.9 (20.6–31.3)	17.6 (12.7–22.6)	14.5 (9.4–19.7)
	2001–2004	16.6 (11.2–21.9)	13.2 (6.6–19.7)	11.4 (7.4–15.4)
	% change	-58%	-52%	-66%
	P (trend)	<.01	<.01	<.01
	Pooled	30.1 (26.7–33.4)	21.6 (18.6–24.6)	22.3 (17.6–27.0)
65–74 years	1981–1986	43.3 (23.5–63.1)	48.9 (14.9–82.8)	15.3 (7.8–22.8)
	1986–1991	40.0 (21.9–58.2)	44.6 (6.6–82.7)	43.9 (6.9–81.0)
	1991–1996	32.6 (20.8–44.4)	25.7 (15.7–35.6)	26.0 (5.2–46.8)
	1996–2001	12.5 (7.3–17.7)	18.2 (10.9–25.6)	15.9 (4.2–27.5)
	2001–2004	17.7 (8.2–27.1)	13.4 (4.7–22.0)	11.5 (3.5–19.4)
	% change	-59%	-73%	-25%
	P (trend)	0.11	0.01	0.57
	Pooled	29.8 (23.4–36.2)	31.0 (19.9–42.1)	23.1 (13.6–32.5)
75+ years	1981–1986	17.5 (10.3–24.8)	34.4 (9.4–126)	16.5 (6.4–26.6)
	1986–1991	42.2 (14.6–121)	19.8 (8.3–31.3)	23.9 (3.7–44.2)
	1991–1996	10.5 (3.9–17.1)	11.8 (7.0–16.7)	7.1 (1.8–12.4)
	1996–2001	18.3 (4.4–32.2)	12.3 (7.9–16.7)	14.7 (5.9–23.4)
	2001–2004	24.8 (5.5–44.1)	9.6 (3.6–15.6)	1.7 (0.4–7.0)
	% change	42%	-72%	-90%
	P (trend)	0.84	0.18	0.08
	Pooled	22.6 (12.1–33.0)	18.0 (8.1–27.8)	13.3 (8.1–18.6)

Table 85: Age-standardised rates of colorectal cancer, by ethnic group

Colorectal Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	43.3 (31.6–55.0)	31.1 (11.9–50.3)	67.7 (32.3–103)	90.6 (87.2–93.9)
	1986–1991	48.9 (38.2–59.6)	32.9 (9.4–56.5)	69.9 (39.8–100)	96.0 (92.8–99.2)
	1991–1996	59.1 (48.2–70.1)	59.5 (38.2–80.9)	80.6 (48.4–113)	103 (100–106)
	1996–2001	78.0 (66.2–89.9)	56.6 (41.7–71.4)	63.8 (46.0–81.6)	103 (100–107)
	2001–2004	75.0 (63.5–86.5)	36.9 (23.2–50.6)	51.7 (37.8–65.6)	103 (100–106)
	% change	73%	19%	-24%	14%
	P (trend)	0.01	0.67	0.11	0.05
	Pooled	60.2 (55.1–65.2)	43.7 (35.0–52.4)	67.5 (54.9–80.1)	99.1 (97.6–101)
25–64 years	1981–1986	20.4 (12.9–27.9)	30.6 (10.9–50.3)	29.6 (8.0–51.3)	51.3 (48.3–54.4)
	1986–1991	35.4 (25.9–44.9)	13.8 (4.3–23.3)	41.8 (18.6–65.1)	57.4 (54.3–60.5)
	1991–1996	32.0 (24.7–39.4)	30.5 (18.1–43.0)	39.3 (17.0–61.6)	57.6 (54.5–60.6)
	1996–2001	39.2 (31.5–46.8)	39.2 (23.7–54.7)	35.1 (21.3–48.9)	55.7 (52.6–58.7)
	2001–2004	38.8 (30.7–46.9)	12.9 (5.2–20.6)	20.5 (11.8–29.1)	47.9 (45.0–50.8)
	% change	90%	-58%	-31%	-7%
	P (trend)	0.05	0.69	0.18	0.58
	Pooled	32.9 (29.3–36.5)	26.0 (19.7–32.4)	33.9 (25.1–42.7)	54.3 (52.9–55.6)
65+ years	1981–1986	188 (114–261)	23.9 (3.4–169)	257 (70–445)	320 (304–337)
	1986–1991	135 (85–184)	158 (3–314)	227 (76–379)	331 (316–346)
	1991–1996	220 (158–281)	249 (119–379)	319 (147–491)	382 (367–397)
	1996–2001	294 (232–357)	179 (109–248)	240 (139–340)	395 (380–411)
	2001–2004	317 (247–386)	174 (88–259)	229 (145–312)	431 (412–449)
	% change	69%	626%	-11%	34%
	P (trend)	0.05	0.05	0.53	<.01
	Pooled	226 (198–255)	156 (108–204)	256 (189–323)	369 (362–376)
Females 25+ years	1981–1986	34.3 (25.0–43.7)	44.5 (21.9–67.0)	34.0 (11.0–57.0)	79.4 (76.5–82.3)
	1986–1991	38.5 (29.6–47.5)	29.8 (12.7–46.9)	28.8 (10.4–47.2)	81.3 (78.5–84.1)
	1991–1996	49.1 (39.1–59.2)	38.6 (24.0–53.2)	37.3 (20.7–54.0)	84.1 (81.4–86.8)
	1996–2001	47.6 (39.9–55.4)	37.8 (26.3–49.4)	60.2 (44.9–75.5)	84.1 (81.4–86.7)
	2001–2004	45.3 (37.4–53.3)	43.2 (31.0–55.4)	43.9 (32.8–55.0)	84.9 (82.0–87.8)
	% change	32%	-3%	29%	7%
	P (trend)	0.12	0.46	0.31	0.02
	Pooled	42.8 (38.8–46.9)	38.6 (31.2–45.9)	40.7 (32.7–48.7)	82.7 (81.4–83.9)
25–64 years	1981–1986	25.1 (16.0–34.2)	22.5 (6.2–38.9)	10.6 (3.4–33.6)	48.3 (45.5–51.2)
	1986–1991	24.7 (16.9–32.6)	11.3 (2.0–20.6)	18.2 (0.2–36.3)	48.6 (45.7–51.4)
	1991–1996	26.7 (19.8–33.5)	24.5 (13.2–35.7)	23.9 (10.0–37.8)	49.8 (47.0–52.6)
	1996–2001	27.2 (21.2–33.2)	17.7 (9.9–25.5)	33.4 (21.1–45.7)	47.4 (44.7–50.1)
	2001–2004	31.6 (24.8–38.5)	21.8 (12.4–31.1)	23.2 (15.9–30.6)	42.3 (39.6–45.1)
	% change	26%	-3%	119%	-12%
	P (trend)	0.05	0.52	0.22	0.17
	Pooled	26.8 (23.5–30.2)	19.4 (14.3–24.6)	21.8 (15.7–27.9)	47.5 (46.3–48.8)
65+ years	1981–1986	112 (60–165)	217 (60–374)	173 (7–338)	259 (247–272)
	1986–1991	131 (84–178)	116 (30–203)	86.1 (10.3–162)	270 (259–282)
	1991–1996	164 (114–215)	134 (41–226)	112 (30–194)	290 (278–301)
	1996–2001	173 (131–214)	154 (89–218)	213 (134–293)	306 (294–318)
	2001–2004	121 (85–157)	179 (108–250)	149 (91–207)	345 (329–361)
	% change	8%	-18%	-14%	33%
	P (trend)	0.80	0.50	0.39	<.01
	Pooled	141 (120–162)	159 (113–205)	146 (100–192)	291 (286–297)

Table 86: Age- and ethnicity-standardised rates of colorectal cancer, by income group

Colorectal Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	79.9 (73.9–85.9)	80.0 (73.5–86.6)	86.6 (76.9–96.3)
	1986–1991	86.4 (80.5–92.2)	94.6 (86.6–103)	88.5 (81.6–95.5)
	1991–1996	97.4 (90.5–104)	96.1 (90.6–102)	92.0 (85.9–98.1)
	1996–2001	92.1 (86.2–97.9)	104 (98–110)	103 (96–110)
	2001–2004	102 (96–108)	93.3 (87.1–99.5)	96.6 (89.6–104)
	% change	28%	17%	12%
	P (trend)	0.03	0.23	0.11
	Pooled	91.0 (88.2–93.8)	93.7 (90.7–96.6)	93.2 (89.8–96.6)
25–44 years	1981–1986	7.6 (4.4–10.9)	7.9 (4.5–11.3)	10.1 (6.4–13.8)
	1986–1991	7.5 (4.5–10.5)	6.9 (4.4–9.4)	7.4 (4.4–10.5)
	1991–1996	6.5 (4.0–9.1)	7.8 (4.9–10.7)	6.6 (4.2–9.0)
	1996–2001	9.1 (5.9–12.3)	8.2 (5.4–11.1)	8.5 (5.6–11.4)
	2001–2004	4.6 (2.3–6.9)	6.8 (4.2–9.4)	10.9 (7.4–14.5)
	% change	-39%	-14%	8%
	P (trend)	0.32	0.79	0.68
	Pooled	7.2 (5.9–8.5)	7.6 (6.3–8.9)	8.6 (7.2–10.0)
45–64 years	1981–1986	99.6 (85.6–114)	104 (90–119)	98.6 (81.4–116)
	1986–1991	113 (100–126)	115 (103–127)	112 (98–126)
	1991–1996	119 (107–131)	109 (98–120)	110 (98–123)
	1996–2001	100 (88–113)	111 (99–122)	114 (102–125)
	2001–2004	104 (91–117)	90.2 (78.5–102)	85.0 (75.3–94.7)
	% change	5%	-13%	-14%
	P (trend)	0.85	0.29	0.34
	Pooled	107 (102–113)	107 (101–112)	105 (99–111)
65–74 years	1981–1986	257 (222–292)	278 (233–323)	263 (218–309)
	1986–1991	243 (215–270)	307 (242–372)	284 (242–326)
	1991–1996	362 (318–407)	352 (313–392)	309 (269–349)
	1996–2001	324 (290–358)	394 (359–429)	398 (347–449)
	2001–2004	414 (369–460)	362 (317–407)	370 (321–418)
	% change	61%	30%	40%
	P (trend)	0.06	0.06	0.03
	Pooled	315 (299–332)	337 (316–359)	322 (302–343)
75+ years	1981–1986	326 (285–366)	298 (250–346)	398 (315–481)
	1986–1991	367 (319–414)	415 (348–482)	362 (289–435)
	1991–1996	309 (254–364)	406 (369–443)	380 (338–422)
	1996–2001	411 (358–463)	451 (396–506)	415 (351–480)
	2001–2004	493 (435–550)	442 (388–495)	533 (434–631)
	% change	51%	48%	34%
	P (trend)	0.09	0.05	0.22
	Pooled	375 (353–398)	400 (376–424)	412 (379–444)
Females 25+ years	1981–1986	71.1 (66.3–75.8)	76.5 (69.9–83.1)	72.3 (65.0–79.6)
	1986–1991	72.4 (67.4–77.4)	74.9 (69.6–80.1)	75.0 (68.3–81.7)
	1991–1996	82.5 (77.0–88.0)	77.5 (72.8–82.2)	75.4 (69.1–81.7)
	1996–2001	77.2 (72.6–81.8)	77.8 (73.3–82.3)	78.3 (72.7–83.9)
	2001–2004	76.3 (71.6–81.0)	81.0 (75.4–86.6)	79.0 (73.1–84.9)
	% change	7%	6%	9%
	P (trend)	0.31	0.07	<.01
	Pooled	75.9 (73.7–78.1)	77.4 (75.0–79.8)	75.9 (73.0–78.7)

Colorectal Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
25–44 years	1981–1986	9.8 (6.5–13.2)	15.3 (10.3–20.4)	12.1 (7.9–16.2)
	1986–1991	9.0 (5.7–12.2)	13.9 (9.8–18.0)	10.8 (7.0–14.6)
	1991–1996	6.4 (4.0–8.9)	5.0 (2.9–7.0)	6.7 (4.3–9.1)
	1996–2001	7.9 (5.5–10.3)	5.2 (3.2–7.3)	8.4 (5.3–11.4)
	2001–2004	7.9 (5.3–10.5)	5.7 (2.4–9.1)	8.3 (5.6–11.1)
	% change	-19%	-63%	-31%
	P (trend)	0.42	0.18	0.35
	Pooled	8.2 (6.9–9.5)	9.2 (7.6–10.8)	9.3 (7.8–10.8)
45–64 years	1981–1986	94.4 (82.0–107)	89.1 (76.3–102)	83.2 (71.9–94.5)
	1986–1991	89.1 (78.2–100)	85.5 (76.4–94.7)	86.3 (73.3–99.4)
	1991–1996	98.9 (89.1–109)	99.9 (88.9–111)	91.7 (79.3–104)
	1996–2001	88.5 (78.9–98.0)	93.8 (83.6–104)	85.4 (75.6–95.2)
	2001–2004	78.7 (68.8–88.6)	82.9 (72.2–93.6)	80.2 (70.4–90.0)
	% change	-17%	-7%	-4%
	P (trend)	0.22	0.92	0.59
	Pooled	90.5 (85.7–95.3)	90.6 (85.7–95.5)	85.6 (80.5–90.8)
65–74 years	1981–1986	191 (166–216)	252 (196–309)	218 (171–265)
	1986–1991	198 (171–226)	221 (194–248)	202 (172–231)
	1991–1996	251 (220–282)	230 (204–256)	238 (188–287)
	1996–2001	267 (237–296)	255 (227–282)	267 (226–308)
	2001–2004	280 (248–312)	290 (255–326)	285 (241–328)
	% change	47%	15%	30%
	P (trend)	<.01	0.10	0.03
	Pooled	235 (222–248)	248 (231–264)	240 (221–259)
75+ years	1981–1986	288 (259–317)	300 (245–355)	354 (266–443)
	1986–1991	334 (284–384)	311 (271–352)	346 (270–422)
	1991–1996	368 (315–422)	340 (305–374)	321 (276–367)
	1996–2001	325 (284–365)	351 (319–383)	346 (302–391)
	2001–2004	359 (322–395)	383 (337–429)	399 (338–460)
	% change	25%	28%	13%
	P (trend)	0.10	<.01	0.34
	Pooled	334 (314–353)	335 (316–353)	351 (321–381)

Table 87: Age-standardised rates of endometrial cancer, by ethnic group

Endometrium Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Females 25+ years	1981–1986	29.5 (21.7–37.2)	37.5 (17.3–57.6)	15.4 (5.5–42.8)	19.1 (17.7–20.6)
	1986–1991	28.9 (21.3–36.4)	47.7 (28.3–67.2)	21.2 (6.3–36.2)	16.3 (15.1–17.6)
	1991–1996	28.0 (21.4–34.7)	35.7 (23.8–47.6)	16.7 (7.1–26.4)	16.7 (15.5–18.0)
	1996–2001	31.7 (25.6–37.9)	48.2 (36.2–60.3)	20.5 (12.4–28.6)	19.1 (17.8–20.4)
	2001–2004	30.7 (24.6–36.8)	69.7 (55.1–84.2)	22.9 (15.7–30.1)	18.5 (17.1–19.8)
	% change	4%	86%	49%	-3%
	P (trend)	0.30	0.15	0.10	0.67
	Pooled	29.7 (26.6–32.8)	46.7 (39.4–53.9)	19.2 (13.8–24.6)	17.9 (17.3–18.5)

Table 88: Age- and ethnicity-standardised rates of endometrial cancer, by income group

Endometrium Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Females 25+ years	1981–1986	20.9 (17.7–24.0)	21.5 (17.8–25.3)	24.8 (18.7–31.0)
	1986–1991	19.2 (16.5–22.0)	22.2 (17.9–26.5)	16.7 (13.2–20.1)
	1991–1996	19.5 (16.9–22.1)	19.3 (16.3–22.2)	19.4 (15.6–23.3)
	1996–2001	23.4 (20.5–26.3)	22.1 (19.1–25.1)	21.5 (18.3–24.7)
	2001–2004	24.4 (21.4–27.4)	24.3 (20.6–27.9)	21.1 (17.8–24.5)
	% change	17%	13%	-15%
	P (trend)	0.14	0.43	0.59
	Pooled	21.3 (20.0–22.6)	21.8 (20.2–23.4)	20.7 (18.8–22.6)

Table 89: Age-standardised rates of gallbladder and bile duct cancer, by ethnic group

Gallbladder Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	3.6 (0.3–6.8)		11.7 (2.8–48.4)	3.0 (2.4–3.7)
	1986–1991	3.5 (1.0–12.4)	5.1 (1.6–16.7)	4.3 (0.6–30.8)	2.2 (1.7–2.7)
	1991–1996	4.9 (1.7–8.1)		1.0 (0.2–3.9)	2.9 (2.4–3.4)
	1996–2001	3.4 (0.9–5.9)	2.8 (0.8–9.4)	1.6 (0.5–5.3)	2.4 (1.9–2.8)
	2001–2004	2.5 (0.6–4.5)	7.0 (1.7–12.2)	3.4 (0.3–6.5)	2.7 (2.2–3.2)
	% change	-31%		-71%	-10%
	P (trend)	0.26		0.48	0.96
	Pooled	3.6 (2.2–5.1)	4.8 (2.6–7.0)	4.5 (0.5–8.4)	2.6 (2.4–2.9)
Females 25+ years	1981–1986	2.7 (0.3–5.1)		4.2 (0.6–29.6)	3.3 (2.7–3.9)
	1986–1991	1.6 (0.5–5.0)			3.0 (2.5–3.5)
	1991–1996	3.6 (1.0–6.2)	4.2 (1.5–12.1)	1.4 (0.2–10.1)	3.5 (3.0–4.0)
	1996–2001	3.9 (1.7–6.1)	3.2 (1.0–10.2)	4.1 (0.3–8.0)	2.7 (2.2–3.2)
	2001–2004	5.4 (2.1–8.7)	5.8 (1.2–10.5)	6.3 (2.0–10.5)	3.4 (2.8–4.0)
	% change	100%		50%	3%
	P (trend)	0.09			0.89
	Pooled	3.3 (2.3–4.4)	4.3 (2.4–6.1)	3.9 (1.5–6.2)	3.2 (3.0–3.5)

Table 90: Age- and ethnicity-standardised rates of gallbladder and bile duct cancer, by income group

Gallbladder Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	3.1 (1.7–4.6)	2.7 (1.6–3.8)	3.2 (1.6–4.8)
	1986–1991	2.4 (0.7–4.1)	2.4 (1.3–3.5)	3.3 (1.4–5.2)
	1991–1996	3.1 (1.9–4.2)	3.4 (2.2–4.7)	2.2 (1.4–2.9)
	1996–2001	3.0 (1.8–4.3)	2.1 (1.2–3.1)	2.2 (1.4–2.9)
	2001–2004	3.1 (1.8–4.4)	3.7 (2.2–5.1)	2.7 (1.8–3.6)
	% change	0%	37%	-16%
	P (trend)	0.63	0.79	0.60
	Pooled	2.9 (2.3–3.6)	2.8 (2.3–3.3)	2.7 (2.1–3.3)
Females 25+ years	1981–1986	3.2 (2.3–4.1)	3.3 (1.6–5.1)	2.8 (1.8–3.8)
	1986–1991	3.4 (2.4–4.5)	2.3 (1.6–2.9)	2.6 (1.6–3.6)
	1991–1996	3.4 (2.4–4.5)	4.4 (3.0–5.8)	2.9 (1.7–4.2)
	1996–2001	2.9 (2.0–3.9)	3.0 (2.1–4.0)	1.7 (1.0–2.4)
	2001–2004	4.7 (3.2–6.2)	4.3 (2.7–5.9)	3.8 (2.3–5.2)
	% change	47%	30%	36%
	P (trend)	0.57	0.32	0.69
	Pooled	3.5 (3.0–3.9)	3.4 (2.8–4.0)	2.7 (2.2–3.2)

Table 91: Age-standardised rates of Hodgkin's disease, by ethnic group

Hodgkin's Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	3.8 (1.0–6.6)	1.1 (0.2–8.0)	6.7 (1.5–29.2)	3.7 (2.9–4.4)
	1986–1991	1.1 (0.4–3.5)	3.3 (1.2–8.9)	1.0 (0.1–7.4)	3.1 (2.4–3.8)
	1991–1996	3.1 (1.1–5.0)		1.5 (0.3–6.9)	2.5 (1.8–3.1)
	1996–2001	2.5 (0.7–4.2)	2.4 (0.6–9.8)	2.1 (0.6–7.1)	2.6 (2.0–3.2)
	2001–2004	3.5 (1.0–5.9)	0.5 (0.1–3.7)	3.2 (0.2–6.1)	4.1 (3.2–5.1)
	% change	-8%	-55%	-52%	11%
	P (trend)	0.46		0.28	0.74
	Pooled	2.8 (1.8–3.7)	1.9 (0.7–3.1)	2.9 (0.6–5.2)	3.2 (2.8–3.5)
Females 25+ years	1981–1986	1.4 (0.3–5.5)	0.8 (0.1–5.4)		2.9 (2.1–3.6)
	1986–1991	1.5 (0.4–5.1)		2.8 (0.4–19.6)	1.8 (1.2–2.3)
	1991–1996	0.5 (0.1–2.1)	1.1 (0.2–7.7)	2.1 (0.3–15.1)	1.6 (1.1–2.1)
	1996–2001	1.2 (0.3–2.1)	1.3 (0.3–5.3)	3.7 (1.1–12.2)	2.1 (1.5–2.7)
	2001–2004	2.2 (0.7–3.7)	2.9 (0.1–5.6)	2.7 (0.1–5.3)	2.7 (1.8–3.7)
	% change	57%	263%		-7%
	P (trend)	0.50			0.89
	Pooled	1.3 (0.7–2.0)	1.4 (0.5–2.3)	2.8 (0.9–4.8)	2.0 (1.7–2.3)

Table 92: Age- and ethnicity-standardised rates of Hodgkin's disease, by income group

Hodgkin's Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	2.5 (1.2–3.8)	2.8 (1.7–3.9)	3.8 (2.0–5.5)
	1986–1991	4.2 (2.6–5.8)	2.2 (1.3–3.1)	2.9 (1.8–4.0)
	1991–1996	1.6 (0.6–2.6)	2.4 (1.4–3.4)	2.7 (1.4–4.1)
	1996–2001	3.1 (1.8–4.4)	2.9 (1.8–4.0)	2.2 (1.3–3.2)
	2001–2004	4.9 (2.6–7.2)	2.7 (1.4–4.0)	4.7 (3.0–6.3)
	% change	96%	-4%	24%
	P (trend)	0.74	0.63	0.98
	Pooled	3.2 (2.5–3.8)	2.6 (2.1–3.1)	3.2 (2.6–3.8)
Females 25+ years	1981–1986	3.0 (1.6–4.4)	2.3 (1.4–3.3)	2.6 (1.4–3.8)
	1986–1991	1.4 (0.7–2.0)	1.4 (0.7–2.0)	2.9 (0.9–4.9)
	1991–1996	1.7 (0.9–2.5)	1.0 (0.4–1.6)	1.1 (0.5–1.8)
	1996–2001	1.3 (0.7–1.9)	2.5 (1.3–3.6)	1.5 (0.7–2.4)
	2001–2004	2.6 (1.5–3.8)	4.2 (2.1–6.3)	2.4 (0.9–4.0)
	% change	-13%	83%	-8%
	P (trend)	0.90	0.80	0.59
	Pooled	2.0 (1.5–2.4)	2.2 (1.7–2.7)	2.1 (1.5–2.7)

Table 93: Age-standardised rates of kidney cancer, by ethnic group

Kidney Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	10.5 (5.8–15.3)	11.3 (2.7–48.2)	1.1 (0.1–7.5)	10.9 (9.8–12.1)
	1986–1991	11.6 (6.3–16.8)	1.9 (0.4–8.6)	6.9 (1.6–28.8)	11.0 (9.9–12.1)
	1991–1996	14.6 (9.5–19.7)	5.8 (2.1–16.0)	7.4 (2.5–21.4)	15.0 (13.8–16.3)
	1996–2001	14.6 (10.4–18.8)	7.3 (2.8–11.8)	8.4 (1.4–15.4)	16.7 (15.5–18.0)
	2001–2004	14.0 (9.5–18.5)	13.7 (6.1–21.3)	8.5 (2.7–14.2)	17.2 (15.7–18.7)
	% change	33%	21%	673%	58%
	P (trend)	0.07	0.06	0.01	0.01
	Pooled	13.0 (10.9–15.2)	7.7 (3.7–11.7)	6.4 (3.2–9.6)	14.0 (13.5–14.6)
Females 25+ years	1981–1986	3.4 (1.0–5.8)	7.2 (2.6–19.7)		5.2 (4.5–5.9)
	1986–1991	3.8 (1.0–6.5)			6.1 (5.3–6.9)
	1991–1996	11.4 (7.0–15.8)	2.9 (0.2–5.5)	4.6 (1.3–16.4)	7.0 (6.2–7.8)
	1996–2001	6.5 (3.8–9.1)	5.0 (1.4–8.6)	2.0 (0.5–7.4)	8.9 (8.0–9.8)
	2001–2004	9.0 (5.5–12.5)	6.4 (1.7–11.1)	3.3 (0.3–6.4)	9.7 (8.7–10.7)
	% change	165%	-11%		87%
	P (trend)	0.13			<.01
	Pooled	6.7 (5.3–8.1)	5.3 (3.1–7.5)	3.3 (1.4–5.2)	8.4 (8.0–8.8)

Table 94: Age- and ethnicity-standardised rates of kidney cancer, by income group

Kidney Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	10.7 (8.5–12.8)	10.2 (7.9–12.6)	11.2 (7.8–14.5)
	1986–1991	10.2 (8.2–12.2)	13.6 (9.9–17.3)	7.7 (6.1–9.3)
	1991–1996	13.6 (11.0–16.1)	15.4 (13.0–17.7)	15.7 (12.1–19.3)
	1996–2001	17.2 (14.8–19.6)	14.5 (12.4–16.5)	15.1 (12.4–17.7)
	2001–2004	16.8 (13.6–20.0)	18.0 (15.1–20.9)	16.3 (13.5–19.2)
	% change	57%	76%	46%
	P (trend)	0.03	0.03	0.10
	Pooled	13.5 (12.5–14.6)	14.2 (12.9–15.4)	13.0 (11.7–14.3)
25+ years	1981–1986	4.8 (3.4–6.1)	5.9 (4.4–7.4)	4.0 (2.4–5.5)
	1986–1991	5.8 (4.5–7.0)	5.1 (4.0–6.3)	4.4 (2.6–6.2)
	1991–1996	8.9 (6.9–11.0)	6.5 (5.1–7.8)	5.9 (4.0–7.8)
	1996–2001	9.1 (7.4–10.8)	8.6 (7.0–10.1)	6.4 (5.0–7.8)
	2001–2004	10.8 (8.8–12.8)	9.5 (7.4–11.5)	8.3 (6.0–10.6)
	% change	125%	61%	108%
	P (trend)	<.01	0.05	<.01
	Pooled	7.7 (7.0–8.5)	7.0 (6.3–7.7)	5.7 (4.9–6.5)

Table 95: Age-standardised rates of larynx cancer, by ethnic group

Larynx etc Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	10.0 (3.4–16.5)	11.8 (3.6–38.3)	14.1 (4.5–44.1)	8.9 (7.9–9.9)
	1986–1991	4.1 (1.6–6.5)	12.6 (3.9–40.0)	18.1 (2.4–33.8)	8.3 (7.4–9.3)
	1991–1996	8.4 (4.7–12.1)	6.6 (0.4–12.8)	7.6 (2.2–26.8)	6.5 (5.7–7.3)
	1996–2001	6.2 (3.6–8.9)	7.5 (1.9–13.2)	7.2 (1.6–12.7)	6.2 (5.4–6.9)
	2001–2004	11.8 (7.2–16.4)	5.1 (0.9–9.2)	6.9 (2.2–11.7)	5.1 (4.3–5.8)
	% change	18%	-57%	-51%	-43%
	P (trend)	0.35	0.07	0.14	<.01
	Pooled	7.9 (6.0–9.8)	8.9 (4.3–13.5)	11.0 (5.7–16.3)	7.1 (6.7–7.5)
Females 25+ years	1981–1986	3.3 (0.5–6.0)	5.6 (0.8–39.6)		1.4 (1.0–1.8)
	1986–1991	1.7 (0.6–4.6)	1.7 (0.2–12.3)	5.2 (0.7–37.1)	1.5 (1.2–1.9)
	1991–1996	1.9 (0.3–3.4)	6.0 (0.2–11.8)	2.9 (0.6–13.7)	1.3 (1.0–1.7)
	1996–2001	2.5 (0.9–4.0)	0.7 (0.1–4.9)	1.2 (0.3–5.5)	1.5 (1.2–1.9)
	2001–2004	2.5 (0.4–4.7)	1.3 (0.3–5.5)		1.0 (0.7–1.3)
	% change	-24%	-77%		-29%
	P (trend)	0.81	0.55		0.22
	Pooled	2.4 (1.5–3.3)	3.1 (0.4–5.9)	3.1 (0.1–6.1)	1.4 (1.3–1.6)

Table 96: Age- and ethnicity-standardised rates of larynx cancer, by income group

Larynx etc Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	10.4 (7.1–13.8)	9.3 (7.3–11.3)	7.4 (5.2–9.5)
	1986–1991	9.7 (6.9–12.4)	7.5 (5.9–9.2)	5.5 (3.9–7.2)
	1991–1996	8.7 (6.6–10.8)	7.1 (5.5–8.6)	4.2 (3.1–5.4)
	1996–2001	7.4 (5.8–9.0)	6.1 (4.8–7.3)	4.1 (3.0–5.3)
	2001–2004	8.0 (5.9–10.0)	5.7 (4.1–7.2)	4.1 (2.8–5.5)
	% change	-23%	-39%	-45%
	P (trend)	0.06	<.01	0.10
	Pooled	8.9 (7.8–10.0)	7.2 (6.5–7.9)	5.1 (4.4–5.8)
Females 25+ years	1981–1986	1.7 (0.9–2.5)	1.1 (0.5–1.7)	1.3 (0.4–3.8)
	1986–1991	2.4 (1.5–3.3)	1.6 (0.5–2.8)	0.9 (0.4–1.4)
	1991–1996	2.6 (1.1–4.0)	1.3 (0.7–1.9)	1.7 (0.4–3.0)
	1996–2001	1.6 (1.0–2.3)	2.0 (1.1–2.9)	1.1 (0.5–1.6)
	2001–2004	1.2 (0.6–1.8)	1.3 (0.6–2.0)	2.2 (0.1–4.3)
	% change	-29%	18%	69%
	P (trend)	0.23	0.43	0.51
	Pooled	1.9 (1.5–2.4)	1.5 (1.1–1.8)	1.4 (0.9–2.0)

Table 97: Age-standardised rates of leukaemia, by ethnic group

Leukaemia Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	15.3 (8.4–22.2)	24.5 (7.3–41.8)		13.2 (11.9–14.6)
	1986–1991	11.9 (7.4–16.5)	15.7 (2.9–28.5)	22.6 (2.5–42.7)	16.3 (14.9–17.6)
	1991–1996	18.2 (12.5–23.9)	18.2 (7.9–28.5)	18.0 (2.6–33.4)	18.4 (17.1–19.8)
	1996–2001	24.8 (18.0–31.6)	19.1 (9.5–28.7)	18.5 (10.6–26.4)	22.4 (20.9–23.8)
	2001–2004	26.7 (19.9–33.5)	23.4 (13.5–33.2)	11.8 (6.1–17.5)	26.7 (25.0–28.5)
	% change	75%	-4%		102%
	P (trend)	0.04	0.51		<.01
	Pooled	19.0 (16.3–21.8)	20.0 (14.4–25.6)	18.1 (11.7–24.5)	20.6 (19.9–21.2)
25–64 years	1981–1986	10.7 (5.6–15.7)	17.4 (4.5–30.3)		6.2 (5.0–7.3)
	1986–1991	8.6 (4.7–12.4)	6.0 (1.1–10.9)	12.3 (0.6–23.9)	7.1 (6.0–8.2)
	1991–1996	15.8 (9.7–22.0)	10.9 (4.2–17.5)	10.1 (1.3–18.8)	8.7 (7.4–9.9)
	1996–2001	13.7 (9.6–17.9)	9.5 (3.5–15.6)	14.5 (7.6–21.3)	11.2 (9.8–12.5)
	2001–2004	14.2 (9.6–18.8)	12.4 (6.1–18.6)	8.6 (3.8–13.5)	14.0 (12.4–15.6)
	% change	33%	-29%		126%
	P (trend)	0.16	0.48		<.01
	Pooled	12.5 (10.3–14.7)	11.2 (7.6–14.8)	11.6 (7.6–15.5)	10.0 (9.4–10.6)
65+ years	1981–1986	42.6 (7.3–78.0)	51.3 (12.7–207)		50.9 (44.5–57.2)
	1986–1991	31.9 (9.5–54.4)	88.5 (23.3–337)	126 (24–657)	65.8 (59.3–72.3)
	1991–1996	46.4 (20.2–72.7)	47.7 (1.0–94.4)	85.3 (20.6–353)	68.8 (62.9–74.7)
	1996–2001	82.5 (47.5–118)	63.4 (16.8–110)	47.4 (2.2–92.6)	85.6 (78.7–92.5)
	2001–2004	96.8 (60.3–133)	81.8 (27.2–137)	48.1 (3.8–92.4)	96.9 (88.5–105)
	% change	127%	59%		90%
	P (trend)	0.05	0.28		<.01
	Pooled	58.2 (44.2–72.2)	65.8 (32.4–99.1)	78.4 (20.0–137)	78.2 (75.1–81.2)

Leukaemia Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Females 25+ years	1981–1986	13.2 (7.4–18.9)	6.6 (2.0–21.3)	5.7 (1.3–23.9)	8.5 (7.5–9.4)
	1986–1991	11.0 (6.0–16.0)	13.6 (3.3–23.9)		9.7 (8.7–10.6)
	1991–1996	16.3 (11.1–21.6)	14.8 (5.5–24.0)	8.2 (0.2–16.1)	12.0 (10.9–13.1)
	1996–2001	12.3 (8.3–16.3)	15.1 (8.8–21.5)	8.6 (3.5–13.6)	13.0 (12.0–14.0)
	2001–2004	18.7 (13.9–23.6)	13.8 (7.4–20.3)	8.9 (4.6–13.3)	16.1 (14.8–17.4)
	% change	42%	109%	56%	89%
	P (trend)	0.32	0.14		<.01
	Pooled	14.1 (11.8–16.3)	12.7 (9.0–16.5)	7.8 (4.7–10.8)	12.2 (11.7–12.6)
25–64 years	1981–1986	9.1 (3.8–14.5)	7.5 (2.3–24.3)	2.3 (0.3–16.6)	4.3 (3.4–5.1)
	1986–1991	6.6 (2.6–10.6)	10.3 (1.3–19.4)		5.3 (4.4–6.3)
	1991–1996	11.9 (6.8–17.0)	10.1 (3.7–16.4)	3.8 (1.0–13.9)	6.6 (5.5–7.8)
	1996–2001	10.0 (5.8–14.2)	9.3 (4.6–14.0)	8.4 (3.3–13.6)	6.5 (5.5–7.5)
	2001–2004	12.1 (8.2–16.0)	9.4 (4.1–14.8)	6.5 (2.8–10.2)	8.3 (7.1–9.6)
	% change	33%	25%	183%	93%
	P (trend)	0.17	0.64		<.01
	Pooled	9.8 (7.8–11.9)	9.3 (6.1–12.6)	5.2 (3.1–7.3)	6.3 (5.8–6.8)
65+ years	1981–1986	36.0 (9.3–62.6)		19.9 (2.8–141)	30.6 (26.4–34.8)
	1986–1991	34.1 (10.2–58.0)	25.0 (6.0–104)		32.9 (29.0–36.9)
	1991–1996	47.0 (18.4–75.5)	32.8 (9.5–114)	26.5 (6.6–106)	40.6 (36.4–44.8)
	1996–2001	32.6 (14.2–50.9)	43.8 (11.9–75.7)	13.7 (1.9–97.3)	50.4 (45.5–55.2)
	2001–2004	63.6 (34.7–92.4)	59.7 (6.1–113)	28.7 (1.7–55.7)	59.8 (53.4–66.2)
	% change	77%		44%	95%
	P (trend)	0.43			<.01
	Pooled	41.6 (30.3–53.0)	39.1 (21.4–56.8)	21.8 (6.8–36.8)	44.4 (42.3–46.6)

Table 98: Age- and ethnicity-standardised rates of leukaemia, by income group

Leukaemia Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	12.2 (9.6–14.7)	13.2 (10.0–16.3)	12.0 (9.5–14.4)
	1986–1991	14.5 (12.2–16.9)	17.7 (14.4–20.9)	16.4 (13.3–19.5)
	1991–1996	18.4 (15.2–21.6)	18.1 (15.6–20.6)	18.4 (15.1–21.7)
	1996–2001	21.0 (18.2–23.8)	26.5 (22.9–30.1)	26.1 (21.8–30.3)
	2001–2004	27.1 (23.5–30.8)	27.6 (24.1–31.2)	27.5 (23.2–31.8)
	% change	122%	109%	129%
	P (trend)	<.01	0.01	<.01
	Pooled	18.2 (16.9–19.5)	20.3 (18.8–21.7)	19.7 (18.1–21.3)
25–64 years	1981–1986	6.2 (3.9–8.4)	5.2 (3.5–6.9)	6.5 (4.0–8.9)
	1986–1991	7.4 (5.3–9.5)	6.5 (4.7–8.3)	8.5 (6.1–10.9)
	1991–1996	10.2 (7.7–12.7)	8.7 (6.1–11.3)	11.2 (7.4–15.0)
	1996–2001	10.2 (7.8–12.5)	13.6 (10.8–16.3)	12.8 (9.9–15.7)
	2001–2004	14.4 (11.2–17.7)	16.0 (12.7–19.2)	12.7 (10.3–15.1)
	% change	132%	208%	95%
	P (trend)	0.01	<.01	<.01
	Pooled	9.4 (8.3–10.5)	9.7 (8.6–10.8)	10.2 (8.9–11.5)
65+ years	1981–1986	44.5 (33.2–55.7)	55.2 (35.3–75.0)	42.9 (32.9–53.0)
	1986–1991	53.9 (42.7–65.0)	80.8 (55.5–106)	56.7 (43.1–70.4)
	1991–1996	65.7 (50.7–80.7)	65.8 (55.2–76.4)	59.0 (48.1–69.9)
	1996–2001	77.8 (64.6–91.0)	99.6 (81.8–118)	94.1 (73.9–114)
	2001–2004	98.5 (81.0–116)	99.4 (81.2–118)	101 (79–123)
	% change	121%	80%	136%
	P (trend)	<.01	0.09	0.02
	Pooled	66.6 (60.5–72.6)	79.2 (70.7–87.7)	69.2 (62.3–76.2)
Females 25+ years	1981–1986	9.2 (7.3–11.0)	9.2 (6.5–11.8)	9.2 (6.3–12.1)
	1986–1991	10.2 (8.2–12.2)	10.5 (8.1–12.8)	9.9 (7.4–12.4)
	1991–1996	11.8 (9.8–13.8)	14.3 (11.3–17.3)	12.5 (9.8–15.3)
	1996–2001	14.0 (11.8–16.2)	11.7 (9.9–13.5)	13.6 (11.3–15.9)
	2001–2004	17.3 (14.9–19.8)	18.0 (15.1–20.9)	14.9 (12.2–17.6)
	% change	88%	96%	62%
	P (trend)	<.01	0.13	<.01
	Pooled	12.3 (11.3–13.2)	12.5 (11.3–13.6)	11.9 (10.7–13.1)
25–64 years	1981–1986	5.5 (3.8–7.2)	5.5 (2.1–8.9)	4.2 (2.4–6.0)
	1986–1991	5.6 (3.9–7.3)	6.1 (4.0–8.1)	5.4 (3.5–7.2)
	1991–1996	7.6 (5.8–9.4)	8.6 (5.3–11.9)	6.4 (4.2–8.6)
	1996–2001	6.2 (4.6–7.7)	6.5 (4.7–8.3)	7.5 (5.2–9.8)
	2001–2004	10.2 (7.9–12.5)	9.4 (7.0–11.8)	7.1 (5.1–9.0)
	% change	85%	71%	69%
	P (trend)	0.17	0.18	0.02
	Pooled	6.9 (6.1–7.7)	7.1 (5.9–8.3)	6.1 (5.2–7.0)
65+ years	1981–1986	28.6 (21.6–35.7)	33.7 (19.9–47.5)	33.2 (19.3–47.1)
	1986–1991	34.3 (25.7–43.0)	35.1 (24.1–46.1)	32.4 (21.1–43.7)
	1991–1996	37.0 (26.9–47.2)	44.0 (33.8–54.3)	44.3 (31.9–56.8)
	1996–2001	58.5 (46.8–70.2)	40.1 (32.5–47.6)	48.6 (38.7–58.6)
	2001–2004	60.1 (46.1–74.1)	65.0 (51.6–78.5)	59.8 (43.8–75.7)
	% change	110%	93%	80%
	P (trend)	0.02	0.17	0.01
	Pooled	42.9 (38.3–47.5)	42.5 (37.5–47.6)	42.9 (37.2–48.5)

Table 99: Age-standardised rates of lip, mouth and pharynx cancer, by ethnic group

Oropharynx Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	9.3 (4.7–13.8)	28.1 (11.5–44.8)	27.7 (1.1–54.2)	18.7 (17.2–20.2)
	1986–1991	11.6 (7.1–16.0)	35.0 (13.4–56.5)	28.6 (9.9–47.4)	17.9 (16.5–19.3)
	1991–1996	16.6 (10.6–22.6)	20.7 (8.5–33.0)	15.8 (4.6–27.0)	15.0 (13.8–16.3)
	1996–2001	14.5 (10.1–18.9)	20.3 (11.2–29.5)	25.0 (13.4–36.5)	14.0 (12.9–15.2)
	2001–2004	16.5 (11.7–21.3)	11.4 (5.1–17.7)	21.8 (13.4–30.3)	13.0 (11.7–14.3)
	% change	77%	-59%	-21%	-30%
	P (trend)	0.04	0.03	0.88	<.01
	Pooled	13.6 (11.4–15.8)	23.7 (17.0–30.3)	23.9 (16.1–31.6)	15.9 (15.3–16.5)
Females 25+ years	1981–1986	5.6 (2.2–8.9)	5.8 (0.4–11.3)	8.2 (2.8–24.2)	7.1 (6.1–8.0)
	1986–1991	4.8 (2.3–7.4)	10.8 (0.4–21.2)	10.3 (3.8–27.9)	7.4 (6.5–8.3)
	1991–1996	4.1 (1.9–6.4)	5.6 (1.3–9.9)	5.2 (1.9–14.5)	5.7 (5.0–6.5)
	1996–2001	6.6 (3.7–9.5)	6.9 (2.4–11.5)	8.3 (3.3–13.4)	6.1 (5.4–6.8)
	2001–2004	4.8 (2.5–7.2)	9.9 (4.3–15.4)	8.0 (4.1–11.9)	6.8 (5.8–7.8)
	% change	-14%	71%	-2%	-4%
	P (trend)	0.93	0.34	0.83	0.45
	Pooled	5.2 (4.0–6.4)	7.7 (4.8–10.6)	8.0 (4.7–11.3)	6.6 (6.2–7.0)

Table 100: Age- and ethnicity-standardised rates of lip, mouth and pharynx cancer, by income group

Oropharynx Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	21.1 (17.8–24.4)	18.9 (15.6–22.2)	13.6 (10.3–16.9)
	1986–1991	21.9 (18.8–25.0)	17.5 (14.8–20.2)	15.7 (11.9–19.5)
	1991–1996	20.7 (17.1–24.4)	14.4 (11.7–17.1)	12.1 (9.6–14.6)
	1996–2001	17.4 (14.8–20.0)	15.6 (13.0–18.1)	12.4 (9.7–15.2)
	2001–2004	19.3 (16.4–22.2)	12.2 (9.7–14.7)	10.0 (7.8–12.3)
	% change	-9%	-35%	-26%
	P (trend)	0.17	0.03	0.08
	Pooled	20.1 (18.7–21.5)	15.9 (14.6–17.2)	12.9 (11.5–14.3)
Females 25+ years	1981–1986	8.1 (6.4–9.8)	4.7 (3.4–5.9)	7.5 (4.9–10.1)
	1986–1991	8.3 (6.8–9.8)	7.5 (5.0–10.1)	5.8 (4.0–7.6)
	1991–1996	7.2 (5.5–8.9)	5.0 (3.8–6.1)	4.2 (3.1–5.3)
	1996–2001	6.8 (5.4–8.2)	6.7 (5.1–8.3)	5.7 (4.0–7.4)
	2001–2004	7.6 (5.9–9.2)	6.5 (4.7–8.3)	6.4 (4.4–8.3)
	% change	-6%	38%	-15%
	P (trend)	0.23	0.27	0.95
	Pooled	7.6 (6.9–8.3)	6.1 (5.3–6.8)	5.9 (5.0–6.7)

Table 101: Age-standardised rates of liver cancer, by ethnic group

Liver Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	12.6 (7.6–17.7)	23.7 (12.4–35.0)	6.5 (1.5–27.7)	2.9 (2.3–3.5)
	1986–1991	20.5 (14.1–26.8)	38.9 (21.7–56.1)	18.0 (4.3–31.7)	4.0 (3.4–4.7)
	1991–1996	19.0 (13.5–24.5)	25.6 (13.6–37.6)	35.7 (16.8–54.5)	4.0 (3.4–4.6)
	1996–2001	22.9 (17.7–28.1)	30.1 (20.2–40.1)	23.1 (13.1–33.1)	4.6 (4.0–5.2)
	2001–2004	23.9 (18.3–29.5)	34.1 (22.7–45.5)	23.8 (14.9–32.7)	5.2 (4.5–6.0)
	% change	90%	44%	266%	79%
	P (trend)	0.03	0.34	0.12	<.01
	Pooled	19.6 (17.1–22.1)	30.3 (24.6–36.0)	21.3 (15.4–27.2)	4.1 (3.8–4.4)
Females 25+ years	1981–1986	8.0 (3.3–12.8)	6.7 (2.2–20.8)		1.7 (1.3–2.2)
	1986–1991	3.7 (1.2–6.3)	11.7 (0.8–22.6)	4.1 (0.9–18.6)	1.8 (1.4–2.2)
	1991–1996	6.7 (3.4–10.0)	9.9 (3.8–15.9)	6.1 (2.0–18.7)	2.0 (1.6–2.5)
	1996–2001	6.2 (3.6–8.8)	7.1 (2.4–11.8)	7.8 (2.0–13.7)	2.5 (2.0–2.9)
	2001–2004	6.1 (3.3–8.9)	14.5 (7.4–21.5)	8.1 (3.1–13.0)	2.2 (1.8–2.7)
	% change	-24%	116%		29%
	P (trend)	0.65	0.47		0.07
	Pooled	6.1 (4.6–7.6)	9.8 (6.4–13.2)	6.4 (3.7–9.2)	2.1 (1.9–2.3)

Table 102: Age- and ethnicity-standardised rates of liver cancer, by income group

Liver Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	3.6 (2.2–5.1)	6.5 (4.1–8.9)	3.8 (2.1–5.4)
	1986–1991	7.9 (5.7–10.1)	6.4 (4.5–8.4)	10.9 (6.0–15.8)
	1991–1996	8.4 (5.9–10.9)	7.9 (5.6–10.2)	6.5 (4.2–8.7)
	1996–2001	9.7 (7.7–11.7)	8.9 (6.8–10.9)	6.9 (4.8–9.0)
	2001–2004	11.5 (9.1–13.9)	11.8 (8.8–14.9)	7.2 (5.0–9.4)
	% change	219%	82%	89%
	P (trend)	<.01	0.02	0.17
	Pooled	8.1 (7.1–9.0)	8.1 (7.1–9.2)	7.1 (5.7–8.4)
Females 25+ years	1981–1986	3.2 (1.9–4.5)	2.4 (1.1–3.7)	2.1 (0.8–5.9)
	1986–1991	3.1 (1.8–4.3)	2.6 (1.4–3.8)	2.2 (0.8–6.4)
	1991–1996	3.6 (2.4–4.9)	4.0 (2.4–5.5)	2.9 (1.3–4.5)
	1996–2001	4.7 (3.1–6.3)	2.9 (1.9–3.8)	3.5 (1.7–5.3)
	2001–2004	2.9 (1.9–3.9)	4.9 (3.1–6.7)	1.6 (0.8–2.5)
	% change	-9%	104%	-24%
	P (trend)	0.99	0.23	0.46
	Pooled	3.5 (2.9–4.1)	3.3 (2.7–3.9)	2.5 (1.7–3.4)

Table 103: Age-standardised rates of lung cancer, by ethnic group

Lung Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	163 (140–185)	73.0 (37.5–109)	61.1 (27.4–94.8)	94.0 (90.7–97.3)
	1986–1991	157 (136–177)	139 (99–179)	89.6 (50.2–129)	85.0 (82.1–87.9)
	1991–1996	173 (154–192)	113 (84–142)	46.3 (25.0–67.6)	80.8 (78.1–83.6)
	1996–2001	151 (136–167)	124 (101–146)	57.2 (39.8–74.6)	69.1 (66.7–71.5)
	2001–2004	147 (131–163)	92.6 (72.1–113)	48.2 (33.7–62.7)	63.8 (61.3–66.3)
	% change	-10%	27%	-21%	-32%
	P (trend)	0.25	0.99	0.36	<.01
	Pooled	159 (150–167)	109 (95–123)	61.1 (48.6–73.6)	79.3 (78.0–80.5)
25–64 years	1981–1986	92.8 (75.6–110)	40.4 (15.3–65.6)	25.0 (2.8–47.3)	48.0 (45.1–50.9)
	1986–1991	86.5 (72.3–101)	98.5 (63.7–133)	51.8 (16.5–87.1)	43.2 (40.6–45.8)
	1991–1996	107 (92–123)	69.8 (49.2–90.4)	14.4 (1.6–27.3)	35.7 (33.3–38.1)
	1996–2001	86.8 (74.8–98.8)	58.5 (42.4–74.5)	27.9 (15.5–40.3)	28.5 (26.3–30.6)
	2001–2004	74.3 (63.1–85.5)	36.0 (23.6–48.4)	17.0 (9.7–24.3)	23.6 (21.7–25.6)
	% change	-20%	-11%	-32%	-51%
	P (trend)	0.29	0.40	0.53	<.01
	Pooled	90.3 (83.8–96.8)	61.9 (51.1–72.6)	27.7 (18.1–37.3)	36.4 (35.3–37.5)
65+ years	1981–1986	606 (479–733)	249 (65–433)	281 (66–496)	373 (356–390)
	1986–1991	560 (450–669)	511 (267–756)	327 (126–529)	343 (329–358)
	1991–1996	608 (509–708)	393 (231–556)	259 (112–406)	341 (327–355)
	1996–2001	554 (475–632)	476 (357–595)	206 (119–293)	302 (290–315)
	2001–2004	605 (512–698)	457 (318–596)	216 (132–301)	293 (278–308)
	% change	-0%	84%	-23%	-21%
	P (trend)	0.96	0.17	0.11	<.01
	Pooled	586 (539–632)	415 (335–495)	260 (187–333)	332 (326–339)
Females 25+ years	1981–1986	75.3 (60.9–89.7)	16.8 (4.9–28.6)	22.7 (5.7–39.7)	25.2 (23.6–26.8)
	1986–1991	109 (94–124)	38.1 (19.2–57.0)	34.9 (14.9–54.8)	30.5 (28.8–32.1)
	1991–1996	125 (109–140)	31.2 (18.0–44.5)	30.7 (15.8–45.5)	36.2 (34.4–38.0)
	1996–2001	121 (109–132)	42.3 (30.6–54.1)	22.5 (13.2–31.8)	36.2 (34.5–38.0)
	2001–2004	133 (120–147)	57.9 (43.5–72.3)	32.8 (23.0–42.7)	39.0 (37.1–41.0)
	% change	77%	245%	44%	55%
	P (trend)	0.04	0.02	0.66	0.01
	Pooled	112 (105–118)	36.2 (29.8–42.6)	28.5 (21.7–35.3)	33.1 (32.4–33.9)
25–64 years	1981–1986	52.5 (39.0–66.0)	12.3 (3.2–21.5)	13.9 (0.0–27.8)	15.8 (14.2–17.5)
	1986–1991	69.2 (56.6–81.8)	19.6 (8.0–31.1)	7.1 (0.1–14.0)	18.1 (16.4–19.8)
	1991–1996	81.1 (68.8–93.4)	15.1 (6.2–24.0)	27.6 (11.0–44.3)	20.7 (18.8–22.5)
	1996–2001	73.7 (63.6–83.8)	24.3 (15.3–33.4)	10.2 (3.2–17.2)	19.6 (17.8–21.3)
	2001–2004	87.4 (75.6–99.1)	30.6 (19.1–42.0)	13.3 (7.2–19.5)	21.6 (19.7–23.4)
	% change	66%	149%	-4%	37%
	P (trend)	0.06	0.05	0.63	0.03
	Pooled	72.0 (66.6–77.5)	19.9 (15.4–24.3)	14.5 (9.4–19.6)	19.0 (18.3–19.8)
65+ years	1981–1986	259 (180–339)	45.2 (11.3–181)	57.8 (18.6–180)	86.5 (79.1–94.0)
	1986–1991	405 (317–492)	116 (28–203)	158 (53–262)	110 (102–118)
	1991–1996	406 (328–484)	123 (51–194)	70.1 (7.5–133)	134 (126–143)
	1996–2001	440 (376–504)	132 (77–188)	95.6 (39.6–152)	138 (130–146)
	2001–2004	471 (393–548)	201 (131–272)	134 (80–187)	144 (134–154)
	% change	81%	345%	131%	67%
	P (trend)	0.03	0.02	0.25	0.01
	Pooled	392 (358–427)	119 (88–151)	101 (69–134)	122 (118–125)

Table 104: Age- and ethnicity-standardised rates of lung cancer, by income group

Lung Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	126 (116–135)	95.9 (86.2–106)	91.3 (81.2–101)
	1986–1991	113 (105–122)	107 (97–118)	74.3 (65.3–83.2)
	1991–1996	109 (101–117)	99.4 (92.8–106)	75.4 (65.9–84.9)
	1996–2001	105 (98–112)	90.8 (84.4–97.3)	54.2 (49.0–59.4)
	2001–2004	97.9 (90.7–105)	80.4 (73.2–87.6)	55.7 (49.4–62.1)
	% change	-22%	-16%	-39%
	P (trend)	<.01	0.11	0.03
	Pooled	111 (107–114)	95.5 (91.8–99.2)	70.9 (67.1–74.7)
25–64 years	1981–1986	65.8 (57.6–73.9)	51.1 (43.9–58.3)	49.0 (41.6–56.4)
	1986–1991	56.5 (50.1–62.8)	56.4 (49.8–63.0)	38.9 (32.0–45.7)
	1991–1996	58.0 (52.0–64.0)	45.9 (40.3–51.5)	35.0 (27.9–42.2)
	1996–2001	46.7 (41.6–51.8)	43.6 (37.7–49.5)	23.6 (19.5–27.8)
	2001–2004	45.2 (39.4–51.0)	29.9 (25.4–34.5)	20.8 (17.1–24.4)
	% change	-31%	-41%	-58%
	P (trend)	0.02	0.03	<.01
	Pooled	54.9 (52.0–57.8)	46.2 (43.4–48.9)	34.1 (31.3–36.9)
65–74 years	1981–1986	493 (420–566)	364 (302–425)	340 (279–402)
	1986–1991	458 (396–521)	443 (355–531)	287 (228–346)
	1991–1996	426 (374–477)	396 (354–439)	288 (224–351)
	1996–2001	417 (373–462)	333 (295–371)	197 (165–229)
	2001–2004	406 (357–456)	325 (275–374)	211 (174–248)
	% change	-18%	-11%	-38%
	P (trend)	0.01	0.23	0.04
	Pooled	442 (416–468)	375 (348–401)	267 (243–291)
75+ years	1981–1986	503 (437–570)	356 (271–442)	382 (280–484)
	1986–1991	500 (420–579)	449 (357–541)	286 (225–347)
	1991–1996	453 (376–530)	436 (381–491)	371 (280–462)
	1996–2001	508 (434–581)	449 (383–514)	327 (258–395)
	2001–2004	462 (392–531)	470 (386–553)	366 (276–455)
	% change	-8%	32%	-4%
	P (trend)	0.39	0.08	0.68
	Pooled	486 (453–520)	430 (395–465)	345 (308–383)
Females 25+ years	1981–1986	33.2 (29.3–37.1)	27.1 (22.0–32.1)	27.5 (21.3–33.6)
	1986–1991	44.8 (40.1–49.5)	43.2 (37.8–48.7)	35.1 (28.5–41.7)
	1991–1996	56.5 (51.8–61.2)	43.3 (38.7–47.9)	45.6 (36.9–54.3)
	1996–2001	56.9 (52.4–61.4)	45.6 (41.5–49.7)	35.8 (31.5–40.2)
	2001–2004	61.8 (57.0–66.6)	48.8 (43.4–54.2)	42.7 (37.0–48.3)
	% change	86%	80%	55%
	P (trend)	0.01	0.05	0.15
	Pooled	50.1 (48.1–52.1)	41.2 (39.0–43.4)	37.1 (34.1–40.0)
25–64 years	1981–1986	20.6 (16.6–24.6)	21.6 (16.7–26.4)	17.3 (11.6–23.0)
	1986–1991	25.9 (22.0–29.7)	26.9 (22.4–31.4)	18.3 (13.9–22.7)
	1991–1996	35.0 (31.0–39.0)	26.5 (22.0–31.1)	20.0 (15.1–24.9)
	1996–2001	32.4 (28.7–36.2)	25.4 (21.3–29.4)	20.8 (16.6–25.0)
	2001–2004	36.6 (32.2–41.0)	26.1 (21.9–30.3)	27.4 (22.1–32.7)
	% change	78%	21%	58%
	P (trend)	0.04	0.38	0.04
	Pooled	29.8 (28.0–31.6)	25.3 (23.3–27.3)	20.4 (18.2–22.6)

Lung Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
65–74 years	1981–1986	127 (103–152)	74.0 (40.9–107)	94.9 (64.4–125)
	1986–1991	177 (148–206)	158 (121–195)	179 (113–245)
	1991–1996	202 (173–231)	153 (126–181)	165 (113–217)
	1996–2001	211 (183–239)	207 (175–238)	121 (94–149)
	2001–2004	219 (186–251)	198 (157–238)	134 (97–171)
	% change	72%	167%	41%
	P (trend)	0.02	0.03	0.47
	Pooled	186 (173–198)	156 (141–171)	139 (119–160)
75+ years	1981–1986	104 (73–135)	67.4 (32.1–103)	88.2 (38.4–138)
	1986–1991	138 (93–183)	140 (95–184)	116 (65–168)
	1991–1996	183 (142–225)	144 (113–175)	246 (152–340)
	1996–2001	218 (169–267)	136 (113–160)	141 (105–177)
	2001–2004	279 (225–334)	193 (142–243)	186 (126–246)
	% change	170%	186%	111%
	P (trend)	<.01	0.08	0.19
	Pooled	180 (160–199)	133 (117–150)	154 (126–182)

Table 105: Age-standardised rates of melanoma, by ethnic group

Melanoma Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	11.6 (5.9–17.2)	4.6 (1.3–16.1)	14.7 (1.4–28.0)	32.5 (30.4–34.7)
	1986–1991	9.7 (4.5–14.9)	10.5 (2.2–49.6)	2.3 (0.6–9.1)	44.1 (41.7–46.5)
	1991–1996	8.6 (4.9–12.3)	5.5 (0.4–10.6)	2.3 (0.7–7.3)	61.1 (58.4–63.7)
	1996–2001	13.7 (9.7–17.7)	7.3 (2.5–12.1)	6.0 (1.4–10.7)	73.7 (70.8–76.6)
	2001–2004	13.7 (8.9–18.5)	4.6 (0.4–8.8)	6.6 (2.6–10.6)	83.3 (80.0–86.6)
	% change	18%	0%	-55%	156%
	P (trend)	0.32	1.00	0.35	<.01
	Pooled	11.3 (9.2–13.5)	6.6 (2.6–10.6)	6.4 (3.2–9.5)	57.7 (56.5–58.9)
25–44 years	1981–1986	5.7 (2.0–9.5)	5.2 (1.2–22.1)	23.2 (6.8–79.2)	20.2 (17.5–22.9)
	1986–1991	4.8 (0.5–9.2)	1.2 (0.2–8.3)	4.0 (1.0–15.9)	26.2 (23.1–29.2)
	1991–1996	5.9 (2.4–9.4)	1.0 (0.1–7.2)	1.0 (0.1–6.8)	27.5 (24.4–30.5)
	1996–2001	6.7 (2.6–10.9)	0.7 (0.1–5.1)	2.9 (0.9–9.9)	29.5 (26.2–32.9)
	2001–2004	7.2 (3.3–11.2)	1.5 (0.2–10.9)	5.5 (0.2–10.8)	27.1 (23.6–30.5)
	% change	26%	-71%	-76%	34%
	P (trend)	0.08	0.53	0.57	0.10
	Pooled	6.0 (4.2–7.8)	1.9 (0.1–3.7)	7.4 (1.2–13.6)	26.1 (24.7–27.4)
45–64 years	1981–1986	15.2 (3.5–26.8)	6.4 (0.9–45.3)	17.0 (4.2–69.7)	40.4 (36.1–44.7)
	1986–1991	6.5 (1.0–11.9)			54.4 (49.5–59.2)
	1991–1996	7.7 (1.2–14.2)	7.0 (1.7–28.7)	4.3 (1.1–17.3)	77.2 (71.7–82.7)
	1996–2001	17.6 (10.2–25.0)	12.7 (1.3–24.0)	7.9 (0.3–15.4)	88.9 (83.0–94.7)
	2001–2004	14.1 (6.7–21.5)	5.6 (1.3–24.3)	7.3 (0.5–14.1)	105 (98–112)
	% change	-7%	-13%	-57%	160%
	P (trend)	0.30			<.01
	Pooled	12.1 (8.5–15.7)	8.1 (3.2–12.9)	9.2 (3.0–15.5)	76.2 (73.7–78.7)

Melanoma Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
65+ years	1981–1986	20.6 (6.8–62.5)			55.4 (48.8–61.9)
	1986–1991	31.0 (5.5–56.5)	65.5 (15.0–286)		88.4 (80.8–96.1)
	1991–1996	23.6 (5.6–41.7)	24.7 (5.9–103)		140 (131–149)
	1996–2001	28.4 (12.6–44.2)	22.4 (6.9–72.8)	9.8 (1.4–69.9)	188 (178–199)
	2001–2004	36.2 (11.3–61.0)	12.7 (3.1–51.2)	7.3 (1.8–29.1)	224 (211–237)
	% change	76%			304%
	P (trend)	0.17			<.01
	Pooled	27.5 (17.9–37.2)	32.5 (7.2–57.8)	8.7 (1.5–15.9)	204 (199–209)
Females 25+ years	1981–1986	9.9 (5.4–14.3)	4.3 (1.1–17.9)	6.5 (1.5–28.5)	44.0 (41.4–46.5)
	1986–1991	11.0 (6.4–15.6)	1.3 (0.3–5.7)	13.1 (2.4–23.8)	54.2 (51.5–56.9)
	1991–1996	10.1 (6.5–13.7)	7.3 (1.1–13.5)	14.6 (5.3–23.9)	60.5 (57.7–63.2)
	1996–2001	15.7 (11.6–19.9)	9.1 (3.8–14.3)	6.3 (2.6–10.1)	66.6 (63.9–69.3)
	2001–2004	16.1 (11.8–20.4)	7.0 (2.2–11.8)	2.5 (0.4–4.7)	79.2 (75.8–82.7)
	% change	63%	63%	-62%	80%
	P (trend)	0.07	0.12	0.11	<.01
	Pooled	12.4 (10.5–14.3)	5.7 (3.4–8.1)	8.9 (5.2–12.6)	60.0 (58.7–61.2)
25–44 years	1981–1986	9.0 (4.1–13.9)		6.5 (0.9–45.9)	37.8 (34.0–41.5)
	1986–1991	7.6 (3.5–11.7)	0.8 (0.1–5.6)	15.1 (0.2–30.1)	43.1 (39.1–47.0)
	1991–1996	8.4 (4.1–12.8)	3.9 (0.5–7.3)	10.1 (3.7–28.0)	40.6 (36.9–44.3)
	1996–2001	10.0 (6.2–13.9)	5.8 (0.0–11.5)	6.0 (1.0–11.0)	41.0 (37.4–44.6)
	2001–2004	8.4 (4.4–12.3)	1.3 (0.3–5.0)	2.5 (0.0–5.1)	47.6 (42.9–52.3)
	% change	-7%		-62%	26%
	P (trend)	0.65		0.08	0.18
	Pooled	8.7 (6.8–10.6)	3.1 (1.4–4.7)	8.3 (3.5–13.1)	41.7 (40.0–43.5)
45–64 years	1981–1986	5.9 (1.2–10.6)	10.8 (2.6–44.5)	11.1 (1.6–78.8)	51.1 (46.2–55.9)
	1986–1991	9.3 (2.1–16.5)	4.6 (0.7–32.9)	15.5 (3.8–62.1)	64.5 (59.3–69.7)
	1991–1996	11.1 (4.2–18.0)		18.3 (6.0–55.8)	76.7 (71.2–82.2)
	1996–2001	17.8 (10.9–24.8)	8.5 (0.9–16.1)	9.8 (1.8–17.7)	86.0 (80.4–91.6)
	2001–2004	24.6 (15.3–33.9)	8.8 (0.3–17.4)		97.6 (91.2–104)
	% change	317%	-19%		91%
	P (trend)	<.01			<.01
	Pooled	13.2 (10.1–16.3)	8.1 (3.3–13.0)	13.7 (5.1–22.3)	69.6 (67.1–72.0)
65+ years	1981–1986	14.2 (4.5–45.1)			52.1 (46.3–58.0)
	1986–1991	21.4 (2.5–40.4)			74.8 (68.3–81.4)
	1991–1996	19.7 (3.2–36.2)	38.2 (11.1–131)	26.6 (6.1–117)	98.3 (91.1–106)
	1996–2001	26.6 (10.0–43.1)	12.8 (4.1–40.1)		121 (113–129)
	2001–2004	26.5 (9.0–44.0)	19.8 (6.3–61.8)	11.8 (2.7–50.5)	153 (142–164)
	% change	87%			193%
	P (trend)	0.03			<.01
	Pooled	21.4 (13.7–29.2)	23.9 (9.5–38.3)	20.2 (5.9–34.5)	122 (118–126)

Notes: Due to a 50 percent increase in melanoma registrations around 1994 (owing to changes introduced by the Cancer Registry Act 1993), the percentage increases in the table are overstated. P values are not reliable, and have therefore been suppressed. The changes can be adjusted for by increasing the 1981–1986 and 1986–1991 rates by about 50 percent, and probably disregarding 1991–1996, to gain an impression of change over time. Trends in absolute inequalities over time are not interpretable, hence pooled SRs and p for trends are not shown.

Table 106: Age- and ethnicity-standardised rates of melanoma, by income group

Melanoma Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	22.3 (18.8–25.8)	28.5 (25.0–32.1)	36.9 (32.6–41.2)
	1986–1991	36.5 (30.2–42.8)	36.1 (32.0–40.2)	43.1 (38.8–47.3)
	1991–1996	40.0 (35.7–44.3)	50.4 (46.5–54.3)	58.2 (53.5–62.8)
	1996–2001	54.4 (49.7–59.1)	62.5 (57.9–67.1)	68.8 (64.2–73.5)
	2001–2004	55.6 (50.4–60.7)	65.4 (60.0–70.9)	80.6 (75.7–85.6)
	% change	149%	129%	118%
	P (trend)	<.01	<.01	<.01
	Pooled	41.1 (38.9–43.3)	47.7 (45.8–49.6)	56.4 (54.3–58.4)
25–44 years	1981–1986	13.6 (9.3–18.0)	17.8 (13.9–21.6)	22.3 (17.4–27.3)
	1986–1991	19.4 (14.6–24.2)	23.0 (18.4–27.6)	23.9 (18.7–29.0)
	1991–1996	19.4 (14.7–24.1)	22.5 (18.0–27.0)	24.7 (20.2–29.2)
	1996–2001	21.0 (15.7–26.2)	26.4 (20.9–31.9)	25.6 (20.9–30.3)
	2001–2004	18.5 (13.1–23.8)	21.6 (15.7–27.5)	22.9 (18.7–27.1)
	% change	36%	21%	3%
	P (trend)	0.20	0.21	0.70
	Pooled	18.4 (16.2–20.6)	22.3 (20.1–24.5)	23.9 (21.8–26.1)
45–64 years	1981–1986	25.1 (18.5–31.6)	37.1 (28.3–45.8)	47.2 (37.9–56.4)
	1986–1991	41.9 (33.4–50.5)	41.5 (35.1–47.9)	50.2 (42.5–57.9)
	1991–1996	55.6 (47.1–64.2)	58.9 (50.9–66.9)	74.7 (64.6–84.7)
	1996–2001	65.9 (56.4–75.5)	76.6 (67.2–85.9)	79.3 (71.0–87.7)
	2001–2004	65.1 (55.5–74.8)	70.1 (60.1–80.1)	106 (95–116)
	% change	159%	89%	124%
	P (trend)	<.01	0.02	<.01
	Pooled	50.0 (46.2–53.8)	56.2 (52.4–60.0)	69.7 (65.6–73.7)
65–74 years	1981–1986	42.9 (31.0–54.9)	50.0 (35.4–64.7)	51.2 (38.8–63.6)
	1986–1991	67.4 (52.7–82.1)	59.3 (45.8–72.9)	99.1 (74.0–124)
	1991–1996	83.9 (62.7–105)	123 (106–140)	138 (110–166)
	1996–2001	113 (95–130)	142 (123–161)	187 (161–213)
	2001–2004	117 (95–138)	180 (152–208)	208 (180–236)
	% change	172%	260%	306%
	P (trend)	<.01	<.01	<.01
	Pooled	83.1 (75.3–90.9)	107 (99–116)	133 (122–144)
75+ years	1981–1986	42.1 (23.1–61.0)	46.9 (27.6–66.3)	80.7 (54.8–107)
	1986–1991	111 (46–177)	110 (58–163)	96.1 (72.7–120)
	1991–1996	88.2 (59.8–117)	132 (114–150)	130 (106–154)
	1996–2001	188 (157–218)	176 (156–196)	211 (172–250)
	2001–2004	206 (170–241)	256 (215–297)	260 (220–300)
	% change	388%	446%	222%
	P (trend)	0.01	<.01	0.01
	Pooled	123 (105–141)	139 (124–153)	150 (137–164)
Females 25+ years	1981–1986	32.7 (29.1–36.4)	38.4 (34.1–42.7)	43.3 (38.4–48.1)
	1986–1991	41.8 (37.9–45.7)	45.3 (41.2–49.5)	51.7 (46.4–56.9)
	1991–1996	44.9 (40.9–48.9)	52.8 (48.4–57.2)	54.3 (49.7–58.9)
	1996–2001	50.3 (46.5–54.2)	57.7 (53.3–62.1)	60.7 (55.7–65.7)
	2001–2004	51.3 (46.7–55.8)	68.0 (62.5–73.4)	72.2 (67.0–77.4)
	% change	57%	77%	67%
	P (trend)	<.01	<.01	<.01
	Pooled	43.8 (42.1–45.6)	51.7 (49.7–53.7)	55.7 (53.4–57.9)

Melanoma Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
25–44 years	1981–1986	23.8 (18.9–28.8)	37.0 (30.8–43.3)	38.3 (31.5–45.2)
	1986–1991	29.6 (24.3–34.8)	37.0 (31.2–42.8)	41.5 (34.3–48.6)
	1991–1996	27.6 (22.4–32.7)	36.7 (30.7–42.8)	38.1 (32.3–43.9)
	1996–2001	29.5 (24.6–34.3)	36.0 (30.0–41.9)	38.0 (32.4–43.6)
	2001–2004	28.6 (22.6–34.6)	38.7 (31.6–45.9)	38.9 (32.7–45.1)
	% change	20%	5%	2%
	P (trend)	0.22	0.67	0.69
	Pooled	27.8 (25.5–30.1)	37.0 (34.2–39.8)	39.0 (36.1–41.8)
45–64 years	1981–1986	41.8 (34.0–49.7)	35.9 (29.1–42.8)	46.9 (38.4–55.4)
	1986–1991	57.7 (48.6–66.8)	47.7 (40.6–54.7)	59.4 (49.1–69.6)
	1991–1996	63.2 (54.7–71.7)	60.8 (52.5–69.1)	64.1 (55.7–72.5)
	1996–2001	63.1 (55.2–71.0)	66.3 (57.9–74.7)	79.8 (70.5–89.2)
	2001–2004	65.2 (56.0–74.4)	85.2 (74.3–96.0)	91.5 (81.5–102)
	% change	56%	137%	95%
	P (trend)	0.05	<.01	<.01
	Pooled	57.9 (54.0–61.7)	57.9 (54.2–61.5)	67.2 (63.0–71.3)
65–74 years	1981–1986	43.2 (33.0–53.4)	45.4 (26.2–64.7)	58.2 (44.1–72.3)
	1986–1991	53.6 (42.2–65.0)	72.4 (59.6–85.3)	78.2 (62.2–94.3)
	1991–1996	69.0 (54.6–83.3)	97.8 (79.7–116)	100 (73–128)
	1996–2001	97.0 (81.5–113)	109 (92–125)	80.3 (63.7–96.9)
	2001–2004	102 (83–121)	137 (113–160)	141 (117–166)
	% change	135%	201%	143%
	P (trend)	<.01	<.01	0.09
	Pooled	71.5 (65.2–77.7)	90.0 (82.0–98.0)	89.2 (80.2–98.2)
75+ years	1981–1986	46.9 (32.6–61.2)	46.3 (29.9–62.8)	34.3 (19.9–48.6)
	1986–1991	62.1 (45.3–78.9)	83.8 (44.0–124)	58.1 (41.7–74.5)
	1991–1996	73.8 (57.2–90.5)	88.7 (75.4–102)	88.2 (68.7–108)
	1996–2001	101 (81–120)	122 (106–138)	135 (99–171)
	2001–2004	115 (95–134)	146 (122–170)	156 (124–188)
	% change	144%	215%	355%
	P (trend)	<.01	<.01	<.01
	Pooled	77.9 (70.1–85.6)	94.8 (84.1–106)	91.2 (80.2–102)

Note: The same caveats apply to interpreting the data contained in this table as apply to Table 105 above.

Table 107: Age-standardised rates of myeloma, by ethnic group

Myeloma Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	10.7 (3.4–18.1)	17.9 (3.0–32.7)	5.8 (0.8–40.9)	7.5 (6.5–8.5)
	1986–1991	11.7 (6.2–17.1)	15.7 (0.0–31.5)	0.9 (0.1–6.6)	7.0 (6.1–7.9)
	1991–1996	8.9 (4.8–13.0)	21.4 (5.9–36.8)	7.6 (2.3–25.4)	8.3 (7.4–9.2)
	1996–2001	21.6 (15.1–28.1)	18.4 (7.7–29.0)	6.5 (0.8–12.2)	9.5 (8.5–10.4)
	2001–2004	14.7 (9.6–19.7)	21.5 (11.7–31.3)	2.9 (0.8–9.9)	10.3 (9.2–11.3)
	% change	37%	20%	-50%	37%
	P (trend)	0.37	0.21	0.34	0.02
	Pooled	13.5 (10.8–16.1)	18.9 (12.6–25.1)	4.8 (1.5–8.2)	8.4 (8.0–8.8)
Females 25+ years	1981–1986	5.2 (1.7–8.8)	0.8 (0.1–5.8)	4.5 (0.6–31.7)	4.6 (3.9–5.3)
	1986–1991	9.9 (4.5–15.3)	7.2 (0.1–14.3)		4.7 (4.1–5.4)
	1991–1996	10.9 (6.0–15.8)	12.8 (4.6–20.9)	6.5 (2.1–20.0)	5.7 (5.0–6.4)
	1996–2001	7.7 (4.5–10.8)	14.8 (8.0–21.7)	8.1 (2.5–13.6)	5.8 (5.1–6.4)
	2001–2004	10.1 (6.4–13.8)	8.1 (3.2–13.1)	6.6 (2.3–10.9)	5.8 (5.0–6.5)
	% change	94%	913%	47%	26%
	P (trend)	0.25	0.07		0.03
	Pooled	8.7 (6.8–10.6)	8.8 (5.9–11.6)	6.4 (3.3–9.5)	5.5 (5.1–5.8)

Table 108: Age- and ethnicity-standardised rates of myeloma, by income group

Myeloma Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	8.3 (6.1–10.5)	7.8 (5.2–10.5)	12.3 (5.6–19.0)
	1986–1991	7.3 (5.5–9.2)	7.8 (4.5–11.1)	9.8 (5.5–14.2)
	1991–1996	8.8 (6.5–11.2)	10.8 (7.5–14.1)	9.2 (6.9–11.5)
	1996–2001	10.3 (8.1–12.5)	12.5 (9.9–15.1)	15.0 (9.9–20.1)
	2001–2004	11.0 (8.8–13.2)	11.7 (9.3–14.0)	13.3 (9.2–17.3)
	% change	33%	50%	8%
	P (trend)	0.05	0.04	0.34
	Pooled	9.0 (8.1–10.0)	10.0 (8.7–11.4)	11.9 (9.7–14.0)
Females 25+ years	1981–1986	4.6 (3.4–5.8)	3.3 (2.1–4.5)	5.8 (3.9–7.8)
	1986–1991	5.4 (3.9–7.0)	4.9 (3.4–6.4)	9.2 (4.9–13.5)
	1991–1996	7.1 (5.3–8.8)	6.6 (4.8–8.3)	7.9 (4.4–11.4)
	1996–2001	7.0 (5.3–8.8)	5.0 (3.9–6.2)	6.5 (4.8–8.1)
	2001–2004	6.9 (5.4–8.4)	7.0 (5.3–8.6)	6.5 (4.8–8.3)
	% change	50%	112%	12%
	P (trend)	0.04	0.10	0.80
	Pooled	6.2 (5.5–6.9)	5.3 (4.6–5.9)	7.2 (5.9–8.5)

Table 109: Age-standardised rates of non-Hodgkin's lymphoma, by ethnic group

NHL Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	12.7 (7.0–18.3)	29.9 (5.6–160)	10.0 (2.4–41.8)	13.4 (12.0–14.7)
	1986–1991	12.6 (7.4–17.9)	21.2 (8.2–34.1)	6.4 (1.9–22.0)	17.0 (15.6–18.4)
	1991–1996	18.2 (10.9–25.5)	18.2 (5.5–30.8)	18.6 (5.4–31.9)	20.5 (19.0–22.0)
	1996–2001	19.7 (15.0–24.5)	26.1 (15.5–36.7)	20.1 (10.7–29.5)	24.7 (23.1–26.3)
	2001–2004	23.9 (17.0–30.8)	12.8 (6.0–19.7)	13.2 (5.9–20.4)	25.6 (23.7–27.5)
	% change	88%	-57%	32%	91%
	P (trend)	<.01	0.26	0.34	<.01
	Pooled	17.1 (14.4–19.8)	22.1 (10.6–33.5)	13.7 (8.7–18.7)	20.0 (19.3–20.7)
Females 25+ years	1981–1986	11.3 (5.4–17.2)		3.7 (0.9–14.8)	9.5 (8.5–10.5)
	1986–1991	11.9 (6.3–17.5)	19.3 (5.8–32.9)	10.2 (1.1–19.3)	11.9 (10.8–13.0)
	1991–1996	11.8 (7.5–16.0)	18.0 (8.2–27.8)	9.0 (1.6–16.4)	15.3 (14.1–16.6)
	1996–2001	21.7 (16.4–26.9)	20.6 (12.4–28.8)	18.7 (10.7–26.6)	18.4 (17.0–19.7)
	2001–2004	17.7 (12.9–22.6)	21.6 (12.8–30.4)	9.7 (5.2–14.2)	19.8 (18.3–21.3)
	% change	57%		162%	108%
	P (trend)	0.15		0.26	<.01
	Pooled	14.7 (12.4–17.1)	19.8 (15.1–24.4)	10.3 (7.0–13.5)	14.7 (14.2–15.3)

Table 110: Age- and ethnicity-standardised rates of non-Hodgkin's lymphoma, by income group

NHL Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	12.5 (10.1–14.8)		18.0 (12.3–23.7)
	1986–1991	14.6 (12.1–17.2)	17.3 (14.6–20.0)	18.8 (14.1–23.5)
	1991–1996	21.9 (18.1–25.7)	20.6 (17.5–23.8)	20.2 (17.2–23.2)
	1996–2001	21.8 (18.9–24.7)	23.9 (21.1–26.7)	27.4 (23.7–31.1)
	2001–2004	25.1 (21.1–29.0)	24.5 (20.9–28.0)	25.3 (21.6–29.0)
	% change	101%		41%
	P (trend)	<.01		0.07
	Pooled	18.9 (17.5–20.3)	21.4 (20.0–22.7)	22.8 (21.1–24.5)
Females 25+ years	1981–1986	8.6 (6.8–10.3)	8.4 (6.6–10.2)	8.9 (5.7–12.0)
	1986–1991	12.3 (10.1–14.5)	11.4 (8.9–14.0)	16.3 (11.2–21.5)
	1991–1996	15.7 (13.4–18.1)	14.5 (12.1–16.9)	14.4 (11.8–16.9)
	1996–2001	19.3 (16.7–21.8)	20.9 (17.9–23.8)	17.3 (14.5–20.1)
	2001–2004	19.4 (16.7–22.2)	19.1 (16.3–21.9)	22.1 (18.4–25.7)
	% change	126%	127%	148%
	P (trend)	<.01	<.01	0.02
	Pooled	14.8 (13.8–15.9)	14.6 (13.5–15.8)	15.5 (13.9–17.1)

Note: Due to an aberrantly high rate in the middle-income male group in 1981–1986, pooled and trend statistics for this group are not presented.

Table 111: Age-standardised rates of oesophageal cancer, by ethnic group

Oesophagus Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	16.8 (8.3–25.3)			8.8 (7.8–9.8)
	1986–1991	9.2 (4.6–13.7)	12.9 (0.5–25.4)		9.3 (8.3–10.3)
	1991–1996	16.8 (11.0–22.6)	3.3 (1.0–10.6)	4.3 (0.6–30.5)	10.9 (9.9–11.9)
	1996–2001	13.8 (9.2–18.4)	9.3 (3.4–15.1)	9.3 (1.5–17.1)	9.8 (8.9–10.7)
	2001–2004	16.0 (10.9–21.0)	10.1 (2.7–17.4)	4.9 (0.8–8.9)	11.0 (10.0–12.1)
	% change	-5%			25%
	P (trend)	0.44			0.12
	Pooled	14.4 (11.8–17.1)	8.8 (5.2–12.5)	6.3 (3.0–9.5)	10.5 (10.1–11.0)
Females 25+ years	1981–1986	4.2 (0.7–7.7)	2.7 (0.4–18.8)		4.0 (3.4–4.7)
	1986–1991	2.1 (0.8–5.9)			4.5 (3.9–5.1)
	1991–1996	4.9 (2.1–7.8)	2.2 (0.5–9.3)		5.2 (4.6–5.8)
	1996–2001	5.7 (2.9–8.5)	2.4 (0.0–4.7)	3.1 (1.0–10.3)	4.3 (3.7–4.8)
	2001–2004	5.0 (2.3–7.7)	2.6 (0.8–8.1)	0.6 (0.1–4.2)	4.9 (4.2–5.5)
	% change	19%	-4%		23%
	P (trend)	0.22			0.39
	Pooled	4.3 (3.1–5.6)	2.5 (0.8–4.1)	2.0 (0.7–3.3)	4.6 (4.3–4.8)

Table 112: Age- and ethnicity-standardised rates of oesophageal cancer, by income group

Oesophagus Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	9.6 (7.3–11.9)	11.9 (5.0–18.7)	9.0 (6.6–11.4)
	1986–1991	11.3 (9.1–13.5)	9.3 (7.2–11.3)	8.6 (5.0–12.1)
	1991–1996	14.4 (11.8–17.0)	12.1 (10.0–14.2)	7.1 (5.7–8.5)
	1996–2001	12.3 (10.0–14.7)	10.1 (8.3–11.8)	8.3 (6.0–10.6)
	2001–2004	14.4 (12.0–16.9)	12.7 (10.2–15.2)	9.2 (6.8–11.5)
	% change	50%	7%	2%
	P (trend)	0.08	0.42	0.91
	Pooled	12.3 (11.2–13.4)	11.1 (9.5–12.8)	8.4 (7.3–9.5)
Females 25+ years	1981–1986	3.6 (2.6–4.6)	3.2 (2.2–4.3)	4.1 (2.4–5.8)
	1986–1991	4.1 (3.0–5.1)	3.9 (2.8–4.9)	4.3 (3.1–5.4)
	1991–1996	6.5 (5.0–8.0)	4.4 (3.3–5.6)	4.3 (2.9–5.8)
	1996–2001	4.5 (3.2–5.8)	4.5 (3.3–5.8)	4.5 (2.8–6.3)
	2001–2004	4.5 (3.4–5.6)	4.4 (2.9–5.9)	4.7 (3.3–6.2)
	% change	25%	38%	15%
	P (trend)	0.46	0.04	<.01
	Pooled	4.6 (4.1–5.2)	4.1 (3.5–4.6)	4.4 (3.7–5.1)

Table 113: Age-standardised rates of ovarian cancer, by ethnic group

Ovary Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Females 25+ years	1981–1986	12.4 (7.7–17.1)	27.2 (12.1–42.2)	7.7 (2.4–24.7)	16.9 (15.4–18.4)
	1986–1991	17.3 (12.1–22.5)	27.5 (14.7–40.4)	13.3 (1.9–24.8)	18.5 (17.0–20.0)
	1991–1996	24.9 (18.9–31.0)	24.1 (14.5–33.6)	25.3 (11.5–39.0)	19.7 (18.3–21.1)
	1996–2001	20.7 (16.5–25.0)	27.3 (18.3–36.3)	22.2 (14.1–30.4)	19.8 (18.4–21.2)
	2001–2004	19.2 (14.6–23.9)	19.3 (11.8–26.7)	15.0 (9.2–20.8)	18.8 (17.4–20.3)
	% change	55%	-29%	95%	11%
	P (trend)	0.23	0.16	0.43	0.21
	Pooled	18.9 (16.6–21.2)	25.4 (20.2–30.5)	16.8 (12.1–21.4)	18.7 (18.1–19.4)

Table 114: Age- and ethnicity-standardised rates of ovarian cancer, by income group

Ovary Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Females 25+ years	1981–1986	17.2 (14.3–20.1)	15.5 (12.8–18.3)	17.7 (14.1–21.3)
	1986–1991	19.8 (16.9–22.6)	19.2 (16.4–22.0)	17.6 (14.6–20.7)
	1991–1996	20.2 (17.5–22.8)	18.5 (15.9–21.0)	25.7 (21.1–30.3)
	1996–2001	20.8 (18.3–23.4)	21.2 (18.4–24.0)	20.6 (17.7–23.6)
	2001–2004	21.4 (18.6–24.3)	20.4 (17.4–23.4)	16.0 (13.5–18.6)
	% change	24%	32%	-10%
	P (trend)	0.03	0.07	0.82
	Pooled	19.8 (18.6–21.0)	18.9 (17.6–20.1)	19.7 (18.1–21.3)
25–44 years	1981–1986	10.3 (6.5–14.0)	8.4 (4.6–12.2)	6.4 (3.3–9.5)
	1986–1991	8.1 (4.7–11.4)	7.0 (4.1–9.9)	6.6 (3.8–9.3)
	1991–1996	5.8 (3.6–8.0)	6.1 (3.9–8.4)	9.5 (5.6–13.4)
	1996–2001	7.5 (4.9–10.2)	7.0 (4.4–9.7)	8.7 (5.9–11.5)
	2001–2004	7.2 (4.8–9.7)	4.7 (2.6–6.8)	6.6 (3.8–9.4)
	% change	-30%	-44%	3%
	P (trend)	0.46	0.07	0.64
	Pooled	7.8 (6.5–9.2)	6.7 (5.4–8.0)	7.6 (6.2–9.0)
45–64 years	1981–1986	20.9 (15.4–26.3)	18.9 (13.7–24.1)	20.6 (15.2–25.9)
	1986–1991	28.8 (22.8–34.7)	31.6 (24.7–38.5)	29.6 (20.1–39.1)
	1991–1996	34.0 (27.3–40.7)	26.1 (20.1–32.0)	28.7 (21.2–36.3)
	1996–2001	31.0 (25.3–36.8)	30.9 (24.7–37.2)	28.9 (22.8–35.0)
	2001–2004	29.0 (23.2–34.8)	27.9 (21.5–34.3)	20.9 (15.4–26.4)
	% change	39%	48%	1%
	P (trend)	0.24	0.23	0.85
	Pooled	28.7 (26.1–31.4)	27.0 (24.3–29.8)	26.0 (22.8–29.2)
65+ years	1981–1986	31.1 (23.1–39.1)	36.1 (26.6–45.6)	48.8 (33.3–64.3)
	1986–1991	38.1 (30.6–45.5)	37.9 (29.2–46.6)	34.8 (26.1–43.5)
	1991–1996	42.1 (32.8–51.5)	42.1 (34.2–50.0)	71.6 (50.1–93.2)
	1996–2001	45.1 (34.6–55.6)	46.1 (36.1–56.1)	41.4 (30.9–51.9)
	2001–2004	54.1 (40.6–67.7)	58.5 (44.9–72.1)	40.2 (29.4–50.9)
	% change	74%	62%	-18%
	P (trend)	<.01	0.02	0.99
	Pooled	41.5 (37.2–45.8)	43.4 (39.0–47.8)	47.7 (41.2–54.2)

Table 115: Age-standardised rates of pancreatic cancer, by ethnic group

Pancreas Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	19.9 (12.2–27.5)	33.7 (4.0–63.3)		12.6 (11.4–13.8)
	1986–1991	18.6 (12.0–25.1)	21.2 (6.0–36.5)	11.9 (3.8–37.3)	13.9 (12.7–15.1)
	1991–1996	16.2 (9.8–22.7)	10.8 (3.5–18.1)	10.0 (3.0–33.6)	12.6 (11.5–13.7)
	1996–2001	22.0 (15.8–28.2)	18.9 (10.3–27.4)	3.8 (1.3–11.4)	12.8 (11.8–13.9)
	2001–2004	17.9 (12.0–23.8)	15.0 (7.3–22.8)	8.2 (3.2–13.2)	11.8 (10.7–13.0)
	% change	-10%	-55%		-6%
	P (trend)	0.98	0.84		0.30
	Pooled	19.0 (16.0–22.0)	20.2 (12.7–27.7)	8.5 (4.0–13.0)	12.8 (12.3–13.3)
Females 25+ years	1981–1986	10.4 (4.7–16.1)	12.2 (4.4–34.2)	9.2 (2.1–39.7)	8.3 (7.4–9.2)
	1986–1991	13.6 (7.5–19.7)	18.6 (2.3–35.0)	3.5 (0.5–25.1)	8.3 (7.5–9.1)
	1991–1996	12.9 (8.0–17.8)	11.8 (2.8–20.8)	6.3 (2.2–17.8)	10.0 (9.1–10.9)
	1996–2001	16.5 (11.7–21.2)	7.3 (2.5–12.1)	8.5 (2.5–14.5)	10.2 (9.3–11.0)
	2001–2004	16.7 (11.4–21.9)	5.9 (1.0–10.8)	4.8 (1.2–8.3)	9.3 (8.4–10.2)
	% change	61%	-52%	-48%	12%
	P (trend)	0.02	0.06	0.80	0.19
	Pooled	13.9 (11.5–16.3)	11.4 (6.5–16.3)	6.5 (2.8–10.3)	9.2 (8.8–9.6)

Table 116: Age- and ethnicity-standardised rates of pancreatic cancer, by income group

Pancreas Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	16.3 (11.4–21.3)	15.1 (11.9–18.4)	16.2 (9.3–23.0)
	1986–1991	13.0 (10.7–15.4)	19.1 (14.8–23.3)	15.7 (11.0–20.4)
	1991–1996	13.4 (10.6–16.2)	13.7 (11.1–16.2)	13.3 (9.9–16.6)
	1996–2001	16.0 (13.3–18.7)	13.4 (10.8–16.1)	13.3 (10.6–16.0)
	2001–2004	13.6 (11.1–16.0)	13.9 (11.5–16.3)	14.4 (10.2–18.5)
	% change	-17%	-8%	-11%
	P (trend)	0.85	0.36	0.33
	Pooled	14.5 (13.0–16.0)	15.1 (13.7–16.5)	14.6 (12.5–16.7)
Females 25+ years	1981–1986	8.8 (6.8–10.8)	13.3 (8.5–18.0)	8.0 (5.8–10.2)
	1986–1991	10.3 (7.9–12.7)	7.9 (6.1–9.7)	12.0 (6.7–17.3)
	1991–1996	11.7 (9.3–14.2)	10.8 (8.9–12.7)	9.4 (6.5–12.4)
	1996–2001	11.4 (9.5–13.3)	10.6 (8.9–12.3)	11.3 (8.2–14.4)
	2001–2004	12.7 (10.4–15.0)	11.0 (8.4–13.7)	8.8 (6.2–11.3)
	% change	44%	-17%	10%
	P (trend)	0.01	0.41	0.53
	Pooled	10.9 (9.9–11.9)	10.7 (9.4–12.0)	10.0 (8.4–11.5)

Table 117: Age-standardised rates of prostate cancer, by ethnic group

Prostate Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	57.3 (41.9–72.7)	41.0 (7.8–74.1)	11.6 (2.9–46.5)	71.2 (68.3–74.1)
	1986–1991	74.2 (58.7–89.7)	106 (62–150)	40.2 (14.9–65.6)	74.1 (71.4–76.8)
	1991–1996	137 (116–158)	119 (85–152)	57.5 (32.7–82.4)	139 (135–142)
	1996–2001	183 (165–202)	209 (176–243)	95.6 (72.7–119)	208 (204–212)
	2001–2004	191 (172–211)	191 (160–222)	95.8 (76.9–115)	209 (204–214)
	% change	234%	366%	726%	193%
	P (trend)	<.01	0.02	<.01	0.02
	Pooled	125 (117–133)	130 (114–146)	58.4 (48.4–68.3)	137 (135–138)
25–64 years	1981–1986	21.7 (12.0–31.5)	6.5 (2.0–20.6)		15.1 (13.4–16.8)
	1986–1991	17.7 (11.2–24.3)	32.9 (8.3–57.4)	2.8 (0.4–19.8)	14.8 (13.2–16.4)
	1991–1996	25.6 (18.7–32.6)	45.2 (23.9–66.6)	17.4 (2.9–31.9)	36.2 (33.8–38.6)
	1996–2001	60.6 (49.8–71.4)	45.1 (31.7–58.6)	24.1 (13.8–34.4)	77.0 (73.5–80.6)
	2001–2004	73.4 (61.9–85.0)	59.2 (42.0–76.3)	41.1 (28.6–53.6)	99.1 (95.0–103)
	% change	238%	811%		556%
	P (trend)	0.05	<.01		0.03
	Pooled	38.1 (34.0–42.2)	36.7 (28.7–44.8)	20.1 (15.2–25.0)	54.1 (52.8–55.4)
65+ years	1981–1986	262 (176–348)	194 (16–373)	64.0 (16.0–256)	365 (348–381)
	1986–1991	377 (288–466)	521 (277–765)	229 (78–380)	383 (368–398)
	1991–1996	690 (573–808)	559 (370–747)	291 (127–456)	694 (674–714)
	1996–2001	909 (805–1013)	1078 (883–1274)	503 (353–653)	962 (938–985)
	2001–2004	874 (763–986)	977 (784–1171)	405 (299–510)	904 (876–933)
	% change	233%	403%	532%	148%
	P (trend)	<.01	0.02	0.02	0.02
	Pooled	610 (564–656)	650 (559–741)	293 (231–355)	649 (640–658)

Table 118: Age- and ethnicity-standardised rates of prostate cancer, by income group

Prostate Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	65.4 (59.9–70.9)	74.0 (62.8–85.1)	69.7 (62.0–77.3)
	1986–1991	80.7 (72.4–89.0)	80.1 (71.6–88.6)	77.1 (68.7–85.6)
	1991–1996	125 (116–134)	139 (131–146)	162 (147–178)
	1996–2001	194 (184–203)	203 (194–211)	236 (225–247)
	2001–2004	197 (187–207)	208 (198–218)	219 (208–229)
	% change	202%	181%	214%
	P (trend)	<.01	0.01	0.02
	Pooled	129 (125–133)	137 (133–141)	149 (145–154)
25–64 years	1981–1986	15.3 (11.4–19.2)	16.2 (12.1–20.2)	15.6 (11.4–19.8)
	1986–1991	15.3 (12.0–18.7)	16.8 (13.0–20.5)	18.7 (13.4–24.1)
	1991–1996	38.2 (33.0–43.4)	31.8 (27.6–36.0)	38.3 (32.2–44.4)
	1996–2001	57.8 (51.9–63.8)	73.7 (67.1–80.3)	84.8 (78.2–91.4)
	2001–2004	79.5 (72.0–87.0)	87.7 (80.3–95.1)	108 (100–115)
	% change	420%	441%	590%
	P (trend)	0.02	0.03	0.01
	Pooled	39.3 (37.0–41.6)	43.1 (40.8–45.4)	50.3 (47.6–52.9)
65–74 years	1981–1986	260 (223–297)	249 (178–321)	265 (216–315)
	1986–1991	294 (256–332)	281 (228–334)	304 (230–377)
	1991–1996	442 (393–491)	542 (496–587)	645 (570–720)
	1996–2001	831 (772–889)	860 (802–919)	1011 (934–1089)
	2001–2004	847 (780–915)	908 (834–981)	934 (859–1008)
	% change	226%	264%	252%
	P (trend)	0.02	<.01	0.01
	Pooled	519 (497–541)	551 (524–578)	617 (585–648)
75+ years	1981–1986	487 (431–544)	596 (479–713)	527 (444–610)
	1986–1991	709 (574–844)	674 (565–783)	602 (501–703)
	1991–1996	907 (790–1025)	1019 (938–1099)	1248 (1017–1479)
	1996–2001	1215 (1106–1324)	1142 (1056–1229)	1309 (1189–1428)
	2001–2004	995 (891–1099)	1039 (926–1152)	965 (846–1084)
	% change	104%	74%	83%
	P (trend)	0.03	0.06	0.09
	Pooled	856 (808–905)	887 (841–932)	928 (864–992)

Table 119: Age-standardised rates of stomach cancer, by ethnic group

Stomach Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	38.5 (27.3–49.8)	76.4 (37.2–116)	12.3 (4.5–33.6)	23.4 (21.7–25.1)
	1986–1991	47.9 (35.9–60.0)	53.6 (27.0–80.2)	12.6 (4.4–35.9)	20.0 (18.6–21.4)
	1991–1996	43.5 (33.7–53.3)	32.4 (19.5–45.4)	13.9 (3.5–24.2)	17.7 (16.4–18.9)
	1996–2001	34.8 (28.0–41.7)	44.3 (30.6–58.1)	25.4 (14.4–36.3)	16.8 (15.6–18.0)
	2001–2004	35.7 (27.8–43.7)	40.2 (26.1–54.4)	14.2 (6.5–21.8)	15.7 (14.4–17.0)
	% change	-7%	-47%	15%	-33%
	P (trend)	0.27	0.60	0.62	0.01
	Pooled	40.3 (35.8–44.8)	49.8 (38.9–60.8)	15.8 (10.7–20.8)	18.9 (18.2–19.5)
25–64 years	1981–1986	25.2 (15.5–34.9)	38.0 (12.7–63.4)	9.1 (2.9–28.5)	11.7 (10.3–13.2)
	1986–1991	28.4 (19.4–37.4)	19.1 (9.2–29.0)	4.6 (1.1–19.3)	7.8 (6.7–8.9)
	1991–1996	26.7 (19.3–34.1)	27.2 (15.1–39.3)	8.8 (2.1–15.5)	7.1 (6.1–8.2)
	1996–2001	24.8 (18.5–31.1)	24.5 (13.9–35.1)	10.7 (3.9–17.4)	7.3 (6.3–8.4)
	2001–2004	19.0 (13.7–24.3)	22.0 (11.7–32.3)	6.2 (2.0–10.4)	7.6 (6.4–8.7)
	% change	-25%	-42%	-32%	-35%
	P (trend)	0.10	0.88	0.92	0.25
	Pooled	25.1 (21.6–28.7)	26.4 (19.5–33.2)	8.0 (4.6–11.3)	8.3 (7.8–8.9)
65+ years	1981–1986	125 (68–181)	270 (74–465)	23.5 (3.3–167)	90.6 (82.2–99.0)
	1986–1991	166 (101–231)	240 (79–402)	46.9 (11.7–188)	88.8 (81.4–96.2)
	1991–1996	136 (87–185)	68.7 (13.7–124)	53.4 (12.2–234)	76.0 (69.7–82.4)
	1996–2001	97.1 (64.8–129)	180 (100–261)	141 (50–232)	69.5 (63.5–75.6)
	2001–2004	137 (91–183)	126 (60–191)	49.7 (11.9–87.5)	62.6 (55.7–69.5)
	% change	10%	-53%	111%	-31%
	P (trend)	0.60	0.95	0.45	<.01
	Pooled	132 (109–155)	179 (121–237)	63.5 (32.6–94.4)	78.2 (75.1–81.4)
Females 25+ years	1981–1986	27.4 (18.4–36.5)	27.4 (8.6–46.1)	10.7 (3.2–35.2)	11.3 (10.2–12.3)
	1986–1991	24.5 (17.4–31.6)	22.1 (8.1–36.0)	18.0 (4.5–31.5)	8.1 (7.3–8.9)
	1991–1996	26.3 (19.3–33.4)	16.5 (5.9–27.2)	7.3 (2.5–21.1)	8.2 (7.4–9.0)
	1996–2001	23.3 (17.9–28.8)	20.5 (12.4–28.5)	10.5 (4.7–16.4)	7.5 (6.7–8.2)
	2001–2004	27.1 (20.7–33.5)	25.0 (16.1–33.8)	8.6 (3.8–13.3)	6.5 (5.8–7.3)
	% change	-1%	-9%	-20%	-42%
	P (trend)	0.91	0.76	0.47	0.05
	Pooled	25.7 (22.4–28.9)	22.2 (16.3–28.0)	11.1 (6.7–15.6)	8.4 (8.0–8.8)
25–64 years	1981–1986	16.8 (10.4–23.1)	12.7 (2.9–22.5)	17.5 (4.6–66.5)	4.2 (3.3–5.0)
	1986–1991	15.0 (9.6–20.3)	18.9 (6.9–30.9)	9.2 (0.7–17.7)	2.9 (2.3–3.6)
	1991–1996	14.7 (9.5–20.0)	11.3 (4.2–18.3)	2.7 (0.6–11.3)	3.2 (2.5–3.9)
	1996–2001	11.3 (7.8–14.7)	11.3 (5.6–17.0)	8.4 (2.6–14.1)	2.6 (2.0–3.2)
	2001–2004	14.2 (9.9–18.5)	15.2 (8.0–22.4)	4.5 (1.2–7.8)	2.9 (2.3–3.6)
	% change	-15%	20%	-74%	-31%
	P (trend)	0.28	0.99	0.82	0.20
	Pooled	14.4 (12.1–16.7)	13.8 (9.9–17.8)	8.7 (3.2–14.1)	3.2 (2.9–3.5)
65+ years	1981–1986	107 (52–163)	89.5 (32.2–249)		48.3 (43.2–53.4)
	1986–1991	74.9 (37.5–112)	45.2 (11.3–181)	54.8 (17.7–170)	36.0 (31.9–40.1)
	1991–1996	96.8 (59.8–134)	41.9 (12.4–142)	27.4 (6.8–111)	33.0 (29.5–36.6)
	1996–2001	88.5 (58.8–118)	63.7 (24.4–103)	25.6 (9.4–69.8)	33.1 (29.1–37.1)
	2001–2004	103 (63–142)	77.1 (33.1–121)	34.5 (4.5–64.5)	25.7 (21.9–29.4)
	% change	-4%	-14%		-47%
	P (trend)	0.66	0.49		0.03
	Pooled	93.6 (75.3–112)	62.8 (34.9–90.7)	35.6 (16.6–54.7)	32.3 (30.6–34.1)

Table 120: Age- and ethnicity-standardised rates of stomach cancer, by income group

Stomach Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	32.0 (25.6–38.5)	28.0 (22.3–33.6)	24.8 (19.0–30.6)
	1986–1991	30.9 (25.9–35.9)	22.1 (18.4–25.8)	22.6 (16.1–29.0)
	1991–1996	24.9 (21.1–28.7)	22.4 (19.1–25.7)	20.7 (15.6–25.7)
	1996–2001	22.2 (18.9–25.4)	22.5 (19.5–25.4)	15.9 (13.1–18.7)
	2001–2004	21.1 (17.4–24.8)	23.2 (18.7–27.7)	15.6 (12.7–18.5)
	% change	-34%	-17%	-37%
	P (trend)	0.01	0.48	0.01
	Pooled	26.5 (24.4–28.6)	23.7 (21.8–25.5)	20.1 (17.9–22.4)
25–64 years	1981–1986	12.7 (9.4–15.9)	12.2 (9.0–15.3)	16.7 (10.3–23.1)
	1986–1991	14.6 (10.2–18.9)	9.5 (7.2–11.8)	8.8 (5.9–11.6)
	1991–1996	13.6 (10.6–16.7)	9.9 (7.1–12.7)	9.2 (6.2–12.3)
	1996–2001	11.1 (8.6–13.6)	11.6 (8.5–14.7)	10.2 (6.8–13.7)
	2001–2004	9.9 (7.3–12.5)	11.2 (8.4–14.1)	7.5 (5.5–9.5)
	% change	-22%	-8%	-55%
	P (trend)	0.11	0.80	0.25
	Pooled	12.5 (11.0–14.0)	10.9 (9.6–12.2)	10.6 (8.8–12.4)
65+ years	1981–1986	130 (97–164)	110 (82–139)	90.9 (61.6–120)
	1986–1991	125 (101–149)	100 (74–126)	97.7 (62.7–133)
	1991–1996	88.8 (70.3–107)	91.3 (74.6–108)	86.3 (58.7–114)
	1996–2001	83.0 (67.3–98.7)	90.2 (74.2–106)	56.3 (42.6–70.1)
	2001–2004	79.5 (61.0–97.9)	94.7 (68.1–121)	62.4 (46.5–78.3)
	% change	-39%	-14%	-31%
	P (trend)	0.04	0.14	0.10
	Pooled	102 (92–113)	97.4 (87.1–108)	79.5 (67.7–91.4)
Females 25+ years	1981–1986	16.5 (13.4–19.6)	15.3 (10.9–19.7)	10.5 (7.2–13.9)
	1986–1991	13.0 (10.6–15.5)	10.8 (8.3–13.3)	8.2 (6.1–10.3)
	1991–1996	12.3 (10.0–14.6)	10.3 (8.1–12.4)	9.4 (5.6–13.2)
	1996–2001	10.8 (8.7–12.9)	12.5 (10.0–15.0)	8.6 (6.3–10.9)
	2001–2004	9.9 (7.7–12.0)	12.7 (9.8–15.7)	10.9 (7.8–14.1)
	% change	-40%	-17%	4%
	P (trend)	0.01	0.86	0.69
	Pooled	12.6 (11.5–13.7)	12.3 (10.9–13.7)	9.5 (8.1–10.8)
25–64 years	1981–1986	7.8 (5.3–10.4)	6.3 (3.9–8.7)	4.4 (2.6–6.2)
	1986–1991	6.3 (4.4–8.1)	5.7 (3.3–8.1)	3.7 (2.0–5.5)
	1991–1996	5.3 (3.7–7.0)	4.3 (2.4–6.1)	4.4 (1.1–7.7)
	1996–2001	5.1 (3.6–6.5)	4.6 (3.0–6.3)	2.8 (1.6–4.0)
	2001–2004	4.4 (2.9–5.8)	7.1 (4.8–9.5)	5.4 (3.3–7.4)
	% change	-44%	13%	23%
	P (trend)	0.01	0.96	0.83
	Pooled	5.8 (5.0–6.7)	5.5 (4.6–6.5)	4.1 (3.1–5.0)
65+ years	1981–1986	66.0 (50.0–82.0)	68.4 (39.7–97.2)	39.6 (22.8–56.4)
	1986–1991	48.4 (35.3–61.5)	38.0 (27.8–48.3)	34.9 (20.8–49.1)
	1991–1996	47.9 (36.5–59.2)	42.2 (31.3–53.1)	34.6 (16.9–52.2)
	1996–2001	42.0 (31.2–52.8)	55.1 (41.0–69.2)	39.8 (24.7–54.8)
	2001–2004	42.6 (29.8–55.4)	46.3 (26.8–65.9)	36.8 (22.1–51.6)
	% change	-35%	-32%	-7%
	P (trend)	0.07	0.63	0.95
	Pooled	49.7 (43.9–55.5)	50.2 (42.1–58.2)	37.2 (30.0–44.3)

Table 121: Age-standardised rates of testicular cancer, by ethnic group

Testicular Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 15+ years	1981–1986	11.2 (7.5–15.0)	2.6 (0.8–8.0)	2.3 (0.6–9.6)	7.5 (6.5–8.5)
	1986–1991	6.6 (4.4–8.8)	6.6 (1.8–23.4)	5.7 (1.5–22.1)	7.4 (6.4–8.3)
	1991–1996	11.4 (8.5–14.2)	5.1 (1.9–8.2)	4.2 (0.5–7.8)	7.2 (6.3–8.1)
	1996–2001	14.0 (11.2–16.9)	2.1 (0.5–3.7)	3.3 (1.3–5.3)	8.1 (7.1–9.2)
	2001–2004	14.2 (10.7–17.7)	2.7 (0.7–4.6)	2.7 (0.8–4.5)	11.4 (10.0–12.8)
	% change	27%	4%	17%	52%
	P (trend)	0.15	0.67	0.87	0.21
	Pooled	11.3 (10.0–12.7)	3.9 (1.9–5.9)	3.7 (1.7–5.7)	8.2 (7.7–8.6)
15–44 years	1981–1986	14.6 (9.8–19.4)	3.9 (1.2–12.0)	3.5 (0.9–14.4)	10.4 (8.9–11.9)
	1986–1991	10.0 (6.3–13.8)	4.0 (1.2–13.5)	8.6 (2.2–33.4)	9.0 (7.7–10.4)
	1991–1996	15.8 (11.5–20.1)	5.8 (1.9–9.6)	6.3 (0.8–11.9)	8.6 (7.3–9.9)
	1996–2001	19.8 (15.4–24.2)	3.2 (0.8–5.6)	5.0 (2.0–8.0)	10.8 (9.3–12.3)
	2001–2004	19.8 (14.8–24.9)	3.7 (0.7–6.7)	4.2 (1.0–7.3)	14.4 (12.3–16.4)
	% change	36%	-5%	20%	38%
	P (trend)	0.12	0.58	0.97	0.34
	Pooled	15.8 (13.8–17.8)	4.1 (2.4–5.9)	5.6 (2.6–8.6)	10.5 (9.8–11.1)

Table 122: Age- and ethnicity-standardised rates of testicular cancer, by income group

Testicular Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 15+ years	1981–1986	9.8 (7.4–12.1)	7.9 (6.1–9.7)	7.1 (5.3–8.9)
	1986–1991	7.2 (5.5–8.9)	6.5 (5.1–7.9)	6.6 (5.0–8.2)
	1991–1996	6.9 (5.4–8.5)	8.7 (7.0–10.4)	7.1 (5.5–8.8)
	1996–2001	10.6 (8.5–12.6)	8.3 (6.5–10.1)	7.4 (5.9–9.0)
	2001–2004	11.0 (8.6–13.4)	12.3 (9.8–14.7)	9.1 (7.3–10.9)
	% change	12%	56%	28%
	P (trend)	0.41	0.17	0.12
	Pooled	9.0 (8.1–9.9)	8.6 (7.8–9.4)	7.4 (6.6–8.1)
15–24 years	1981–1986	8.7 (3.2–14.2)	8.9 (4.2–13.7)	4.8 (2.0–7.5)
	1986–1991	4.2 (1.2–7.1)	6.9 (3.7–10.1)	2.9 (0.7–5.2)
	1991–1996	3.1 (0.8–5.4)	3.6 (1.1–6.0)	6.5 (2.5–10.4)
	1996–2001	4.2 (1.5–6.8)	6.7 (2.8–10.6)	8.0 (3.5–12.5)
	2001–2004	6.2 (2.4–10.0)	6.1 (2.0–10.2)	5.9 (2.1–9.7)
	% change	-29%	-31%	23%
	P (trend)	0.95	0.60	0.31
	Pooled	5.2 (3.6–6.9)	6.5 (4.8–8.1)	5.6 (4.0–7.2)
25–44 years	1981–1986	17.0 (11.9–22.1)	13.2 (9.2–17.2)	14.0 (9.8–18.1)
	1986–1991	12.0 (8.4–15.6)	10.2 (7.3–13.0)	11.5 (8.1–14.8)
	1991–1996	12.6 (8.8–16.5)	16.1 (12.1–20.0)	11.4 (7.9–14.9)
	1996–2001	22.6 (17.4–27.8)	15.7 (11.4–20.0)	11.2 (8.1–14.4)
	2001–2004	18.6 (12.6–24.5)	22.1 (16.4–27.8)	15.3 (11.3–19.3)
	% change	9%	67%	9%
	P (trend)	0.40	0.12	0.78
	Pooled	16.5 (14.3–18.6)	15.1 (13.3–17.0)	12.5 (10.9–14.2)

Table 123: Age-standardised rates of thyroid cancer, by ethnic group

Thyroid Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 15+ years	1981–1986	3.6 (0.0–7.1)	0.5 (0.1–3.6)		1.7 (1.3–2.2)
	1986–1991	2.5 (0.6–4.4)	1.1 (0.3–4.3)	2.8 (0.7–11.1)	1.6 (1.2–2.0)
	1991–1996	2.9 (0.9–5.0)	4.5 (1.6–12.7)	1.7 (0.4–7.0)	2.1 (1.6–2.5)
	1996–2001	4.1 (2.3–5.9)	4.9 (0.8–9.0)	5.7 (0.4–11.0)	2.5 (2.0–3.0)
	2001–2004	3.1 (1.4–4.8)	2.2 (0.7–6.6)	2.4 (0.6–4.3)	2.7 (2.1–3.3)
	% change	-14%	340%		59%
	P (trend)	0.55	0.14		0.02
	Pooled	3.2 (2.2–4.3)	2.7 (1.3–4.1)	3.2 (1.5–4.9)	2.2 (2.0–2.4)
Females 15+ years	1981–1986	8.5 (4.7–12.3)	21.9 (10.2–33.7)	14.2 (0.6–27.9)	4.0 (3.3–4.6)
	1986–1991	6.8 (4.1–9.4)	15.3 (7.1–23.4)	6.2 (0.4–12.1)	4.3 (3.6–5.0)
	1991–1996	5.2 (2.8–7.6)	15.7 (7.3–24.1)	5.3 (1.1–9.4)	4.3 (3.6–5.0)
	1996–2001	10.6 (8.0–13.3)	24.6 (17.5–31.8)	17.9 (11.6–24.2)	6.7 (5.7–7.7)
	2001–2004	11.1 (8.0–14.2)	13.8 (8.7–18.9)	10.3 (6.4–14.2)	6.9 (5.9–7.8)
	% change	31%	-37%	-27%	73%
	P (trend)	0.29	0.65	0.48	0.05
	Pooled	8.3 (7.0–9.6)	18.5 (14.6–22.4)	10.8 (7.2–14.4)	5.2 (4.8–5.5)

Table 124: Age- and ethnicity-standardised rates of thyroid cancer, by income group

Thyroid Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 15+ years	1981–1986	2.7 (1.2–4.2)	1.9 (1.0–2.8)	1.6 (0.8–2.4)
	1986–1991	1.8 (1.1–2.6)	2.1 (1.3–2.8)	1.4 (0.7–2.1)
	1991–1996	2.2 (1.1–3.2)	2.0 (1.3–2.8)	2.2 (1.1–3.4)
	1996–2001	2.4 (1.5–3.3)	3.3 (2.1–4.4)	3.2 (2.1–4.3)
	2001–2004	2.6 (1.7–3.5)	2.8 (1.7–3.9)	2.6 (1.6–3.5)
	% change	-4%	47%	63%
	P (trend)	0.29	0.14	0.08
	Pooled	2.3 (1.8–2.8)	2.4 (2.0–2.8)	2.2 (1.8–2.6)
Females 15+ years	1981–1986	7.0 (4.9–9.1)	5.8 (3.6–7.9)	3.8 (2.4–5.2)
	1986–1991	5.1 (3.7–6.4)	4.6 (3.2–6.0)	6.2 (4.1–8.2)
	1991–1996	4.3 (3.1–5.5)	6.3 (4.4–8.3)	3.7 (2.5–4.8)
	1996–2001	9.4 (7.3–11.4)	7.4 (5.7–9.1)	8.1 (6.1–10.1)
	2001–2004	8.4 (6.6–10.2)	9.0 (7.0–11.1)	7.2 (5.4–9.0)
	% change	20%	55%	89%
	P (trend)	0.38	0.05	0.23
	Pooled	6.8 (6.0–7.5)	6.5 (5.7–7.3)	5.7 (5.0–6.5)

Table 125: Age-standardised rates of ill-defined cancer, by ethnic group

Ill-defined Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Males 25+ years	1981–1986	50.8 (38.3–63.3)	25.6 (9.8–41.3)	6.4 (0.9–45.7)	24.8 (23.0–26.5)
	1986–1991	41.8 (30.7–52.9)	35.7 (14.6–56.8)	34.7 (11.8–57.7)	25.7 (24.1–27.4)
	1991–1996	38.6 (29.3–47.9)	45.8 (26.8–64.9)	9.2 (0.2–18.1)	24.3 (22.8–25.8)
	1996–2001	32.5 (24.9–40.1)	38.3 (25.4–51.3)	18.1 (7.5–28.6)	24.5 (23.1–26.0)
	2001–2004	36.8 (28.5–45.1)	27.6 (16.1–39.0)	4.2 (0.1–8.2)	18.1 (16.7–19.5)
	% change	-28%	8%	-34%	-27%
	P (trend)	0.10	0.99	0.43	0.12
	Pooled	40.3 (35.7–44.8)	35.0 (27.4–42.5)	15.0 (8.8–21.3)	23.7 (23.0–24.5)
Females 25+ years	1981–1986	24.9 (16.3–33.5)	27.7 (5.3–50.1)	17.7 (6.3–49.7)	19.6 (18.2–21.0)
	1986–1991	41.6 (32.3–50.9)	21.7 (10.7–32.6)	8.7 (2.8–27.2)	21.3 (19.9–22.7)
	1991–1996	30.4 (22.8–38.0)	28.5 (15.6–41.5)	13.3 (3.2–23.5)	20.4 (19.1–21.7)
	1996–2001	33.5 (27.1–40.0)	35.8 (24.8–46.7)	16.2 (8.2–24.2)	19.7 (18.4–20.9)
	2001–2004	23.4 (17.7–29.0)	22.9 (14.1–31.8)	9.4 (4.5–14.3)	13.7 (12.6–14.7)
	% change	-6%	-17%	-47%	-30%
	P (trend)	0.55	0.92	0.57	0.15
	Pooled	31.1 (27.6–34.6)	27.5 (21.0–34.0)	13.2 (8.0–18.4)	19.2 (18.6–19.8)

Table 126: Age- and ethnicity-standardised rates of ill-defined cancer, by income group

Ill-defined Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Males 25+ years	1981–1986	28.4 (24.3–32.6)	30.5 (24.7–36.3)	29.4 (22.1–36.7)
	1986–1991	31.4 (27.1–35.8)	27.0 (23.3–30.7)	30.7 (23.6–37.9)
	1991–1996	32.9 (27.9–37.9)	28.6 (24.0–33.3)	25.1 (20.3–30.0)
	1996–2001	29.9 (26.1–33.7)	28.7 (25.1–32.2)	19.0 (16.4–21.6)
	2001–2004	27.1 (23.0–31.3)	19.5 (15.9–23.1)	18.2 (14.7–21.7)
	% change	-5%	-36%	-38%
	P (trend)	0.64	0.18	0.02
	Pooled	30.1 (28.1–32.0)	27.2 (25.3–29.2)	24.8 (22.3–27.3)
Females 25+ years	1981–1986	21.0 (17.5–24.5)	22.1 (17.4–26.7)	18.4 (15.0–21.8)
	1986–1991	25.6 (22.2–29.0)	25.7 (22.0–29.4)	22.0 (17.5–26.6)
	1991–1996	24.2 (20.9–27.5)	23.0 (19.8–26.2)	20.4 (16.6–24.3)
	1996–2001	26.4 (23.0–29.7)	20.9 (18.2–23.5)	18.0 (15.2–20.8)
	2001–2004	18.3 (15.7–20.9)	14.6 (12.2–17.0)	14.3 (11.4–17.2)
	% change	-13%	-34%	-22%
	P (trend)	0.51	0.07	0.20
	Pooled	23.3 (21.9–24.8)	21.6 (20.0–23.2)	18.8 (17.2–20.5)

Table 127: Age-standardised rates of childhood cancers, by ethnic group

1st cancer Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Both sexes 1–14 years	1981–1986	11.7 (8.1–15.4)	15.3 (8.6–22.0)	20.6 (3.2–38.1)	13.8 (10.6–17.1)
	1986–1991	14.3 (10.3–18.4)	27.6 (18.4–36.8)	21.2 (2.1–40.3)	17.3 (14.1–20.4)
	1991–1996	15.1 (10.9–19.2)	19.5 (11.2–27.8)	14.9 (5.4–24.4)	15.9 (12.9–18.9)
	1996–2001	12.1 (8.4–15.8)	18.0 (11.7–24.2)	20.7 (11.8–29.6)	14.4 (11.9–17.0)
	2001–2004	12.1 (8.0–16.2)	16.9 (10.0–23.7)	14.6 (7.0–22.1)	14.4 (11.6–17.1)
	% change	3%	10%	-29%	4%
	P (trend)	0.87	0.88	0.44	0.66
	Pooled	13.1 (11.3–14.9)	19.6 (16.2–23.0)	18.6 (12.4–24.8)	15.2 (13.9–16.5)

Table 128: Age- and ethnicity-standardised rates of childhood cancers, by income group

1st cancer Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Both sexes 1–14 years	1981–1986	11.6 (6.4–16.8)	10.7 (7.8–13.7)	18.7 (11.0–26.4)
	1986–1991	14.6 (9.5–19.6)	18.0 (14.1–21.9)	19.1 (11.8–26.4)
	1991–1996	13.7 (9.9–17.4)	17.7 (11.6–23.8)	17.9 (13.0–22.7)
	1996–2001	10.6 (7.4–13.8)	15.5 (11.1–19.9)	17.7 (13.5–21.9)
	2001–2004	11.5 (7.4–15.6)	11.3 (7.2–15.4)	15.7 (11.6–19.8)
	% change	-1%	6%	-16%
	P (trend)	0.40	0.83	0.04
	Pooled	12.4 (10.5–14.4)	14.8 (12.8–16.8)	17.9 (15.2–20.6)

Table 129: Age-standardised rates of adolescent cancers, by ethnic group

1st cancer Age group	Cohort	Total Māori SR (95% CI)	Total Pacific SR (95% CI)	Total Asian SR (95% CI)	European/Other SR (95% CI)
Both sexes 15–24 years	1981–1986	27.6 (21.4–33.7)	36.0 (22.3–49.7)	27.8 (2.4–53.2)	27.6 (24.6–30.7)
	1986–1991	24.0 (18.2–29.8)	50.5 (35.6–65.3)	20.6 (3.8–37.3)	29.7 (26.4–33.0)
	1991–1996	22.6 (17.3–27.9)	43.4 (30.6–56.3)	32.6 (18.2–47.0)	33.4 (29.6–37.3)
	1996–2001	26.4 (20.7–32.0)	35.6 (24.9–46.4)	30.1 (19.7–40.5)	34.0 (30.0–38.1)
	2001–2004	26.7 (20.3–33.1)	15.2 (8.8–21.6)	17.4 (9.3–25.5)	37.7 (32.9–42.5)
	% change	-3%	-58%	-37%	37%
	P (trend)	0.93	0.09	0.37	<.01
	Pooled	25.4 (22.8–28.0)	37.2 (31.6–42.8)	26.1 (18.6–33.6)	32.2 (30.5–33.9)

Table 130: Age- and ethnicity-standardised rates of adolescent cancers, by income group

1st cancer Age group	Cohort	Low income SR (95% CI)	Medium income SR (95% CI)	High income SR (95% CI)
Both sexes 15–24 years	1981–1986	23.4 (18.0–28.8)	33.4 (27.6–39.2)	29.2 (23.8–34.6)
	1986–1991	26.5 (20.4–32.6)	31.1 (25.8–36.3)	33.7 (27.4–39.9)
	1991–1996	36.5 (29.6–43.4)	31.7 (25.8–37.7)	34.8 (28.4–41.3)
	1996–2001	26.1 (20.5–31.6)	32.7 (26.2–39.2)	40.3 (33.3–47.3)
	2001–2004	31.5 (24.5–38.4)	34.4 (26.4–42.4)	36.0 (28.9–43.2)
	% change	35%	3%	23%
	P (trend)	0.38	0.63	0.08
	Pooled	28.7 (25.9–31.4)	32.6 (29.8–35.4)	34.7 (31.9–37.6)

Appendix 2: Miscellaneous

A2.1 Income thresholds

Table 131: Income tertile cut points for each five-year age group

	Low income	Medium income	High income
0–4 years	<$20,926	$20,926 – <$34,548	≥$34,549
5–9 years	<$21,298	$21,298 – <$35,785	≥$35,787
10–14 years	<$23,547	$23,549 – <$39,449	≥$39,450
15–19 years	<$28,461	$28,461 – <$46,773	≥$46,774
20–24 years	<$31,683	$31,684 – <$53,335	≥$53,335
25–29 years	<$29,924	$29,924 – <$53,597	≥$53,597
30–34 years	<$27,549	$27,551 – <$47,141	≥$47,141
35–39 years	<$28,425	$28,426 – <$46,868	≥$46,869
40–44 years	<$32,103	$32,104 – <$52,046	≥$52,047
45–49 years	<$36,102	$36,102 – <$57,565	≥$57,565
50–54 years	<$36,297	$36,297 – <$58,787	≥$58,788
55–59 years	<$31,236	$31,236 – <$53,335	≥$53,335
60–64 years	<$23,493	$23,494 – <$42,850	≥$42,851
65–69 years	<$20,930	$20,930 – <$34,548	≥$34,549
70–74 years	<$20,774	$20,778 – <$34,548	≥$34,549
≥ 75 years	<$20,332	$20,337 – <$34,548	≥$34,549

Table 132: Income quintile cut points for each five-year age group

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
0–4 years	<$15,591	$15,591 – <$23,371	$23,371 – <$31,064	$31,064 – <$43,438	≥$43,438
5–9 years	<$15,849	$15,850 – <$24,053	$24,054 – <$32,492	$32,495 – <$44,594	≥$44,594
10–14 years	<$17,394	$17,396 – <$26,558	$26,559 – <$35,849	$35,849 – <$49,174	≥$49,174
15–19 years	<$21,062	$21,062 – <$31,986	$31,986 – <$42,689	$42,690 – <$57,017	≥$57,017
20–24 years	<$22,948	$22,949 – <$35,930	$35,930 – <$48,572	$48,572 – <$63,483	≥$63,484
25–29 years	<$22,207	$22,208 – <$33,674	$33,674 – <$48,133	$48,135 – <$66,543	≥$66,547
30–34 years	<$20,924	$20,926 – <$30,837	$30,837 – <$42,345	$42,347 – <$62,001	≥$62,002
35–39 years	<$21,588	$21,589 – <$31,684	$31,684 – <$42,345	$42,346 – <$59,166	≥$59,167
40–44 years	<$24,384	$24,384 – <$35,764	$35,764 – <$47,189	$47,190 – <$64,220	≥$64,220
45–49 years	<$27,047	$27,048 – <$40,267	$40,267 – <$53,057	$53,057 – <$70,908	≥$70,909
50–54 years	<$26,953	$26,954 – <$40,443	$40,446 – <$53,596	$53,597 – <$72,173	≥$72,175
55–59 years	<$22,371	$22,373 – <$35,590	$35,591 – <$48,022	$48,024 – <$66,402	≥$66,405
60–64 years	<$19,347	$19,350 – <$27,011	$27,011 – <$37,998	$38,003 – <$55,277	≥$55,278
65–69 years	<$18,454	$18,467 – <$22,063	$22,064 – <$29,523	$29,523 – <$43,757	≥$43,758
70–74 years	<$18,448	$18,454 – <$20,938	$20,939 – <$27,639	$27,642 – <$40,069	≥$40,071
≥75 years	<$18,056	$18,071 – <$20,928	$20,930 – <$27,011	$27,011 – <$38,260	≥$38,269

A2.2 Pooled over time measures of rates and measures of association

Standardised rates (SR), rate differences (SRD) and rate ratios (SRR) were calculated directly on unit-level data for each Census-cancer cohort. Slope indices of inequality (SIIs) and relative indices of inequality (RIIs) were calculated on SRs brought out of the data laboratory, but for each cohort separately.

Given the small, and sometimes unstable, differences in cancer inequalities over cohorts, it is useful to provide pooled over time estimates with some measure of statistical imprecision (that is, confidence intervals). However, in this case it was not feasible to calculate these pooled estimates and measures of statistical imprecision directly on unit record data. The five separate Census-cohorts were not merged in the data laboratory at Statistics New Zealand, and analyses on such pooled data would have been extremely time-consuming given the added processes necessarily involved.

This section outlines the methods and approximations used to calculate the pooled estimates and their measures of imprecision.

The pooled estimates in this report were intended to provide the 'average' over time. Given that ethnic proportions varied over time while rates were also changing, it was possible that a direct pooled estimate (not done) or Mantel-Haenszel would be confounded by time. Standardisation by time was therefore decided on. Each of the first four cohorts comprised five years of time, but the last cohort comprised 3.82 years (March 2001 to December 2004). Thus, the proportion of time occupied by each cohort was 0.21, 0.21, 0.21, 0.21 and 0.16 respectively. These proportions were the weights used (as outlined below) to standardise further over time: here called w_t, as opposed to the standard nomenclature for such weights: w_i. In this case the value refers to World Health Organization standard population weights and their derivations to include ethnicity, used in the standardisation within cohorts.

A2.2.1 Pooled standardised rates

The pooled over time SR is simply the weighted average over time, using the above weights.

The variance of these pooled SRs (strictly standardised SRs) is approximated by the following formula:

$$Var(\overline{SR}) = \frac{\sum w_t^2 Var(SR_t)}{(\sum w_t)}$$

where $\overline{SR}$ is the pooled SR over time, w_t the weight or proportion of time occupied by each cohort and SR_t the SR in each cohort.

For example, assume each cohort has a rate of 200 per 100,000, each with the same variance of 100 (which equates to a s.e. of 10, and a 95 percent confidence interval of 180.4–219.6). The pooled SR is obviously 200. The variance of this pooled SR is $4 \times (0.21^2 \times 100) + 0.16^2 \times 100 = 20.2$. Thus the s.e. of the pooled SR is 4.49.

Table 133 below shows some mock data for standardised rates by cohort (SR_t) and their variances ($Var(SR_t)$). The pooled SR, $\overline{SR}$, among the exposed is the weighted sum of the SR_t, that is 161.65 per 100,000. Among the unexposed it is 88.65 per 100,000. The variance of each of these $\overline{SR}$ is the sum of the cohort-specific variances of SR_t each multiplied by w_t^2: 18.40 among the exposed, and 9.97 among the unexposed. Thus, the 95 percent confidence interval for $\overline{SR}$ among the exposed is: $161.65 \pm (1.96 \times \sqrt{18.40}) = 153.24 - 170.06 \, per \, 100,000$.

Table 133: Mock data for demonstrating calculation of pooled SR (per 100,000)

Cohort (t)	W_t	Exposed				Unexposed			
		SR_t	$Var(SR_t)$	$SR_t \times w_t$	$Var(SR_t) \times w_t^2$	SR_t	$Var(SR_t)$	$SR_t \times w_t$	$Var(SR_t) \times w_t^2$
1981–1986	0.21	150	100	31.50	4.41	100	60	21.00	2.65
1986–1991	0.21	140	110	29.40	4.85	90	45	18.90	1.98
1991–1996	0.21	175	80	36.75	3.53	85	40	17.85	1.76
1996–2001	0.21	160	75	33.60	3.31	90	55	18.90	2.43
2001–2004	0.16	190	90	30.40	2.30	75	45	12.00	1.15
Sum				161.65	18.40			88.65	9.97

A2.2.2 Pooled SRD and SRR

The pooled over time SRD, $\overline{SRD}$, is the w_t weighted average of the SRD_t over time. Alternatively, it is just the difference between two stratum-specific pooled SR (for example Māori and European/Other).

The variance of $\overline{SRD}$ is just the sum of the variance of the pooled SR for the unexposed ($Var(\overline{SR_0})$) and exposed ($Var(\overline{SR_1})$).

The pooled over time SRR, $\overline{SRR}$, is just the ratio of the pooled SR of the exposed ($\overline{SR_1}$) to the unexposed ($\overline{SR_0}$). The variance of $\ln(\overline{SRR})$ is approximated by the following formula:

$$Var[\ln(\overline{SRR})] = \frac{Var(\overline{SR_1})}{\overline{SR_1}^2} + \frac{Var(\overline{SR_0})}{\overline{SR_0}^2}$$

Extending the mock example in Table 133, the pooled SRD, $\overline{SRD}$, is 73.00 per 100,000, with a variance of 28.37 (that is, 18.40 + 9.97). The pooled SRR, $\overline{SRR}$, is 1.82. The variance of $\ln(\overline{SRR})$ is 0.001973 (that is, $18.40/161.65^2 + 9.97/88.65^2$). Calculating the confidence intervals in natural logarithm transformations, then exponentiating, the 95 percent confidence interval for $\overline{SRR}$ is 1.74–1.91.

A2.2.3 Pooled SII and RII

Note that a variance calculated for $\overline{SRD}$ using a weight-squared sum of the variance of each cohort-specific SRD is mathematically identical to that given above using the sum of the variance of the pooled SRs. Therefore, it seems reasonable to calculate the pooled SII, $\overline{SII}$, as simply the w_t-weighted average of the SII_t over time. The variance of $\overline{SII}$ is just the weighted sum of the variances of each cohort SII, SII_t, where the weights are the w_t squared.

However, the calculation of a pooled RII using just the cohort-specific RII is not straightforward. Further, as the SII, like the RII, is a regression-based estimate, it is not implausible that a 'properly' calculated SII for all cohorts pooled might differ slightly from the above weighted average SII.

Thus, pooled SRs ($\overline{SR}$) were first generated across all five cohorts for each quintile of income using data already exported from the Statistics New Zealand data laboratory, then the standard methods used in the NZCMS and CancerTrends[38][54] were applied to calculate the SIIs and RIIs directly on the pooled quintile $\overline{SR}$. This also required person time in each quintile (pooled over time), as both the weights in the regression and to calculate the central point on the cumulative proportion scale for ranked household income. However, as all five cohorts were actually pooled to determine quintile cut points, each quintile group actually comprises exactly (or very close to) 20 percent. Thus, the regression did not need to be weighted, and the ridit scores (central values of each quintile on the cumulative proportion scale) points could simply be fixed as 0.1, 0.3, 0.5, 0.7 and 0.9.