

**Cancer:
New
Registrations
and Deaths 2005**

Revised edition

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National collection, coding and collation of cancer registrations is a complex process. This is because the information in the New Zealand Cancer Registry comes from laboratory reports, hospital information and mortality information, and cannot be finalised until data have become available from all sources. In addition, there are several steps required to ensure the final information is of good quality.

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The Ministry of Health welcomes comments and suggestions about this publication.

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Selected facts

Cancer registrations and deaths, 2005

Overall, there were:

- 18,610 new registrations of cancer, 17.3 percent more than in 1995
- 7971 deaths from cancer, 7.4 percent more than in 1995.

Cancer remained the leading cause of death in New Zealand, accounting for 29.4 percent of deaths, slightly more than non-congenital heart diseases (26.9 percent).

For males, there were:

- 9647 new registrations of cancer, 13.0 percent more than in 1995
- 4184 deaths from cancer, 6.8 percent more than in 1995.

The male age-standardised rate for cancer registrations was 376.3 per 100,000 males in 2005, significantly less than the 1995 rate of 431.9.

For females, there were:

- 8963 new registrations of cancer, 22.3 percent more than in 1995
- 3787 deaths from cancer, 8.0 percent more than in 1995.

The female age-standardised rate for cancer registrations was 312.7 per 100,000 females in 2005, less than the 1995 rate of 325.6.

Most common cancers and leading causes of deaths from cancer, 2005

Overall, the five most common sites for cancer **registrations** were:

- cancer of the colorectum and anus (2716 new cases)
- cancer of the breast (2479 cases)
- cancer of the prostate (2471 cases)
- malignant melanoma of the skin (2017)
- cancer of the trachea, bronchus and lung (1659).

Overall, the leading sites for **deaths** from cancer were:

- cancer of the trachea, bronchus and lung (1451 deaths)
- cancer of the colorectum and anus (1222 deaths)
- cancer of the breast (653 deaths)
- cancer of the prostate (564 deaths).

For males:

- prostate cancer was the most commonly registered cancer (2471 cases, 25.6 percent of male registrations)
- cancer of the trachea, bronchus and lung was the leading cause of death from cancer (864 deaths, nearly 21 percent of male cancer deaths).

For females:

- breast cancer was the most commonly registered cancer (2458 cases, 27.4 percent of all female registrations)
- breast cancer was also the leading cause of cancer deaths among females (648 deaths, 17.1 percent of female cancer deaths).

Age and sex

The age-specific rates for cancer registrations and cancer deaths increased substantially with age.

The most commonly registered site for each sex and age group was:

- leukaemia among children (aged 0 to 14 years)
- malignant melanoma of the skin among youth (aged 15 to 24 years)
- malignant melanoma of the skin for males and breast cancer for females aged 25 to 44 years
- prostate cancer for males and breast cancer for females aged 45 to 74 years
- prostate cancer for males and cancer of the colorectum and anus among females aged 75 years and older.

The leading cause of cancer deaths for each sex and age group was:

- leukaemia among children (aged 0 to 14 years) and youth (aged 15 to 24 years)
- cancer of the brain among males and breast cancer among females aged 25 to 44 years
- cancer of the trachea, bronchus and lung among males and breast cancer among females aged 45 to 64 years
- cancer of the trachea, bronchus and lung among males and females aged 65 to 74 years
- prostate cancer among males and cancer of the colorectum and anus among females aged 75 years and older.

Ethnicity

There were:

- 1377 cancer registrations (598 males and 779 females) for Māori
- 760 deaths (369 males and 391 females) from cancer for Māori
- 575 cancer registrations (267 males and 308 females) for Pacific peoples
- 244 deaths (115 males and 129 females) from cancer for Pacific peoples.

Age-standardised registration rates were ordered from highest to lowest as follows:

- Pacific males (389.3 per 100,000 Pacific males)
- non-Māori, non-Pacific males (379.0 per 100,000 non-Māori, non-Pacific males)
- Māori females (362.3 per 100,000 Māori females)
- Māori males (339.9 per 100,000 Māori males)
- Pacific females (338.1 per 100,000 Pacific females)
- non-Māori, non-Pacific females (308.1 per 100,000 non-Māori, non-Pacific females).

Age-standardised mortality rates were ordered from highest to lowest as follows:

- Māori males (234.4 per 100,000 Māori males)
- Māori females (202.5 per 100,000 Māori females)
- Pacific males (183.7 per 100,000 Pacific males)
- Pacific females (157.6 per 100,000 Pacific females)
- non-Māori, non-Pacific males (149.5 per 100,000 non-Māori, non-Pacific males)
- non-Māori, non-Pacific females (108.8 per 100,000 non-Māori, non-Pacific females).

Overview

Introduction

Cancer: New Registrations and Deaths 2005 - Revised edition presents information about new cases of primary cancer diagnosed and reported to the New Zealand Cancer Registry in the 2005 calendar year. Cancer sites include cancers located in specific organs or tissues, as well as systemic cancers such as leukaemia and lymphoma. In-situ cancers are not included in the data presented here. The New Zealand Cancer Registry database records multiple primary cancers in the same person, of which only some are counted for incidence purposes according to the rules of the International Agency for Research on Cancer and the International Association of Cancer Registries (see Explanatory Notes).

The International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM) Third Edition was used to classify the site or topography for the 2005 data used in this report. *The International Classification of Diseases for Oncology (ICD-O) Third Edition* was used to classify the morphology (histology type and behaviour) of tumours.

The third edition of ICD-O contains a revised morphology section. New classifications have been introduced and new codes assigned to accommodate them. This has resulted in changes to the coding of cancers diagnosed since 1 January 2003. For some tumour types, particularly haematological malignancies and ovarian cancer, these changes may affect incidence reporting. Thus, for particular cancer sites, registrations from 1 January 2003 may not be directly comparable with 2002 and earlier. Please see the Explanatory Notes for further details of these changes.

From 1 January 2005, superficial transitional cell carcinoma of the bladder has no longer been coded as an invasive cancer. This coding change has resulted in a decrease in the number of bladder cancer registrations compared with previous years.

The World Health Organization (WHO) population standard was used to calculate standardised rates in this report. Previous editions of the series have used Segi's world population. Hence, the rates provided in this report are not comparable with those in previous editions. The rates for all years back to 1995 have been recalculated using the WHO standard.

The information presented in this report reflects the New Zealand Cancer Registry data at one point in time (January 2008). Data in the Cancer Registry are subject to change over time as late reports about cancer registrations are received. As a result, data extracted at an earlier or later date may differ from those in this publication.

Registrations and deaths

There were 18,610 new registrations of cancer and 7971 deaths from cancer in New Zealand in 2005. Registrations have decreased by 3.2 percent from 2004, but increased by 17.3 percent from 1995.

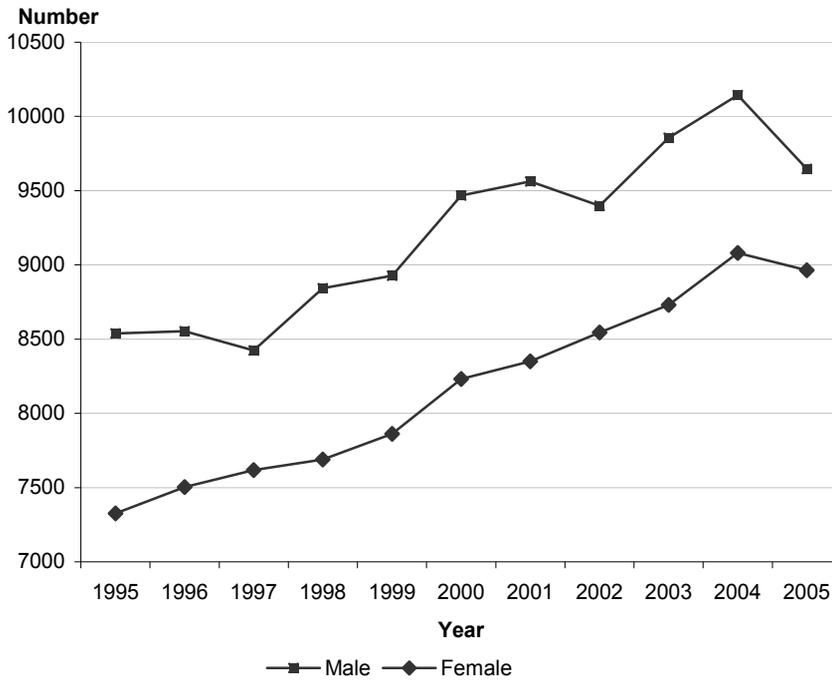
Deaths from cancer have also decreased from 2004, but at a lower rate (2.1 percent). Compared with 1995, cancer deaths in 2005 have increased by 7.4 percent.

In 2005, the age-standardised rate for cancer registrations was 340.3 per 100,000 population and the age-standardised rate of death from cancer was 133.6 per 100,000 population.

There were 9647 male and 8963 female cancer registrations. The number of registrations declined from 2004 for both males and females, with the percentage decrease for males (4.9

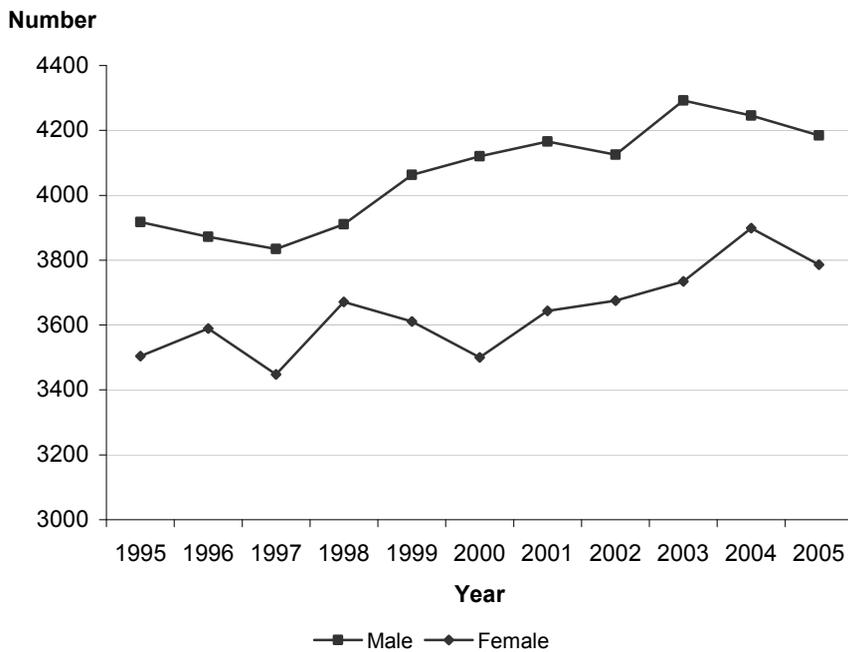
percent) being higher than that for females (1.3 percent). For both males and females, the 2005 registrations were greater than those recorded in 1995 (13.0 percent for males and 22.3 percent for females).

Figure 1: Total numbers of cancer registrations, by sex, 1995–2005



Note: 1995 to 1999 mapped from ICD-9-CM Second Edition to ICD-10-AM Second Edition (codes C00–C96).
 2000 to 2002 coded to ICD-10-AM Second Edition (codes C00–C96).
 From 2003 coded to ICD-10-AM Third Edition (codes C00–C96 and D45–D47).

Figure 2: Total numbers of cancer deaths, by sex, 1995–2005

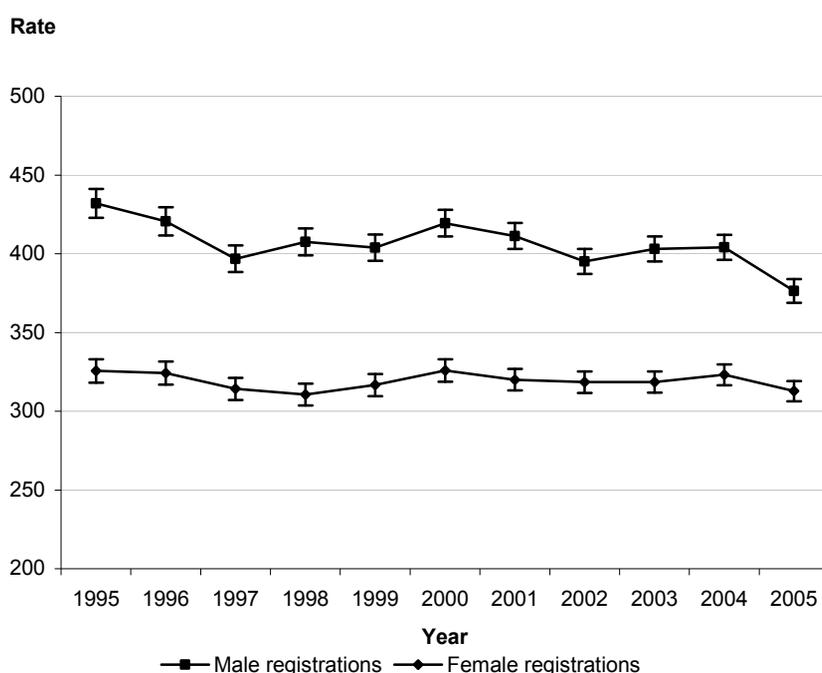


Note: 1995 to 1999 mapped from ICD-9-CM Second Edition to ICD-10-AM Second Edition (codes C00–C96).
 2000 to 2002 coded to ICD-10-AM Second Edition (codes C00–C96).
 From 2003 coded to ICD-10-AM Third Edition (codes C00–C96 and D45–D47).

In 2005, cancer remained the leading cause of death in New Zealand, accounting for 29.4 percent of deaths, slightly more than non-congenital heart diseases (26.9 percent) (see Table 7). Cancer was the leading cause of death among males (31.0 percent of all deaths) and females (27.7 percent of all deaths), with 4184 males and 3787 females recorded as having died from cancer in 2005. Among males, the number of deaths from cancer decreased by 1.5 percent from 2004, but increased by 6.8 percent from 1995. Among females, the number of deaths from cancer decreased by 2.9 percent from 2004, but increased by 8.0 percent from 1995.

The age-standardised rate for cancer registrations among males was 376.3 per 100,000 males in 2005, somewhat less than the 2004 rate of 404.1 and significantly less than the 1995 rate of 431.9. The female registration rate was 312.7 per 100,000 females in 2005, a decrease from the 2004 rate of 323.1 in 2004 and the 1995 rate of 325.6.

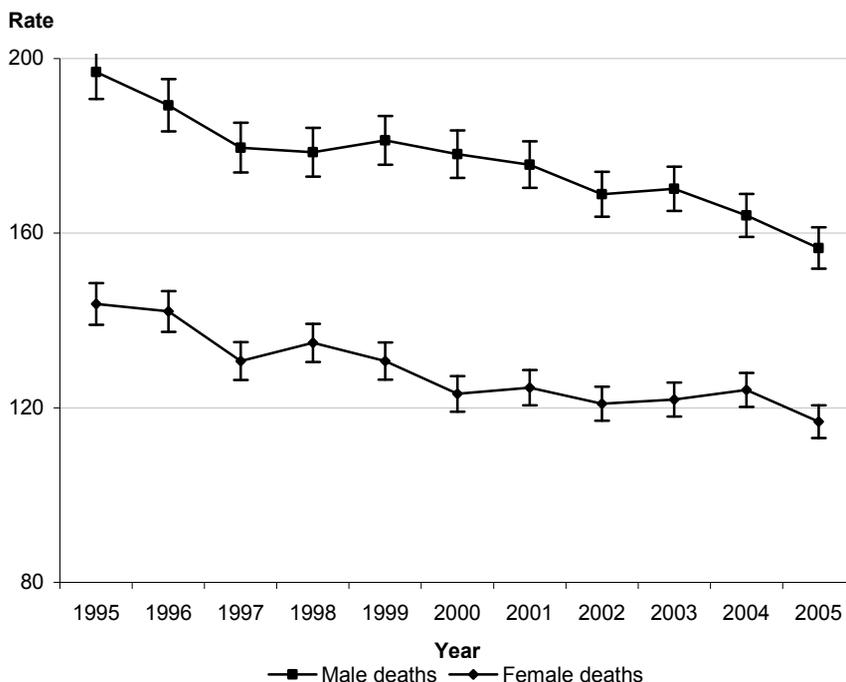
Figure 3: Age-standardised rates for all cancer registrations, by sex, 1995–2005



Notes: rates per 100,000, age-standardised to WHO world population.
 1995 to 1999 mapped from ICD-9-CM Second Edition to ICD-10-AM Second Edition (codes C00–C96).
 2000 to 2002 coded to ICD-10-AM Second Edition (codes C00–C96).
 From 2003 coded to ICD-10-AM Third Edition (codes C00–C96 and D45–D47).

For both males and females, age-standardised mortality rates have declined significantly since 1995. Among males, the cancer mortality rate of 156.6 per 100,000 males was a slight decrease from 2004 (164.1), but a substantial decrease from 196.9 in 1995. The female mortality rate of 116.9 per 100,000 females was also a slight decrease from the 2004 rate (124.1), but a substantial decrease from the 1995 rate of 143.8.

Figure 4: Age-standardised rates for all cancer deaths, by sex, 1995–2005



Notes: rates per 100,000, age-standardised to WHO world population.
 1995 to 1999 mapped from ICD-9-CM Second Edition to ICD-10-AM Second edition (codes C00–C96).
 2000 to 2002 coded to ICD-10-AM Second Edition (codes C00–C96).
 From 2003 coded to ICD-10-AM Third Edition (codes C00–C96 and D45–D47).

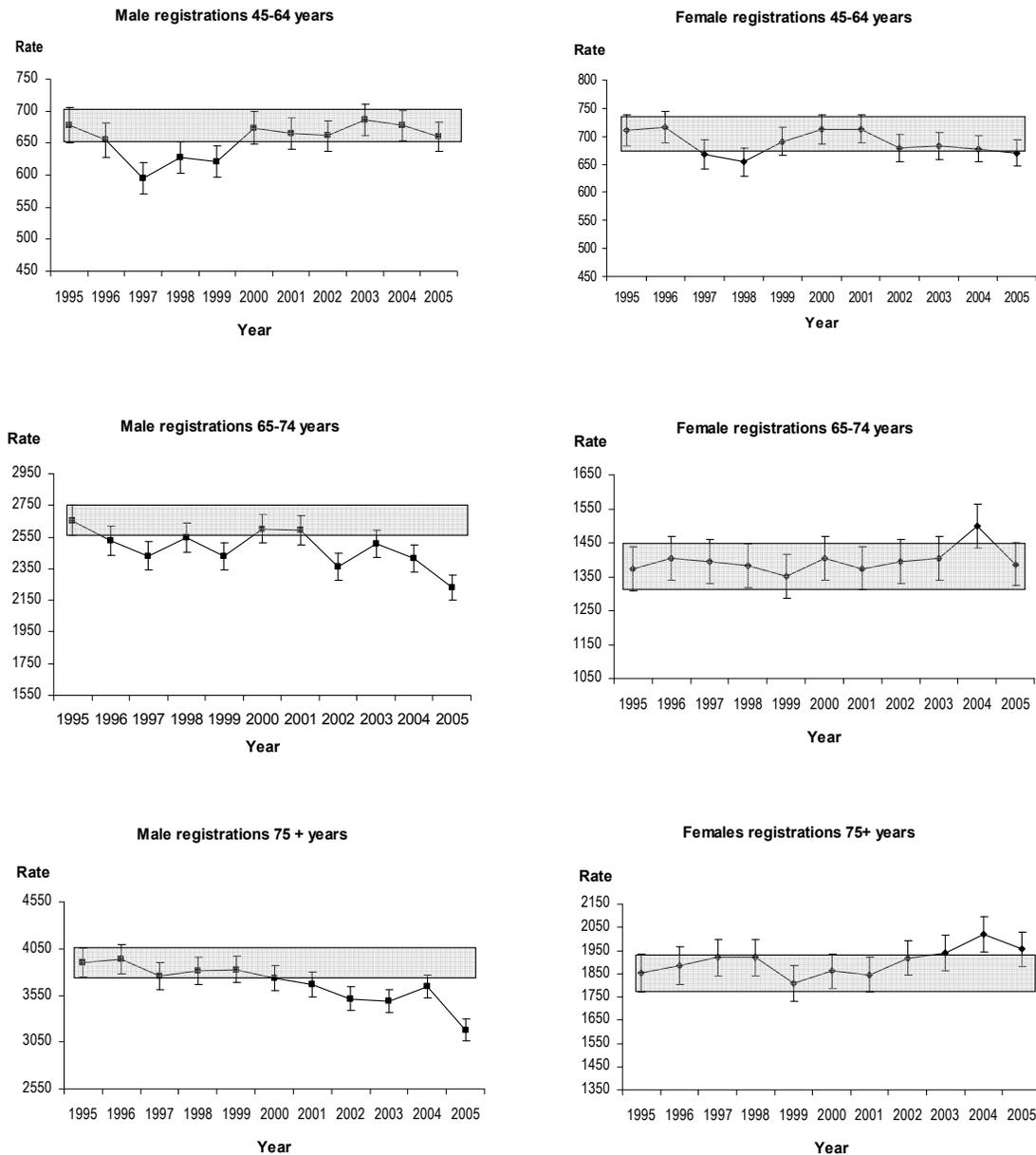
Age-standardised rates are a way of validly comparing groups that may have different age structures (eg, one group may be older on average than the other), as well as comparing data from the same group where the age structure has changed over time. Age-standardisation shows how comparative differences and trends over time reflect disease patterns rather than differences in population age profiles (see Explanatory Notes).

Age-specific rates show the proportion of new cases or deaths in a given age group. They are calculated by dividing the number of new cases or deaths by the corresponding number of people in the age group and then multiplying the result by a constant (here 100,000).

Over the period 1995 to 2005, the number of cancer registrations has risen (especially for males), while age-standardised rates have fallen (significantly so for males). Among males aged 65 to 74 years and 75 years and older, the age-specific rates have also fallen significantly since 1995. Age-specific rates for the male age group 45–64 years and each of the female age groups 45 years and older have not changed significantly over this period (see Figure 5).

It would appear that the increase in the number of new cancer registrations has been largely driven by the ageing of the New Zealand population. However, changes in the clinical definition of cancer have also influenced changes in the overall number of cancer registrations from 1995. Some of these changes, such as those for bladder cancer in 2005, would have had the effect of reducing the number of registrations, while others, such as the inclusion of the D code range of haematological malignancies, would have had the effect of increasing the number of registrations.

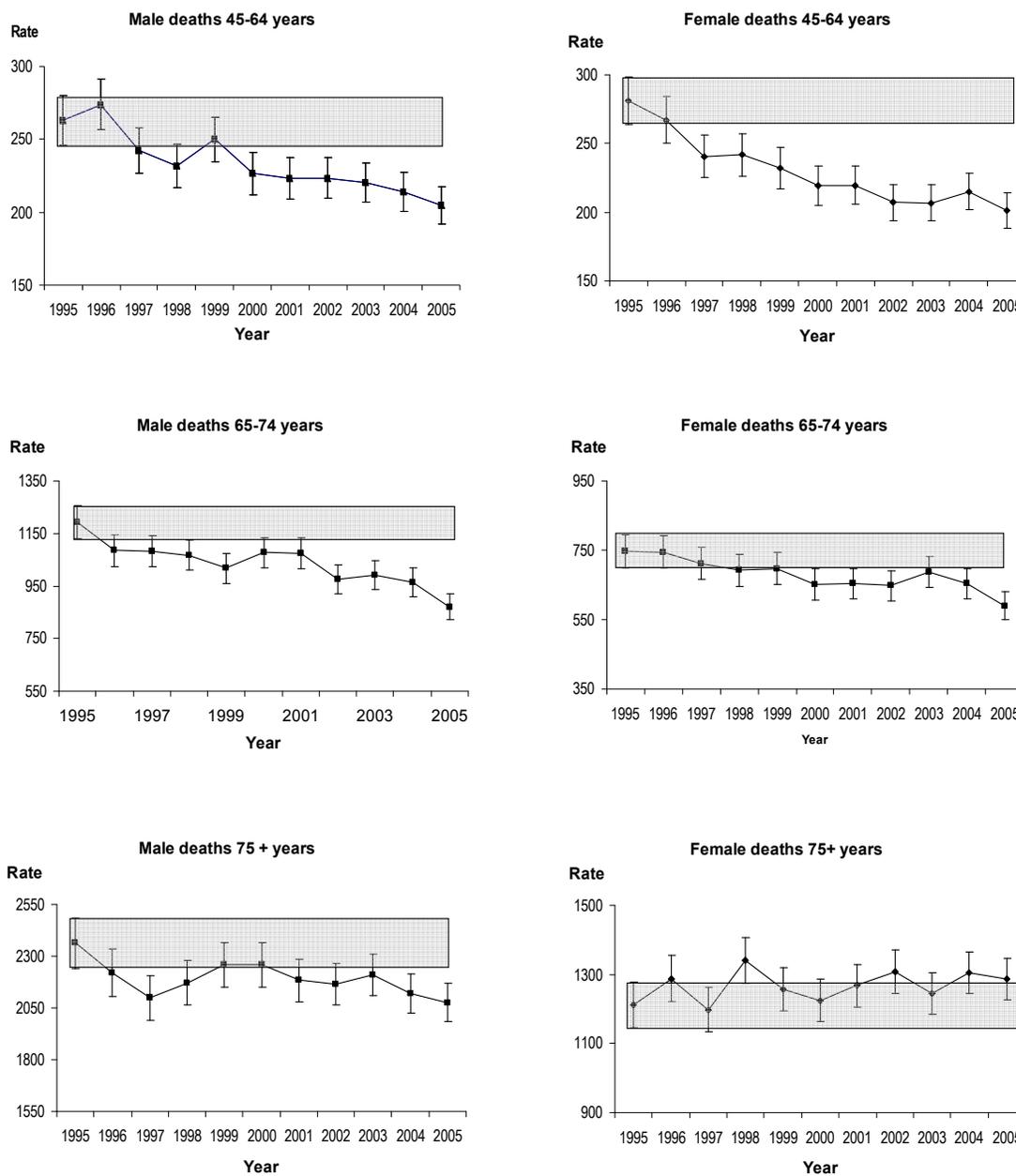
Figure 5: Age-specific rates and confidence intervals for cancer registrations, 1995–2005



Notes: rates per 100,000, age-standardised to WHO world population.
 1995 to 1999 mapped from ICD-9-CM Second Edition to ICD-10-AM Second Edition (codes C00–C96).
 2000 to 2002 coded to ICD-10-AM Second Edition (codes C00–C96).
 From 2003 coded to ICD-10-AM Third Edition (codes C00–C96 and D45–D47).
 Confidence intervals calculated at the 95 percent level.
 Shaded areas represent the range of the 1995 confidence intervals.

Since 1995, age-specific rates for cancer mortality have fallen significantly for both males and females in the older age groups (45 years and over), except for females aged 75 years and older. Over the same period, the number of deaths from cancer has risen slightly for males (by 6.8 percent) and females (by 8.0 percent), while the age-standardised mortality rates have decreased significantly for both males and females (see Figure 6).

Figure 6: Age-specific rates and confidence intervals for cancer mortality, 1995–2005



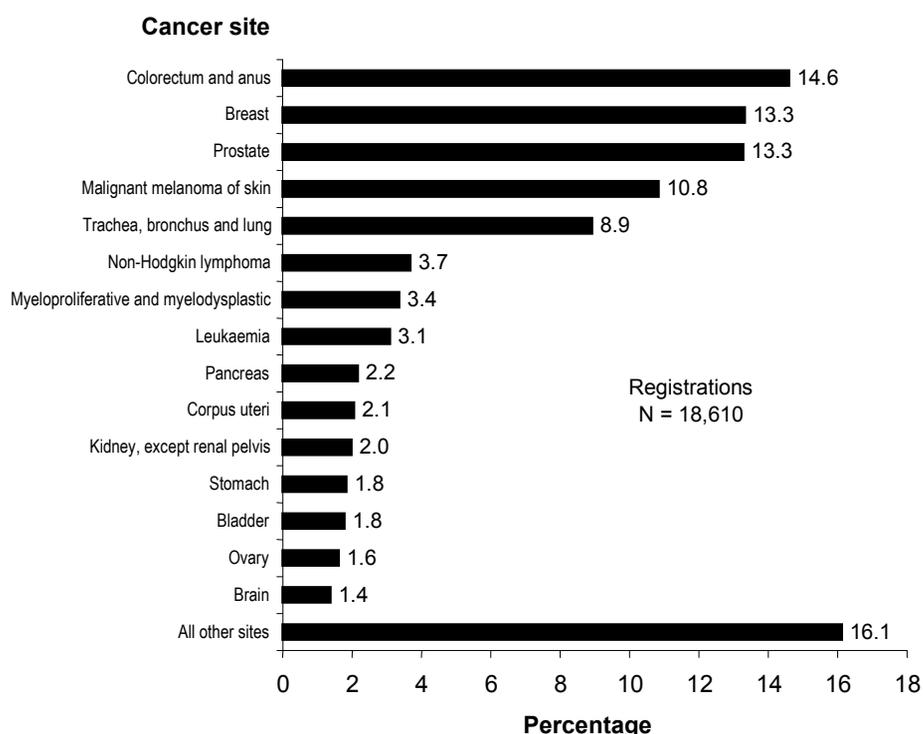
Notes: rates per 100,000, age-standardised to WHO world population.
 1995 to 1999 mapped from ICD-9-CM Second Edition to ICD-10-AM Second Edition (codes C00–C96).
 2000 to 2002 coded to ICD-10-AM Second Edition (codes C00–C96).
 From 2003 coded to ICD-10-AM Third Edition (codes C00–C96 and D45–D47).
 Confidence intervals calculated at the 95 percent level.
 Shaded area shows the confidence interval range for 1995

Most common cancers and leading causes of cancer deaths

Common cancers and cancer deaths

Among all cancer registrations in 2005, the most common was cancer of the colorectum and anus (2716 new cases), followed closely by cancer of the breast (2479) and cancer of the prostate (2471). The five leading sites, cancer of the colorectum and anus, breast cancer, prostate cancer, malignant melanoma of the skin (2017) and cancer of the trachea, bronchus and lung (1659), together, accounted for 61.0 percent of all registered cancers in 2005 (see Figure 7).

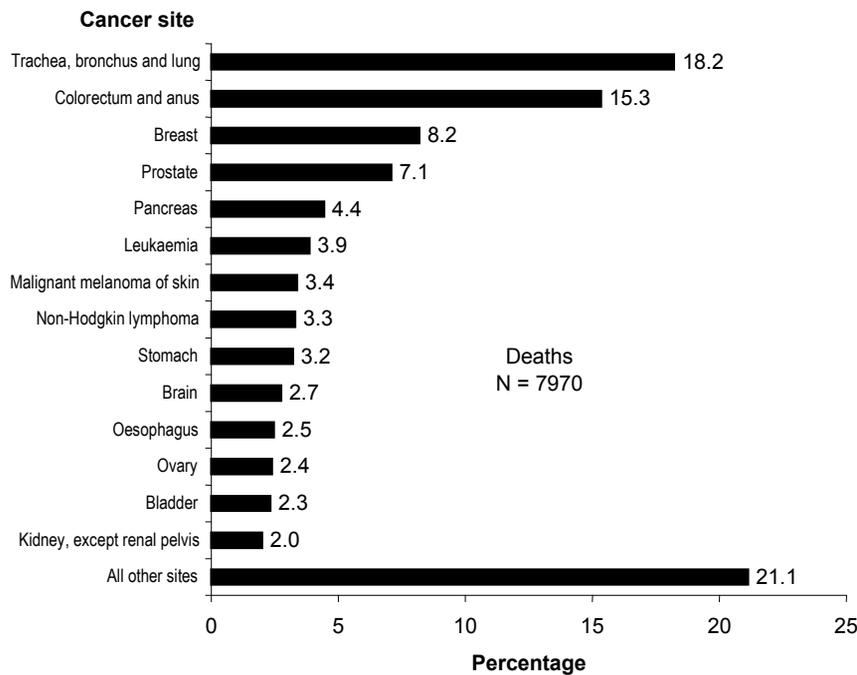
Figure 7: Percentage distribution of cancer registrations by site for all persons, 2005



Note: percentages may not sum to 100 because of rounding.

Cancer of the trachea, bronchus and lung (1451 deaths) was the leading cause of death from cancer in 2005, followed by cancer of the colorectum and anus (1222). Together with cancer of the breast (653) and prostate cancer (564), they accounted for 48.8 percent of deaths from cancer in 2005 (see Figure 8).

Figure 8: Percentage distribution of cancer deaths by site for all persons, 2005



Note: percentages may not sum to 100 because of rounding.

Of all new cancer registrations, cancer of the breast had the highest age-standardised rate (48.0 registrations per 100,000 people), followed by cancer of the colorectum and anus (47.1), prostate cancer (44.5), malignant melanoma of the skin (38.8) and cancer of the trachea, bronchus and lung (29.3). With the exception of malignant melanoma of the skin, these cancers also had the highest age-standardised death rates: cancer of the trachea, bronchus and lung (25.0 deaths per 100,000 people), cancer of the colorectum and anus (19.9), breast cancer (11.6) and prostate cancer (8.3) (see Table 2, page 21).

The deaths-to-registrations ratio (the number of deaths attributed to a particular cancer divided by the number of registrations) is a crude indicator of the likely prognosis of the cancer. The closer a value is to 1.0, the poorer the prognosis for that cancer.

The ratio of deaths to registrations was 0.43 overall and similar for males and females. On the basis of the deaths-to-registrations ratios, the specific cancer sites listed in Table 1 (page 20) could be classified into three groups:

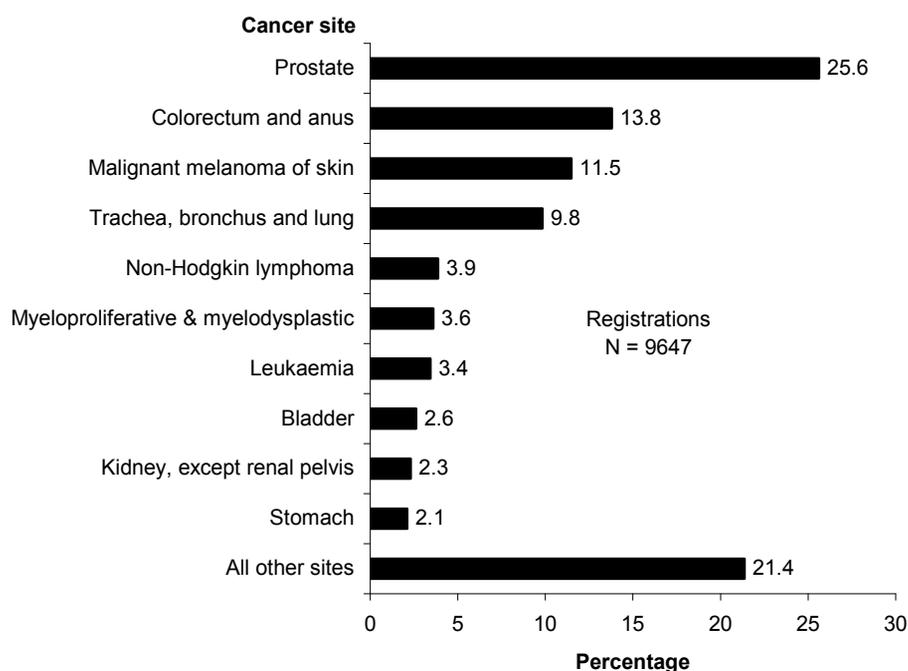
- those likely to have a better prognosis (a ratio of 0.29 or less)—testis, malignant melanoma of the skin, thyroid gland, the chronic myeloproliferative disorders and myelodysplastic syndromes, corpus uteri, prostate and breast
- those likely to have a fairly good prognosis (a ratio between 0.30 and 0.49)—cervix uteri, non-Hodgkin lymphoma, other connective soft tissue, Hodgkin lymphoma, kidney, and colorectum and anus

- those likely to have a poorer prognosis (a ratio of 0.50 or more)—leukaemia, bladder, multiple myeloma, liver and intrahepatic bile ducts, ovary, stomach, brain, mesothelioma, trachea, bronchus and lung, pancreas and oesophagus.

Males

Among males, the most commonly registered cancer was prostate cancer (2471 cases, 25.6 percent of male registrations), followed by cancer of the colorectum and anus (1331), malignant melanoma of the skin (1107) and cancer of the trachea, bronchus and lung (948). Together, these four cancers accounted for 60.7 percent of all male cancers in 2005.

Figure 9: Percentage distribution of cancer registrations by site for males, 2005



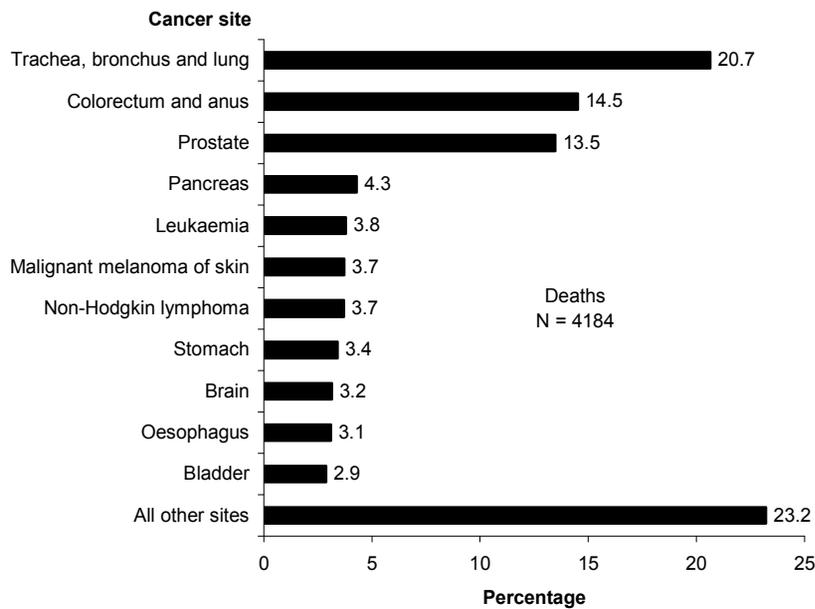
Note: percentages may not sum to 100 because of rounding.

Prostate cancer had the highest age-standardised rate among males (95.0 registrations per 100,000 males). High rates were also recorded for cancer of the colorectum and anus (50.7), malignant melanoma of the skin (44.3) and cancer of the trachea, bronchus and lung (35.7).

Cancer of the trachea, bronchus and lung was the leading cause of death from cancer in males in 2005 (864 deaths, nearly 21 percent of male cancer deaths), followed by cancer of the colorectum and anus (608 deaths, 14.5 percent of male cancer deaths) and prostate cancer (564 deaths, 13.5 percent of male cancer deaths).

Cancer of the trachea, bronchus and lung had the highest age-standardised rate of death (32.3 deaths per 100,000 males), followed by cancer of the colorectum and anus (22.6) and prostate cancer (19.9)

Figure 10: Percentage distribution of cancer deaths by site for males, 2005

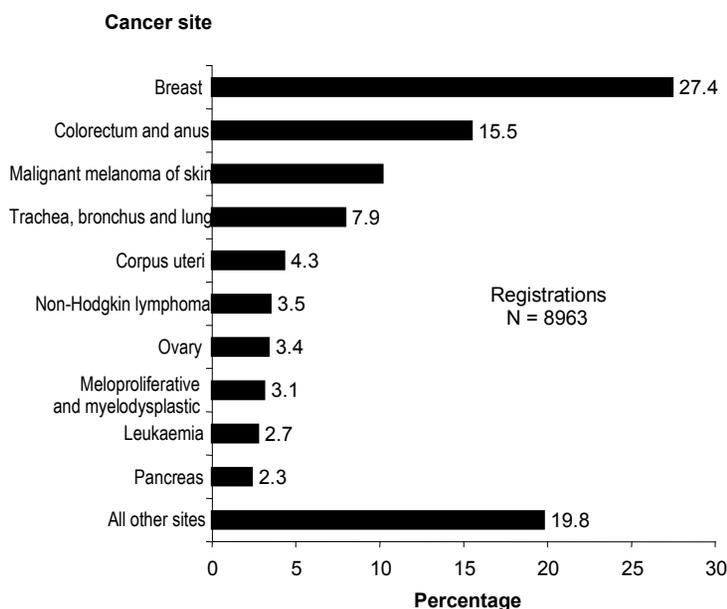


Note: percentages may not sum to 100 because of rounding.

Females

In females, breast cancer (2458 cases) was the most commonly registered cancer in 2005, and accounted for 27.4 percent of all female registrations. Cancer of the colorectum and anus (1385), malignant melanoma of the skin (910) and cancer of the trachea, bronchus and lung (711) were the next most common cancers. Together with breast cancer, they accounted for 61.0 percent of female registrations. In 2005, there were 908 registrations of cancers of the female genital organs, primarily uterine cancer (cancer of the corpus uteri) (383), ovarian cancer (301) and cervical cancer (cancer of the cervix uteri) (154).

Figure 11: Percentage distribution of cancer registrations by site for females, 2005

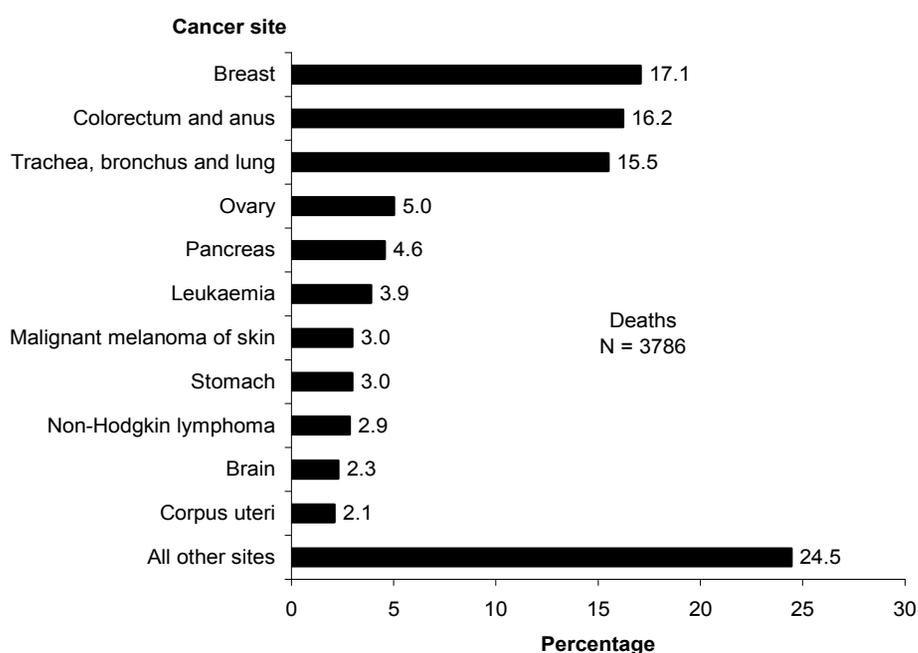


Note: percentages may not sum to 100 because of rounding.

Breast cancer had the highest age-standardised registration rate among females (92.0 cases per 100,000 females). Cancer of the colorectum and anus (43.9), malignant melanoma of the skin (34.3) and cancer of the trachea, bronchus and lung (24.1) also recorded high registration rates. Among cancers of the female genital organs, uterine cancer had the highest registration rate (13.8).

Cancer of the breast was the leading cause of death from cancer among females in 2005 (648 deaths or 17.1 percent of female cancer deaths), followed closely by cancer of the colorectum and anus (614) and cancer of the trachea, bronchus and lung (587). Together, these three cancers accounted for 49 percent of all female deaths from cancer in 2005. There were 359 deaths from cancers of the female genital organs, primarily from ovarian cancer (190), uterine cancer (80) and cervical cancer (54).

Figure 12: Percentage distribution of cancer deaths by site for females, 2005



Note: percentages may not sum to 100 because of rounding.

Cancer of the breast had the highest age-standardised death rate among females (21.7 deaths per 100,000 females), followed by cancer of the trachea, bronchus and lung (19.2) and cancer of the colorectum and anus (17.7). Among cancers affecting the female genital organs, ovarian cancer had the highest age-standardised death rate (6.1 deaths per 100,000 females).

Table 1: Cancer groups and most common cancers: registrations and deaths, 2005

Cancer groups	Registrations			Deaths			Deaths-to-registrations ratios		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
Lip, oral cavity and pharynx (C00–C14)	285	195	90	126	88	38	0.44	0.45	0.42
Other and unspecified parts of the tongue (C02)	53	28	25	20	9	11	0.38	0.32	0.44
Digestive organs (C15–C26)	4143	2138	2005	2357	1236	1121	0.57	0.58	0.56
Oesophagus (C15)	219	148	71	196	130	66	0.89	0.88	0.93
Stomach (C16)	341	203	138	256	143	113	0.75	0.70	0.82
Colorectum and anus (C18–C21)	2716	1331	1385	1222	608	614	0.45	0.46	0.44
Liver and intrahepatic bile ducts (C22)	223	149	74	140	95	45	0.63	0.64	0.61
Pancreas (C25)	403	193	210	353	180	173	0.88	0.93	0.82
Respiratory system and intrathoracic organs (C30–C39)	1788	1038	750	1502	897	605	0.84	0.86	0.81
Nasal cavity, middle ear, accessory sinuses and larynx (C30–C32)	114	81	33	41	27	14	0.36	0.33	0.42
Trachea, bronchus and lung (C33–C34)	1659	948	711	1451	864	587	0.87	0.91	0.83
Bones, joints and articular cartilage (C40–C41)	40	22	18	16	8	8	0.40	0.36	0.44
Skin (C43–C44)	2135	1180	955	371	224	147	0.17	0.19	0.15
Malignant melanoma of skin (C43)	2017	1107	910	269	156	113	0.13	0.14	0.12
Mesothelial and soft tissue (C45–C49)	232	155	77	139	100	39	0.60	0.65	0.51
Mesothelioma (C45)	102	84	18	88	75	13	0.86	0.89	0.72
Other connective soft tissue (C49)	93	53	40	36	22	14	0.39	0.42	0.35
Breast (C50)	2479	21	2458	653	5	648	0.26	0.24	0.26
Female genital organs (C51–C58)	908	...	908	359	...	359	0.40	...	0.40
Cervix uteri (C53)	154	...	154	54	...	54	0.35	...	0.35
Corpus uteri (C54)	383	...	383	80	...	80	0.21	...	0.21
Ovary (C56)	301	...	301	190	...	190	0.63	...	0.63
Male genital organs (C60–C63)	2633	2633	...	582	582	...	0.22	0.22	...
Prostate (C61)	2471	2471	...	564	564	...	0.23	0.23	...
Testis (C62)	141	141	...	10	10	...	0.07	0.07	...
Urinary tract (C64–C68)	762	512	250	368	236	132	0.48	0.46	0.53
Kidney, except renal pelvis (C64)	368	222	146	159	98	61	0.43	0.44	0.42
Bladder (C67)	332	253	79	185	121	64	0.56	0.48	0.81
Eye, brain and other parts of the central nervous system (C69–C72)	321	206	115	236	141	95	0.74	0.68	0.83
Brain (C71)	256	161	95	219	132	87	0.86	0.82	0.92
Thyroid and other endocrine glands (C73–C75)	185	59	126	27	9	18	0.15	0.15	0.14
Thyroid gland (C73)	166	51	115	21	7	14	0.13	0.14	0.12
Ill-defined, secondary or unspecified sites (C76–C80)	445	222	223	373	179	194	0.84	0.81	0.87
Lymphoid, haematopoietic and related tissue (C81–C96, D45–D47)	2254	1266	988	862	479	383	0.38	0.38	0.39
Hodgkin lymphoma (C81)	95	58	37	37	23	14	0.39	0.40	0.38
Non-Hodgkin lymphoma (C82–C85, C96)	684	373	311	263	155	108	0.38	0.42	0.35
<i>Lymphomas (C81–C85, C96)</i>	779	431	348	280	166	114	0.36	0.39	0.33
Multiple myeloma and malignant plasma cell neoplasms (C90)	251	142	109	154	86	68	0.61	0.61	0.62
Leukaemia (C91–C95)	575	331	244	307	159	148	0.53	0.48	0.61
Chronic myeloproliferative disorders and myelodysplastic syndromes (D45–D47)	625	347	278	106	57	49	0.17	0.16	0.18
All sites (C00–C96, D45–D47)	18,610	9647	8963	7971	4184	3787	0.43	0.43	0.42

... = not applicable

Table 2: Selected cancer sites: age-standardised rates for registrations and deaths, by sex, 2005

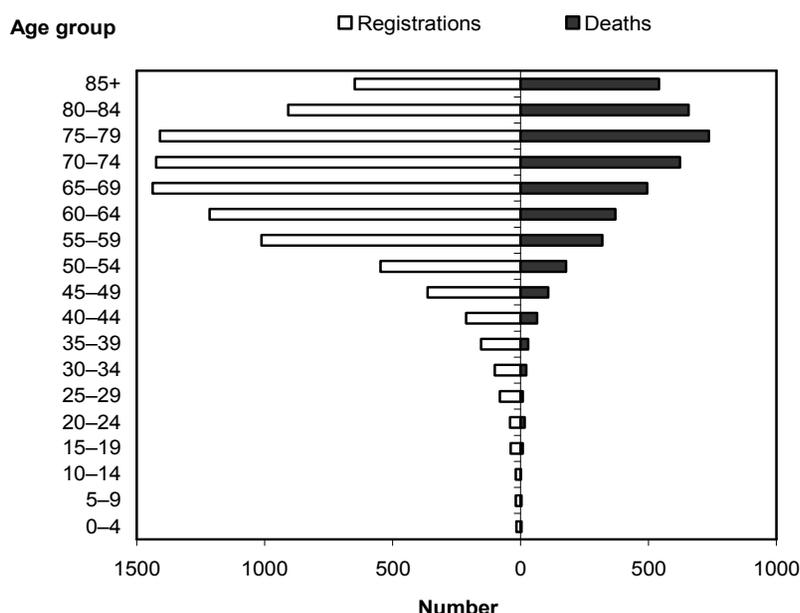
Cancer sites	Registrations			Deaths		
	Total	Males	Females	Total	Males	Females
Oesophagus (C15)	3.7	5.6	2.0	3.2	4.9	1.8
Stomach (C16)	6.0	7.9	4.4	4.3	5.4	3.5
Colorectum and anus (C18–C21)	47.1	50.7	43.9	19.9	22.6	17.7
Liver and intrahepatic bile ducts (C22)	4.1	5.8	2.4	2.5	3.7	1.4
Pancreas (C25)	6.8	7.3	6.4	5.9	6.9	5.1
Trachea, bronchus and lung (C33–C34)	29.3	35.7	24.1	25.0	32.3	19.2
Malignant melanoma of skin (C43)	38.8	44.3	34.3	4.8	6.1	3.7
Breast (C50)	48.0	0.8	92.0	11.6	0.2	21.7
Cervix uteri (C53)	3.2	...	6.2	1.0	...	1.9
Corpus uteri (C54)	7.2	...	13.8	1.4	...	2.6
Ovary (C56)	5.5	...	10.5	3.3	...	6.1
Prostate (C61)	44.5	95.0	...	8.3	19.9	...
Testis (C62)	3.5	7.2	...	0.2	0.5	...
Kidney, except renal pelvis (C64)	6.8	8.8	4.9	2.7	3.7	1.8
Bladder (C67)	5.4	9.3	2.2	2.8	4.4	1.6
Brain (C71)	5.2	6.8	3.8	4.3	5.5	3.2
Thyroid gland (C73)	3.6	2.2	4.9	0.4	0.2	0.5
Non-Hodgkin lymphoma (C82–C85, C96)	12.6	14.9	10.6	4.4	5.9	3.1
Multiple myeloma and malignant plasma cell neoplasms (C90)	4.3	5.4	3.4	2.5	3.2	1.9
Leukaemia (C91–C95)	10.7	13.4	8.5	5.2	6.1	4.6
Chronic myeloproliferative disorders and myelodysplastic syndromes (D45–D47)	10.6	13.2	8.6	1.5	2.0	1.1
All Sites (C00–C96, D45–D47)	340.3	376.3		133.6	156.6	116.8

Note: rates per 100,000, age-standardised to WHO world population.
 ... = not applicable

Cancer registrations and deaths by age and sex, 2005

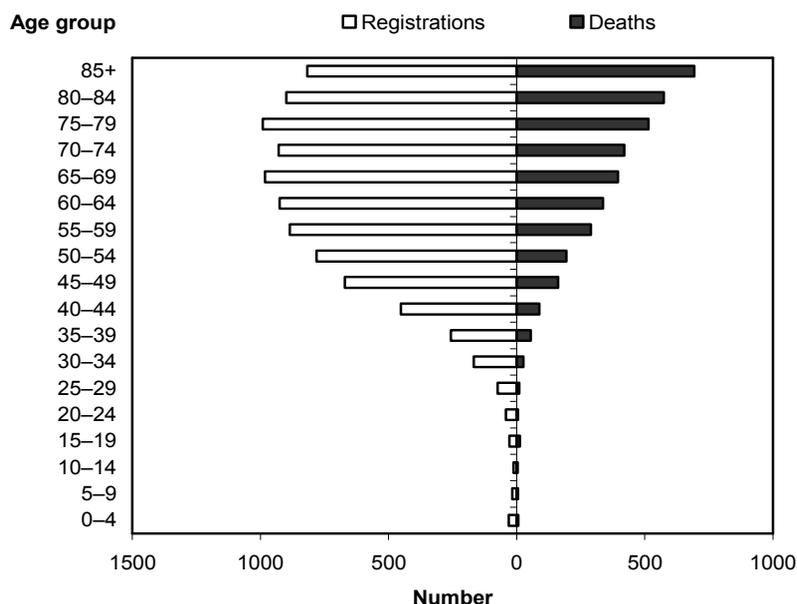
Cancer is a disease that tends to emerge later in life. In 2005, the age-specific rates for new cancer registrations were 18.0 per 100,000 people aged under 25, 371.3 per 100,000 people aged from 25 to 64 years, and 2097.8 per 100,000 people aged 65 years and over.

Figure 13: Number of registrations and deaths for males by age, 2005



Of the 9647 male registrations in 2005, 31 percent were in the 75 years and over age group, 30 percent in the 65 to 74 years age group and 33 percent in the 45 to 64 years age group. Of the 4184 male deaths from cancer recorded in 2005, 46 percent were in the 75 years and over age group, 27 percent in the 65 to 74 years age group and 23 percent in the 45 to 64 years age group.

Figure 14: Number of registrations and deaths for females by age, 2005



Of the 8963 female registrations for cancer in 2005, 30 percent were for women aged 75 years or over, 21 percent aged 65 to 74 years and 36 percent aged 45 to 64 years. Of the 3787 female cancer deaths, 47 percent were of women aged 75 years or over, 21 percent aged 65 to 74 years and 26 percent aged 45 to 64 years.

Child and youth cancers

In 2005, cancer amongst children and youth (people aged under 25) accounted for 1.4 percent of all cancer registrations and 0.8 percent of all cancer deaths.

There were 266 registrations for cancer of people aged under 25 years (134 males and 132 females), of which 115 were under the age of 15 years (54 males and 61 females) and 47 under the age of five years (16 males and 31 females) (see Table 3).

The most common type of cancer for children under 15 years of age was leukaemia (20 male and 27 female registrations), followed by cancer of the brain (six male and 12 female registrations).

For males aged 15 to 24 years, cancer of the testis was the most commonly registered cancer in 2005 (18 registrations). For females aged 15 to 24 years, malignant melanoma of the skin (17 registrations) was the most commonly registered cancer site.

There were 65 deaths (33 male, 32 female) of people aged under 25 years. Of these, 23 were under the age of 15 years (eight male, 15 female). The most common cause of cancer deaths in males and females aged under 25 years was leukaemia (seven male and 12 female). Cancer of the brain also accounted for 11 deaths (seven male and four female).

Cancers in people aged from 25 to 44 years

This age group accounted for 8.1 percent of all cancer registrations and 3.8 percent of all cancer deaths in 2005.

There were 1499 registrations for cancer of people aged 25 to 44 years (549 males and 950 females). The age-specific registration rate for females in this age group (158.1 per 100,000 females) was substantially greater than the age-specific rate for males (97.3 per 100,000 males).

Among males aged 25 to 44 years, malignant melanoma of the skin (124 registrations) was the leading cancer site, followed by cancer of the testis (95), non-Hodgkin lymphoma (43) and cancer of the colorectum and anus (37).

Among females aged 25 to 44 years, cancer of the breast was the most commonly registered cancer (349 registrations), followed by malignant melanoma of the skin (206). There were also 61 registrations for cervical cancer.

There were 302 deaths from cancer of people aged from 25 to 44 years (123 males and 179 females).

Among males aged from 25 to 44 years, cancer of the brain was the leading cause of cancer deaths (22 deaths), followed by malignant melanoma of the skin (16).

Among females aged from 25 to 44 years, cancer of the breast was the leading cause of cancer deaths with 55 deaths.

Cancers in people aged from 45 to 64 years

This age group accounted for 34.4 percent of all cancer registrations and 24.5 percent of all cancer deaths in 2005.

There were 6399 registrations for cancer of people aged from 45 to 64 years (3138 males and 3261 females). The age-specific registration rate for females in this age group was slightly higher (670.3 per 100,000 females) than the male rate (660.2 per 100,000 males). Both rates were considerably higher than the comparable age-specific rates for the 25–44 year old age group. The registration rate for males aged from 45 to 64 years was nearly seven times that of the rate for males aged from 25 to 44 years and the rate for females aged from 45 to 64 years was four times that of the younger female age group.

Among males aged from 45 to 64 years, cancer of the prostate (858 registrations) was the leading cancer site, followed by malignant melanoma of the skin (452), cancer of the colorectum and anus (376) and cancer of the trachea, bronchus and lung (280).

Cancer of the breast was the most commonly registered cancer (1261 registrations) for females aged from 45 to 64 years, followed by cancer of the colorectum and anus (350), malignant melanoma of the skin (343) and cancer of the trachea, bronchus and lung (249).

There were 1954 deaths from cancer of people aged from 45 to 64 years (974 males and 980 females). The age-specific rate for cancer deaths for males (204.9 per 100,000 males aged 45 to 64 years) is slightly higher than the rate for females in this age group (201.4 per 100,000 females). Both rates are considerably higher than the comparable rates for the 25–44 year old age group, over nine times for males and just under seven times for females.

Among males aged from 45 to 64 years, cancer of the trachea, bronchus and lung was the leading cause of cancer deaths (226 deaths), followed by cancer of the colorectum and anus (136). There were also 52 deaths from prostate cancer.

Among females aged from 45 to 64 years, cancer of the breast was the leading cause of cancer deaths (254 deaths), followed by cancer of the trachea, bronchus and lung (181) and cancer of the colorectum and anus (123). There were also 49 deaths from ovarian cancer.

Cancers in people aged from 65 to 74 years

This age group accounted for 25.7 percent of all new cancer registrations and 24.2 percent of all cancer deaths in 2005.

There were 4774 registrations for cancer of people aged from 65 to 74 years (2862 males and 1912 females). The age-specific registration rate for males was higher than the rate for females in this age group (2229.8 per 100,000 males and 1386.8 per 100,000 females aged from 65 to 74 years). Both male and female age-specific registration rates for this age group were considerably higher than the comparable rates for the 45–64 year old age group (more than three times for the male rate and two times for the female rate).

Among males aged from 65 to 74 years, cancer of the prostate (905 registrations) was the leading cancer site, followed by cancer of the colorectum and anus (456), cancer of the trachea, bronchus and lung (305) and malignant melanoma of the skin (267).

Cancer of the breast was the most commonly registered cancer (448 registrations) for females aged from 65 to 74 years, followed by cancer of the colorectum and anus (406), cancer of the trachea, bronchus and lung (211) and malignant melanoma of the skin (153). There were also 84 registrations for uterine cancer.

There were 1931 deaths from cancer of people aged from 65 to 74 years (1118 males and 813 females). The age-specific rate for cancer deaths for males was higher than the rate for females in this age group (871.1 per 100,000 males and 589.7 per 100,000 females aged from 65 to 74 years). Both male and female age-specific cancer death rates for this age group were considerably higher than the comparable rates for the 45–64 year old age group.

Among males aged from 65 to 74 years, cancer of the trachea, bronchus and lung was the leading cause of cancer deaths (274 deaths), followed by cancer of the colorectum and anus (186) and prostate cancer (108).

Among females aged from 65 to 74 years, cancer of the trachea, bronchus and lung was the leading cause of cancer deaths (165 deaths), followed by cancer of the colorectum and anus (138 deaths) and cancer of the breast (124). There were also 49 deaths from ovarian cancer.

Cancers in people aged 75 years and over

This age group accounted for 30.5 percent of all cancer registrations and 47 percent of all cancer deaths in 2005.

There were 5672 registrations for cancer of people aged 75 and over (2964 males and 2708 females). The age-specific registration rate for males was higher than the rate for females in this age group (3180.6 per 100,000 males and 1954.5 per 100,000 females aged 75 and over). Both male and female age-specific registration rates for this age group were somewhat higher than the comparable rates for the 65–74 year old age group (just under one-and-a-half times for both male and female rates).

Among males aged 75 and over, cancer of the prostate (704 registrations) was the leading cancer site, followed by cancer of the colorectum and anus (459), cancer of the trachea, bronchus and lung (353) and malignant melanoma of the skin (253).

Cancer of the colorectum and anus was the most commonly registered cancer (582 registrations) for females aged 75 and over, followed by cancer of the breast (398), cancer of the trachea, bronchus and lung (229) and malignant melanoma of the skin (190).

There were 3719 deaths from cancer of people aged 75 and over (1936 males and 1783 females). The age-specific rate for cancer deaths for males was higher than the rate for females in this age group (2077.5 per 100,000 males and 1286.9 per 100,000 females aged 75 and over). Both male and female age-specific cancer death rates for this age group were considerably higher than the comparable rates for the 65–74 year old age group.

Among males aged 75 and over, prostate cancer was the leading cause of cancer deaths (404 deaths), followed by cancer of the trachea, bronchus and lung (356) and cancer of the colorectum and anus (279).

Among females aged 75 and over, cancer of the colorectum and anus was the leading cause of cancer deaths (335 deaths), followed by cancer of the trachea, bronchus and lung (226) and breast cancer (215).

Table 3: Registrations, leading sites and age-specific rates by age and sex, 2005

Age group (years)	Males			Females		
	Leading sites*	No.	All sites rate†	Leading sites*	No.	All sites rate†
0-14	Leukaemia	20		Leukaemia	27	
	Brain	6		Brain	12	
	Non-Hodgkin lymphoma	4		Peripheral nerves and autonomic	3	
	Bone and articular cartilage of limbs	3		Kidney, except renal pelvis	3	
	All other sites	21		Bone and articular cartilage of limbs	2	
	<i>All sites</i>	54	11.9	<i>All sites</i>	61	14.3
15-24	Testis	18		Malignant melanoma of skin	17	
	Malignant melanoma of skin	10		Hodgkin disease	10	
	Leukaemia	9		Thyroid gland	7	
	Hodgkin disease	8		Ovary	6	
	Non-Hodgkin lymphoma	7		Other connective and soft tissue	5	
	All other sites	28		All other sites	26	
	<i>All sites</i>	80	26.3	<i>All sites</i>	71	24.4
25-44	Malignant melanoma of skin	124		Breast	349	
	Testis	95		Malignant melanoma of skin	206	
	Non-Hodgkin lymphoma	43		Cervix uteri	61	
	Colorectum and anus	37		Colorectum and anus	46	
	Brain	31		Thyroid gland	35	
	All other sites	219		All other sites	253	
	<i>All sites</i>	549	97.3	<i>All sites</i>	950	158.1
45-64	Prostate	858		Breast	1261	
	Malignant melanoma of skin	452		Colorectum and anus	350	
	Colorectum and anus	376		Malignant melanoma of skin	343	
	Trachea, bronchus and lung	280		Trachea, bronchus and lung	249	
	Non-Hodgkin lymphoma	123		Corpus uteri & uterus part unspecified	185	
	All other sites	1049		All other sites	873	
	<i>All sites</i>	3138	660.2	<i>All sites</i>	3261	670.3
65-74	Prostate	905		Breast	448	
	Colorectum and anus	456		Colorectum and anus	406	
	Trachea, bronchus and lung	305		Trachea, bronchus and lung	211	
	Malignant melanoma of skin	267		Malignant melanoma of skin	153	
	Non-Hodgkin lymphoma	96		Corpus uteri & uterus part unspecified	84	
	All other sites	833		All other sites	610	
	<i>All sites</i>	2862	2229.8	<i>All sites</i>	1912	1386.8
75+	Prostate	704		Colorectum and anus	582	
	Colorectum and anus	459		Breast	398	
	Trachea, bronchus and lung	353		Trachea, bronchus and lung	229	
	Malignant melanoma of skin	253		Malignant melanoma of skin	190	
	Myeloproliferative and myelodysplastic	160		Myeloproliferative and myelodysplastic	139	
	All other sites	1035		All other sites	1170	
	<i>All sites</i>	2964	3180.6	<i>All sites</i>	2708	1954.5

* = in identifying leading sites, ill-defined, secondary and unspecified sites are not included

† = rate is the age-specific rate for the relevant age and sex group

Table 4: Cancer deaths, leading sites and age-specific rates by age and sex, 2005

Age group (years)	Males			Females		
	Leading sites*	No.	All sites rate†	Leading sites*	No.	All sites rate†
0–14						
	Malignant neoplasm of brain	3		Leukaemia	7	
	Leukaemia	3		Malignant neoplasm of brain	4	
	All other sites	2		All other sites	4	
	<i>All sites</i>	8	1.8	<i>All sites</i>	15	3.5
15–24						
	Malignant neoplasm of brain	4		Leukaemia	5	
	Leukaemia	4		All other sites	12	
	Malignant neoplasm of testis	3				
	Non-Hodgkin lymphoma	3				
	All other sites	11				
	<i>All sites</i>	25	8.2	<i>All sites</i>	17	5.8
25–44						
	Malignant neoplasm of brain	22		Malignant neoplasm of breast	55	
	Malignant melanoma of skin	16		Colorectum and anus	17	
	Non-Hodgkin lymphoma	10		Trachea, bronchus and lung	15	
	Malignant neoplasm of pancreas	9		Malignant melanoma of skin	13	
	Trachea, bronchus and lung	8		Malignant neoplasm of stomach	12	
	All other sites	58		All other sites	67	
	<i>All sites</i>	123	21.8	<i>All sites</i>	179	29.8
45–64						
	Trachea, bronchus and lung	226		Malignant neoplasm of breast	254	
	Colorectum and anus	136		Trachea, bronchus and lung	181	
	Malignant neoplasm of pancreas	56		Colorectum and anus	123	
	Malignant neoplasm of brain	54		Malignant neoplasm of ovary	49	
	Malignant neoplasm of prostate	52		Malignant neoplasm of brain	36	
	All other sites	450		All other sites	337	
	<i>All sites</i>	974	204.9	<i>All sites</i>	980	201.4
65–74						
	Trachea, bronchus and lung	274		Trachea, bronchus and lung	165	
	Colorectum and anus	186		Colorectum and anus	138	
	Malignant neoplasm of prostate	108		Malignant neoplasm of breast	124	
	Malignant neoplasm of pancreas	51		Malignant neoplasm of ovary	49	
	Non-Hodgkin lymphoma	44		Malignant neoplasm of pancreas	42	
	All other sites	455		All other sites	295	
	<i>All sites</i>	1118	871.1	<i>All sites</i>	813	589.7
75+						
	Malignant neoplasm of prostate	404		Colorectum and anus	335	
	Trachea, bronchus and lung	356		Trachea, bronchus and lung	226	
	Colorectum and anus	279		Malignant neoplasm of breast	215	
	Malignant neoplasm without specification of site	94		Malignant neoplasm of pancreas	92	
	Leukaemia	71		Malignant neoplasm of ovary	82	
	All other sites	732		All other sites	833	
	<i>All sites</i>	1936	2077.5	<i>All sites</i>	1783	1286.9

* = in identifying leading sites, ill-defined, secondary and unspecified sites are not included

† = rate is the age-specific rate for the relevant age and sex group

Cancer registrations and deaths by ethnicity

Ethnic information in this publication was based on prioritised self-identification (see Explanatory Notes). Individuals may have selected up to three ethnic groups to which they felt they belonged. Any person who selected Māori as one of their three ethnicities was recorded as being of Māori ethnicity. Any person who, having not selected Māori, selected a Pacific peoples ethnicity as one of their three ethnicities was recorded as being of Pacific peoples identity. These two groups were compared with the rest of the population, the non-Māori, non-Pacific group.

Ethnicity reported in this publication was that recorded by the New Zealand Cancer Registry, sourced from hospital discharge information and the National Health Index, and that recorded by the New Zealand Health Information Service Mortality Collection.

Ethnicity was not reported in 749 cases (4.0 percent of registrations). In a high proportion of cases where ethnicity was not recorded, it was because the diagnosis of cancer was made in the private health care sector. Particular sites, such as prostate cancer (230 cases, 9.3 percent of prostate cancer registrations), malignant melanoma of the skin (226 cases, 11.2 percent of melanoma registrations) and breast cancer (91 cases, 3.7 percent of breast cancer registrations) had comparatively high numbers of registrations where ethnicity was not recorded in 2005. Registrations without an ethnic identification have been included in the non-Māori, non-Pacific group. All deaths from cancer had a specified ethnicity.

In 2005, there were 1377 new cancer registrations (598 males and 779 females) for Māori and 575 registrations (267 males and 308 females) for Pacific peoples in New Zealand (see Table 5, page 29). Māori registrations accounted for 7.4 percent of all registrations, 6.2 percent of male registrations and 8.7 percent of female registrations. Registrations for Pacific peoples accounted for 3.1 percent of all registrations, 2.8 percent of male and 3.4 percent of female registrations.

In 2005, there were 760 deaths (369 males and 391 females) from cancer for Māori (see Table 6, page 31). These deaths accounted for 9.5 percent of all deaths from cancer, 8.8 percent of male and 10.3 percent of female deaths. There were 244 deaths (115 males and 129 females) for Pacific peoples in New Zealand. Pacific peoples accounted for 3.1 percent of all deaths, 2.7 percent of male and 3.4 percent of female deaths.

Pacific males had the highest age-standardised registration rate (389.3 per 100,000), followed by non-Māori, non-Pacific males (379.0), Māori females (362.3), Māori males (339.9), Pacific females (338.1) and non-Māori, non-Pacific females (308.1).

Age-standardised mortality rates followed the order of (1) Māori (2) Pacific and (3) non-Māori, non-Pacific, with male rates being higher than female rates within each ethnic group. Māori males had the highest age-standardised mortality rate (234.4 per 100,000), while non-Māori, non-Pacific females had the lowest (108.8).

Table 5: Selected cancer sites: registrations by ethnicity and sex, 2005

Cancer site	Males						Females					
	Māori		Pacific		Non-Māori, non-Pacific		Māori		Pacific		Non-Māori, non-Pacific	
	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*
Oesophagus (C15)	15	9.1	2	--	131	5.4	3	--	0	...	68	2.1
Stomach (C16)	27	16.1	16	20.5	160	6.7	31	14.0	12	14.7	95	3.0
Colorectum and anus (C18–C21)	52	31.0	12	18.1	1267	52.9	48	24.4	18	20.0	1319	45.9
Liver and intrahepatic bile ducts (C22)	23	13.2	20	24.8	106	4.6	8	4.5	4	--	62	2.2
Pancreas (C25)	19	10.6	1	--	173	7.1	28	15.1	4	--	178	5.8
Trachea, bronchus and lung (C33–C34)	115	68.4	48	80.0	785	31.9	135	70.8	26	29.9	550	20.2
Malignant melanoma of skin (C43)	12	6.1	4	--	1091	49.4	10	5.2	4	--	896	39.6
Breast (C50)	1	--	2	--	18	0.7	239	102.2	91	96.3	2128	90.8
Cervix uteri (C53)	...	...	...	...	...	...	22	9.0	16	16.3	116	5.6
Corpus uteri (C54)	...	...	...	...	...	...	41	18.7	27	30.6	315	12.6
Ovary (C56)	...	...	...	...	...	...	14	5.5	15	16.0	272	10.4
Prostate (C61)	113	74.9	57	98.5	2301	96.9	...	...	...	...	...	...
Testis (C62)	23	8.3	3	--	115	7.3	...	...	...	...	...	...
Kidney, except renal pelvis (C64)	23	10.1	11	13.6	188	8.2	8	3.1	1	--	137	5.1
Bladder (C67)	9	5.7	5	10.4	239	9.5	6	3.6	0	...	73	2.1
Brain (C71)	7	2.6	4	--	150	7.2	6	2.7	6	5.4	83	4.1
Thyroid gland (C73)	6	3.8	3	--	42	2.2	22	8.5	12	11.5	81	4.1
Non-Hodgkin lymphoma (C82–C85, C96)	24	12.8	11	15.3	338	15.1	15	6.6	12	12.6	284	10.7
Multiple myeloma and malignant plasma cell neoplasms (C90)	5	--	8	12.3	129	5.4	11	6.7	6	8.2	92	3.1
Leukaemia (C91–C95)	20	8.9	9	7.1	302	13.7	24	9.0	9	9.1	211	8.3
Chronic myeloproliferative disorders and myelodysplastic syndromes (D45–D47)	34	18.8	17	25.3	296	12.3	39	19.6	17	20.5	222	7.2
All other sites	70	...	34	...	951	...	69	...	28	...	694	...
All sites	598	339.9	267	389.3	8782	379.0	779	362.3	308	338.1	7876	308.1

Rates are not comparable with age-standardised rates in 1995 and earlier publications, owing to changes in population data definitions. Rates based on small numbers, particularly for those categories with fewer than 20, are unstable and subject to random fluctuation from year to year.

* = rates per 100,000, age-standardised to WHO world population

... = not applicable

-- = rate suppressed because there are five or fewer cases in this category

The male new cancer registration profiles were similar in that prostate cancer and cancer of the trachea, bronchus and lung were two of the most commonly registered sites for each ethnic group. Prostate cancer accounted for 26 percent of registrations for non-Māori, non-Pacific males, 21 percent of Pacific male registrations and 18.9 percent of Māori male registrations. For each group, except Māori, prostate cancer was the most commonly registered cancer. For Māori males, cancer of the trachea, bronchus and lung accounted for a slightly greater proportion of registrations (19.2 percent). Cancer of the trachea, bronchus and lung also accounted for 18 percent of Pacific male registrations. By contrast, cancer of the trachea, bronchus and lung accounted for 9 percent of registrations for non-Māori, non-Pacific males and was the fourth most commonly registered cancer for this group. For the same group, cancer of the colorectum and anus (14 percent) and malignant melanoma of the skin (12 percent) accounted for greater proportions of registrations than for Māori and Pacific males.

The age-standardised registration rate of cancer of the trachea, bronchus and lung for non-Māori, non-Pacific males (31.9 per 100,000) was less than half the Pacific male rate (80.0) and the Māori male rate (68.4). The rate for cancer of the colorectum and anus for non-Māori, non-Pacific males (52.9) was more than one-and-a-half times the Māori rate (31.0) and just under three times the Pacific male rate (18.1). The non-Māori, non-Pacific male rate for malignant melanoma of the skin (49.4) was more than seven times the Māori male rate (6.1), while the Pacific rate could not be calculated because there were only four cases registered for Pacific males.

For females, breast cancer was the most commonly registered cancer for each ethnic group and accounted for around 30 percent of the female registrations in each ethnic group. Age-standardised registration rates for breast cancer were around the same level for each group, although the rate for non-Māori, non-Pacific females (90.8 per 100,000) was somewhat lower than that for either Māori (102.2) or Pacific females (96.3).

Cancer of the trachea, bronchus and lung accounted for a substantial proportion of Māori female cancer registrations (17.3 percent), but not Pacific female registrations (8.4 percent) or non-Māori, non-Pacific female registrations (7.0 percent). The Māori age-standardised female rate (70.8 per 100,000) was almost two-and-a-half times the Pacific female rate (29.9) and over three-and-a-half times the non-Māori, non-Pacific female rate (20.2).

Cancer of the colorectum and anus accounted for a substantial proportion of non-Māori, non-Pacific female registrations (16.7 percent) but not Māori (6.2 percent) or Pacific female registrations (5.8 percent). Uterine cancer accounted for a higher proportion of female registrations among Pacific females (8.8 percent) than among either Māori (5.3 percent) or non-Māori, non-Pacific (4.0 percent) females.

Table 6: Selected cancer sites: deaths from cancer by ethnicity and sex, 2005

Cancer site	Males						Females					
	Māori		Pacific		Non-Māori non-Pacific		Māori		Pacific		Non-Māori non-Pacific	
	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate*
Oesophagus (C15)	10	6.4	2	--	118	4.8	3	--	0	...	63	1.9
Stomach (C16)	19	10.6	9	12.0	115	4.6	18	8.6	12	14.7	83	2.6
Colorectum and anus (C18–C21)	33	21.9	9	12.4	566	22.7	22	11.4	12	15.7	580	18.0
Liver and intrahepatic bile ducts (C22)	16	8.1	11	15.1	68	2.9	8	4.4	1	--	36	1.2
Pancreas (C25)	22	12.2	4	--	154	6.4	25	12.7	4	--	144	4.4
Trachea, bronchus and lung (C33–C34)	121	73.8	32	57.3	711	28.5	133	70.5	20	24.0	434	14.9
Malignant melanoma of skin (C43)	4	--	0	...	152	6.6	2	--	1	--	110	4.0
Breast (C50)	...	...	0	...	5	--	61	29.5	19	21.0	568	21.2
Cervix uteri (C53)	...	...	...	...	...	...	13	6.5	6	7.1	35	1.4
Corpus uteri (C54)	...	...	...	...	...	...	14	7.5	9	11.4	57	1.9
Ovary (C56)	...	...	...	...	...	...	11	6.2	10	12.0	169	5.9
Prostate (C61)	36	32.9	10	23.2	518	19.3	...	...	...	...	...	...
Testis (C62)	6	2.1	1	--	3	--	...	...	...	...	...	...
Kidney, except renal pelvis (C64)	9	6.2	1	--	88	3.7	5	--	1	--	55	1.8
Bladder (C67)	4	--	1	--	116	4.5	4	--	2	--	58	1.4
Brain (C71)	6	2.7	3	--	123	5.8	7	3.5	2	--	78	3.3
Thyroid gland (C73)	1	--	0	...	6	0.2	2	--	3	--	9	0.3
Non-Hodgkin lymphoma (C82–C85, C96)	16	11.9	8	13.2	131	5.4	4	--	2	--	102	3.2
Multiple myeloma and malignant plasma cell neoplasms (C90)	2	--	3	--	81	3.2	4	--	4	--	60	1.8
Leukaemia (C91–C95)	10	6.8	1	--	148	6.3	11	4.4	2	--	135	4.6
Chronic myeloproliferative disorders and myelodysplastic syndromes (D45–D47)	1	--	0	...	56	2.1	2	--	4	--	43	1.0
All other sites	53	...	20	...	541	...	42	...	15	...	448	...
All sites	369	234.4	115	183.7	3700	149.5	391	202.5	129	157.6	3267	108.8

Rates are not comparable with age-standardised rates in 1995 and earlier publications, owing to changes in population data definitions. Rates based on small numbers, particularly for those categories with fewer than 20, are unstable and subject to random fluctuation from year to year.

* = rates per 100,000, age-standardised to WHO world population

... = not applicable

-- = rate suppressed because there are five or fewer cases in this category

Cancer of the trachea, bronchus and lung was the leading cause of death among males in each ethnic group, but accounted for a greater proportion of deaths among Māori males (32.8 percent) and Pacific males (27.8 percent) than non-Māori, non-Pacific males (19.2 percent). The age-standardised mortality rate was much higher for Māori males (73.8 per 100,000) than for Pacific males (57.3) and non-Māori, non-Pacific males (28.5).

Prostate cancer was a major cause of cancer deaths for each ethnic group, but accounted for a greater proportion of non-Māori, non-Pacific male cancer deaths (14 percent) than Māori (9.8 percent) or Pacific (8.7 percent). Nevertheless, the age-standardised mortality rate for non-Māori, non-Pacific males (19.3 per 100,000) was substantially lower than either the Māori rate (32.9) or the Pacific rate (24.2).

Cancer of the colorectum and anus was another leading cause of cancer deaths for non-Māori, non-Pacific males and accounted for 15.3 percent of non-Māori, non-Pacific male cancer deaths. It accounted for smaller proportions of cancer deaths among Māori (8.9 percent) and Pacific (7.8 percent) males.

Cancer of the trachea, bronchus and lungs was the leading cause of death for Māori females (34.0 percent) and Pacific females (15.5 percent—just ahead of cancer of the breast), but not for non-Māori, non-Pacific females (13.3 percent). The age-standardised rate for Māori females (70.5 per 100,000) is substantially higher than the rates for Pacific females (24.0) and non-Māori, non-Pacific females (14.9).

While cancer of the breast was the second leading cause of death for Māori females (15.6 percent) and Pacific females (14.7 percent), it accounted for a greater proportion of cancer deaths among non-Māori, non-Pacific females (17.4 percent). The age-standardised rates were slightly higher for Māori females (29.5 per 100,000) than either Pacific females (21.0) or non-Māori, non-Pacific females (21.2).

Cancer of the colorectum and anus was the leading cause of death for non-Māori, non-Pacific females (17.8 percent), just ahead of cancer of the breast (17.4 percent). It accounted for 5.6 percent of Māori female cancer deaths and 9.3 percent of Pacific female cancer deaths.

Selected sites: Trends in registrations and deaths

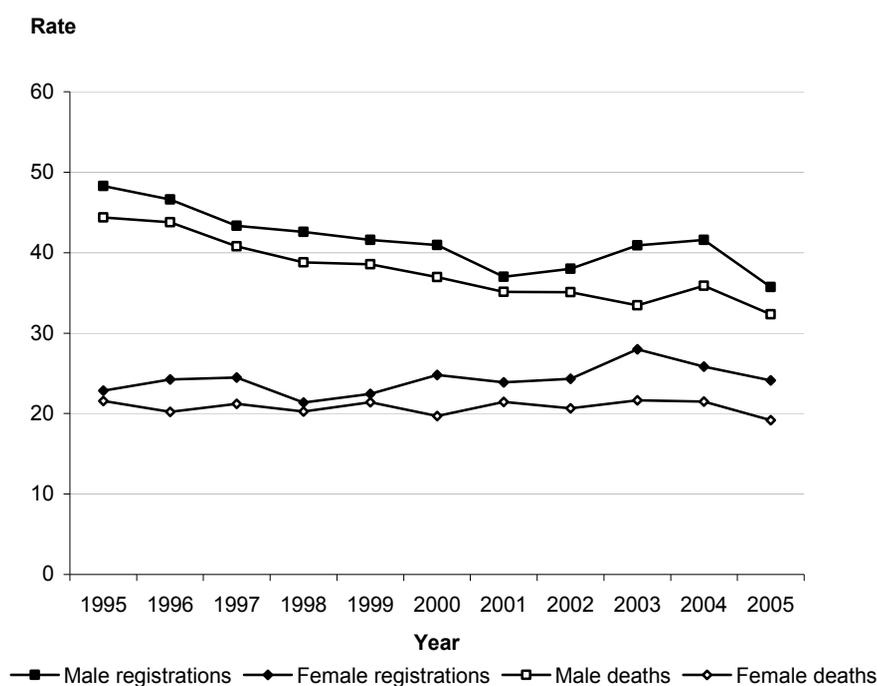
Cancer of the trachea, bronchus and lung (ICD codes C33 and C34)

In 2005, cancer of the trachea, bronchus and lung was the fifth most commonly registered new cancer site in New Zealand (8.9 percent of all registrations) and the fourth most common site for registrations for both males (9.8 percent of male registrations) and females (7.9 percent of female registrations). It was the leading cause of cancer deaths in New Zealand (18.2 percent of cancer deaths). While it was the leading cause of cancer deaths among males (20.7 percent of male cancer deaths), it was the third most common cause of cancer death for females (15.5 percent of female cancer deaths). The deaths-to-registrations ratio for both males and females were both high at 0.91 and 0.83 respectively.

The male age-standardised registration rate was substantially higher than the female rate. The male rate, however, has declined by 26 percent from 1995, while the female rate has risen by 6 percent.

The age-standardised mortality rate for males was substantially higher than the female mortality rate. Both male and female mortality rates have declined since 1995, with the male rate having declined more in percentage terms (27 percent for males compared with 11 percent for females).

Figure 15: Cancer of the trachea, bronchus and lung, registrations and deaths, 1995–2005



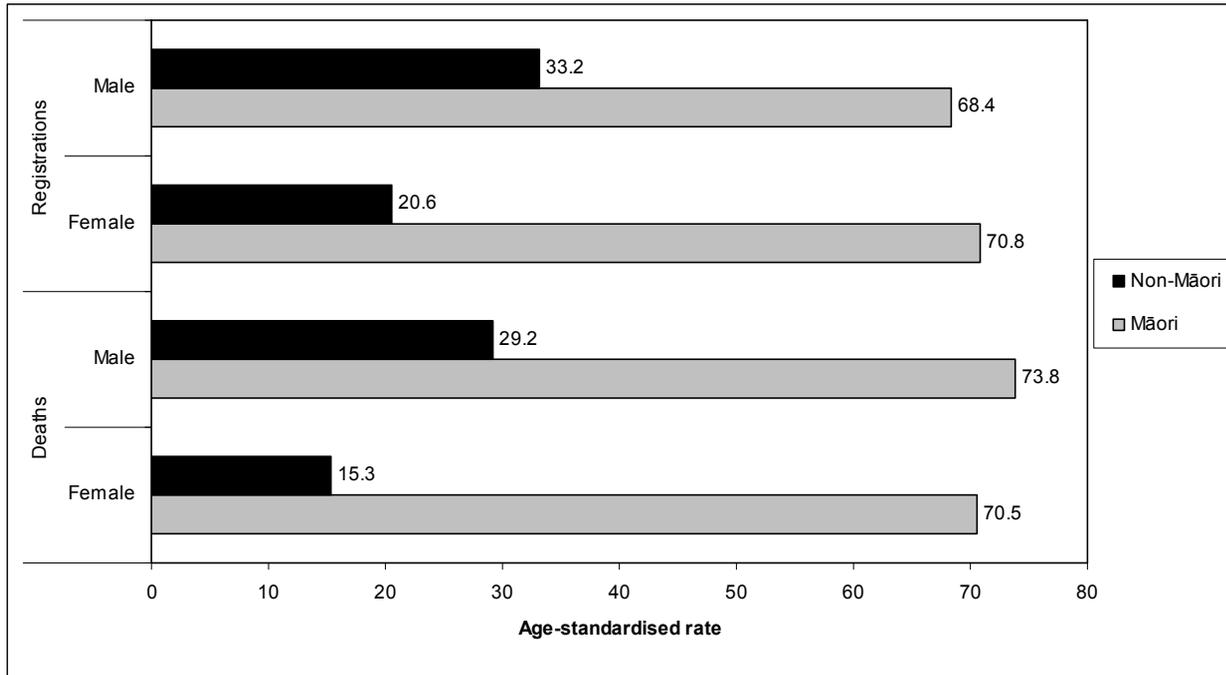
Note: rates per 100,000, age-standardised to WHO world population.

2005	Male		Female	
	Number	Rate*	Number	Rate*
New registrations	948	35.7	711	24.1
Deaths	864	32.3	587	19.2

* = rate per 100,000, age-standardised to WHO world population

Māori had considerably higher age-standardised registration and mortality rates than non-Māori. Both the male Māori registration and death rates were more than double the comparable non-Māori male rates. The female Māori rates were much higher than the non-Māori rates. The age-standardised registration rate for Māori females was over three times the non-Māori rate, while the Māori female death rate was more than four-and-a-half times the non-Māori rate.

Figure 16: Cancer of the trachea, bronchus and lung, registrations and deaths by ethnicity, 2005



Note: rates per 100,000, age-standardised to WHO world population.

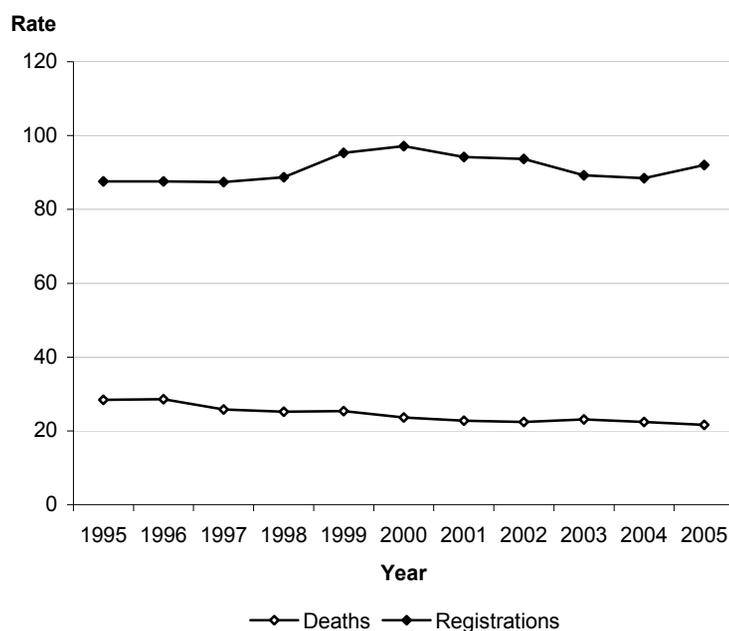
Female cancer of the breast (ICD code C50)

In 2005, breast cancer was the second most commonly registered cancer site in New Zealand and the most commonly registered site for females (accounting for 27.4 percent of female registrations). It was the third main cause of cancer deaths in New Zealand and the leading cause among females (accounting for 17.1 percent of female cancer deaths). It had a comparatively low deaths-to-registrations ratio of 0.26.

The 2005 age-standardised registration rate for cancer of the breast of 92.0 per 100,000 female population was 5 percent greater than the 1995 rate (87.5) and 4 percent greater than the 2004 rate (88.5), but 5 percent less than the peak in 2000 (97.2).

The 2005 age-standardised mortality rate (21.7 per 100,000 female population) was nearly 24 percent lower than in 1995.

Figure 17: Female cancer of the breast, registrations and deaths, 1995–2005



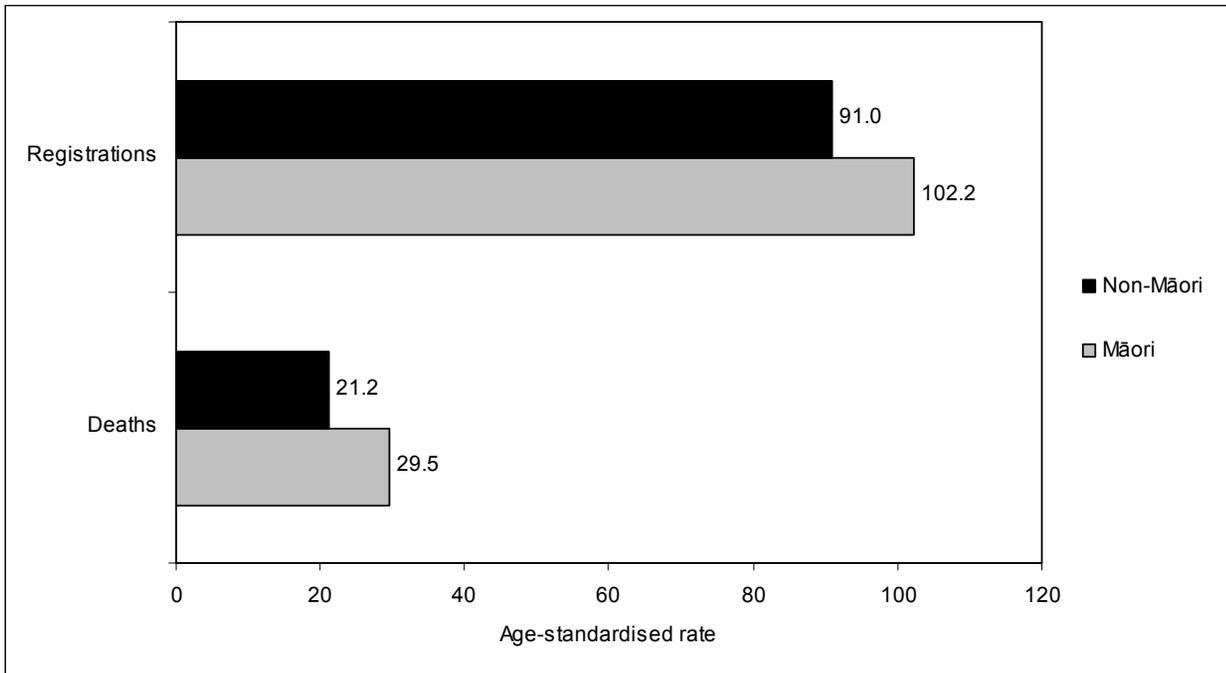
Note: rates per 100,000 females, age-standardised to WHO world population.

2005	Number	Rate*
New registrations	2458	92.0
Deaths	648	21.7

* = rate per 100,000 females, age-standardised to WHO world population

Both the age-standardised registration rates and mortality rates for Māori females were greater than those for non-Māori females.

Figure 18: Female cancer of the breast, registrations and deaths by ethnicity, 2005



Note: rates per 100,000 females, age-standardised to WHO world population.

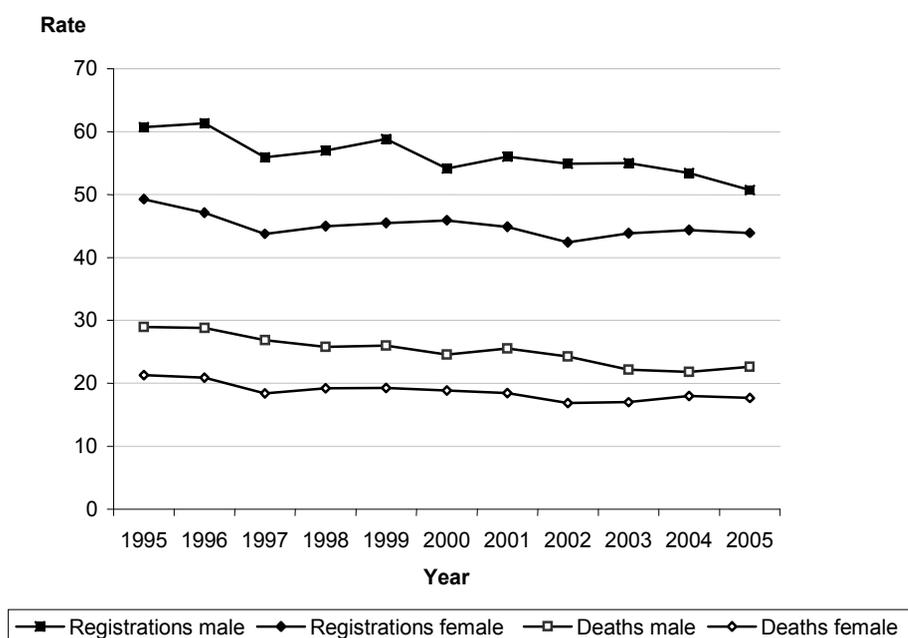
Cancer of the colorectum and anus (ICD codes C18–C21)

In 2005, cancer of the colorectum and anus was the most common site of cancer registration in New Zealand (accounting for 14.6 percent of all registrations) and the second most common for both males (accounting for 13.8 percent of male registrations) and females (accounting for 15.5 percent of female registrations). It was the second most common cause of cancer deaths in New Zealand (accounting for 15.3 percent of cancer deaths) and for both males (accounting for 14.5 percent of male deaths from cancer) and females (accounting for 16.2 percent of female cancer deaths). The deaths-to-registrations ratios for males and females were similar and in the mid-range of a fairly good prognosis—0.46 for males and 0.44 for females.

The 2005 age-standardised registration rate of cancer of the colorectum and anus for males was 16.4 percent less than the male rate in 1995. The 2005 female age-standardised registration rate was 10.9 percent less than the female rate in 1995.

The 2005 age-standardised mortality rate of cancer of the colorectum and anus for males was 22 percent less than the male rate in 1995. The 2005 female age-standardised mortality rate was 17 percent less than the female rate in 1995.

Figure 19: Cancer of the colorectum and anus, registrations and deaths, 1995–2005



Note: rates per 100,000, age-standardised to WHO world population.

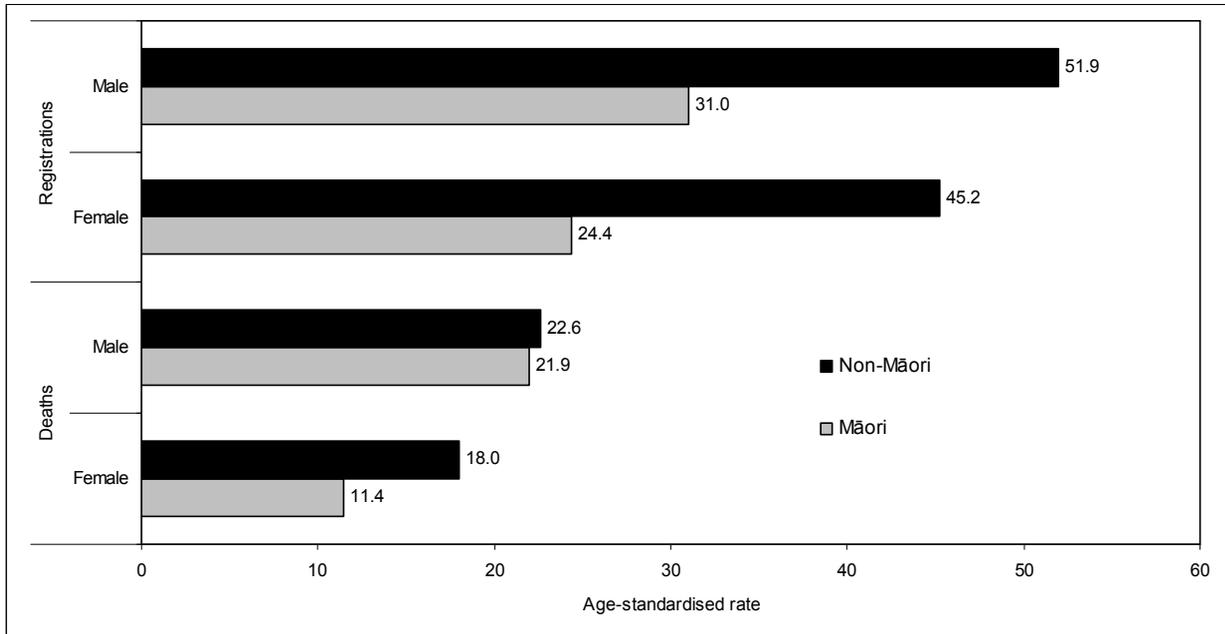
2005	Male		Female	
	Number	Rate*	Number	Rate*
New registrations	1331	50.7	1385	43.9
Deaths	608	22.6	614	17.7

* = rate per 100,000, age-standardised to WHO world population

Both male and female Māori age-standardised registration rates for cancer of the colorectum and anus were substantially lower than the comparable non-Māori rates.

There was little difference between the Māori and non-Māori male age-standardised rates for mortality. The Māori age-standardised rate for females was somewhat lower than the female non-Māori rate.

Figure 20: Cancer of the colorectum and anus, registrations and deaths by ethnicity, 2005



Note: rates per 100,000, age-standardised to WHO world population.

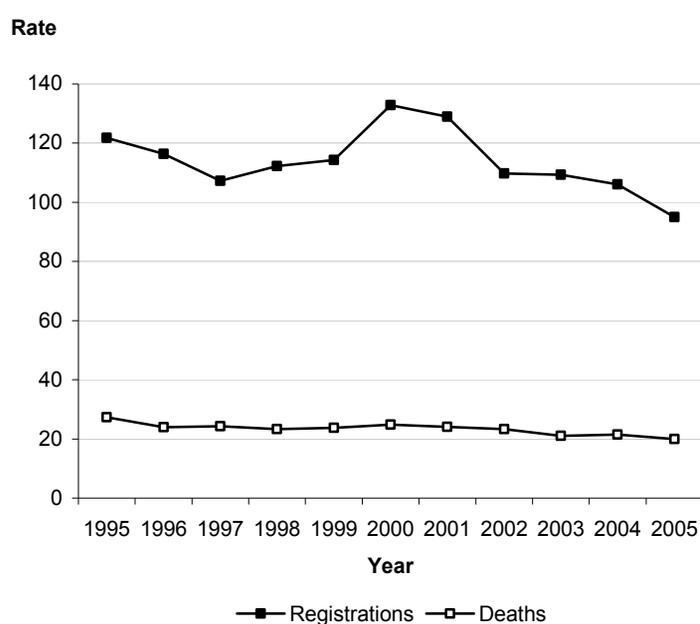
Cancer of the prostate (ICD code C61)

Prostate cancer was the third most common site for cancer registrations in New Zealand (13.3 percent of all registrations, just behind cancer of the breast, but ahead of cancer of the female breast). It was the most common site among males for cancer registrations in 2005, accounting for 25.6 percent of male registrations, and the third most common cause of male cancer deaths, accounting for 13.5 percent of male cancer deaths. The deaths-to-registrations ratio was 0.23, in the better prognosis group.

The age-standardised rate for registrations of 95.0 per 100,000 males was 22 percent less than the 1995 rate of 121.8 per 100,000 males.

The age-standardised mortality rate has declined by 27 percent from the rate of 27.3 per 100,000 males in 1995.

Figure 21: Cancer of the prostate, registrations and deaths, 1995–2005



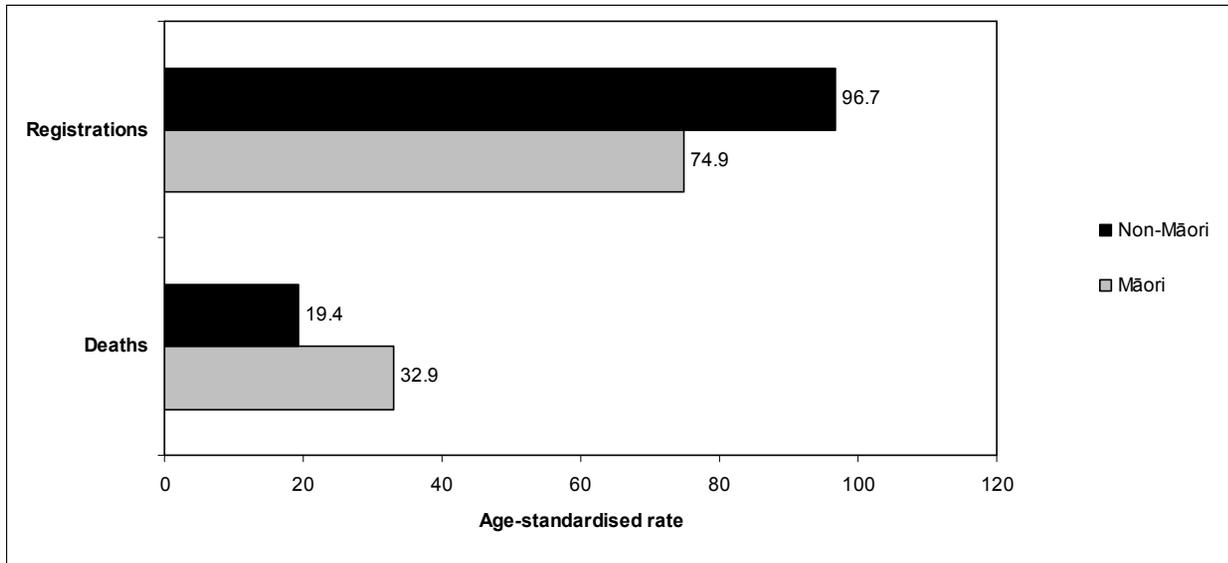
Note: rates per 100,000 males, age-standardised to WHO world population.

2005	Number	Rate*
New registrations	2471	95.0
Deaths	564	19.9

* = rate per 100,000 males, age-standardised to WHO world population

While the age-standardised registration rate for prostate cancer for Māori males was lower than the non-Māori rate, the Māori mortality rate was substantially higher.

Figure 22: Cancer of the prostate, registrations and deaths by ethnicity, 2005



Note: rates per 100,000 males, age-standardised to WHO world population.

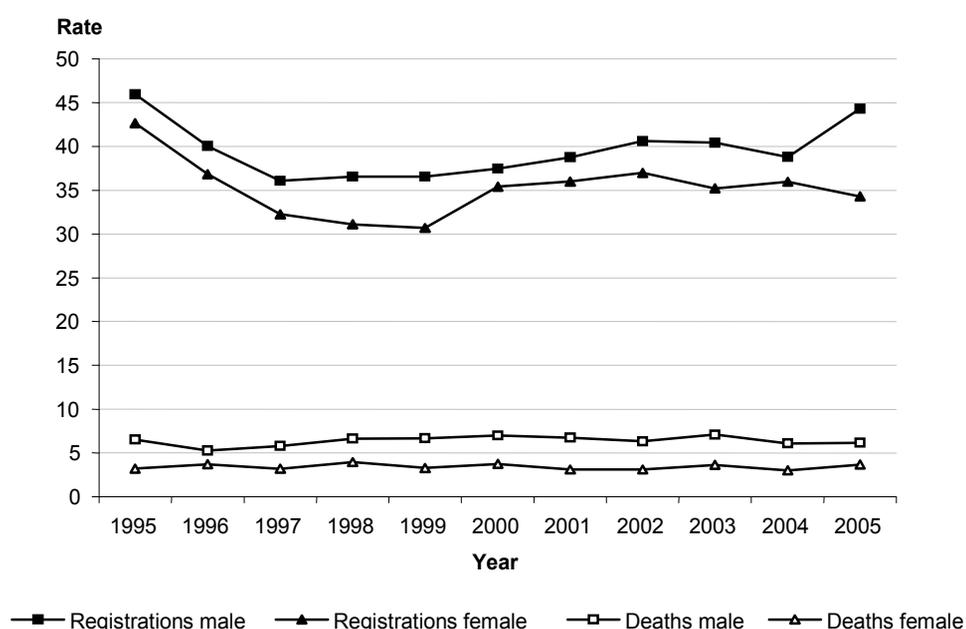
Malignant melanoma of the skin (ICD code C43)

In 2005, melanoma of the skin was the fourth most commonly registered cancer site in New Zealand (10.8 percent of all registrations), and the third most commonly registered site for both males (11.5 percent of male registrations) and females (10.2 percent of female registrations). Melanoma of the skin was the seventh most common cause of cancer deaths in New Zealand. It was the sixth most common cause of male deaths from cancer (3.7 percent of male cancer deaths) and the seventh most common cause of female cancer deaths (3.0 percent of female cancer deaths). Melanoma of the skin had relatively low deaths-to-registrations ratios of 0.14 for males and 0.12 for females.

Compared with 1995, the male age-standardised registration rate for melanoma of the skin has declined slightly (by 3.6 percent), while the female rate has declined substantially (by nearly 20 percent). The male rate for 2005 has increased by 14 percent from the 2004 rate.

Both the male and female age-standardised mortality rates have been stable since 1995, with the male rates in the range of five to seven deaths per 100,000 males and the female rates in the range of three to four deaths per 100,000 females. The 2005 male and female mortality rates continue that stability.

Figure 23: Malignant melanoma of the skin, registrations and deaths, 1995–2005



Note: rates per 100,000, age-standardised to WHO world population.

2005	Male		Female	
	Number	Rate*	Number	Rate*
New registrations	1107	44.3	910	34.3
Deaths	156	6.1	113	3.7

* = rate per 100,000, age-standardised to WHO world population

Age-standardised rates for melanoma of the skin for Māori are not a useful comparative tool because there are too few Māori cases to provide reliable rates. For Māori, there were 22 cases

registered (12 males and 10 females) and six deaths recorded (four males and two females) in 2005.

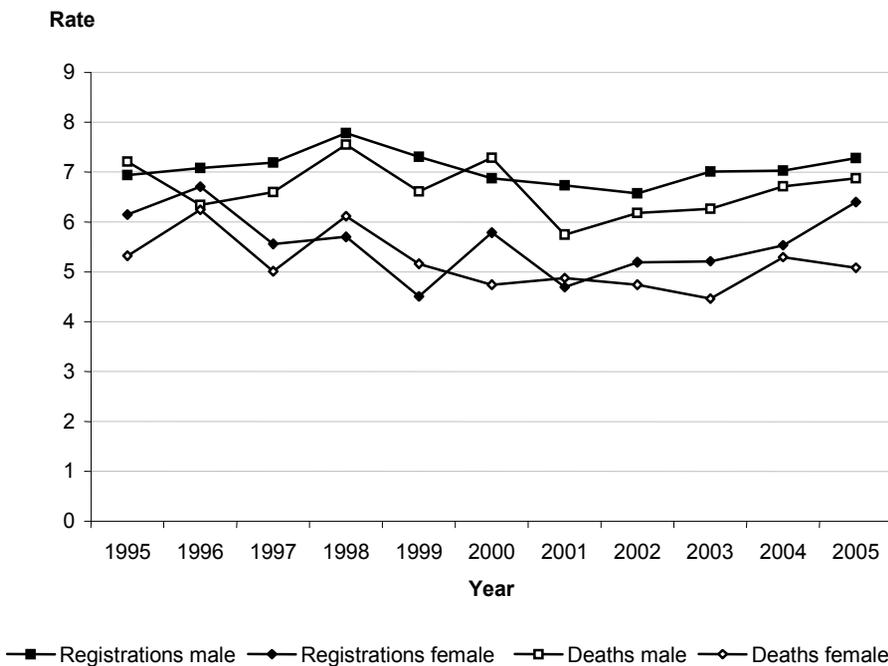
Cancer of the pancreas (ICD code C25)

Cancer of the pancreas accounted for 2.0 percent of male and 2.3 percent of female registrations.

It was the fourth most common site for male cancer deaths, accounting for 4.3 percent of male cancer deaths. It was the fifth most common cause of cancer deaths among females, accounting for 4.6 percent of female cancer deaths. Cancer of the pancreas had relatively high deaths-to-registrations ratios of 0.93 for males and 0.82 for females.

Both the male and female registration and mortality rates have fluctuated within narrow bands and the 2005 figures are within these boundaries.

Figure 24: Cancer of the pancreas, registrations and deaths, 1995–2005



Note: rates per 100,000, age-standardised to WHO world population.

2005	Male		Female	
	Number	Rate*	Number	Rate*
New registrations	193	7.3	210	6.4
Deaths	180	6.9	173	5.1

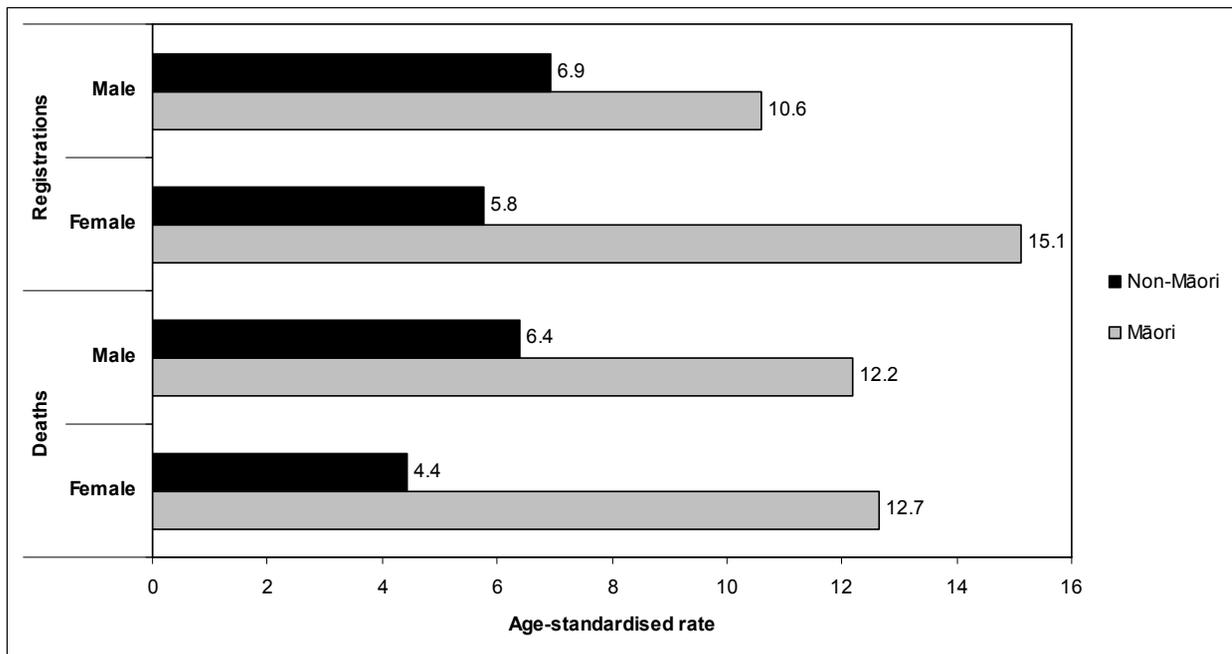
* = rate per 100,000, age-standardised to WHO world population

For Māori males, the age-standardised rate of registrations for cancer of the pancreas (10.6 per 100,000) was higher than the non-Māori male rate (6.9 per 100,000). The female Māori age-standardised rate (15.1) was nearly three times higher than the non-Māori female rate (5.8).

The age-standardised mortality rate for Māori males (12.2 per 100,000) was nearly twice the non-Māori male rate (6.4 per 100,000). The age-standardised mortality rate for Māori females (12.7 per 100,000) was nearly three times the non-Māori rate (4.4 per 100,000).

It should be noted that the age-standardised registration and mortality rates for Māori were based on small numbers of registrations and deaths (between 19 and 28) and should be treated with caution.

Figure 25: Cancer of the pancreas, registrations and deaths by ethnicity, 2005



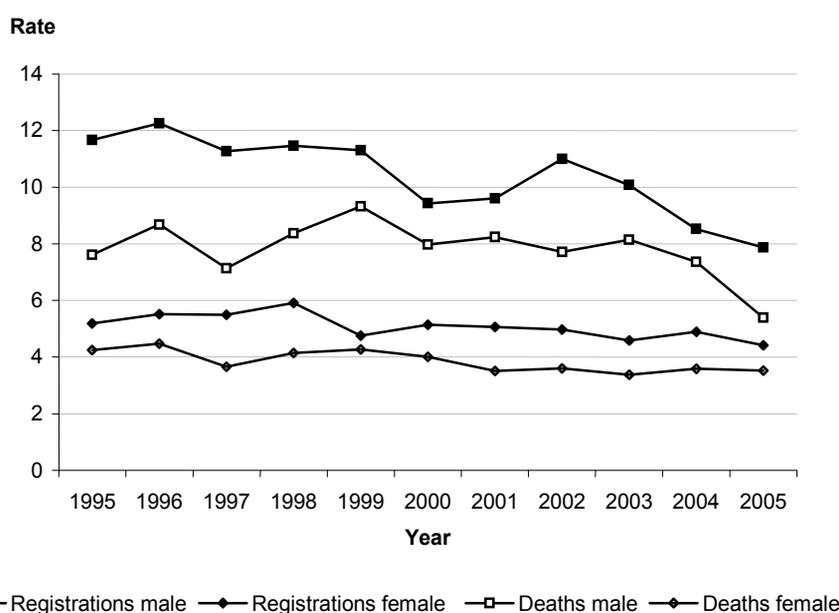
Note: rates per 100,000, age-standardised to WHO world population.

Cancer of the stomach (ICD code C16)

In 2005, cancer of the stomach accounted for 2.1 percent of male registrations and 3.4 percent of male cancer deaths. It accounted for 1.5 percent of female registrations and 3.0 percent of female cancer deaths. Cancer of the stomach had relatively high deaths-to-registrations ratios of 0.70 for males and 0.82 for females.

The 2005 male and female age-standardised registration and mortality rates have generally been decreasing since 1995. The decline has been more pronounced for males than females.

Figure 26: Cancer of the stomach, registrations and deaths, 1995–2005



Note: rates per 100,000, age-standardised to WHO world population.

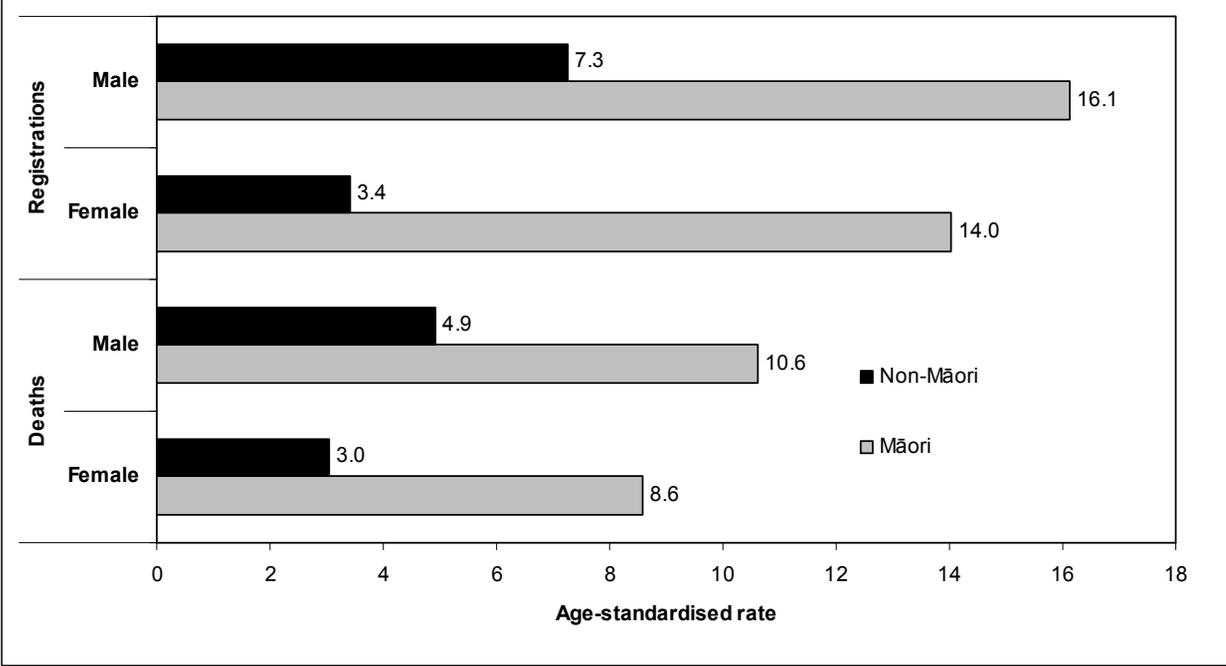
2005	Male		Female	
	Number	Rate*	Number	Rate*
New registrations	203	7.9	138	4.4
Deaths	143	5.4	113	3.5

* = rate per 100,000, age-standardised to WHO world population

The age-standardised rate of registration of cancer of the stomach for Māori males (16.1 per 100,000) was considerably higher than the non-Māori male rate (7.3). Similarly, the Māori female age-standardised registration rate (14.0) was almost four times higher than the non-Māori female rate (3.4).

The age-standardised mortality rate for Māori males (10.6 per 100,000) was considerably higher than the non-Māori male rate (4.9). The female age-standardised mortality rate for Māori (8.6) was also considerably higher than the non-Māori female rate (3.0).

Figure 27: Cancer of the stomach, registrations and deaths by ethnicity, 2005



Note: rates per 100,000, age-standardised to WHO world population.

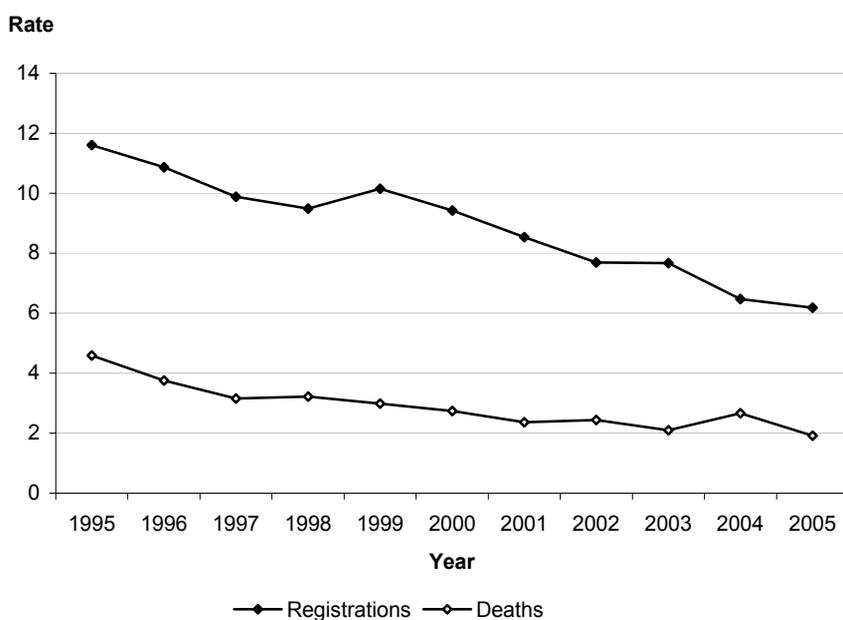
Cancer of the cervix uteri (ICD code C53)

In 2005, cancer of the cervix uteri accounted for 1.7 percent of female registrations and 1.4 percent of female cancer deaths. In 2005, the deaths-to-registrations ratio was 0.35.

The 2005 age-standardised registration rate was 47 percent less than the 1995 rate (11.6 per 100,000 females).

The age-standardised mortality rate for cancer of the cervix uteri has declined from 4.6 per 100,000 females in 1995 to 1.9 per 100,000 females in 2005.

Figure 28: Cancer of the cervix uteri, registrations and deaths, 1995–2005



Note: rates per 100,000 females, age-standardised to WHO world population.

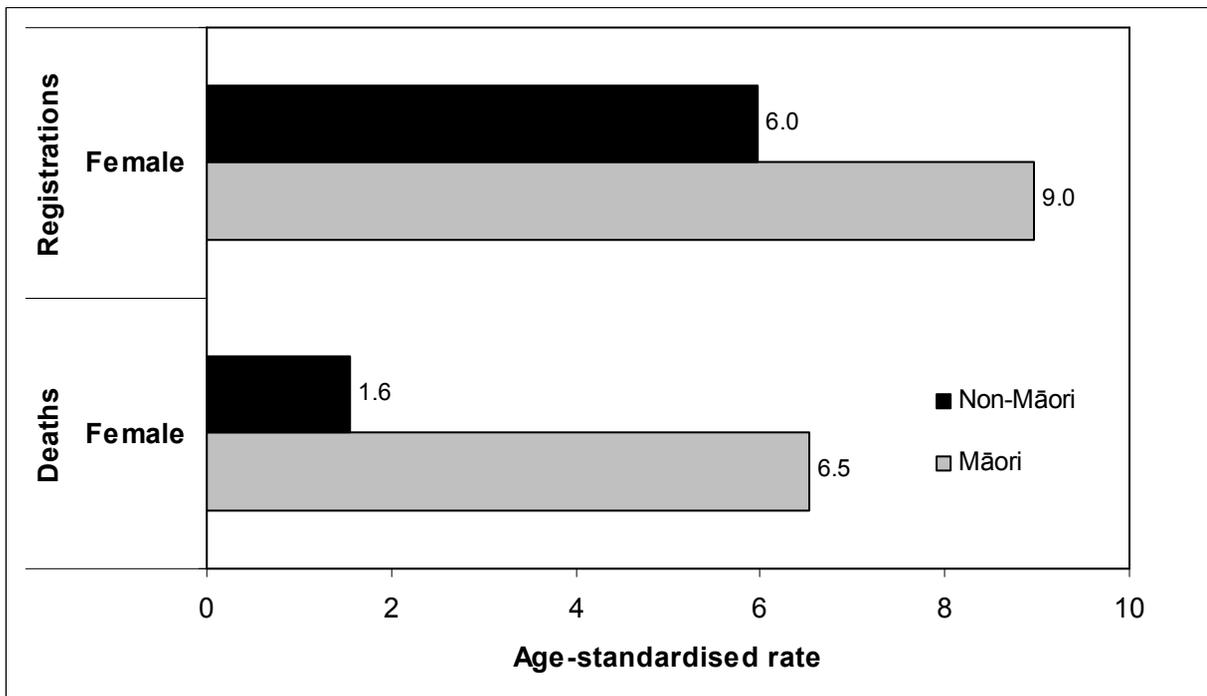
2005	Number	Rate*
New registrations	154	6.2
Deaths	54	1.9

* = rate per 100,000 females, age-standardised to WHO world population

Māori females had an age-standardised registration rate of 9.0 per 100,000 Māori females, which was higher than the non-Māori rate of 6.0 per 100,000 non-Māori females.

Māori females had an age-standardised mortality rate of 6.5 per 100,000 Māori females, which was higher than the non-Māori rate of 1.6 per 100,000 non-Māori females. However, the age-standardised mortality rates for Māori were based on a small number of cases (22 registrations and 13 deaths) and should be treated with caution.

Figure 29: Cancer of the cervix uteri, registrations and deaths by ethnicity, 2005



Note: rates per 100,000 females, age-standardised to WHO world population.

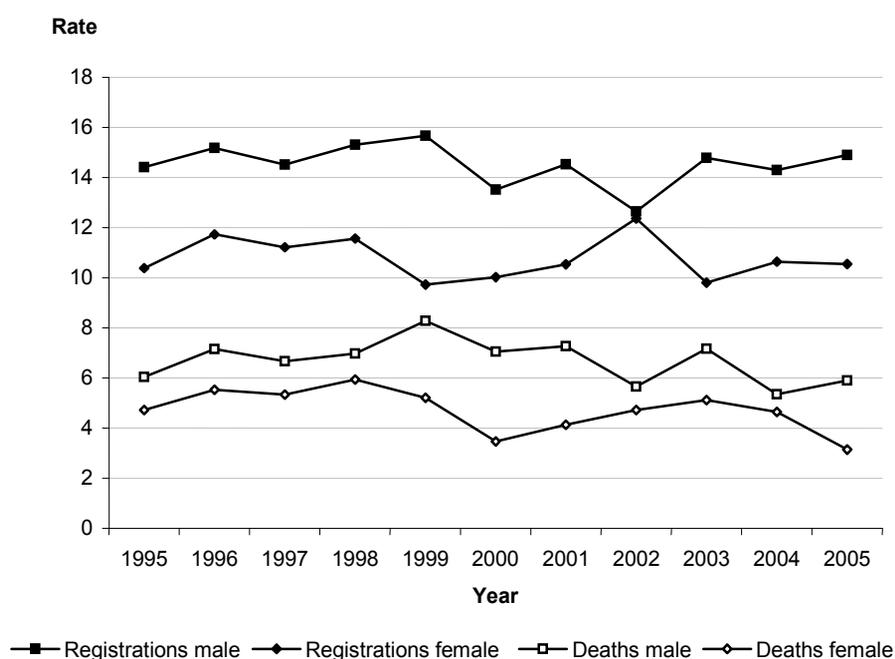
Non-Hodgkin lymphoma (ICD codes C82–C85 and C96)

In 2005, non-Hodgkin lymphoma accounted for 3.9 percent of male and 3.5 percent of female cancer registrations. It accounted for 3.7 percent of male cancer deaths and 2.9 percent of female cancer deaths. The deaths-to-registrations ratios were in the mid-range of 0.42 for males and 0.35 for females.

Both the 2005 age-standardised registration rates for males and females were almost the same as the equivalent male and female rates in 1995.

The 2005 male mortality rate for non-Hodgkin lymphoma was similar to the 1995 male rate, while the female mortality rate was slightly less than the 1995 female rate (4.7 per 100,000 females).

Figure 30: Non-Hodgkin lymphoma, registrations and deaths, 1995–2005



Note: rates per 100,000, age-standardised to WHO world population.

2005	Male		Female	
	Number	Rate*	Number	Rate*
New registrations	373	14.9	311	10.6
Deaths	155	5.9	108	3.1

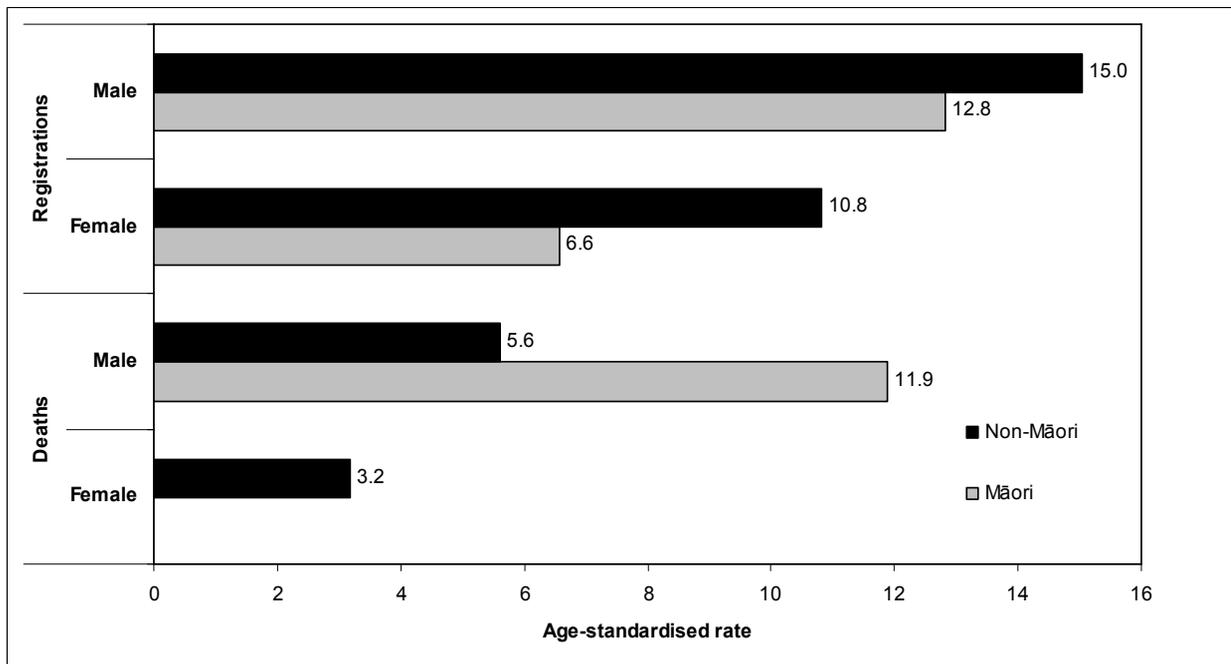
* = rate per 100,000, age-standardised to WHO world population

The Māori male age-standardised registration rate (12.8 per 100,000) was slightly lower than the non-Māori male rate (15.0). The Māori female age-standardised registration rate of (6.6) was less than the non-Māori female rate (10.8).

The Māori male age-standardised mortality rate (11.9 per 100,000) was higher than the non-Māori male rate (5.6). It should be noted that the age-standardised mortality rates for Māori males were based on a small number of cases (16) and should be treated with caution.

The female Māori age-standardised mortality rate was not calculated because there were four Māori female cancer deaths from non-Hodgkin lymphoma in 2005.

Figure 31: Non-Hodgkin lymphoma, registrations and deaths by ethnicity, 2005



Note: rates per 100,000, age-standardised to WHO world population.

Other cancers

Cancer of the ovary (ICD code C56)

There were 301 registrations of, and 190 deaths from, cancer of the ovary in 2005. This was the seventh highest number of registrations for females and the fourth highest number of female cancer deaths. The age-standardised registration rate for cancer of the ovary was 10.5 per 100,000 female population, while the age-standardised mortality rate was 6.1 per 100,000 female population. The deaths-to-registrations ratio in 2005 for cancer of the ovary was 0.63.

In 2005, 14 Māori and 15 Pacific females were registered with ovarian cancer and 11 Māori and 10 Pacific females died from ovarian cancer.

The introduction of the third edition of ICD-O from 1 January 2003 has resulted in a slight reduction in the number of cases recorded for ovarian cancer from 2003 onwards compared with previous years. Ovarian tumours of borderline malignancy were considered malignant in the second edition of ICD-O, but are considered to be of uncertain behaviour in the third edition and have been excluded from incidence reporting since 2003. Please see the Explanatory Notes for further details of these changes.

Cancer of the bladder (ICD code C67)

In 2005, there were 332 registrations for cancer of the bladder (253 males and 79 females). There were 185 deaths from cancer of the bladder (121 males and 64 females). The deaths-to-registrations ratio was a moderate 0.48 for males and a high 0.81 for females.

The age-standardised registration rate for males (9.3 per 100,000 males) was more than four times higher than the female rate (2.2 per 100,000 females). The age-standardised mortality rate for males (4.4 per 100,000 males) was higher than the female rate (1.6 per 100,000 females)

In 2005, 15 Māori (nine males, six females) and five Pacific males were registered with cancer of the bladder. There were eight Māori deaths (four males, four females) and three Pacific deaths (one male, two females) from cancer of the bladder.

From 1 January 2005, superficial transitional cell carcinoma of the bladder was no longer coded as an invasive cancer. This coding change has resulted in a decrease in the number of bladder cancer registrations compared with previous years.

Cancer of the kidney (ICD code C64)

There were 368 registrations for cancer of the kidney in 2005 (222 males and 146 females). The male age-standardised registration rate was 8.8 per 100,000 males, while the female rate was 4.9 per 100,000 females. There were 159 deaths from cancer of the kidney (98 males and 61 females). The age-standardised mortality rate for males was 3.7 per 100,000 males and for females 1.8 per 100,000 females. The deaths-to-registrations ratios were 0.44 for males and 0.42 for females.

In 2005, 31 Māori (23 males, eight females) and 12 Pacific peoples (11 males and one female) were registered with cancer of the kidney. There were 14 Māori deaths (nine males, five females) and two Pacific deaths (one male, one female).

Cancer of the brain (ICD code C71)

There were 256 registrations for cancer of the brain in 2005 (161 males, 95 females). The male age-standardised registration rate was 6.8 per 100,000 males, while the female rate was 3.8 per 100,000 females. There were 219 deaths from cancer of the brain (132 males, 87 females). The age-standardised mortality rate for males was 5.5 per 100,000 males, while for females it was 3.2 per 100,000 females. The deaths-to-registrations ratios were high at 0.82 for males and 0.92 for females.

In 2005, 13 Māori (seven males, six females) and 10 Pacific peoples (four males, six females) were registered with cancer of the brain. There were 13 Māori deaths (six males, seven females) and five Pacific deaths (three males, two females).

Explanatory notes

Cancer registration data

Scope of the New Zealand Cancer Registry

The New Zealand Cancer Registry is a collection of data of malignant disease cases that have been diagnosed in New Zealand. Registrations are based on discrete primary cancer cases that are distinguished by differences in topography or histology. Cancers are registered once, in the year of their first known diagnosis. (See also the Cancer Registry Act 1993, Appendix 1.)

To ensure a high standard of data, registry staff comprehensively screen all records before adding them to the register. Cancer deaths are reconciled with the cancer registrations on the register.

Skin cancers

Basal cell epithelioma and squamous cell carcinoma of the skin are not recorded by the Cancer Registry except when of the skin of genital organs. The registration of these cancers was discontinued in 1958 because of resource considerations.

A small number of non-melanoma cases (for example, dermatofibrosarcoma and Merkel cell tumours) have been registered and classified to site ICD C44. Before 1993, these cases were coded to ICD-9 code 171 Connective and other soft tissues.

In-situ cancers

In-situ cancers are localised lesions that have not invaded beyond the basement membrane. All in-situ cancers have been excluded from the main statistical tables.

Disease coding

The *International Statistical Classification of Diseases and Related Health Problems*, Tenth Revision, Australian Modification (ICD-10-AM) Second Edition was used to classify the cancer site for the 2005 mortality data used in this report.

The *International Statistical Classification of Diseases and Related Health Problems*, Tenth Revision, Australian Modification (ICD-10-AM) Third Edition was used to classify the site or topography for the 2005 cancer registration data used in this report. The *International Classification of Diseases for Oncology* Third Edition (ICD-O) was used to classify the morphology (histology type and behaviour) of tumours.

From 1 January 2005, superficial transitional cell carcinoma of the bladder was no longer coded as an invasive cancer. This coding change has resulted in a decrease in the number of bladder cancer registrations compared with previous years.

The third edition of ICD-O contains a revised morphology section. New classifications have been introduced and new codes assigned to accommodate them. This has resulted in changes to the coding of cancers diagnosed since 1 January 2003. For some tumour types, particularly haematological malignancies and ovarian cancer, these changes may affect incidence reporting. For particular cancer sites, registrations from 1 January 2003 onwards may not be comparable with 2002 and earlier registrations.

Ovarian tumours of borderline malignancy were considered malignant in the second edition of ICD-O, but are considered to be of uncertain behaviour in the third and have been excluded from

incidence reporting since 2003. This has resulted in a slight reduction in the number of cases of ovarian cancer since 2003 compared with previous years.

Polycythaemia vera, myelodysplastic syndromes and chronic myeloproliferative disorders are considered to be malignant in the third edition of ICD-O, whereas in the second edition these diseases were considered to be of uncertain behaviour. The ICD-10 codes for these new malignancies are in the range D45–D47 and were included for the first time in the 2003 data. In this publication, these are referred to as chronic myeloproliferative disorders and myelodysplastic syndromes.

For consistency within this publication, the total number of deaths from cancer includes deaths from the malignancies in the D45–47 code range.

A diagnosis of leukaemia in a person already registered with one of the above malignancies will not be counted in incidence statistics because of the way the coding rules for multiple primary tumours are applied (see the next section).

Multiple primary tumours

Incidence counts and rates are based on the number of primary tumours rather than the number of individuals with cancer. The New Zealand Cancer Registry database records multiple primary cancers in the same person, of which only some are counted for incidence purposes, according to the rules of the International Agency for Research on Cancer and the International Association of Cancer Registries. In brief, these rules state that:

1. Recognition of the existence of two or more primary cancers does not depend on time.
2. A primary cancer is one that originates in a primary site or tissue and is thus neither an extension, a recurrence nor a metastasis (transfer of cancerous cells to other parts of the body) of a pre-existing tumour.
3. Only one tumour shall be recognised in an organ or pair of organs or tissue (as defined by a letter and a series of numerals of the ICD-10 topography) unless of different histology.

A cancer with a different histology in the same organ is counted as a new tumour. There are 12 defined groups of malignant neoplasms considered to be histologically different (Fritz et al. 2000, p 37). Incidence reporting of multiple tumours is based upon these groups.

Timeliness of data

The process of collecting, coding and collating national information on cancer registrations and deaths is complex. Data in the Cancer Registry come from laboratory reports, hospital information and mortality information, and data in the Mortality Collection come from the certificates of cause of death from doctors or coroners, post-mortem reports from private pathologists and hospitals, and death registration forms. Both sets of information cannot be finalised until completed from all sources. In particular, the timing of the publication is affected by manual processing of death data and the need to wait until almost all coroners' findings for any particular year have been received. In addition, there are several steps required to ensure the final information is of good quality.

Changes in legislation

On 1 July 1994 the Cancer Registry Act and Cancer Registry Regulations came into force, introducing fundamental changes to the collection of cancer data in New Zealand. The full text of the Cancer Registry Act 1993 and Cancer Registry Regulations 1994 are contained in the

appendices to this publication. The effect of legislation on the statistics of cancer registration is discussed in the 1996 edition of *Cancer: New Registrations and Deaths*.

Ethnicity

Ethnicity data is required to be collected and classified according to the Ministry of Health ethnicity data protocols for the health and disability sector (see Ministry of Health 2004).

Under the protocols, ethnicity is collected through self-identification or, when this is not possible, by appropriate proxy using a standard question format. Individuals may select up to three ethnic groups they feel they belong to.

The ethnicity data in this publication is based on prioritised ethnicity. Each individual is allocated to a single ethnic group on the basis of the following priority: Māori, Pacific peoples, Asian, other groups except NZ European, NZ European. Thus, any person who selects Māori as one of their three ethnicities will be recorded as Māori. By using this method, it is estimated that the Māori group gains at the expense of Pacific peoples (by approximately 32,000) and Pacific peoples gain at the expense of other groups (by approximately 35,000) (Ministry of Health 2004, p 20).

Prior to 1994, ethnicity data were based on a single choice, sole ethnic origin.

The ethnicity recorded on the Cancer Registry is taken from hospital discharge information, the National Health Index and the Mortality Collection. One result of the Cancer Registry Act 1993 is that, because increasing numbers of registrations are based on laboratory reports, there are some registrations where ethnicity has not been specified. Those registrations with unspecified ethnicity have been included in the non-Māori, non-Pacific group in the comparison of Māori and Pacific peoples with non-Māori, non-Pacific peoples, so caution should be used when interpreting such comparisons.

Rate calculations

Age-specific rates show the number of events (for example, cancer registrations or deaths) per 100,000 of the population in each age group for each year.

Age-standardised rates adjust for differences in age distribution of the populations being compared. They are calculated by the direct standardisation method, which multiplies the age-specific rates by a standard population. The standard population used in this publication is the World Health Organization (WHO) world population. Previous editions of the *Cancer: New Registrations and Deaths* series have used Segi's world population. Hence, the rates provided in this report are not comparable with those in previous editions. The rates for all years back to 1995 have been recalculated using the WHO standard.

Deaths-to-registrations ratios are calculated by dividing the number of deaths by the number of registrations within a specific year. As such, these figures are indicative only and prone to error when numbers of either deaths or registrations are small.

Table N-1: World Health Organization standard population

Age group	Population	Age group	Population
0–4	8860	50–54	5370
5–9	8690	55–59	4550
10–14	8600	60–64	3720
15–19	8470	65–69	2960
20–24	8220	70–74	2210
25–29	7930	75–79	1520
30–34	7610	80–84	910
35–39	7150	85+	635
40–44	6590	Total	100,000
45–49	6040		

Source: Ahmad et al 2001

Estimated resident mean population of New Zealand by ethnicity, age and sex, for year ended 31 December 2005, and the estimated Pacific peoples population for 2005 are shown in the tables below.

Table N-2: Population data, 2005

Age	Total population			Māori			Pacific peoples		
	Total:	Male:	Female:	Total:	Male:	Female:	Total:	Male:	Female:
0–4	281,740	144,080	137,650	77,770	39,860	37,910	25,860	13,270	12,590
5–9	289,540	148,920	140,620	74,010	38,140	35,870	26,870	13,630	13,240
10–14	308,330	158,950	149,380	72,570	37,430	35,140	26,240	13,550	12,690
15–19	306,000	156,520	149,480	65,660	33,080	32,590	23,545	12,055	11,490
20–24	289,840	148,150	141,690	49,210	24,360	24,840	20,315	10,185	10,130
25–29	254,680	125,710	128,970	45,160	21,820	23,340	18,485	8895	9590
30–34	287,700	137,630	150,070	46,480	21,990	24,490	18,855	9290	9565
35–39	303,520	145,950	157,560	43,620	20,750	22,870	18,700	8860	9840
40–44	319,460	155,070	164,390	42,300	20,040	22,260	16,335	7885	8450
45–49	292,940	144,050	148,880	34,490	16,480	18,000	13,015	6425	6590
50–54	254,910	126,170	128,740	26,130	12,660	13,480	10,410	5275	5135
55–59	233,730	116,120	117,610	19,490	9420	10,060	8070	3975	4095
60–64	180,240	88,990	91,250	13,780	6640	7140	5730	2755	2975
65–69	146,070	70,890	75,190	10,710	5070	5640	4240	1955	2285
70–74	120,150	57,460	62,680	6920	3210	3710	2915	1255	1660
75–79	102,430	46,690	55,740	4030	1750	2280	1835	780	1055
80–84	72,900	29,010	43,890	1880	730	1140	840	290	550
85+	56,410	17,490	38,920	1140	410	740	430	100	330
Total	4,100,600	2,017,900	2,082,700	635,400	313,800	321,500	242,690	120,430	122,260

Source: Statistics New Zealand

Note: Because of rounding, individual figures in this table do not always sum to give stated totals.

Confidence intervals

Confidence intervals have been calculated for age-standardised rates for all sites for the years 1995 to 2005 at the 95 percent level (Table 10). The confidence intervals have been calculated using the methods presented in Keyfitz (1966).

A confidence interval is a range of values used to describe the uncertainty around a single value (such as an age-standardised rate) used to estimate the true value in a population, such as the underlying or true rate. Confidence intervals describe how different the estimate could have been if chance had led to a different set of data. Confidence intervals are calculated with a stated probability, typically 95 percent (which would indicate that there is a 95 percent chance that the true value lies within the confidence intervals).

Confidence intervals may assist in comparing the rates over time for each cancer site and all sites combined. If two confidence intervals do not overlap, then it is reasonable to assume that the difference is not due to chance. However, if two confidence intervals overlap, it is not possible to make any conclusion about the significance of any difference between them.

Additional information available from the Ministry of Health

Statistical cancer data tables are available, in excel format from:
<http://www.moh.govt.nz/moh.nsf/pagesmh/8414>

Should you require additional information, analysis or material not included in this report or material tabulated in different ways, please contact:

Analytical Services
Information Directorate
Ministry of Health
PO Box 5013
Wellington
New Zealand

Phone (04) 496 2000

Fax (04) 816 2898

E-mail data-enquiries@moh.govt.nz

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Appendix 1: Full text of the Cancer Registry Act 1993

1993

Cancer Registry

No. 102



ANALYSIS

Title

1. Short Title and commencement
2. Interpretation
3. Act to bind the Crown
4. Maintenance of Cancer Registry
5. Reporting of cancer

6. Director General may require supply of further information
7. Protection against actions
8. Offences
9. Regulations

1993, No. 102

An Act to make better provision for the compilation of a statistical record of the incidence of cancer in its various forms, to provide a basis for the better direction of programmes for research and for cancer prevention

BE IT ENACTED by the Parliament of New Zealand as follows:

1. Short Title and commencement – (1) This Act may be cited as the Cancer Registry Act 1993.

(2) This Act shall come into force on the 1st day of July 1994.

2. Interpretation – In this Act, unless the context otherwise requires, –

“Cancer” –

(a) Means a malignant growth of human tissue that, if unchecked, –

- (i) Is likely to spread to adjacent tissue or beyond its place of origin; and
- (ii) May have the propensity to recur; and

(b) Without limiting the generality of paragraph (a) of this definition, includes carcinoma-in-situ, carcinoma, sarcoma (including Kaposi’s sarcoma), any mixed tumour, leukaemia, any type of lymphoma, and melanoma; but

(c) Does not include –

- (i) Any secondary or metastatic cancer, except where the primary cancer is not identified:
- (ii) Any type of cancer that is declared by regulations made under this Act to be a cancer to which this Act does not apply:

“Cancer test” means any examination or test (including the examination of any blood, cytological or tissue biopsy specimen, or other material) that is carried out in any pathology laboratory to determine the presence or absence of cancer in any person (including a deceased person):

“Director-General” means the Director-General of Health.

3. Act to bind the Crown – This Act binds the Crown.

4. Maintenance of Cancer Registry – (1) The Director-General shall maintain or arrange for the maintenance of a Cancer Registry.

(2) The purposes of the Cancer Registry are –

- (a) To provide information on the incidence of, and mortality from, cancer; and
- (b) To provide a basis for cancer survival studies and research programmes.

5. Reporting of cancer – (1) Where a cancer test indicates the presence of cancer in any person (including a deceased person), the person in charge of the laboratory where that test was carried out shall cause a report of that test to be made to the Director-General for the purposes of the Cancer Registry.

(2) Where a post-mortem examination of any deceased person indicates the presence of cancer in that person, the person who carried out that examination shall cause a report of that examination to be made to the Director-General for the purposes of the Cancer Registry.

(3) Every report under subsection (1) or subsection (2) of this section –

- (a) Shall be made within the prescribed time; and
- (b) Shall be made in the prescribed form and manner.

(4) No person is required to make a report under this section with respect to –

- (a) Any cancer test that indicates the presence of cancer in any person (including a deceased person); or
- (b) Any post-mortem examination of any deceased person that indicates the presence of cancer in that person –

if the first-mentioned person has good reason to believe that the presence of that particular cancer in that other person has already been reported to the Director-General, whether in a report made under this section or pursuant to any arrangements that were in place before the commencement of this Act or otherwise.

6. Director-General may require supply of further information – (1) Where any report made under section 5 of this Act is incomplete in any respect by reason that the person making the report does not have available to that person certain information necessary to enable a complete report to be made, the Director-General may, for the purpose of obtaining that information, by notice in writing require any person (being a medical practitioner or the person in charge of any hospital) that the Director-General reasonably believes may have all or any of that information to provide to the Director-General such information as may be specified in the notice.

(2) Every person to whom a notice is given under this section and who has any of the information specified in that notice shall provide that information within such time, and in such form and manner, as may be specified in the notice.

[(3) In subsection (1), “medical practitioner” means a health practitioner who is, or is deemed to be, registered with the Medical Council of New Zealand continued by section 114(1)(a) of the Health Practitioners Competence Assurance Act 2003 as a practitioner of the profession of medicine.]

7. Protection against actions – (1) No proceedings, civil or criminal, shall lie against any person by reason of that person having made available any information for the purposes of complying with the requirements of section 5 or section 6(2) of this Act.

(2) Nothing in subsection (1) of this section applies in respect of proceedings for an offence against section 8 of this Act.

8. Offences – Every person commits an offence and is liable on summary conviction to a fine not exceeding \$500 who –

- (a) Fails, without reasonable excuse, to comply with the requirements of section 5 or section 6(2) of this Act; or
- (b) Knowingly supplies information that is false or misleading in purported compliance with section 5 or section 6(2) of this Act.

9. Regulations – The Governor-General may from time to time, by Order in Council, make regulations for all or any of the following purposes:

- (a) Prescribing the form and manner in which reports are to be made to the Director-General under section 5 of this Act:
- (b) Prescribing the time within which reports are to be made to the Director-General under section 5 of this Act:
- (c) Declaring any type of cancer to be a cancer to which this Act does not apply:
- (d) Providing for such other matters as are contemplated by or necessary for giving full effect to this Act and for its due administration.

This Act is administered in the Ministry of Health.

Appendix 2: Full text of the Cancer Registry Regulations 1994

1994/89



THE CANCER REGISTRY REGULATIONS 1994

CATHERINE A TIZARD, Governor-General

ORDER IN COUNCIL

At Wellington this 30th day of May 1994

Present:

HER EXCELLENCY THE GOVERNOR-GENERAL IN COUNCIL

PURSUANT to section 9 of the Cancer Registry Act 1993, Her Excellency the Governor-General, acting by and with the advice and consent of the Executive Council, hereby makes the following regulations.

REGULATIONS

- 1. Title and commencement** – (1) These regulations may be cited as the Cancer Registry Regulations 1994.
(2) These regulations shall come into force on the 1st day of July 1994.
- 2. Interpretation** – (1) In these regulations, unless the context otherwise requires, –
“the Act” means the Cancer Registry Act 1993:
“Report” means a report to the Director-General under section 5 of the Act.
(2) Where any expression used in these regulations is not defined in these regulations but is defined in the Act, that expression shall, unless the context otherwise requires, have, in these regulations, the meaning given to it by the Act.
- 3. Time within which reports to be made** – Every report shall be made no later than 21 days after the end of the calendar month in which the cancer test to which the report relates was carried out.
- 4. Form of reports** – (1) Every report shall contain the following information:
 - (a) The full name of the person who carried out the cancer test to which the report relates:
 - (b) In relation to the person who requested the carrying out of the cancer test to which the report relates, –
 - (i) The full name of that person; and

- (ii) The name of the health care institution by which that person is employed or engaged or in which that person otherwise works (if any):
- (c) In relation to the person in respect of whom the cancer test to which the report relates was carried out, –
 - (i) Either that person's National Health Index Identifier or that person's full name, maiden name (if any) and any known aliases:
 - (ii) That person's date of birth:
 - (iii) That person's sex:
 - (iv) Where available, that person's ethnicity:
 - (v) Where available, that person's full address:
 - (vi) Where available, that person's occupation:
- (d) In relation to the cancer test to which the report relates, –
 - (i) The category into which the test falls, which shall be one of the categories set out in subclause (2) of this regulation:
 - (ii) A description of the anatomical site from which the sample in respect of which the test was carried out was obtained, as indicated with the request for the test:
 - (iii) Whether that site is the primary site or the secondary site of the cancer indicated by the test:
- (e) In relation to the cancer indicated by the cancer test to which the report relates, –
 - (i) A full description of the pathological nature of the cancer:
 - (ii) In the case of malignant melanoma of the skin, –
 - (A) The thickness of the tumour, measured in accordance with *Breslow's* method:
 - (B) The extent of tumour invasion, expressed by reference to *Clark's* levels:
 - (iii) Where available, the stage of the cancer (other than for lymphoma, leukaemia, and malignant melanoma of the skin).

(2)
follows:

The categories referred to in subclause (1)(d)(i) of this regulation are as

- (a) The histology of the primary lesion or, in the absence of a known primary lesion, the metastases:
- (b) Cytology or haematology, or both:
- (c) Specific biochemical or immunological test, or both:
- (d) Autopsy with concurrent or previous histology.

(3) Where any information required to be included in any report is unavailable at the time the report is made, or is unobtainable, –

- (a) The report shall indicate that the information is unavailable or, as the case may be, unobtainable; and
- (b) If that information subsequently becomes available, the person required to make the report shall, as soon as practicable, transmit that information to the Director-General.

5. Manner in which reports to be made – A report shall be made –

- (a) In a written document; or
- (b) On computer tape, disk, or diskette; or

- (c) By directly inputting data into a database maintained in electronic form by the Director-General for the purposes of the Cancer Registry, such inputting being made by means of remote logon access to the database.

6. Act not to apply to certain cancers – It is hereby declared that the following types of cancer are cancers to which the Act does not apply:

- (a) Basal cell cancer arising in the skin:
(b) Squamous cell cancer arising in the skin.

MARIE SHROFF,
Clerk of the Executive
Council.

EXPLANATORY NOTE

This note is not part of the regulations, but is intended to indicate their general effect.

These regulations, which come into force on 1 July 1994, prescribe certain matters for the purposes of the Cancer Registry Act 1993. The regulations—

- (a) Prescribe the form and manner in which reports on cancer tests are to be made to the Director-General of Health under the Act, and
(b) Prescribe the time within which such reports are to be made; and
(c) Declare that certain types of cancer are cancers to which the Act does not apply.

Issued under the authority of the Acts and Regulations Publication Act 1989.

Date of notification in *Gazette*: 2 June 1994.

These regulations are administered in the Ministry of Health.

