

# 3 Major causes of death in 1998 by age and sex

Many causes of death are age- and sex-specific. In some cases, a major cause of death in one age group may be relatively minor for the total population.

Five-year age groups have been used as the basis for this analysis, with infants (aged less than 1 year) examined separately. The 5-year age groups have been grouped according to common patterns in major causes of death: infants (less than 1 year), 1–14 years, 15–24 years, 24–44 years, 45–64 years, 65–84 years, and age 85 and older.

## Age groups

The following outlines the major groups of causes of death found for each age group in 1998 (Tables 3.1 to 3.8):

- For infants aged less than 1 year, congenital anomalies and conditions originating in the perinatal period accounted for almost 75% of all deaths.
- Between ages 1 and 14, more than 50% of deaths for males and females resulted from injuries and poisoning, and cancer.
- In the age group 15–24, injuries and poisoning was the major cause of death, accounting for almost 75% of deaths for males and more than 50% for females.
- In the age group 25–44, injuries and poisoning accounted for about 50% of deaths for males, while for females cancer accounted for 35% of deaths, and injuries and poisoning accounted for 27%.
- In the age group 45–64, cancer accounted for 41% of all deaths for males and cardiovascular disease for 30%, while 55% of all deaths for females were caused by cancer.
- In the age group 65–84, cardiovascular disease accounted for 41% of deaths for males and 43% for females, and cancer accounted for 33% of deaths for males and 28% for females.
- For persons older than 85 years, cardiovascular disease accounted for 46% of deaths for males and 55% for females, and cancer conditions accounted for 16% of deaths for males and 11% for females. Respiratory disease was also a major cause of death for this age group, causing 14% of deaths for males and 11% for females.

## Major causes of death by age group and sex

Age-specific patterns in relation to major causes of death are useful when planning targeted public health interventions. For instance, a campaign to reduce deaths due to motor vehicle accidents might best be aimed at those age groups where it is a major cause of death (e.g. those aged 15–24 years). The following figures (3.1 to 3.7) present major causes of death by specific age group. When referring to the figures it is important to be aware of the changes in scale between each age group. The percentages given in the commentary refer to the distribution of the mortality rates of the specific diseases within the broad condition. For example, within the 1–4 age group (Table 3.3), 33% of all deaths were due to injury and

poisoning. Of that 33%, 31% were due to accidental drowning, and 28% to motor vehicle traffic accidents.

**Table 3.1: Major causes of death by age and sex, 1998**

Age group	Per cent of		Per cent of	
	Males	deaths	Females	deaths
Infants (less than 1 year)	Conditions emerging from the perinatal period	44.7	Conditions emerging from the perinatal period	46.1
	Congenital anomalies	26.1	Congenital anomalies	27.9
	Sudden death	11.8	Sudden death	10.0
	Injury and poisoning	5.0	Injury and poisoning	3.1
1–14	Injury and poisoning	36.5	Injury and poisoning	32.8
	Cancer	20.8	Cancer	19.6
	Nervous system disease	11.0	Nervous system diseases	11.8
	Respiratory system disease	6.1	Respiratory system diseases	6.8
15–24	Injury and poisoning	73.2	Injury and poisoning	57.4
	Mental disorders	8.9	Cancer	11.5
	Cancer	4.8	Mental disorders	7.2
	Nervous system diseases	3.2	Cardiovascular disease	5.4
25–44	Injury and poisoning	50.5	Cancer	35.3
	Cancer	12.7	Injury and poisoning	26.8
	Cardiovascular disease	12.4	Cardiovascular disease	12.9
	Mental disorders	9.4	Mental disorders	5.2
45–64	Cancer	40.6	Cancer	54.6
	Cardiovascular disease	30.3	Cardiovascular disease	18.7
	Injury and poisoning	9.3	Respiratory system diseases	6.1
	Respiratory system diseases	5.0	Injury and poisoning	5.9
65–84	Cardiovascular disease	40.7	Cardiovascular disease	43.3
	Cancer	33.0	Cancer	28.4
	Respiratory system diseases	11.9	Respiratory system diseases	9.8
	Endocrine	3.1	Endocrine	3.5
85+	Cardiovascular disease	45.6	Cardiovascular disease	55.1
	Cancer	16.2	Respiratory system diseases	11.3
	Respiratory system diseases	14.4	Cancer	10.5
	Mental disorders	3.3	Mental disorders	4.7

Note: Percentages in this column do not add up to 100% because only the major groups of death are listed.

### Leading causes of death

The leading causes of death varied with age. For males aged 35–39 years, the leading causes of cancer death were melanoma of the skin, colorectal cancer and lung cancer (in that order) while for males aged 75–79, the leading causes of cancer death were lung, prostate and colorectal cancer. For females aged 35–39, the leading causes of cancer death were breast, cervical and lung cancer, while colorectal, lung and breast cancer were the leading causes of cancer death for females aged 75–79.

The leading causes of death due to injury and poisoning were suicide and motor vehicle accidents for those aged 20 to 24 years, and accidental falls for those aged 75 years and older. For cardiovascular diseases, the proportion of deaths caused by ischaemic diseases decreased as age increased. Ischaemic heart disease was responsible for 75% of cardiovascular deaths for those aged 45–49 years, decreasing to less than 50% for those aged 75–79 years. Meanwhile, stroke was responsible for 12% of cardiovascular death for those aged 45–49 years, 30% for those aged 50–54 years and about 25% for those aged 75–79 years.

**Patterns of death in age group 0–14 years**

1,133 male deaths representing 1.7% of all male deaths and 842 female deaths representing 1.4% of all female deaths in 1998

Deaths for the 0–14 age group are divided into two groups:

- persons less than 1 year of age (706 males and 546 females),
- persons aged 1–14 years of age (427 males and 296 females).

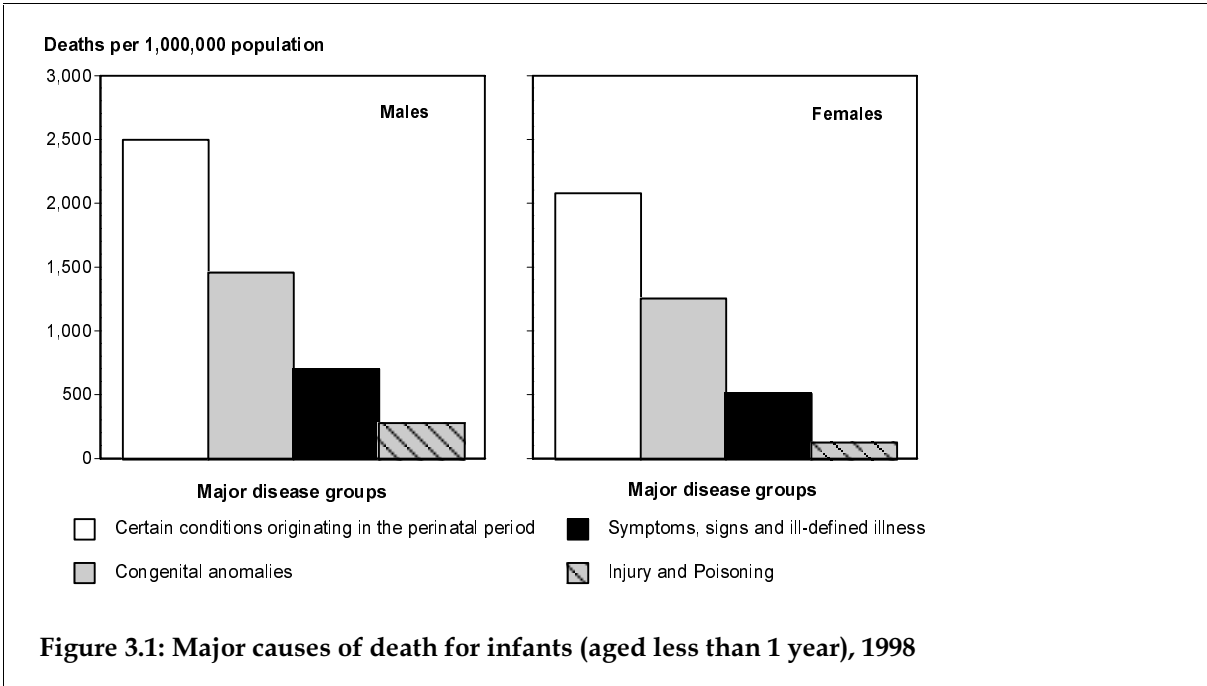
**Infants (aged less than 1 year)**

Most deaths of newborn and infants are due to certain conditions originating in the perinatal period (from 22 completed weeks of pregnancy to 28 days following birth, even though death may occur later (AIHW 1999c), 319 males and 252 females), and due to congenital anomalies (186 males and 152 females). Male rates are greater than female rates in all categories (Figure 3.1; Table 3.2).

The most common of the conditions originating in the perinatal period are due to maternal complications of pregnancy, and complications of the placenta, cord and membranes.

The most common congenital abnormalities resulting in death are abnormalities of the respiratory system, nervous system, heart, musculoskeletal systems, and chromosomal abnormalities.

The other common causes of death in this age range include sudden infant death syndrome (SIDS) and unknown cause, and accidents and poisoning. Deaths due to SIDS decreased over the period 1987–1996, from 531 deaths to 213 deaths. Deaths due to SIDS for 1997 and 1998 were left out of this analysis because of a break in the time series caused by the introduction of autocoding for cause of death. However, the number of deaths for 1997 and 1998 showed a continuation of the downward trend.



**Table 3.2: Leading causes of death: age group and ICD chapter by sex, 1998: infants (aged less than one year)**

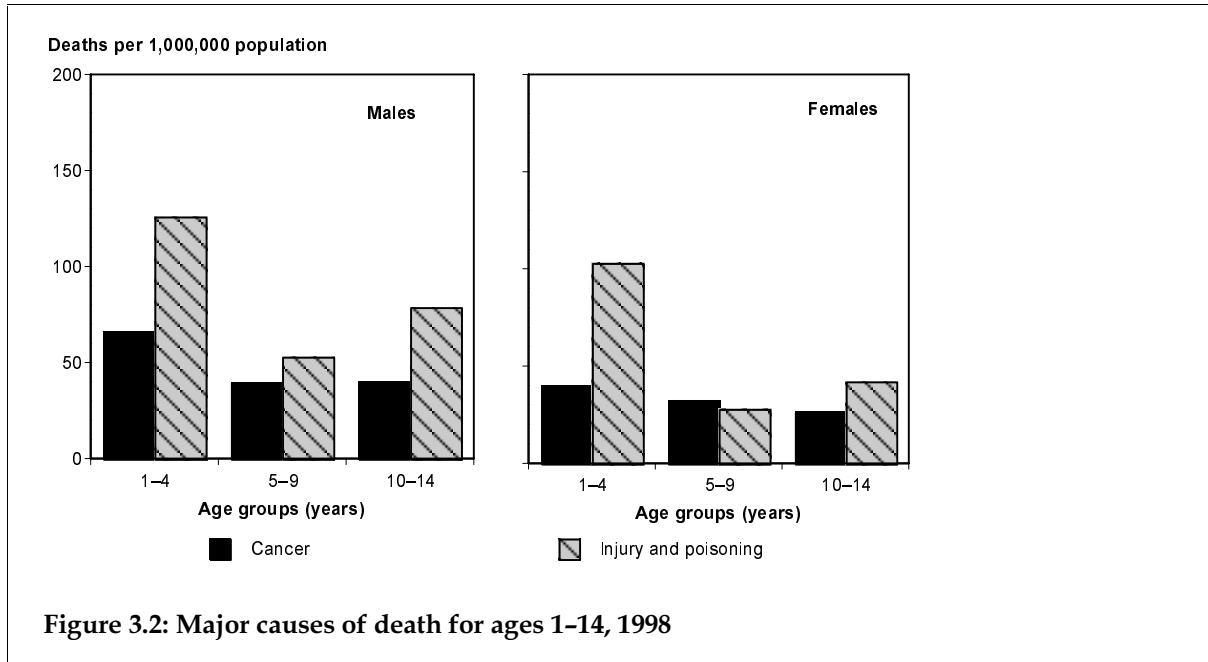
Age		ICD chapter		Leading causes of death	
		Per cent of all deaths		Per cent of deaths in ICD chapter	
		Males	Females	Males	Females
Infants	Certain conditions originating in the perinatal period	45	46	23% newborns affected by complications of placenta, cord and other membranes 22% newborns affected by maternal complications of pregnancy	29% newborns affected by complications of placenta, cord and other membranes 18% newborns affected by maternal complications of pregnancy
	Congenital anomalies	26	28	19% other congenital anomalies of the heart 12% chromosomal anomalies 11% other congenital musculoskeletal anomalies	17% other congenital anomalies of the heart 16% chromosomal anomalies 13% other congenital musculoskeletal anomalies
	Symptoms, signs and ill-defined conditions	13	11	93% sudden death, cause unknown	89% sudden death, cause unknown
	Injury and poisoning	5	3	36% accidental mechanical suffocation 22% accidental drowning and submersion	50% accidental mechanical suffocation 19% accidental drowning and submersion

### Ages 1 to 14

Across the age range 1–14, the most common causes of death were from external causes of injuries and poisoning (accidental drowning and motor vehicle accidents), followed by cancer (leukaemia, mainly lymphoid, and cancer of the brain) (Figure 3.2; Table 3.3).

The pattern of death from injury and poisoning changed as the children aged. For the 1–4 age group, accidental drowning was the most common external cause of death, followed by motor vehicle traffic accidents. For children aged 5–9 and 10–14, death due to motor vehicle accidents was more common than accidental drowning.

Congenital abnormalities were also responsible for a large percentage of deaths. Of the 347 deaths (199 males and 148 females aged between one and four years), 43 deaths were due to congenital abnormalities (28 males and 15 females). These 43 deaths represented 14.1% of deaths in males aged 1–4 years and 10.1% of deaths in females. As age at death increased, the percentage of deaths due to congenital abnormalities decreased. The majority of congenital abnormalities causing death in this age group were related to anomalies of the heart and the nervous system.



**Table 3.3: Leading causes of death: age group and ICD chapter by sex, 1998: ages 1-14**

Age	ICD chapter	Per cent of all deaths		Per cent of deaths in ICD chapter	
		Males	Females	Males	Females
1-4	Injury and poisoning	33	35	31% accidental drowning 28% motor vehicle traffic accidents	30% accidental drowning 28% motor vehicle traffic accidents
	Cancer	18	14	40% brain cancer 34% leukaemia	45% brain cancer 30% leukaemia
	Congenital abnormalities	14	10	32% other congenital anomalies of nervous system (excluding anencephalus and spina bifida) 21% other congenital anomalies of heart (excluding bulbus cordis anomalies and anomalies of cardiac septal closure)	33% other congenital anomalies of heart (excluding bulbus cordis anomalies and anomalies of cardiac septal closure) 20% other congenital anomalies of nervous system (excluding anencephalus and spina bifida)
5-9	Injury and poisoning	35	30	56% motor vehicle traffic accidents 11% accidental drowning	56% motor vehicle traffic accidents 18% accidental drowning
	Cancer	27	34	33% leukaemia 19% brain cancer	52% leukaemia 29% brain cancer
10-14	Injury and poisoning	42	31	43% motor vehicle traffic accidents 4% accidental drowning	52% motor vehicle traffic accidents 12% accidental drowning
	Cancer	21	20	56% leukaemia 4% brain cancer	59% leukaemia 12% brain cancer

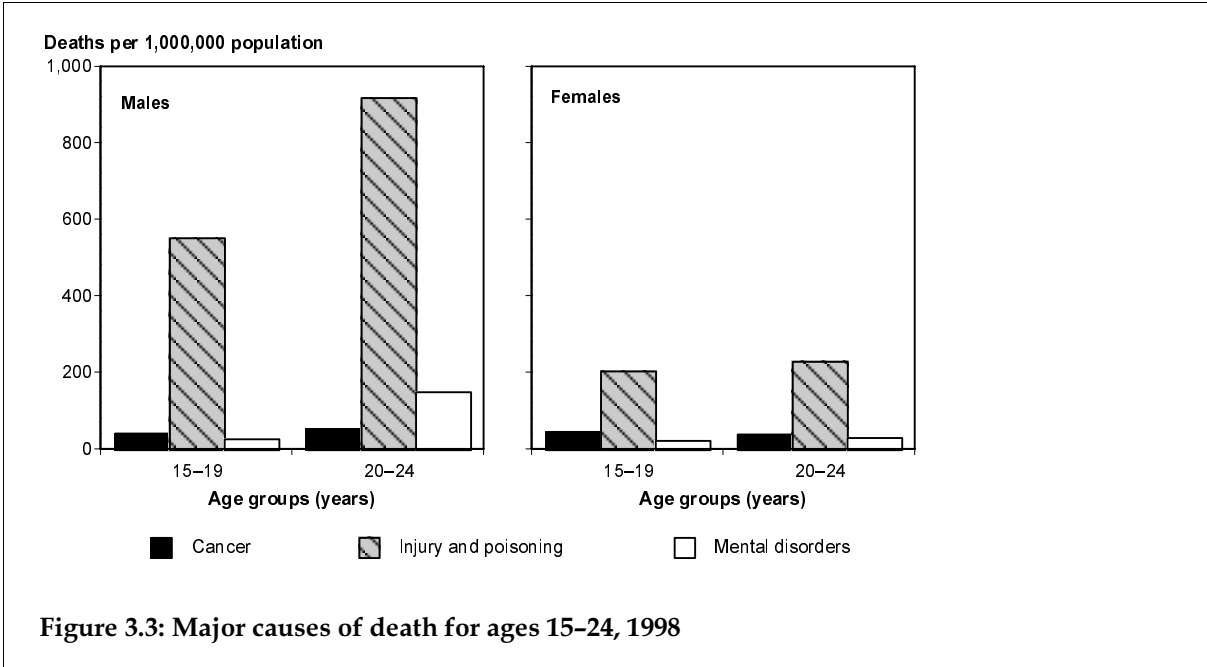
**Patterns of death in age group 15–24 years**

*1,376 male deaths representing 2.1% of all male deaths and 495 female deaths representing 0.8% of all female deaths in 1998*

Within this age range, male mortality rates were considerably higher than female rates. For example, the male mortality rates for suicide, motor vehicle accidents and other injuries (including poisoning) were more than three times higher than rates for females. As age increased, the male rates for injury and poisoning, suicide and motor vehicle accidents all increased (Figure 3.3; Table 3.4).

Motor vehicle traffic accidents and suicides were the leading causes of death for both males and females aged 15 to 24. For males, suicide became the most frequent cause of death for those aged 20 to 24.

Other common causes of death for both males and females were cancer (lymphoma and lymphoid leukaemia); endocrine, nutritional and metabolic diseases and immunity disorders; diseases of the nervous system; and diseases of the respiratory system.



**Figure 3.3: Major causes of death for ages 15-24, 1998**

**Table 3.4: Leading causes of death: age group and ICD chapter by sex, 1998: ages 15–24**

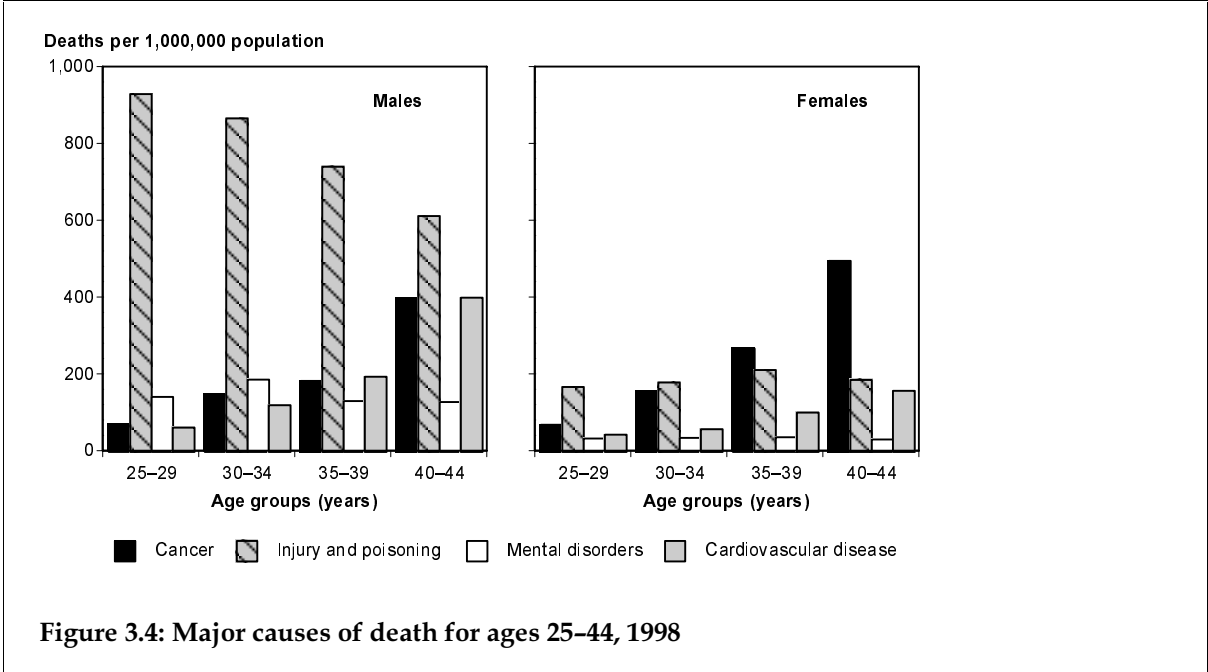
ICD chapter		Leading causes of death			
		Per cent of all deaths		Per cent of deaths in ICD chapter	
Age		Males	Females	Males	Females
15–19	Injury and poisoning	74	55	44% motor vehicle traffic accidents 31% suicide	45% motor vehicle traffic accidents 27% suicide
	Cancer	6	13	45% leukaemia 14% brain cancer	43% leukaemia 7% brain cancer
	Mental disorders	4	6	99% drug dependence	85% drug dependence
20–24	Injury and poisoning	73	59	39% suicide 32% motor vehicle traffic accidents	39% motor vehicle traffic accidents 31% suicide
	Mental disorders	12	8	95% drug dependence	95% drug dependence
	Cancer	4	11	27% leukaemia 5% brain cancer	26% leukaemia 26% brain cancer

**Patterns of death in age group 25–44 years**

4,507 male deaths representing 6.7% of all male deaths and 2,016 female deaths representing 3.4% of all female deaths in 1998

Within this age range, male mortality rates were significantly higher than female rates. Injury and poisoning was the most common cause of death for males. For females, while the injury and poisoning mortality rate remained constant over the age range, death from cancer was the most common cause of death by the age of 35–39, with breast cancer being the most common cancer. From the age of 40, cancer and cardiovascular disease mortality rates increased in importance for both males and females (Figure 3.4; Table 3.5).

Other emerging cancers across this age range were cancer of the cervix and cancer of the digestive organs. While death rates from injury and poisoning were declining with age for males, the rate for females continued to increase until around age 40–44, when it started to decline.



**Figure 3.4: Major causes of death for ages 25–44, 1998**

**Table 3.5: Leading causes of death: age group and ICD chapter by sex, 1998: ages 25–44**

ICD chapter		Leading causes of death			
		Per cent of all deaths		Per cent of deaths in ICD chapter	
Age		Males	Females	Males	Females
25–29	Injury and poisoning	69	40	46% suicide 22% motor vehicle traffic accidents	46% suicide 21% motor vehicle traffic accidents
	Mental disorders	11	8	94% drug dependence	85% drug dependence
	Cancer	5	17	20% melanoma of the skin 10% colorectal cancer 2% lung cancer	14% breast cancer 12% cervical cancer 2% lung cancer
	Cardiovascular disease	5	10	37% ischaemic heart disease 11% cerebrovascular disease	19% ischaemic heart disease 19% cerebrovascular disease
30–34	Injury and poisoning	57	34	45% suicide 17% motor vehicle traffic accidents	42% suicide 27% motor vehicle traffic accidents
	Cancer	10	30	13% melanoma of the skin 10% colorectal cancer 2% lung cancer	25% breast cancer 5% cervical cancer 4% lung cancer
	Cardiovascular disease	8	11	50% ischaemic heart disease 18% cerebrovascular disease	24% cerebrovascular disease 19% ischaemic heart disease
	Mental disorders	12	7	92% drug dependence	88% drug dependence
35–39	Injury and poisoning	49	28	49% suicide 16% motor vehicle traffic accidents	48% suicide 24% motor vehicle traffic accidents
	Cancer	12	35	15% melanoma of the skin 14% colorectal cancer 10% lung cancer	34% breast cancer 10% cervical cancer 5% lung cancer
	Cardiovascular disease	13	13	66% ischaemic heart disease 12% cerebrovascular disease	36% cerebrovascular disease 29% ischaemic heart disease
	Mental disorders	9	5	81% drug dependence	64% drug dependence
40–44	Injury and poisoning	33	17	48% suicide 19% motor vehicle traffic accidents	52% suicide 20% motor vehicle traffic accidents
	Cancer	21	46	14% colorectal cancer 14% lung cancer 8% melanoma of the skin	37% breast cancer 8% lung cancer 5% cervical cancer
	Cardiovascular disease	21	15	64% ischaemic heart disease 15% cerebrovascular disease	37% ischaemic heart disease 31% cerebrovascular disease
	Mental disorders	7	3	72% drug dependence	74% drug dependence

**Patterns of death in age group 45–64 years**

*11,387 male deaths representing 17.0% of all male deaths and 6,701 female deaths representing 11.1% of all female deaths in 1998*

In this age range, mortality rates for motor vehicle accidents, suicide and other injuries were similar to rates for the previous age group (25–44). However, the mortality rates for cancer and cardiovascular disease for persons aged 45–64 years were about ten times higher than for persons in the 25–44 age group (Figure 3.5; Table 3.6).

Cancer rates increased within this age group (as they did for the previous age group), becoming the dominant cause of death for males and females. For men the most common cancer sites were lung and bowel while for females they were breast, lung and bowel.

The mortality rates for cardiovascular disease, consisting of ischaemic heart disease (heart attack) and cerebrovascular disease (stroke), also increased with age, making these conditions the second largest cause of death. As with the previous two age groups, injury and poisoning (particularly suicide and motor vehicle accidents) was a major cause of death in this age group, with rates at about 500 deaths per million population for males.



**Figure 3.5: Major causes of death for ages 45–64, 1998**

**Table 3.6: Leading causes of death: age group and ICD chapter by sex, 1998: ages 45–64.**

ICD chapter		Leading causes of death			
		Per cent of all deaths		Per cent of deaths in ICD chapter	
Age		Males	Females	Males	Females
45–49	Cancer	32	55	19% lung cancer 15% colorectal cancer 2% prostate cancer	35% breast cancer 12% colorectal cancer 9% lung cancer
	Cardiovascular disease	26	15	68% ischaemic heart disease 15% cerebrovascular disease	43% ischaemic heart disease 29% cerebrovascular disease
	Injury and poisoning	22	10	48% suicide 19% motor vehicle traffic accidents	32% suicide 21% motor vehicle traffic accidents
50–54	Injury and poisoning	14	8	46% suicide 20% motor vehicle traffic accidents	32% suicide 26% motor vehicle traffic accidents
	Cancer	38	57	23% lung cancer 12% colorectal cancer 3% prostate cancer	31% breast cancer 13% lung cancer 11% colorectal cancer
	Cardiovascular disease	29	14	72% ischaemic heart disease 9% cerebrovascular disease	47% ischaemic heart disease 27% cerebrovascular disease
55–59	Cancer	43	57	26% lung cancer 16% colorectal cancer 4% prostate cancer	24% breast cancer 17% lung cancer 14% colorectal cancer
	Cardiovascular disease	31	18	74% ischaemic heart disease 13% cerebrovascular disease	50% ischaemic heart disease 22% cerebrovascular disease
	Injury and poisoning	8	5	38% suicide 22% motor vehicle traffic accidents	38% suicide 24% motor vehicle traffic accidents
60–64	Cancer	44	51	29% lung cancer 15% colorectal cancer 6% prostate cancer	24% breast cancer 17% lung cancer 14% colorectal cancer
	Cardiovascular disease	32	23	69% ischaemic heart disease 14% cerebrovascular disease	50% ischaemic heart disease 22% cerebrovascular disease
	Injury and poisoning	4	4	40% suicide 19% motor vehicle traffic accidents	38% suicide 24% motor vehicle traffic accidents

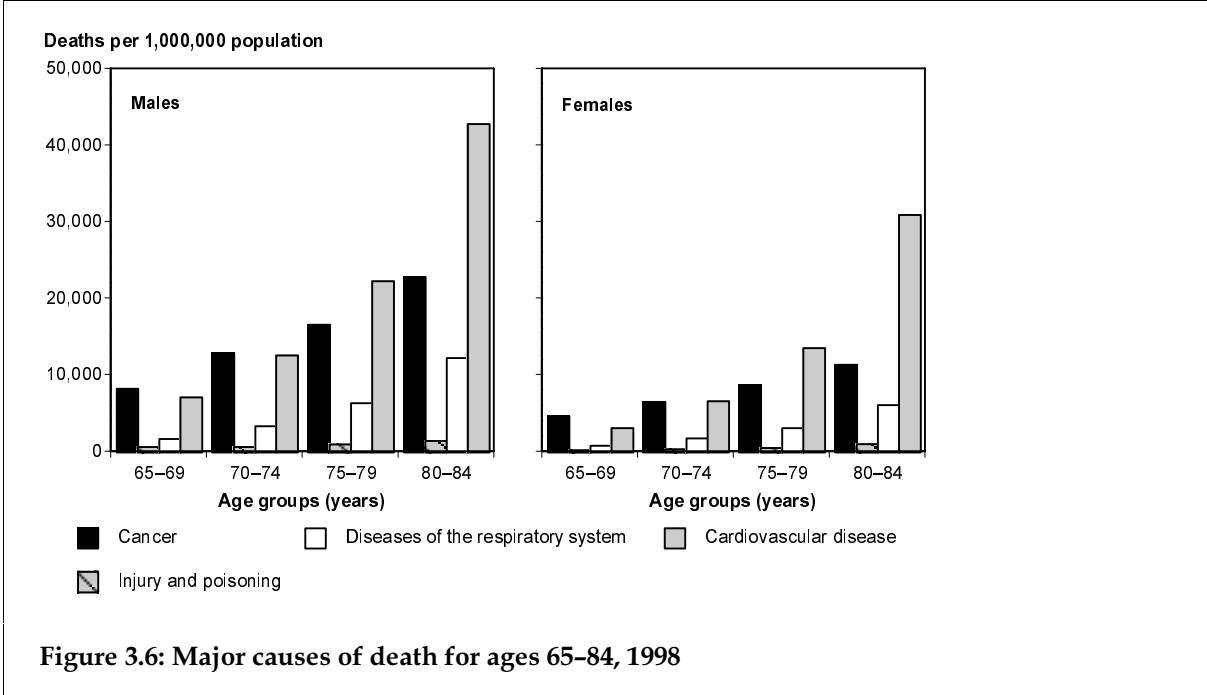
**Patterns of death in age group 65–84 years**

*37,242 male deaths representing 55.5% of all male deaths and 28,839 female deaths representing 48.0% of all female deaths in 1998*

In this age range, the mortality rate increased by eight times for males and about six times for females compared to the younger 45–64 age group. Cancer was the most common cause of death for those aged 65–69. However, by age 70–74 cardiovascular disease equalled the cancer rate and by age 80–84 mortality rates from cardiovascular disease were twice those of cancer for both men and women (Figure 3.6; Table 3.7).

Although the most common cancers for males were lung and colorectal, mortality rates for prostate cancer also increased in this age range.

Diseases of the respiratory system were also a major cause of death in this age range. Deaths rates from suicide, motor vehicle accidents and other injuries also increased, but were relatively small.



**Table 3.7: Leading causes of death: age group and ICD chapter by sex, 1998: ages 65–84**

ICD chapter		Leading causes of death			
		Per cent of all deaths		Per cent of deaths in ICD chapter	
Age		Males	Females	Males	Females
65–69	Cancer	41	45	30% lung cancer 14% colorectal cancer 8% prostate cancer	18% lung cancer 16% colorectal cancer 15% breast cancer
	Cardiovascular disease	36	30	68% ischaemic heart disease 15% cerebrovascular disease	55% ischaemic heart disease 21% cerebrovascular disease
	Respiratory diseases	9	8	66% chronic obstructive pulmonary disease 13% pneumonia	65% chronic obstructive pulmonary disease 10% pneumonia
	Injury and poisoning	3	2	40% suicide 17% motor vehicle traffic accidents 12% accidental falls	24% suicide 24% motor vehicle traffic accidents 22% accidental falls
70–74	Cancer	38	36	29% lung cancer 13% colorectal cancer 12% prostate cancer	19% lung cancer 16% colorectal cancer 13% breast cancer
	Cardiovascular disease	38	37	64% ischaemic heart disease 17% cerebrovascular disease	54% ischaemic heart disease 25% cerebrovascular disease
	Respiratory diseases	10	10	69% chronic obstructive pulmonary disease 13% pneumonia	64% chronic obstructive pulmonary disease 13% pneumonia
	Injury and poisoning	2	2	25% suicide 24% motor vehicle traffic accidents 17% accidental falls	30% accidental falls 26% motor vehicle traffic accidents 17% suicide
75–79	Cardiovascular disease	42	43	61% ischaemic heart disease 20% cerebrovascular disease	52% ischaemic heart disease 26% cerebrovascular disease
	Cancer	31	28	25% lung cancer 16% prostate cancer 12% colorectal cancer	17% colorectal cancer 15% lung cancer 13% breast cancer
	Respiratory diseases	12	10	54% chronic obstructive pulmonary disease 28% pneumonia	44% chronic obstructive pulmonary disease 34% pneumonia
	Injury and poisoning	2	2	40% accidental falls 21% suicide 17% motor vehicle traffic accidents	46% accidental falls 21% motor vehicle traffic accidents 12% suicide
80–84	Cardiovascular disease	46	52	37% ischaemic heart disease 15% cerebrovascular disease	49% ischaemic heart disease 29% cerebrovascular disease
	Cancer	25	19	27% prostate cancer 17% lung cancer 12% colorectal cancer	15% colorectal cancer 12% lung cancer 11% breast cancer
	Respiratory diseases	13	10	46% chronic obstructive pulmonary disease 36% pneumonia	41% pneumonia 36% chronic obstructive pulmonary disease
	Injury and poisoning	2	2	45% accidental falls 21% suicide 12% motor vehicle traffic accidents	57% accidental falls 12% motor vehicle traffic accidents 8% suicide

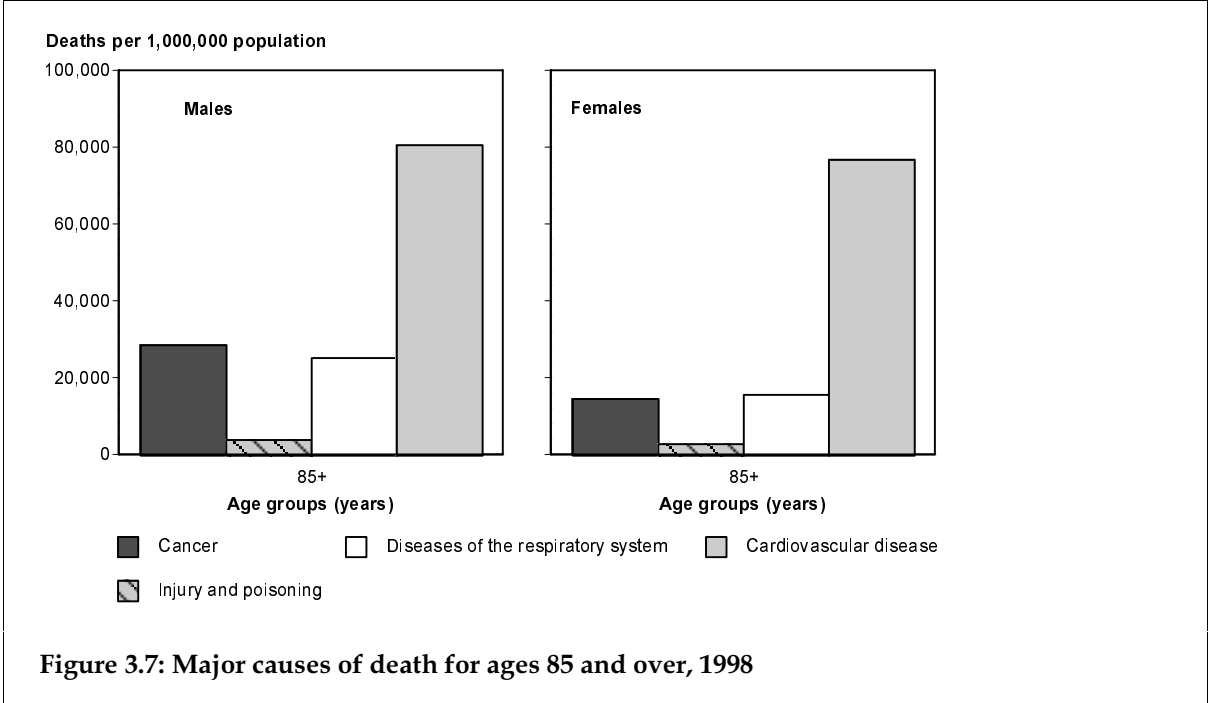
**Patterns of death in age group 85 years and over**

11,421 male deaths representing 17.0% of all male deaths and 21,235 female deaths representing 35.3% of all female deaths in 1998

For persons aged 85 and over, cardiovascular disease was the main cause of death for both males and females. About half of the cardiovascular mortality rate was due to ischaemic heart disease, and cerebrovascular disease was responsible for about a quarter (Figure 3.7; Table 3.8).

For males, cancer was the second most common cause of death (mostly lung, bowel and prostate cancers), followed by diseases of the respiratory system. For women the second highest cause of death was diseases of the respiratory system, while the third most common was cancer, with breast cancer and cancer of lymphatic tissue the most common cancers.

Death from accidental falls and suicide were also significant causes of death for this age group.



**Table 3.8: Leading causes of death: age group and ICD chapter by sex, 1998: 85 years and over**

ICD chapter		Leading causes of death			
		Per cent of all deaths		Per cent of deaths in ICD chapter	
Age		Males	Females	Males	Females
85+	Cardiovascular disease	46	55	52% ischaemic heart disease 24% cerebrovascular disease	47% ischaemic heart disease 29% cerebrovascular disease
	Cancer	16	11	27% prostate cancer 17% lung cancer 12% colorectal cancer	19% colorectal cancer 13% breast cancer 7% lung cancer
	Respiratory diseases	14	11	46% were pneumonia 34% chronic obstructive pulmonary disease	62% pneumonia 16% chronic obstructive pulmonary disease
	Injury and poisoning	3	5	68% accidental falls 8% suicide	84% accidental falls 2% suicide

