Appendixes

Appendix A: International Classification of Diseases—Ninth Revision—cancer site—codes and combinations

Buccal cavity	
Lip	140
Tongue	141
Salivary glands	142
Gum	143
Floor of mouth	144
Other and unspecified parts of mouth	145
Pharynx	
Oropharynx	146
Nasopharynx	147
Hypopharynx	148
Other sites within the lip, oral cavity and pharynx	149
Head and neck	141–149
Digestive organs and peritoneum	
Oesophagus	150
Stomach	151
Small intestine	152
Colon	153
Rectum	154
Colorectal	153–154
Liver and intrahepatic bile ducts	155
Gallbladder and extrahepatic bile ducts	156
Pancreas	157
Retroperitoneum and peritoneum	158
Unspecified digestive organs	159
Respiratory system	
Nasal cavities, middle ear and accessory sinuses	160
Larynx	161
Trachea, bronchus and lung	162
Pleura	163
Respiratory systems, ill-defined and other intrathoracic organs	164–165
Bone, connective tissue, skin and breast	
Bone and articular cartilage	170
Connective and other soft tissue	171
Melanoma	172
Non-melanocytic skin cancer (NMSC)	173
Breast	174–175
Genitourinary organs	
Cervix	180
Placenta	181
Corpus uteri	179+182
Ovary and other uterine adnexae	183
Other and unspecified female genital organs	184
Prostate	185
Testis	186
Penis and other male genital organs	187
Bladder	188
Kidney, ureter and urethra	189
Gynaecological cancers	179–180, 182–184
Other and unspecified organs	
Eye	190
Brain	191
Other and unspecified parts of the nervous system (NS)	192
Thyroid gland	193
Other endocrine glands	194
Unknown primary site	195–199
Lymphatic and haematopoietic tissue	
Non-Hodgkin's lymphomas (NHL)	200+202
Lymphosarcoma and reticulosarcoma	200
Hodgkin's disease	201
Other neoplasms of lymphoid and histiocytic tissue	202
Lymphomas	200–202
Multiple myeloma and immunoproliferative neoplasms	203
Lymphatic leukaemia	204
Acute lymphatic leukaemia	204.0
Chronic lymphatic leukaemia	204.1
Myeloid leukaemia	205
Acute myeloid leukaemia	205.0
Chronic myeloid leukaemia	205.1
Monocytic leukaemia	206
Other and unspecified leukaemias	207–208
Leukaemias	204–208
Smoking-related cancers	140, 141, 143–151, 154.3–154.4, 157, 161, 162, 180, 179+182, 184.4, 186, 188, 189.0, 189.1
Alcohol-related cancers	141, 143–146, 148–149, 150, 155, 161, 174

Note: Abbreviated versions of these names may be used in this report.

Source: World Health Organization (1977)

Appendix B: Methods

This section describes the methods employed to calculate the estimates presented in the tables in the body of this publication. The calculations in the example below are applicable to both incidence and mortality.

Example table

Trachea, bronchus and lung cancer incidence (ICD 162)– males

Age group	No. of cases	1994 Aust. population*	Age-specific rate per 100,000	Australian 1991 population standard**	Expected number of cases
	column 1	column 2	column 3	column 4	column 5
0–4	1	665,924	0.15	1,271,703	1.9
5–9	0	656,615	0.00	1,272,208	0.0
10–14	0	656,986	0.00	1,241,619	0.0
15–19	1	654,545	0.15	1,364,074	2.1
20–24	2	730,369	0.27	1,396,764	3.8
25–29	4	682,587	0.59	1,399,663	8.2
30–34	10	734,852	1.36	1,425,735	19.4
35–39	22	695,369	3.16	1,328,387	42.0
40–44	42	658,926	6.37	1,294,271	82.5
45–49	121	616,612	19.62	1,029,145	202.0
50–54	225	474,792	47.39	846,934	401.4
55–59	410	393,886	104.09	725,950	755.6
60–64	703	355,250	197.89	736,868	1458.2
65–69	1,009	332,441	303.51	671,390	2037.8
70–74	1,116	263,810	423.03	510,755	2160.7
75–79	794	163,279	486.28	384,495	1869.7
80–84	483	98,542	490.15	229,828	1126.5
85+	253	53,281	474.84	154,247	732.4
Total	**5,196**	**8,888,066**	**58.5**	**17,284,036**	**63.09**

* Australian Bureau of Statistics (1997c).

** Australian Bureau of Statistics (1993).

Crude rates—all age groups

A crude incidence rate is defined as the number of new cases of cancer divided by the population at risk in a specified time period. A crude mortality rate substitutes deaths for new cases in this calculation. Both are conventionally expressed as annual rates per l00,000 population and may be calculated for males, females or persons, or for subsets of the population (e.g. see age-specific rates). The total rate calculated in this way without adjustment for age or other factors is known as the 'crude rate'.

The crude rate is calculated by dividing the total number of cases across all age groups by the total population e.g.

$$\text{Crude incidence rate for lung cancer} = \frac{\text{Column 1 total}}{\text{Column 2 total}} \times 100{,}000$$

$$= \frac{5{,}195}{8{,}884{,}781} \times 100{,}000$$

$$= 58.5 \text{ per } 100{,}000$$

Age-specific rates

Age-specific rates are calculated by dividing the number of cases occurring in each specified age group by the corresponding population in the same age group expressed as a rate per l00,000 population. This rate may be calculated for particular age and sex groupings, e.g.

$$\text{Age-specific lung cancer incidence rates in males aged 75–79} = \frac{\text{Column 1 for this age}}{\text{Column 2 for this age}} \times 100{,}000$$

$$= \frac{794}{163{,}279} \times 100{,}000$$

$$= 486.3 \text{ per } 100{,}000$$

Age-standardised rates (AS Rate)

Rates are adjusted for age to facilitate comparisons between populations which have different age structures, e.g. between youthful and ageing communities. There are two different methods commonly used to adjust for age. In this publication we use direct standardisation in which age-specific rates are multiplied against a constant population (the Australian 1991 Population Standard or the World Standard Population). This effectively removes the influence of age structure on the summary rate which is described as the age-standardised rate. The method may be used for both incidence and mortality calculations. The method used for this calculation comprises three steps which can be followed by reference to the example table on the previous page.

Step 1 Calculate the age-specific rate (as shown above) for each age group (column 3).

Step 2 Calculate the expected number of cases in each 5-year age group by multiplying the age-specific rates (column 3) by the corresponding standard population (column 4) and dividing by 100,000, giving you the expected number of cases.

Step 3 Sum the expected number of cases in each age group to give the age-standardised rate (total column 5). If the standard population is not the World Standard Population then divide this sum by the total of the standard population and multiply by 100,000.

Confidence intervals (CI)

The age-standardised and crude incidence and mortality rates presented in the body of this report also show 95% confidence intervals. These confidence intervals indicate the variation that might be expected in such estimates purely by chance. The confidence intervals are calculated using the methods presented in Holman et al. (1987).

A relatively simple approximation of the confidence limits that readers might use when examining State and Territory age-standardised rates is as set out below.

$$\text{CI approximation} = \text{AS Rate} \pm 1.96 \times \frac{\text{AS Rate}}{\sqrt{\text{Number of cases}}}$$

Lifetime risk and cumulative rate

Lifetime risk is a measure which approximates the risk of contracting a particular cancer in a lifetime if the risks at the time of estimation remained throughout life. It is based on a mathematical relationship with the cumulative rate and is calculated in this publication for ages 0–74. Cumulative rate is a directly standardised rate calculated by summing age-specific rates from equal age groups, e.g. 5–9, 10–14 years. An example is provided below.

$$\text{Cumulative rate} = \frac{5 \times (\text{Sum of the age-specific rates}) \times 100}{100{,}000}$$

$$= \frac{5 \times 1107.6 \times 100}{100{,}000}$$

$$= 5.54\%$$

The factor of 5 is used to indicate the 5 years of life in each age group and the factor of 100 is used to present the result as a percentage. As age-specific rates are presented per 100,000 population (column 3), the result is divided by 100,000 to return the age-specific rates to a division of cases by population. Cumulative risk is related to cumulative rate by the expression:

$$\text{Cumulative risk} = \left(1 - e^{-rate/100}\right)$$

where rate is expressed as a percentage.

Lifetime risk is expressed as a '1 in n' proportion by taking the inverse of the above formula:

$$n = \frac{1}{\left(1 - e^{-rate/100}\right)}$$

For lung cancer in men, the cumulative rate was 5.54% (see previous page), therefore:

$$n = \frac{1}{\left(1 - e^{-5.54/100}\right)}$$

$$= 18.56$$

That is, for men, the lifetime risk (0–74 years) of developing lung cancer is 1 in 19, providing they remain at risk for the whole period and the 1994 age-specific rates apply throughout their lives. Note that no account has been taken of specific cancer risk factors, e.g. the risk for men who smoke would be higher than that for those who have never smoked.

Per cent of all cancers

The 'per cent of all cancers' measure is the proportion of all causes accounted for by a particular cancer. The measure may be computed for cancer incidence or mortality. Using an incidence example, the measure is calculated by taking the number of new cases of a particular cancer, e.g. lung cancer, and dividing that by the total number of all new cancer cases and multiplying by 100 to express it as a percentage. This is undertaken for each sex and for total persons. Note that for this publication the incidence of non-melanocytic skin cancers is not included in total new cancer cases, although it is included in the parallel mortality calculations.

Sex ratio

This measure indicates the relative incidence or mortality between the sexes. It can be calculated on the basis of observed numbers, crude rates, age-standardised rates or cumulative rates per cent. In this publication it is calculated using the age-standardised rates where the male rate is divided by the female rate for each cancer. Ratios greater than 1 indicate an excess in males while ratios less than 1 indicate an excess in females.

It is preferable to use either the age-standardised rates or the cumulative rate as these both adjust for age variations between male and female populations. In addition, the use of cumulative rate per cent discounts the occurrence of cancer in people aged over 75. This gives more emphasis, therefore, to early cancer diagnosis or death, and diminishes the impact of variable diagnostic investigation of the elderly.

Person-years of life lost

Person-years of life lost is a concept which attempts to measure the number of years of life lost per annum due to death as a result of a specific cause, e.g. lung cancer, given life expectancies at specific ages. Age groups 0–4 up to 70–74 were used for the calculations, as deaths before age 75 are regarded as premature for both men and women. The method used in this publication for the calculation of person-years of life lost is an aggregation of years between age at death and 75 for each person for each cancer, e.g. a person dying at age 50 contributes 25 years to the person-years of life lost measure.

Projections of incidence and mortality

The most up-to-date cancer incidence and mortality estimates are often required for policy debate, research, and service planning and provision. The most recent national cancer incidence data are for 1994 while the most recent mortality data are for 1996. To meet the need for more timely data, projections of incidence (1995–1999) and mortality (1997–1999) have been made for selected cancers (Tables 4 and 5). Users should refer to the next section for information about the reliability of projections.

The projection model applied to the majority of cancers in this report uses the last 5 years of known data as a base (1991–1994 incidence, 1992–1996 mortality). For selected cancers, projections of numbers of new cases, deaths and age-standardised rates were derived using a series of linear models. Specifically, least squares methodology (i.e. linear regression) was used to fit straight lines through each of the age- and sex-specific incidence (1990–1994) and mortality rates (1992–1996) and extrapolated to 1999. To derive the number of cases and deaths, each of the extrapolated rates were multiplied by age- and sex-specific Australian population estimates and projections (ABS 1997c; 1996). These cases were totalled and rounded to the nearest 10 to form the final estimates. The age- and sex-specific rates were used to derive age-standardised rates, using the methods described in this Appendix.

For cancers of the prostate and breast, and all cancers combined, further adjustments were applied. Recent incidence data from some States and Territories (1995–1996), show that current trends in prostate cancer are substantially different from the trends observed during the early 1990s. For prostate cancer, these changes are due to the rapid increase in detection through an increased use of PSA assays and then a rapid fall as testing rates subsided. In order to produce robust national incidence projections for this cancer (1995–1999) it was necessary to take account of the latest State and Territory data in the projection methodology. Data for Victoria, Western Australia, South Australia and Tasmania were available for prostate cancer for 1995 and 1996. Breast cancer incidence data for the same 2 years were also available for the same States, with the addition of New South Wales and the Australian Capital Territory. By using these additional semi-national data, the timeliness for the projection base was improved. This, in effect, allowed for breast (1994–1996) and prostate (1993–1996) cancer incidence projections to be based on the latest data.

As breast cancer and prostate cancer represent the most common cancers for females and males respectively, adjustments in their projections were also made for the 'all cancers' incidence projection. For males this was achieved by using least squares methodology to fit straight lines through each of the age-specific incidence rates for 'all cancers', excluding prostate cancer, for 1990–1994 and then extrapolating to 1999. The age-specific projected numbers of new cases for 1995–1999 were then derived from the extrapolated rates and added to the age-specific projected numbers of cases of prostate cancer for 1995–1999 to give age-specific total numbers of projected cases for 'all cancers' for each year. To derive projected rates for males for 'all cancers' for 1995–1999, the age-specific projected numbers of cases were divided by the appropriate age-specific Australian population estimates and projections (ABS 1997c; 1996). Similarly, the 'all cancers' incidence projections for females were adjusted for breast cancer.

Reliability of cancer projections

Projections of data are inherently risky as they are based on assumptions of past and current knowledge and forecasts of potential effects, which might change their patterns in the future. For some cancers the incidence and mortality trends are relatively stable over time and so projections may be reasonably reliable. However, there are other cancers for which

projections are more difficult to undertake due to rapidly changing patterns as a result of improved / increased cancer screening and subsequent detection; introduction of new or increased use of diagnostic techniques; the impact of primary prevention campaigns; and changed cancer reporting practices. Some of these effects are temporal while others act within population groups. It is impossible to model all of these effects accurately, and therefore it is usual that a more simplistic model is adopted, as is the case in this publication.

The cancers known to be influenced significantly by these factors are those subject to population-based screening– i.e cancers of the breast, cervix and prostate, while colorectal cancer screening trials are underway. There are other cancers which are at slightly less risk of these effects but do have noticeable impact on the rates, e.g. bladder cancer is at increased risk of detection as a result of ultrasound of the prostate and brain cancer as a result of increased stroke investigation, both of which are difficult to adjust for. Melanoma rates are also subject to some variability due to the impact, particularly at younger ages, of sun-safe behaviour campaigns. The end result of these effects are projections subject to some variability which increases as the projection period lengthens. This variability is minimised by projecting over a short term, using the latest available and partial data, adjusting (where possible) for shifts in any of these known effects, and limiting projections to the most common cancers.

The projections in *Cancer in Australia 1989–1990 (with Projections to 1995)* (Jelfs et al. 1996) give some guide as to the reliability of the projection methodology and may assist in interpreting the projections in this publication. In a comparison of the 1994 rates and numbers of new cases and deaths in this publication and the projections for the same year it was found that most projections for individual and 'all cancers' were conservative, i.e. that the projection was below that of the reported incidence and mortality by approximately 5%. Further, the mortality rates were generally more accurate than the incidence rates. Differences for the most common cancers in males (prostate, lung and colorectal) were on average within 3% of the 1994 result. For females, the most common cancers (breast, colorectal and melanoma) were on average 7% different. This slightly larger difference in females is mainly attributable to an underestimate of breast cancer incidence, and is probably as a result of increasing screening and detection rates, a situation which has been accounted for in the current methodology. A few outliers in the projections (>10% variation) were found for cancers of the stomach, uterus and bladder, the latter one a result of the effects discussed earlier, while the change in the rate of incidence in stomach and uterine cancers was not anticipated. In essence, the projections give a guide to the likely direction of the incidence and mortality rates and the resulting new cases and deaths.

Estimating Queensland incidence data 1991–1994

Age- and sex-specific incidence data for each State and Territory are needed to produce national incidence data. However, age- and sex-specific incidence data were not available for Queensland for each of the years 1991 to 1994. To account for this, the national incidence data include pro-rated estimates for Queensland for each of the years 1991 to 1994. With the exception of breast and prostate cancers, the Queensland estimates of cancer incidence for each of the years 1991 to 1994 were derived from the 1990 Queensland incidence rates. This was achieved by applying the age-, sex- and cancer-specific incidence rates for Queensland 1990 to the age- and sex-specific populations for Queensland for 1991, 1992, 1993 and 1994. It should be noted that this method assumes no change in the Queensland incidence rate over time. For breast and prostate cancers, incidence rates were calculated for Australia excluding Queensland for each of the years 1991 to 1994 and then applied to the relevant

Queensland population to estimate the numbers of cases that would result from these rates. This process was used to compensate for the rapid change in breast and prostate cancers since 1990. A comparison of preliminary Queensland data for the total period 1991–1994 with the pro-rated Queensland estimates suggested that the pro-rated Queensland estimates for single years used in the national estimates were conservative. Consequently, the national estimates may be conservative and on revision of the Queensland data in June 1998 the national estimates might have to be revised upward.

Appendix C: Australian population data

Australian estimated resident population 1991 and 1992

	1991			1992		
Age	**Males**	**Females**	**Total**	**Males**	**Females**	**Total**
0–4	652,302	619,401	1,271,703	658,815	625,874	1,284,689
5–9	652,418	619,790	1,272,208	656,280	623,582	1,279,862
10–14	638,311	603,308	1,241,619	642,968	608,818	1,251,786
15–19	698,773	665,301	1,364,074	677,905	644,866	1,322,771
20–24	707,124	689,640	1,396,764	724,673	705,723	1,430,396
25–29	702,728	696,935	1,399,663	693,415	689,366	1,382,781
30–34	713,784	711,951	1,425,735	726,120	725,058	1,451,178
35–39	664,228	664,159	1,328,387	675,692	677,393	1,353,085
40–44	655,138	639,133	1,294,271	653,430	641,704	1,295,134
45–49	526,498	502,647	1,029,145	561,873	538,571	1,100,444
50–54	433,762	413,172	846,934	446,142	424,231	870,373
55–59	367,302	358,648	725,950	374,152	366,394	740,546
60–64	366,779	370,089	736,868	362,708	365,270	727,978
65–69	320,142	351,248	671,390	324,968	352,955	677,923
70–74	228,494	282,261	510,755	239,233	292,552	531,785
75–79	158,993	225,502	384,495	162,065	229,080	391,145
80–84	84,413	145,415	229,828	88,362	151,445	239,807
85+	44,220	110,027	154,247	47,346	115,635	162,981
Total	**8,615,409**	**8,668,627**	**17,284,036**	**8,716,147**	**8,778517**	**17,494,664**

Source: Australian Bureau of Statistics (1993, 1997c).

Australian estimated resident population 1993 and 1994

	1993			1994		
Age	**Males**	**Females**	**Total**	**Males**	**Females**	**Total**
0–4	662,989	629,533	1,292,522	665,924	632,113	1,298,037
5–9	655,296	624,009	1,279,305	656,615	625,299	1,281,914
10–14	650,114	615,585	1,265,699	656,986	623,100	1,280,086
15–19	663,084	630,561	1,293,645	654,545	622,141	1,276,686
20–24	731,231	711,570	1,442,801	730,369	709,416	1,439,785
25–29	684,773	680,550	1,365,323	682,587	679,267	1,361,854
30–34	731,046	730,758	1,461,804	734,852	734,576	1,469,428
35–39	685,516	688,104	1,373,620	695,369	697,863	1,393,232
40–44	653,353	647,168	1,300,521	658,926	657,074	1,316,000
45–49	595,735	572,943	1,168,678	616,612	595,931	1,212,543
50–54	455,905	433,984	889,889	474,792	453,055	927,847
55–59	383,554	375,744	759,298	393,886	385,655	779,541
60–64	358,027	359,603	717,630	355,250	356,935	712,185
65–69	329,861	355,355	685,216	332,441	354,471	686,912
70–74	250,579	303,540	554,119	263,810	317,302	581,112
75–79	163,304	230,030	393,334	163,279	227,799	391,078
80–84	93,199	158,295	251,494	98,542	167,169	265,711
85+	50,349	121,846	172,195	53,281	127,506	180,787
Total	**8,797,915**	**8,869,178**	**17,667,093**	**8,888,066**	**8,966,672**	**17,854,738**

Source: Australian Bureau of Statistics (1997c).

Australian estimated resident population 1995 and 1996

	1995			1996		
Age	**Males**	**Females**	**Total**	**Males**	**Females**	**Total**
0–4	666,703	632,821	1,299524	665,611	631,438	1,297,049
5–9	662,592	630,089	1,292681	669,251	636,798	1,306,049
10–14	664,089	631,824	1,295913	670,227	637,990	1,308,217
15–19	650,877	618,363	1,269240	655,345	623,774	1,279,119
20–24	725,107	704,414	1,429521	708,906	687,960	1,396,866
25–29	691,428	687,335	1,378763	710,454	707,561	1,418,015
30–34	730,523	731,083	1,461606	720,725	723,796	1,444,521
35–39	710,843	712,394	1,423237	726,660	729,327	1,455,987
40–44	665,597	667,664	1,333261	676,137	678,946	1,355,083
45–49	635,263	616,566	1,251829	654,234	639,704	1,293,938
50–54	496,254	475,987	972241	517,520	497,412	1,014,932
55–59	406,724	395,514	802238	419,859	407,540	827,399
60–64	353,505	356,786	710291	353,827	356,656	710,483
65–69	335,187	354,188	689375	337,445	354,740	692,185
70–74	270,031	322,964	592995	276,105	327,017	603,122
75–79	169,506	233,400	402906	179,593	243,799	423,392
80–84	102,606	172,430	275036	105,855	176,603	282,458
85+	56,769	134,332	191101	60,301	141,598	201,899
Total	**8,993,604**	**9,078,154**	**18,071758**	**9,108,341**	**9,202,659**	**18,311,000**

Source: Australian Bureau of Statistics (1997c).

Projections of Australian estimated resident population 1997 and 1998

	1997			1998		
Age	**Males**	**Females**	**Total**	**Males**	**Females**	**Total**
0–4	670,775	637,128	1,307,903	675,392	641,387	1,316,779
5–9	671,249	637,983	1,309,232	676,181	642,218	1,318,399
10–14	669,627	636,012	1,305,639	670,085	637,725	1,307,810
15–19	660,885	626,227	1,287,112	668,164	632,476	1,300,640
20–24	705,407	678,492	1,383,899	692,221	666,323	1,358,544
25–29	742,449	733,817	1,476,266	755,883	745,144	1,501,027
30–34	710,976	715,355	1,426,331	706,299	710,547	1,416,846
35–39	736,816	740,863	1,477,679	744,915	749,540	1,494,455
40–44	679,205	683,624	1,362,829	689,627	695,430	1,385,057
45–49	655,059	644,560	1,299,619	656,402	651,120	1,307,522
50–54	556,439	536,476	1,092,915	591,227	572,052	1,163,279
55–59	437,630	421,113	858,743	448,206	430,981	879,187
60–64	357,757	358,993	716,750	368,442	369,274	737,716
65–69	333,546	351,152	684,698	329,129	344,973	674,102
70–74	282,215	328,152	610,367	288,275	332,149	620,424
75–79	189,214	257,290	446,504	198,819	267,335	466,154
80–84	109,641	180,961	290,602	111,187	183,037	294,224
85+	63,690	146,817	210,507	67,612	153,894	221,506
Total	**9,232,580**	**9,315,015**	**18,547,595**	**9,338,066**	**9,425,605**	**18,763,671**

Source: Australian Bureau of Statistics (1996 Series A, 1997c).

Projections of Australian estimated resident population 1999

	1999		
Age	**Males**	**Females**	**Total**
0–4	679,804	645,576	1,325,380
5–9	679,113	644,896	1,324,009
10–14	672,000	639,780	1,311,780
15–19	674,511	638,642	1,313,153
20–24	682,945	656,999	1,339,944
25–29	760,476	747,101	1,507,577
30–34	705,403	711,089	1,416,492
35–39	750,683	755,226	1,505,909
40–44	700,210	706,366	1,406,576
45–49	658,883	658,370	1,317,253
50–54	614,830	597,902	1,212,732
55–59	466,265	449,058	915,323
60–64	380,764	380,501	761,265
65–69	326,042	341,191	667,233
70–74	291,921	332,956	624,877
75–79	209,826	278,529	488,355
80–84	112,498	183,570	296,068
85+	72,029	162,303	234,332
Total	**9,438,203**	**9,530,055**	**18,968,258**

Source: Australian Bureau of Statistics (1996 Series A).

Australian Standard Population* and World Standard Population**

	Australian Standard Population (1991)	World Standard Population
Age		
0–4	1,271,703	12,000
5–9	1,272,208	10,000
10–14	1,241,619	9,000
15–19	1,364,074	9,000
20–24	1,396,764	8,000
25–29	1,399,663	8,000
30–34	1,425,735	6,000
35–39	1,328,387	6,000
40–44	1,294,271	6,000
45–49	1,029,145	6,000
50–54	846,934	5,000
55–59	725,950	4,000
60–64	736,868	4,000
65–69	671,390	3,000
70–74	510,755	2,000
75–79	384,495	1,000
80–84	229,828	500
85+	154,247	500
Total	**17,284,036**	**100,000**

* Australian Bureau of Statistics (1993).

** Doll & Smith (1982).

Appendix D: Cancer registration in Australia

The table below provides information about cancer registration in Australia. Each State and Territory operates its own registry. Generally, operational guidelines for each of the registries are similar and coincide with the objectives of the International Association of Cancer Registries. Although some registries operate under different coding systems for site, morphology and other variables, the bulk of information is directly comparable and has been reconciled for this publication. The reporting sources of the registries vary according to the local conditions and those bodies named in the legislation. Every attempt is made to report all cancer cases, although not every case will be identified. Cancer registries are dependent upon their reporting sources. Variation in reporting of cancers by age, sex, type, geographical location, country of birth or other variables does occur and may have effects on the final statistics. Occasionally, delays in reporting some case information may extend over several years but this has a minimal effect on the final reported data. In order to minimise the effects on the final reported registration, multiple reporting sources are used to compile case information where possible. Case information is exchanged between registries where there is cause for suspicion of duplicate registration. Further information regarding registry coding practices may be obtained by contacting the Registrar in each State or Territory.

States and Territories	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Total population (1994)	6,055,714	4,486,749	3,185,318	1,702,564	1,466,127	472,884	301,263	173,976
Per cent of Australian population	33.9	25.1	17.8	9.5	8.2	2.6	1.7	1.0
Per cent of population older than age 65	12.4	12.2	11.1	10.2	13.6	12.4	6.9	2.9
No. new cancers (1994)	26,373	19,721	12,059**	6,948	6,862	2,265	879	240
First year of population registration	1972	1982	1982	1982	1977	1978	1972	1981
Year of legislation	1972	1982	1982	1982	1977	1992	1994	1991
Funding source	Pvte–Govt	Pvte–Govt	Govt	Govt	Govt	Pvte–Govt	Govt	Govt
ICD site coding	ICD-9	ICD-9	ICD-9	ICD-9	ICD-9	ICD-9	ICD-9	ICD-9
Morphology coding	SNOMED-II	ICD-0-2	ICD-0-2	ICD-0-2	SNOMED-II	ICD-0-2	SNOMED-II	SNOMED-II
Reporting sources								
Public hospitals	Yes	Yes	Yes	No*	Yes	Yes	Yes	Yes
Private hospitals	Yes	Yes	Yes	No*	Yes	Yes	Yes	No
Repatriation hospitals	Yes	Yes	Yes	No*	Yes	Yes	Yes	No
Pathology laboratories	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Radiotherapy units	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Nursing homes	Yes	No	Yes	No	No	No*	Yes	No
Registrar of Births, Deaths and Marriages	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Doctors	No*	No*	No*	No*	No*	No*	No*	No*

* Data are provided on special request only.

** Data for Queensland are based on modelled estimates.

Appendix E: Tables on disk

Data tables for all cancer sites for the years 1991 to 1994 are included on the disk accompanying this report. These tables contain age-specific, crude, and age-standardised incidence and mortality rates for males, females and persons for each cancer site. A complete list of the tables in each file is presented below. The four Excel files containing these data are named Publication tables 1991, Publication tables 1992, Publication tables 1993 and Publication tables 1994.

Specific cancer sites may be found by searching the file. For example, use the find command, under the edit menu in Excel, to search for *brain*. The search will take you to the first incidence of the word *brain*. Select 'find next' to move to the next table with specific information on brain cancer.

Table number	Cancer description	ICD code
Table 1	All cancers (excluding NMSC)	140–208
Table 2	Lip	140
Table 3	Tongue	141
Table 4	Salivary gland	142
Table 5	Gum	143
Table 6	Floor of mouth	144
Table 7	Other mouth	145
Table 8	Oropharynx	146
Table 9	Nasopharynx	147
Table 10	Hypopharynx	148
Table 11	Other lip, oral cavity and pharynx	149
Table 12	Head and neck	141–149
Table 13	Oesophagus	150
Table 14	Stomach	151
Table 15	Small intestine	152
Table 16	Colon	153
Table 17	Rectum	154
Table 18	Colorectal	153–154
Table 19	Liver	155
Table 20	Gallbladder	156
Table 21	Pancreas	157
Table 22	Peritoneum	158
Table 23	Other digestive organs	159
Table 24	Nasal cavity	160
Table 25	Larynx	161
Table 26	Lung	162
Table 27	Pleura	163
Table 28	Other respiratory organs	164
Table 29	Bone	170
Table 30	Connective tissue	171
Table 31	Skin—melanoma	172
Table 32	Skin—non-melanocytic (NMSC)	173
Table 33	Breast	174–175
Table 34	Cervix	180
Table 35	Placenta	181
Table 36	Uterus	179+182
Table 37	Ovary	183
Table 38	Other female genital organs	184
Table 39	Gynaecological	#
Table 40	Prostate	185
Table 41	Testis	186
Table 42	Penis & other male genital organs	187
Table 43	Bladder	188
Table 44	Kidney	189
Table 45	Eye	190
Table 46	Brain	191
Table 47	Other central nervous system	192
Table 48	Brain and central nervous system	191–192
Table 49	Thyroid	193
Table 50	Other endocrine	194
Table 51	Unknown primary site	195–199
Table 52	Lymphosarcoma and reticulosarcoma	200
Table 53	Hodgkin's disease	201
Table 54	Lymphoid and histiocytic tissue	202
Table 55	Non-Hodgkin's lymphoma	200+202
Table 56	Lymphomas	200–202
Table 57	Multiple myeloma	203
Table 58	Lymphatic leukaemia	204
Table 59	Acute lymphatic leukaemia	204.0
Table 60	Chronic lymphatic leukaemia	204.1
Table 61	Myeloid leukaemia	205
Table 62	Acute myeloid leukaemia	205.0
Table 63	Chronic myeloid leukaemia	205.1
Table 64	Monocytic leukaemia	206
Table 65	Other specified leukaemia	207
Table 66	Other and unspecified leukaemia	208
Table 67	Other and unspecified leukaemia	207–208
Table 68	Leukaemias	204–208
Table 69	Alcohol-related	#
Table 70	Smoking-related	#

See Appendix A for ICD-9 codes

State and Territory Cancer Registries contact list

Cancer Control Information Centre
NSW Cancer Council
Locked Mail Bag No. 1
KINGS CROSS NSW 2011

Phone: 02 9334 1902
Fax: 02 9368 0843

Director: Professor Bruce Armstrong
Director's email: brucea@nswcc.org.au

Biostatistician: Mrs Marylon Coates
Biostatistician's email: marylonc@nswcc.org.au

Victorian Cancer Registry
Anti-Cancer Council of Victoria
1 Rathdowne Street
CARLTON SOUTH VIC 3053

Phone: 03 9279 1160
Fax: 03 9279 1270

Director: Dr Graham Giles
Director's email: ggg@accv.org.au

Registrar: Ms Kathryn Whitfield
Registrar's email: kathryn@accv.org.au

Statistician: Ms Vicky Thursfield
Statistician's email: vickyt@accv.org.au

Queensland Cancer Registry
Queensland Department of Health
GPO Box 48
BRISBANE QLD 4001

Phone: 07 3234 0921
Fax: 07 3221 0951

Director: Dr Ian Ring
Director's email: ringi@health.qld.gov.au

Registrar: Mrs Judy Symmons
Registrar's email: jsymmons@health.qld.gov.au

Western Australian Cancer Registry
Health Department of WA
PO Box 8172
Stirling St
PERTH WA 6849

Phone: 08 9222 4022
Fax: 08 9222 4236
Email: wacanreg@health.wa.gov.au

Director & registrar: Dr Tim Threlfall
Director's email: tim.threlfall@health.wa.gov.au

South Australian Cancer Registry
South Australian Health Commission
PO Box 6
RUNDLE MALL SA 5001

Phone: 08 8226 6372
Fax: 08 8226 6291

Director: Dr David Roder

Registrar: Mrs Lesley Adlam
Registrar's email: Adlam.Lesley@health.sa.gov.au

Tasmanian Cancer Registry
Menzies Centre for Population Health Research
GPO Box 252-23
HOBART TAS 7001

Phone: 03 6226 7714
Fax: 03 6226 7704

Director: Professor Terry Dwyer
Director's email: T.Dwyer@utas.edu.au

Registrar: Mrs Dace Shugg
Registrar's email: dace.shugg@utas.edu.au

Northern Territory Cancer Registry
Epidemiology and Statistics Branch
Department of Health and Community Services
PO Box 40596
CASUARINA NT 0811

Phone: 08 8999 2977
Fax: 08 8999 2618

Director: Dr John Condon
Email: john.condon@dwnhhse.health.nt.gov.au

Registrar: Ms Mary-Anne Measey
Email: mary-anne.measey@dwnhhse.health.nt.gov.au

Australian Capital Territory Cancer Registry
ACT Health
Epidemiology and Population Health
GPO Box 825
CANBERRA ACT 2601

Phone: 02 6244 4289
Fax: 02 6282 1310

Director: Dr Bruce Shadbolt
Email: bruce_shadbolt@dpa.act.gov.au

Registrar: Dr Mai Tran

Glossary

AACR: Australasian Association of Cancer Registries

ABS: Australian Bureau of Statistics

ACT: Australian Capital Territory– a land-locked Territory of Australia situated within the State of New South Wales on the eastern seaboard with a population of 301,263 (1994). Its capital city is Canberra, which is also Australia's capital city.

AIHW: Australian Institute of Health and Welfare

AS Rate: age-standardised rate

Cancer (malignant neoplasm): a term used to describe one of several diseases which result when the process of cell division, by which tissues normally grow and renew themselves, becomes uncontrolled and leads to the development of malignant cells. These cancer cells multiply in an uncoordinated way, independently of normal growth control mechanisms, to form a tumour. This tumour may expand locally by invasion or systemically by metastasis via the lymphatic or vascular systems. If left untreated most malignant tumours will eventually result in death. (See What is cancer? page 1.)

Cancer death: a death where the underlying cause is indicated as cancer. Persons with cancer dying of other causes are not counted in the death statistics in this publication.

Epidemiology: the quantitative study of the distribution and determinants of health-related states and events in populations, and the application of this study to the control of health problems.

IACR: International Association of Cancer Registries

ICD-9: International Classification of Disease– a coding system used to identify the primary site of the malignancy. This classification is in its ninth revision.

Incidence: see **new cancer case**

Mortality: see **cancer death**

NCSCH: National Cancer Statistics Clearing House

New cancer case: a person who has a new cancer diagnosed for the first time. One person may have more than one cancer and therefore may be counted twice in incidence statistics if it is decided that the two cancers are not of the same origin. This decision is based on a series of principles set out in more detail in a publication by Jensen et al. (1991).

NSW: New South Wales– a State of Australia on the eastern seaboard which has the largest capital city in Australia, Sydney, and a population of 6,055,714 (1994).

NT: Northern Territory– a Territory in the north of Australia with a population of 173,976 (1994) and Darwin as its capital city.

PYLL: person-years of life lost

Qld: Queensland– a State in the north-east of Australia with a population of 3,185,318 (1994) and Brisbane as its capital city.

SA: South Australia– a State in the southern part of Australia with a population of 1,466,127 (1994) and Adelaide as its capital city.

SNOMED: Systematised Nomenclature of Medicine

Tas: Tasmania– an island State in the south-east of Australia with a population of 472,884 (1994) and Hobart as its capital city.

Vic: Victoria– a State in the south-east of Australia with a population of 4,486,749 (1994) and Melbourne as its capital city.

WA: Western Australia– the largest State in Australia, located in the west with a population of 1,702,564 (1994) and Perth as its capital city.

WHO: World Health Organization

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