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Appendix C Population data

Table C.1: Australian Standard Population and World Standard Population

	Australian Standard Population (1991)*		World Standard Population**	
	Population	% of total	Population	% of total
0-4	1,271,703	7.4	12,000	12.0
5-9	1,272,208	7.4	10,000	10.0
10-14	1,241,619	7.2	9,000	9.0
15-19	1,364,074	7.9	9,000	9.0
20-24	1,396,764	8.1	8,000	8.0
25-29	1,399,663	8.1	8,000	8.0
30-34	1,425,735	8.2	6,000	6.0
35-39	1,328,387	7.7	6,000	6.0
40-44	1,294,271	7.5	6,000	6.0
45-49	1,029,145	6.0	6,000	6.0
50-54	846,934	4.9	5,000	5.0
55-59	725,950	4.2	4,000	4.0
60-64	736,868	4.3	4,000	4.0
65-69	671,390	3.9	3,000	3.0
70-74	510,755	3.0	2,000	2.0
75-79	384,495	2.2	1,000	1.0
80-84	229,828	1.3	500	0.5
85+	154,247	0.9	500	0.5
Total	17,284,036	100.0	100,000	100.0

Sources: *ABS (1993); **Doll and Smith (1982).

Table C.2: Selected countries mortality rates per 100,000, world standard population, males, 1996

Country	All deaths	Lung	Prostate	Ischaemic heart disease	Cerebro-vascular	Road traffic accidents	Suicide
Hungary	11,361	837	177	2,269	1,222	240	392
Israel	5,515	281	124	1,181	404	153	111
Finland	6,804	413	180	1,881	597	106	358
Poland	9,638	735	111	1,147	583	270	215
USA	6,804	555	173	1,373	308	206	172
France	5,863	463	162	508	323	191	244
Germany	6,577	466	170	1,331	524	159	175
Austria	6,386	408	175	1,313	537	198	266
United Kingdom	6,262	477	171	1,624	459	83	99
Canada	5,583	512	164	1,193	296	138	178
Netherlands	6,056	612	196	1,025	392	101	105
Portugal	7,511	287	170	652	1,231	351	92
Italy	5,917	553	114	803	554	198	93
Australia	5,647	402	196	1,305	403	149	185
Greece	8,461	726	163	1,281	1,199	336	55
Singapore	6,428	453	72	1,231	579	127	150
Chile	7,721	234	143	607	664	157	102

Source: WHO World Health Statistics Annual 1998.

Table C.3: Selected countries mortality rates per 100,000, world standard population, females, 1996

Country	All deaths	Lung	Prostate	Ischaemic heart disease	Cerebro-vascular	Road traffic accidents	Suicide
Hungary	5,888	189	231	1,090	818	64	108
Israel	1,911	88	250	718	338	49	36
Finland	3,565	70	175	793	467	35	97
Poland	5,085	113	163	392	420	68	39
USA	4,063	263	211	703	263	91	40
France	2,911	58	197	192	22	68	78
Germany	3,735	92	221	617	397	54	56
Austria	3,639	96	216	618	414	57	73
United Kingdom	3,955	206	251	723	405	28	25
Canada	3,348	233	220	562	244	58	46
Netherlands	3,548	136	253	420	328	37	51
Portugal	4,218	48	174	310	931	92	31
Italy	3,370	77	207	346	432	53	27
Australia	3,370	136	204	664	342	60	40
Greece	3,525	72	159	342	686	87	9
Singapore	6,428	161	150	718	554	26	92
Chile	4,722	61	127	452	498	36	19

Source: WHO World Health Statistics Annual 1998.

Appendix D Methods

Death registration data

Registration of deaths in Australia is a legal requirement and is administered by the State and Territory Registrars of Births, Deaths and Marriages, under State and Territory legislation. Death registration data are used in a number of areas, for example, for legal issues (ascertaining a person's death), measuring and improving the health of a community, and genealogy.

Information on the cause of death is supplied by the medical practitioner certifying the death or by a coroner. Other information about the deceased is supplied by a relative or other person acquainted with the deceased or by an official of the institution where the death occurred. With the exception of deaths of foreign diplomatic personnel, all deaths which occur within Australia are within the scope of the collection.

The Registrars provide the information to the ABS for compilation into aggregate statistics. After processing by the ABS, the data are provided to the AIHW where they are held in the AIHW Mortality Database.

The statistics in this publication relate to the year of registration of the death, not the year of occurrence. Usually about 4–5% of deaths occurring in one year are not registered until the following year.

Data variables used in this report

The data extracted for this report contain the following variables: cause of death, year of registration (registration of the death), age, sex, place of usual residence, Indigenous status and country of birth.

The *cause of death* is recorded and coded using the ICD-9 (WHO) rubrics. Analysis was undertaken using all deaths as a group, and then 174 disease groupings (16 of which are featured in this report). The disease groupings have been chosen based on the number of deaths and community/health sector interest surrounding them.

The *year of registration* is the year in which a death is registered. The majority of deaths are registered shortly after the death occurs, but a relatively small number can take months or even years to be registered. For this reason *year of death* counts are retrospectively revised to reflect these deaths. Consequently, when looking at the most recent one or two years of data, it is more appropriate to use *year of registration*, as is the case in this report.

Indigenous status refers to whether or not a person considers themselves an Aboriginal, a Torres Strait Islander or both.

Because the Indigenous data collected in most of the States and Territories were generally poorly covered, the analysis of Indigenous status in this report is based on data from South Australia, Western Australia and the Northern Territory only. Also, the period 1995–1997 was used for the Aboriginal and Torres Strait Islander analysis as it is now generally held that data for the period 1995–1997 are more reliable than data from previous years. From these data, estimates have been calculated for national Indigenous mortality rates. In the calculation of Indigenous mortality rates, the census population of 1996 was used as the base population.

Country of birth was analysed for 14 of the featured mortality profiles. The countries of birth analysed for this report were chosen on the basis of population size present in Australia, available population data, and available international age-standardised rates for comparison. The countries/regions of birth analysed were Australia, Austria, Canada, Chile, China, Finland, France, Germany, Greece, Hong Kong and Macau, Hungary, Israel, Italy, Japan, Korea, Malta, Mauritius, Netherlands, New Zealand, Poland, Portugal, Singapore, Switzerland, United Kingdom and Ireland, and the United States of America.

For the purposes of this report, persons of unknown age have been excluded from the mortality counts and mortality rates (130 for the period 1986–1997).

Classification of cause of death

The International Classification of Diseases, 9th Revision (ICD-9), published by WHO, is the classification used in cause-of-death coding in Australia. This classification has now been superseded by ICD-10, the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, produced by WHO as the most recent in its series of ICD classifications. Consistent with international moves to update to the new classification for mortality coding, the ABS implemented the WHO version of ICD-10 from 1 January 1999 for coding causes of death.

Mortality profiles are featured in this report for the following cause of death classifications:

- Colorectal cancer (ICD-9 153–154, 159)
- Lung cancer (ICD-9 162)
- Breast cancer (female) (ICD-9 174)
- Prostate cancer (ICD-9 185)
- Diabetes mellitus (ICD-9 250)
- Mental disorders (ICD-9 290–319) (includes dementia and related disorders)
- Dementia and related disorders (ICD-9 290, 294.1, 331)
- Ischaemic heart disease (ICD-9 410–414)
- Cerebrovascular disease (stroke) (ICD-9 430–438)
- Chronic obstructive pulmonary disease (excluding asthma) (ICD-9 491, 492, 496)
- Asthma (ICD-9 493)
- Motor vehicle accidents (ICD-9 E810–E819)
- Suicide (ICD-9 E950–E959)
- Homicide (ICD-9 E969).

In addition to these causes of death, the following mortality categories were analysed:

- Smoking-related diseases
- Alcohol-related diseases.

Coding issues

In 1997 the ABS introduced two changes to the coding of deaths. The first introduced the reporting of multiple cause of deaths (ABS 1999). The second change automated the coding of deaths (see Classification of diseases, Chapter 1). These changes had the following effects:

- The introduction of multiple causes of death allows all contributing causes of death that appear on the death certificate to be presented in the statistics and therefore associations between recorded causes of death to be examined.
- The introduction of autocoding brought about a number of changes in the way the underlying cause of death is now coded. This has affected the number of principal causes of death, and created a break in the time series after 1996 for those diseases. The automated system reads in the underlying cause of death from the certificate and in most cases this becomes the underlying cause of death recorded in the mortality database, using a series of rules for determining underlying cause. The introduction of the automated system (developed in the United States of America) has meant some changes in the rules applied for determining underlying cause.

The underlying cause of death most affected is pneumonia. Under the manual system previously employed in Australia, pneumonia might be treated as a contributing cause of death under certain conditions, even if recorded as underlying on the death certificate. For instance, the age at death would have an impact on how pneumonia was previously recorded by the coders. If age at death was older than a stipulated age, then other more chronic conditions such as dementia might be considered and recorded as underlying instead.

By employing autocoding, the number of deaths captured due to pneumonia has increased, and consequently in 1998 pneumonia became the eighth leading cause of death for males and the third leading cause for females. The other causes significantly affected include senile and pre-senile organic psychotic conditions – dementia (ICD-9 290), and Alzheimer’s disease (ICD-9 331.0), affecting the category of dementia and related diseases. Consequently this publication uses data up to and including 1996 data for the affected diseases, i.e. pneumonia and dementia and related disorders.

Pneumonia

Under the previous Australian coding interpretations for causes of death, many of the deaths attributed to pneumonia in 1997 and 1998 would have been coded to dementia, Alzheimer’s disease, ischaemic heart disease, cardiac dysrhythmias and heart failure, malignant neoplasms, COPD and renal failure. Hence, while applying Automatic Coding System coding interpretations has caused pneumonia deaths to rise, deaths coded to a wide range of other conditions have declined, in particular those due to dementia (ABS 1998a).

Dementia and related disorders

There was a drop in the number of deaths attributed to dementia and related disorders in 1997, and consequently, a break in the time series (a large number of these deaths are now coded to pneumonia). Up until the break in the time series, deaths due to dementia had more than doubled between 1986–1996. If the number of deaths for 1996 is ranked with deaths from other diseases in 1998, it is the fifth most common cause of death for females and the 11th most common cause for males.

Adjustments to time series

To minimise the break in time series, deaths data for 1997 and 1998 for the affected causes of death have been adjusted, using comparability factors provided by the ABS. The following causes of death have been adjusted for this publication:

Table D.1: Adjustment to time series data

Condition	Adjustment
Ischaemic heart disease (ICD-9 410–414)	1.0101
Cerebrovascular disease (ICD-9 430–438)	1.0526
Colorectal cancer (ICD-9 153, 154, 159)	1.0101
Female breast cancer (ICD-9 174)	1.0101
Prostate cancer (ICD-9 185)	1.0101
Chronic obstructive pulmonary disease (ICD-9 491, 492, 496)	1.0753
Asthma (ICD-9 493)	1.0204
Diabetes (ICD-9 250)	1.0638
Homicide (ICD-9 960–969)	0.9709
Mental disorders (ICD-9 290–319)	1.1905

Source: ABS 1999.

The coding of deaths due to dementia and related disorders was significantly affected by the introduction of autocoding and consequently the comparability factor was judged unreliable by the ABS. For the purposes of this publication, deaths from dementia and related disorders have been omitted for 1997 and 1998.

Mortality rates

This report uses three forms of mortality rate. These are age-specific mortality rates, crude mortality rates and age-standardised mortality rates, as described below. All rates are calculated separately for males and females and are expressed per 1,000,000 population.

The mortality rates specific to a certain age group are known as the *age-specific mortality rates*. They have been calculated for each age group as the number of deaths in that age group from a particular cause divided by the group's mid-year estimated resident population. This may be calculated for particular age and sex groupings, e.g.

$$\text{Age-specific mortality rates in males aged 75–79 in 1998} = \frac{\text{Number of deaths of males aged 75–79 in 1998}}{\text{Australian male population aged 75–79 in 1998}} \times 1,000,000$$

The annual *crude mortality rate* is the total number of deaths in a year divided by the total mid-year estimated resident population. The *crude mortality rate* is influenced by changes in the age structure of the population.

Age-standardisation is a technique for eliminating or reducing the effect of variation in the population age structure when comparing mortality rates. This report has used *direct standardisation* by applying the age-specific mortality rates for a particular year to a standard population. This produces an estimate of the mortality rate that would have prevailed in the standard population if it had experienced the *age-specific mortality rates* in the year under study. The method for this calculation comprises three steps:

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

- Step 2* Calculate the expected number of deaths in each age group by multiplying the age-specific rate by the corresponding standard population for each age group, and dividing by 1,000,000 to obtain the expected number of deaths per 1,000,000.
- Step 3* Sum the expected number of deaths in each age group and divide this sum by the total of the standard population, and multiply by 1,000,000 to give the age-standardised mortality rate per 1,000,000.

The standard population used is the total estimated resident population of Australia at 30 June 1991. Where international comparisons have been made, the World Standard Population has been used. The usual convention of using age-specific mortality rates for 5-year age groups has been followed.

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.

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

Average annual rates of change

To indicate the extent of change in age-standardised rates over time, a linear line of best fit is calculated for the time frame in question. Average annual rates of change are then calculated using the geometric formula:

$$\text{Average rate of change} = \left(\left(P_n / P_o \right)^{1/N} - 1 \right) \times 100$$

where

P_n = rate at later year

P_o = rate at earlier year

N = $n - o$.

This process averages out variations in the actual annual changes that may have occurred between the two points in time.

Person years of life lost (PYLL)

By linking sex-specific life table estimates of *years of life left* to each death, it is possible to determine the number of *years of life lost* for each death. Age groups 0-4 up to 70-74 were used for the calculations. These *years of life lost* are then summed over all deaths due to a particular cause giving the estimate of the *person years of life lost (PYLL)*. The ages used in this report are in five-year groups, with the remaining years of life left calculated from the life tables averaged over the five ages within each age group.

Mortality data on the Internet

As part of the report a complete collection of data on deaths from 174 diseases is made available via the Internet at address www.aihw.gov.au. The following data models, trend analyses and statistical tests have been used.

Modelling the data to test for statistical significance

The data model

An appropriate model for mortality data is a Poisson regression model, with a Poisson error distribution, a log link function and the natural log of population treated as an 'offset' (Breslow & Day 1987; Brillinger 1986; Valkonen 1989). For a particular cause of death, the model may be expressed as:

$$\log_e(D_t) = \log_e(N_t) + \text{constant} + \alpha t$$

Where t is the year of registration of death, D_t is the expected number of deaths registered in year t , N_t is the mid-year population in year t , and α is the estimated annual rate of increase or decrease in mortality.

This model forms the basis for the estimate of underlying trend and the statistical tests described below. The criteria for applying it to the mortality time series data were:

- the cause of death met the criterion for a full mortality surveillance profile;
- the series contained non-zero deaths for at least 4 years;
- the average number of deaths across the 12 years was at least two.

Where the above criteria were met, this model was fitted separately for males and females, for each age group and for the age-standardised rate.

Statistical tests

Statistical tests were applied to both the age-standardised and age-specific mortality rates for males and females separately wherever the data meet the above criteria for modelling. Two tests are presented in the mortality surveillance profile. They are a test for trend and a test for difference, as described below.

Test for 1987-1998 trend

This test is based on the estimated value of α from the Poisson regression model fitted to the rates for all 12 years. It is designed to establish whether mortality rates are generally increasing or decreasing over the period and if so, to what extent.

Based on α , an average annual rate of change has been derived as follows:

$$\text{per cent change} = [e^\alpha - 1] \times 100\%$$

The data contained in the web site also contains a calculation to determine annual per cent increase (or decrease). It is presented in the 'Trend' column under statistical tests and can be interpreted as the average per cent change in mortality rate between any two consecutive years. In interpreting this data:

- A blank denotes that the data did not meet the modelling criteria.
- Asterisks have indicated trends, which were statistically significant at the 5% and 1% levels of significance.

Test for difference

This test was based on a Poisson regression model fitted to the first 11 years of the mortality time series (1987–1997). This model was used to estimate a projected value for the most recent year (1998) and the difference between the observed rate and the projected rate has been expressed as a percentage of the projected rate.

A blank denotes that the data did not meet the modelling criteria.

Significance level

All of the above tests of statistical significance were two-tailed. For example, when testing for trend there was no prior assumption that the mortality rate would be increasing or decreasing and the alternative hypothesis was that the change in mortality rate was different from zero.

Many hundreds of significance tests have been performed throughout the report and it is therefore likely that some test results reported as ‘statistically significant’ are the result of chance. This should be considered when making judgments about whether statistically significant trends have sufficient medical or epidemiological importance to warrant further attention.

Tables and graphs

The following terms and symbols are used in the electronic tables on the web site:

ICD	International Classification of Diseases
Trend	estimated annual change (per cent) together with its statistical significance
RD	relative difference between the observed and projected rate for 1997, as a percentage of the projected value, with statistical significance
*	statistically significant at the 5%
**	statistically significant at the 1%
blank	the data did not meet the modelling criteria.

For each cause of death, the scale on the y-axis of the graph has been chosen to best display the data. The same scale has been used for males and females, but the scales usually differ between causes of death. Care should be taken when comparing graphs between causes of death.

Socioeconomic analysis

A measure of socioeconomic disadvantage was analysed across 15 of the 17 mortality profiles featured in this report, using the *Socioeconomic Indexes for Areas (SEIFA)* 1996 package produced by the ABS. *SEIFA* provides five summary indexes, each index focusing on a different aspect of the socioeconomic conditions in the geographic area. The analysis in this report was based on the Index of Relative Socioeconomic Disadvantage. The Index of Relative Socioeconomic Disadvantage is derived from attributes such as low income, low educational attainment, high unemployment and jobs in relatively unskilled occupations.

The mortality data were extracted by Statistical Local Area (SLA), and the corresponding *SEIFA* index value for that SLA was assigned to each of the deaths. In this way, each death was given a value of between 1 and 5, for the level of Relative Socioeconomic Disadvantage,

1 being the least disadvantaged, and 5 being the most. For example, where the place of usual residence was Ku-ring-gai in Sydney a death would be given an Index of Relative Socioeconomic Disadvantage value of 1 (least disadvantaged). In contrast, where place of usual residence was Elizabeth in the northern outskirts of Adelaide, a death would be given a value of 5 (most disadvantaged).

Mortality rates were then calculated for each mortality profile by measure of socioeconomic disadvantage, age and sex. The period 1995–1997 was selected for its proximity to the 1996 census year that the SEIFA indexes are based on.

For the period 1995–1997, the proportion of the Australian population in each SEIFA quintile is shown in Table D.2.

Table D.2: Population proportions in each SEIFA quintile

SEIFA quintile	Male	Female
	%	%
1st	19.7	20.3
2nd	19.7	19.6
3rd	20.4	20.1
4th	20.1	20.0
5th	20.2	20.0

The following Australian Standard Geographic Classification (ASGC) versions were used in coding SLA to SEIFA (Table D.3).

Table D.3: Year and ASGC version

Year	ASGC version
1995	2.4
1996	2.5
1997	2.5

SLA boundaries for 1995 and 1996 were recoded to the ASGC 1996 boundaries bringing them into line with SEIFA 1996.

Geographic analysis

A geographic analysis was performed on 15 of the 17 mortality profiles featured in this report using the Rural, Remote and Metropolitan Areas (RRMA) Classification (Department of Primary Industries and Energy & Department of Health and Family Services 1994). The SLA recorded for place of usual residence in each death record was converted to the 7-level urban/rural/remote RRMA classification. These 7-level classifications were then grouped into three categories as follows:

- Metropolitan (M1=Capital city, M2=Other metropolitan centre);
- Rural (R1=Large rural centre, R2=Small rural centre, R3=Other rural area); and
- Remote (Rem1=Remote centre, Rem2=Other remote area).

Mortality rates were then calculated for each mortality profile by geographic category, age and sex for the period 1995–1997. A 3-year period was used in order to smooth any effect of small death counts in each single year.

For the period 1995–1997, the proportion of the Australian population in each RRMA (3-point) category are shown in Table D.4.

Table D.4: Proportion of the Australian population in each RRMA (3-point) category

RRMA 3-point classification	Male (%)	Female (%)
Metropolitan	70.7	71.5
Rural	26.1	25.7
Remote	3.3	2.8

Country of birth analysis

This analysis was performed on 15 of the 17 mortality profiles featured in this report, over the 3-year period 1992–1994. A 3-year period was used so that more substantial numbers of deaths could be analysed by country, and the period 1992–1994 was chosen to make international comparisons possible using the latest available data. Because this analysis was performed on each of the feature diseases, a standard list of countries was devised that best fit across all of the diseases in terms of numbers of deaths and rates of death. Where a disease does not have a substantial number of deaths for a particular country, the calculated rate of death for that country was not reported as it is not considered statistically relevant.

Smoking- and alcohol-related deaths

Smoking- and alcohol-related deaths were determined by applying a set of aetiological fractions derived by English et al. (1995) to mortality data from related causes of death to determine the effect of active cigarette smoking, or hazardous and harmful alcohol use on Australia’s mortality. The fractions were applied to the deaths in each year from 1987 to 1998. Tables D.5 and D.6 list the conditions related to use of tobacco and alcohol for which aetiological fractions were devised.

Table D.5: Smoking-related conditions

Conditions	ICD-9 codes
Oropharyngeal cancer	141, 143–146, 148–149
Oesophageal cancer	150
Stomach cancer	151
Anal cancer	154.3, 154.4
Pancreatic cancer	157
Laryngeal cancer	161
Lung cancer	162
Endometrial cancer	179, 182
Cervical cancer	180, 233.10
Vulvar cancer	184.4
Penile cancer	187.1–187.4
Bladder cancer	188
Renal parenchymal cancer	189.0
Renal pelvic cancer	189.1
Respiratory carcinoma in situ	231
Tobacco abuse	305.1
Parkinson's disease	332
Ischaemic heart disease	410–414
Pulmonary circulatory diseases	415.0, 416–417
Cardiac dysrhythmias	427
Heart failure	428–429
Stroke	430–438
Atherosclerosis	440–448
Pneumonia	480–487
Chronic obstructive pulmonary disease (COPD)	490–492, 496
Peptic ulcer	531–534
Crohn's disease	555
Ulcerative colitis	556
Ectopic pregnancy	633, 761.4
Spontaneous abortion	634, 761.8
Antepartum haemorrhage	640, 641, 762.0, 762.1
Hypertension in pregnancy	642, 760.0
Low birthweight	656.5, 764, 765
Premature rupture of membranes	658.1–658.2, 761.1
Sudden infant death syndrome (SIDS)	798.0
Fire injuries	E890–E899

Source: English et al. 1995.

Table D.6: Alcohol-related conditions

Conditions	ICD-9 codes
Oropharyngeal cancer	141, 143–146, 148–149
Oesophageal cancer	150
Liver cancer	155
Laryngeal cancer	161
Female breast cancer	174
Alcoholic psychosis	291
Alcohol dependence	303
Alcohol abuse	305.0
Epilepsy	345
Alcoholic polyneuropathy	357.5
Hypertension	401–405
Alcoholic cardiomyopathy	425.5
Supraventricular cardiac dysrhythmias	427.0, 427.2, 427.3
Stroke	430–438
Oesophageal varices	456.0–456.2
Gastro-oesophageal haemorrhage	530.7
Alcoholic gastritis	535.3
Alcoholic liver cirrhosis	571.0–571.3
Cholelithiasis	574
Acute pancreatitis	577.0
Chronic pancreatitis	577.1
Psoriasis	696.1
Road injury	E810–E819
Alcoholic beverage poisoning	E860.0
Other ethanol and methanol poisoning	E860.1, E860.2
Fall injuries	E880–E888
Fire injuries	E890–E899
Drowning	E910
Aspiration	E911
Occupational and machine injuries	E919, E920
Suicide	E950–E959
Assault	E960, E965, E966, E968, E969
Child abuse	E967

Source: English et al. 1995.

Appendix E Data available on the AIHW web site

A series of 174 mortality profiles has been produced, based on the codes and categories used in the ICD-9. They are presented as self-contained Excel spreadsheets located at the AIHW web site (www.aihw.gov.au). The profiles provide tables and graphical representations by age and sex over the 12 years 1987–1998 of numbers of deaths, standardised mortality rates and PYLL, as well as statistical tests and modelled trends.

Table E.1: Mortality spreadsheets available at the AIHW web site

No.	ICD-9	Disease	No.	ICD-9	Disease
1	Infectious				
1.1	001–139	Infectious and parasitic diseases	1.3	38	Septicaemia
1.2	001–018	Tuberculosis	1.4	070	Viral hepatitis
2	Neoplasms				
2.1	140–239	Neoplasms	2.22	163	Malignant neoplasm of pleura
2.2	140–208	Malignant neoplasms (cancer)	2.23	170	Malignant neoplasm of bone
2.3	140–149	Malignant neoplasm of lip, oral cavity and pharynx	2.24	172	Malignant neoplasm of skin
2.4	141	Malignant neoplasm of tongue	2.25	173	Other malignant neoplasm of skin
2.5	143–145	Malignant neoplasm of mouth	2.26	174	Malignant neoplasm of female breast
2.6	146–148	Malignant neoplasm of pharynx	2.27	180	Malignant neoplasm of cervix
2.7	150–159	Malignant neoplasm of digestive organs	2.28	179, 182	Malignant neoplasm of other parts of uterus
2.8	150	Malignant neoplasm of oesophagus	2.29	183	Malignant neoplasm of ovary
2.9	151	Malignant neoplasm of stomach	2.30	185	Malignant neoplasm of prostate
2.10	152	Malignant neoplasm of small intestine	2.31	188	Malignant neoplasm of bladder
2.11	153	Malignant neoplasm of colon	2.32	189	Malignant neoplasm of kidney and other urinary organs
2.12	154	Malignant neoplasm of rectum	2.33	191	Malignant neoplasm of brain
2.13	153–154, 159	Malignant neoplasm of bowel	2.34	193	Malignant neoplasm of thyroid
2.14	155	Malignant neoplasm of liver	2.35	200–208	Malignant neoplasm of lymphatic tissue
2.15	155.0	Malignant neoplasm of liver primary	2.36	200, 202	Non-Hodgkin's lymphoma
2.16	155.1	Malignant neoplasm of intrahepatic bile ducts	2.37	201	Hodgkin's disease
2.17	156	Malignant neoplasm of gall bladder and extrahepatic bile ducts	2.38	203	Multiple myeloma
2.18	157	Malignant neoplasm of pancreas	2.39	204–208	Leukaemia
2.19	160	Malignant neoplasm of nasal cavities	2.40	204	Lymphoid leukaemia
2.20	161	Malignant neoplasm of larynx	2.41	205	Myeloid leukaemia
2.21	162	Malignant neoplasm of trachea, bronchus and lung	2.42	225.2	Meningioma
3	Endocrine, nutritional and metabolic diseases and immunity disorders				
3.1	240–279 excluding 279.1	Endocrine, nutritional, and metabolic diseases and immunity	3.4	272.0–272.4	Hyperlipidaemia
3.2	240–246	Thyroid disorders	3.5	278	Obesity
3.3	250	Diabetes			
4	Diseases of the blood and blood-forming organs				
4.1	280–289	Diseases of the blood and blood-forming organs	4.2	284	Aplastic anaemia

No.	ICD-9	Disease	No.	ICD-9	Disease
5 Mental disorders					
5.1	290–319	Mental disorders	5.3	303	Alcohol dependence
5.2	290, 294.1, 331	Dementia and related disorders	5.4	304	Drug dependence
6 Diseases of the nervous system and sense organs					
6.1	320–389	Diseases of the nervous system and sense organs	6.4	335.2	Motor neurone disease
6.2	320–322	Meningitis	6.5	340	Multiple sclerosis
6.3	332	Parkinson's disease	6.6	345	Epilepsy
7 Diseases of the circulatory system					
7.1	390–459	Cardiovascular disease	7.8	428	Congestive heart failure
7.2	390–398	Rheumatic fever and rheumatic heart disease	7.9	430–438	Cerebrovascular disease
7.3	401–405	Hypertensive disease	7.10	440–448	Diseases of the arteries, arterioles, and capillaries
7.4	410–414	Ischaemic heart disease	7.11	440	Atherosclerosis
7.5	410	Acute myocardial infarction	7.12	441–444	Peripheral vascular disease
7.6	411–414	Other coronary heart disease	7.13	415–427, 429, 446–459	Other cardiovascular disease
7.7	428	Heart failure			
8 Diseases of the respiratory system					
8.1	460–519	Diseases of the respiratory system	8.10	492	Emphysema
8.2	480–486	Pneumonia	8.11	493	Asthma
8.3	480	Viral pneumonia	8.12	494	Bronchiectasis
8.4	481	Pneumococcal pneumonia	8.13	496, 491, 492	Chronic obstructive pulmonary disease
8.5	485	Bronchopneumonia	8.14	500–505	Pneumoconiosis
8.6	486	Pneumonia unspecified	8.15	507	Inhalation pneumonia
8.7	487	Influenza	8.16	514	Pulmonary congestion and hypostasis
8.8	490–496	Chronic lung disease	8.17	515	Pulmonary fibrosis
8.9	490–491	Chronic bronchitis			
9 Diseases of the digestive system					
9.1	520–579	Diseases of the digestive system	9.8	570–573 (excluding 571.0–571.3)	Liver disease without mention of alcohol
9.2	531–533	Peptic ulcer	9.9	574–576	Disorders of biliary tract
9.3	550–553	Hernia	9.10	574	Cholelithiasis
9.4	557	Vascular disease of intestine	9.11	575	Other diseases of the gallbladder
9.5	560	Intestinal obstruction	9.12	577	Diseases of pancreas
9.6	562	Diverticula disease	9.13	578	Gastrointestinal haemorrhage
9.7	571.0–571.3	Chronic liver disease due to alcohol			
10 Diseases of the genitourinary system					
10.1	580–629	Diseases of the genitourinary system	10.5	585	Chronic renal failure
10.2	580–589	Nephritis, nephrotic syndrome and nephrosis	10.6	586	Unspecified renal failure
10.3	582	Chronic glomerulonephritis	10.7	590	Infections of kidney
10.4	584	Acute renal failure	10.8	600	Hyperplasia of prostate
12 Diseases of the skin and subcutaneous tissue					
12.1	680–709	Diseases of the skin and subcutaneous tissue			
13 Diseases of the musculoskeletal system and connective tissue					
13.1	710–739	Diseases of the musculoskeletal system and connective tissue	13.3	715	Osteoarthritis
13.2	714	Rheumatoid arthritis	13.4	733	Osteoporosis
14 Congenital anomalies					
14.1	740–759	Congenital anomalies			

No.	ICD-9	Disease	No.	ICD-9	Disease
16	Symptoms, signs and ill-defined conditions				
16.1	780-799	Symptoms, signs and ill-defined conditions	16.2	797	Senility
17	External causes of Injury and poisoning				
17.1	800-999	External causes of injury and poisoning	17.14	880-888	Accidental falls
17.2	800-848	Transport accidents	17.15	890-899	Accidental fire
17.3	800-807	Railway accidents	17.16	910	Accidental drowning
17.4	810-819	Motor vehicle traffic accidents	17.17	925	Accidental electrocution
17.5	811-813	Multiple-vehicle motor accidents	17.18	950-959	Suicide
17.6	814	Pedestrian accidents	17.19	952	Suicide by car exhaust
17.7	815-816	Single-vehicle accidents	17.20	953	Suicide by hanging
17.8	820-825	Off-road accidents	17.21	955	Suicide by firearms
17.9	830-838	Water transport accidents	17.22	960-969	Homicide
17.10	840-844	Air transport accidents	17.23	980-989	Injury undetermined whether accidentally or purposely inflicted
17.11	850-869	Accidental poisoning	17.24	980	Poisoning by solid or liquid substances, undetermined whether
17.12	850-858	Accidental poisoning by analgesics, antipyretics, antirheumatics	17.25	304.0, 850.0, 950.0, 980	Aggregate deaths relating directly to opiates
17.13	850	Accidental opiate poisoning			

Glossary

Aboriginal and Torres Strait Islander: A person of Aboriginal descent who identifies as an Aboriginal or Torres Strait Islander or as both and is accepted as such by the community in which he or she lives.

acute: Coming on sharply to a crisis and often brief, intense and severe.

age-specific mortality rate: See Appendix D.

age-specific rate: A rate for a specific age group. The numerator and denominator relate to the same age group.

age-standardisation: A method of removing the influence of age when comparing populations with different age structures.

age-standardised mortality rate (ASMR): See Appendix D.

Alzheimer's disease: A disease (named after a German physician) in which there is progressive loss of brainpower shown by worsening short-term memory, confusion and disorientation.

angina: Temporary chest pain or discomfort when the heart's own blood supply is inadequate to meet extra needs. See also *cardiovascular disease*.

anxiety disorders: A group of mental disorders marked by excessive feelings of apprehension, worry, nervousness and stress. Includes panic disorder, various phobias, generalised anxiety disorder, obsessive-compulsive disorder and post-traumatic stress disorder.

asthma: An inflammatory disease of the air passages that makes them prone to narrow too easily and too much in response to 'triggers', causing episodes of shortness of breath and wheezing or coughing. The triggers include exercise, pollens, the house dust mite, cold weather, throat and chest infections, tobacco smoke and other factors.

atherosclerosis: A process that gradually clogs arteries, through fatty and fibre-like deposits that build up on the inner walls of the arteries.

blood cholesterol: Fatty substance produced by the liver and carried by the blood supply to the rest of the body.

cancer: A range of diseases where some of the body's cells begin to multiply out of control, can invade and damage the area around them, and can also spread to other parts of the body to cause further damage.

cardiovascular disease: Any disease of the heart or blood vessels, including heart attack, angina, stroke and peripheral vascular disease. Also known as circulatory disease.

cause of death: From information reported on the medical certificate of cause of death, each death is classified by the underlying cause of death according to rules and conventions of the 9th revision of the International Classification of Diseases. The underlying cause is defined as the disease which initiated the train of events leading directly to death. Deaths from injury or poisoning are classified according to the circumstances of the violence which produced the fatal injury, rather than to the nature of the injury.

cerebrovascular disease: See *stroke*.

chemotherapy: The use of drugs (chemicals) to prevent or treat disease, with the term usually being applied to treatment for cancer rather than for other conditions.

chronic: Persisting over a long period.

chronic bronchitis: Long-term lung condition with inflammation of the main air passages causing frequent coughing attacks and coughing up of mucus.

chronic obstructive pulmonary disease (COPD): A combination of emphysema and chronic bronchitis-related conditions, where damage to the lungs tends to obstruct their oxygen intake.

cohort: A group of individuals being studied who have experienced the same event at a specified period in time, e.g. 'birth cohort' refers to people born in the same year.

colonoscopy: A procedure whereby the inside of the large bowel (colon) is viewed using a long flexible fibre-optic tube inserted through the anus.

colorectal cancer: Cancer of the colon (the lower 1.5 to 2 metres of the intestine) or of the rectum (the final 15 cm at the end of the colon, ending with the anus).

confidence interval (CI): A statistical term describing a range (interval) of values within which we can be 'confident' that the true value lies, usually because it has a 95% or higher chance of doing so.

congenital: A condition that is recognised at birth, or that is believed to have been present since birth, including conditions which are inherited or caused by environmental factors.

coronary heart disease: See *ischaemic heart disease*.

crude mortality rate: The number of deaths in a year divided by the number in the corresponding population.

dementia: A general and worsening loss of brain power such as memory, understanding and reasoning.

depression: A mood disorder with prolonged feelings of being sad, hopeless, low and inadequate, with a loss of interest or pleasure in activities and often with suicidal thoughts or self-blame.

diphtheria: A bacterial infection that usually starts with soreness of the throat and tonsils but which can also affect other parts of the body and become severe enough to block breathing. Preventable by vaccine.

disability: The presence of one or more of seventeen limitations, restrictions or impairments.

disability-adjusted life year (DALY): Years of healthy life lost through premature death or living with disability due to illness or injury.

emphysema: A long-term lung disease where over expansion or destruction of the lung tissue blocks oxygen intake, leading to shortness of breath and other problems.

epidemiology: The study of the patterns and causes of health and disease in populations, and the application of this study to improve health.

expectation of life: See *life expectancy*.

external cause: Environmental event, circumstance and/or condition as the cause of injury, poisoning and/or other adverse effect. Used in disease classification.

health promotion: Activities to improve health and prevent disease.

health status: An individual's or population's overall level of health, taking account of various aspects such as life expectancy, amount of disability, levels of disease risk factors and so forth.

heart attack: Emergency illness that occurs when a vessel supplying blood to the heart muscle is suddenly blocked completely by a blood clot. The medical term commonly used for a heart attack is *myocardial infarction*. See also *cardiovascular disease*.

heart failure: When the heart cannot pump strongly enough to keep the blood circulating around the body at adequate rate.

hepatitis: Inflammation of the liver, which can be due to certain viral infections, alcohol excess or a range of other causes.

Hib (*Haemophilus influenzae type b*): A bacterial infection of infants and children that can cause meningitis, pneumonia and other serious effects. Preventable by vaccine.

immunisation: Inducing immunity against infection by the use of an antigen to stimulate the body to produce its own antibodies. See *vaccination*.

incidence: The number of new cases (of an illness or event, etc.) occurring during a given period. Compare with *prevalence*.

Indigenous: A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander and is accepted as such by the community with which he or she is associated.

inflammation: Local response to injury or infection, marked by local redness, heat, swelling and pain. Can also occur when there is no clear external cause and the body reacts against itself, as in the auto-immune disorders.

International Classification of Diseases (ICD): The World Health Organization's internationally accepted classification of death and disease. The 9th revision (ICD-9) was in use for the period of the study. In this report, causes of death classified before 1979 under previous revisions have been reclassified to ICD-9 by the AIHW.

ischaemia: Reduced or blocked blood supply. See also *ischaemic heart disease*.

ischaemic heart disease: Heart attack and angina (chest pain). Also known as coronary heart disease.

life expectancy: An indication of how long a person can expect to live. Technically it is the number of years of life remaining to a person at a particular age if mortality rates do not change.

lymphoma: A general term applied to any neoplastic disorder of the lymphoid tissue. Lymphomas are divided into two broad types, Hodgkin's disease/lymphoma and non-Hodgkin's lymphoma (NHL).

malignancy: See *cancer*.

mammogram: X-ray of the breast. May be used to assess a breast lump or as a screening test in women with no symptoms of cancer.

measles: A highly contagious infection, usually of children, that causes flu-like symptoms, fever, a typical rash and sometimes serious secondary problems such as brain damage. Preventable by vaccine.

mental disorder: A disturbance of mood or thought that can affect behaviour and distress the person or those around them, so the person cannot function normally. Includes anxiety disorders, depression and schizophrenia.

metastasis: The spread of a cancer from its original site to other parts of the body.

mumps: A contagious viral disease marked by acute and painful swelling of the saliva-producing glands, often similarly affecting the testicles and sometimes other parts.

myocardial infarction: Term still commonly used to mean a heart attack, but more correctly refers only to those heart attacks which have caused some death of heart muscle.

Organisation for Economic Co-operation and Development (OECD): An organisation of 24 developed countries, including Australia.

overweight: Defined as a Body Mass Index above 25 but not higher than 30.

parasuicide: The deliberate or ambivalent act of self-damage which is potentially life-threatening, but not resulting in death.

pathology: General term for the study of disease, but often used more specifically for diagnostic services which examine specimens, such as samples of blood or tissue.

perinatal: Pertaining to or occurring in the period shortly before or (usually 28 days) after birth.

pertussis (whooping cough): A highly infectious bacterial disease of the air passages marked by explosive fits of coughing and often a whooping sound on breathing in. Preventable by vaccine.

poliomyelitis (polio): Muscle paralysis, wasting and deformity of limbs after infection by a common virus (poliovirus) that can damage the so-called motor nerves in the spinal cord. Preventable by vaccine.

potential years of life lost (PYLL): Number of potential years of life lost in a population as a result of premature death.

prevalence: The number or proportion (of cases, instances, etc.) present in a population at a given time. Compare with *incidence*.

prevention (of disease): Action to reduce or eliminate the onset, causes, complications or recurrence of disease.

prostate cancer: Cancer of the prostate, the male organ that sits next to the urinary bladder and contributes to the semen (sperm fluid).

psychiatric hospitals: Establishments devoted primarily to the treatment and care of inpatients with psychiatric disorders.

public health: Health activities which aim to benefit a population. Prevention, protection and promotion of health are emphasised, as distinct from treatment tailored to individuals with symptoms. Examples include provision of a clean water supply and good sewerage, conduct of anti-smoking education campaigns and screening for diseases such as cancer of the breast and cervix.

quintile: A group derived by ranking the population according to specified criteria and dividing it into five equal parts.

risk factor: Any factor which represents a greater risk of a health disorder or other unwanted condition. Some risk factors are regarded as causes of disease, others are not necessarily so.

rubella (German measles): A contagious viral disease of children and young adults which has mild symptoms but which often causes serious birth defects if it occurs in a mother during the first 3 months of pregnancy. Preventable by vaccine.

statistical significance: An indication from a statistical test that the result of a comparison, suggesting a difference or change, may be significant or meaningful because it is unlikely to be due just to chance. A statistical result is usually said to be 'significant at the 95% confidence level' if it would occur by chance only once in twenty times or less.

stroke: When an artery supplying blood to the brain suddenly becomes blocked or bleeds, often causing paralysis of parts of the body or speech problems.

substance use disorders: Result from harmful use and/or dependence on illicit or licit drugs, including alcohol, tobacco and prescription drugs.

suicide: Deliberately ending one's own life.

symptom: Any indication of a disorder that is apparent to the person affected.

tetanus: A serious infection with a bacterial nerve poison causing spasm of the jaw muscles (lockjaw) and body muscles generally, from a bacterium entering through a wound. The disease is preventable by vaccine.

Torres Strait Islander: A person of Torres Strait Islander descent who identifies as a Torres Strait Islander and is accepted as such by the community in which he or she lives.

tuberculosis: A bacterial disease that affects the lungs especially, with serious fever-like symptoms and destruction of tissue. It can spread to other parts of the body, causing secondary problems and often death if not treated.

vaccination: The process of administering a vaccine to a person to produce immunity against infection. See *immunisation*.

whooping cough: See *pertussis*.

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