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Appendix 1.1: ICD codes

Table A1 details the ICD-9, and ICD-10 (for Australia)/ ICD-10-AM (for New Zealand) codes for the avoidable mortality causes and the mortality amenable to health care groupings. For this analysis, there were no differences in the relevant codes in the ICD-10 and ICD-10-AM versions.

Table A1: Avoidable mortality and amenable mortality conditions and ICD codes

Age limit: 0 to 74 years, unless otherwise specified

Major condition group/ condition	ICD-9	ICD-10 [Aust Codes] / ICD-10-AM [NZ Codes]	Limits (age, sex)	Amenable to health care ¹
Infections				
Tuberculosis	010-018,137	A15-A19, B90		✓
Selected invasive bacterial and protozoal infections	034-036, 038, 084, 320, 481, 482, 485, 681, 682	A38-A41, A46, A48.1 B50-B54, G00, G03, J02.0, J13-J15, J18, L03		✓
Hepatitis	070	B15-B19		
HIV/AIDS	042	B20-B24		
Viral pneumonia and influenza	480, 487	J10, J12, J17.1, J21		
Neoplasms				
Lip, oral cavity and pharynx	140-149	C00-C14		
Oesophagus	150	C15		
Stomach	151	C16		
Colorectal	153, 154	C18-C21		✓
Liver	155	C22		
Lung	162	C33, C34		
Melanoma of skin	172	C43		✓
Nonmelanotic skin	173	C44		✓
Breast	174	C50	Female	✓
Cervix	180	C53		✓
Uterus	179, 182	C54, C55		✓
Bladder	188	C67		✓
Thyroid	193	C73		✓
Hodgkin's disease	201	C81		✓
Lymphoid leukaemia – acute/chronic	204.0, 204.1	C91.0, C91.1		✓
Benign	210-229	D10-D36		✓
Nutritional, endocrine and metabolic conditions				
Thyroid disorders	240-246	E00-E07		✓
Diabetes	250	E10-E14		✓ (0.5)
Drug use disorders				
Alcohol related disease	291, 303, 305.0, 425.5, 535.3, 571.0-571.3	F10, I42.6, K29.2, K70		
Illicit drug use disorders	292, 304, 305.2-305.9	F11-F16, F18, F19		

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Table A1: Avoidable mortality and amenable mortality conditions and ICD codes ... continued

Age limit: 0 to 74 years, unless otherwise specified

Major condition group/ condition	ICD-9	ICD-10 [Aust Codes] / ICD-10-AM [NZ Codes]	Limits (age, sex)	Amenable to health care ¹
Neurological disorders				
Epilepsy	345	G40, G41		✓
Cardiovascular diseases				
Rheumatic and other valvular heart disease	390-398	I01-I09		✓
Hypertensive heart disease	402	I11		✓
Ischaemic heart disease	410-414	I20-I25		✓ (0.5)
Cerebrovascular diseases	430-438	I60-I69		✓ (0.5)
Aortic aneurysm	441	I71		
Genitourinary disorders				
Nephritis and nephrosis	403, 580-589, 591	I12, I13, N00-N09, N17- N19		✓
Obstructive uropathy & prostatic hyperplasia	592, 593.7, 594, 598, 599.6, 600	N13, N20, N21, N35, N40, N99.1		✓
Respiratory diseases				
DVT with pulmonary embolism	415.1, 451.1	I26, I80.2		
COPD	490-492, 496	J40-J44	45-74 years	
Asthma	493	J45, J46	0-44 years	✓
Digestive disorders				
Peptic ulcer disease	531-534	K25-K28		✓
Acute abdomen, appendicitis, intestinal obstruction, cholecystitis/ lithiasis, pancreatitis, hernia	540-543, 550-553, 574- 577	K35-K38, K40-K46, K80- K83, K85, K86, K91.5		✓
Chronic liver disease (excluding alcohol related disease)	571.4-571.9	K73, K74		
Maternal & infant causes				
Birth defects	237.70, 740-760	H31.1, P00, P04, Q00- Q99		✓
Complications of perinatal period	764-779	P03, P05-P95		✓
Unintentional injuries				
Road traffic injuries	E810-E819	V01-V04, V06, V09-V80, V87, V89, V99		
Falls	E880-E886, E888	W00-W19		
Fires, burns	E890-E899	X00-X09		
Accidental poisonings	E850-E869	X40-X49		
Drownings	E910	W65-W74		
Intentional injuries				
Suicide and self inflicted injuries	E950-E959, E980-E989	X60-X84, Y87.0, Y10-Y34		
Violence	E960-E969	X85-Y09, Y87.1		

¹ Subset list of conditions amenable to health care, denoted as ✓; or ✓ (0.5) to represent 50% of total deaths in the category

Table A2 shows the conditions excluded on the basis that they represented less than 0.1% (rounded at one decimal place) of all deaths, based on an analysis of deaths over a recent three (Australia) or four (New Zealand) year period. Note that when one country met the 0.1 per cent requirement, the condition was retained.

Table A2: Avoidable mortality conditions excluded from analysis¹

Condition	ICD-9	ICD-10 (Australia); ICD-10-AM (New Zealand)	Percentage of all deaths (%)	
			Aust ²	NZ ²
Diarrhoeal disease	001-009	A00-A09	0.03	0.05
Childhood vaccine-preventable diseases	032-033, 036.0, 037, 041.2, 041.5, 045, 070.2-070.3, 052, 055-056	A35-A37, A39.0, A49.1, A49.2, A80, B01, B05-B06, B16, J11	Child only	Child only
Sexually transmitted diseases except HIV/AIDS	090-099, 614.0-614.5, 614.7-616.9, 633	A50-A64, M02.3, N34.1, N70-N73, N75.0, N75.1, N76.4, N76.6, O00	0.01	0.01
Testis cancer	186	C62	0.02	0.02
Eye cancer	190	C69	0.03	0.02
Nutritional deficiency anemia	280-281	D50-D53	0.03	0.04
Adrenal disorders	255.0, 255.4	E24, E27	0.01	0.01
Newborn screening disorders	255.2, 270.1, 271.1	E25, E70.0, E74.2	0.00	0.00
Ear infections – Otitis media and mastoiditis	381-383	H65-H70	0.00	0.00
Upper respiratory tract infection	382-383, 460-465	J00-J06, H66, H70	0.02	0.04
Osteomyelitis and other osteopathies of bone	730	M86, M89-M90	0.02	0.03
Complication of pregnancy, labor or the puerperium	630-632, 634-676	O01-O99	0.01	0.01
Sports injuries	E884.0, E886.0, E917.0, E927	any external cause code V00-Y99 with an activity code of 0	0.01	0.02
War	E990-E999	Y36	0.00	0.00
Total of all deaths	0.26	0.39

¹ Condition categories were excluded where they represented less than 0.1 per cent of all deaths in both countries

² Percentages were calculated from total deaths over a three or four year period: for Australia: 1997-99; for NZ: 1996-99

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Appendix 1.2: Rationale for including conditions

Table A3: Rationale for including conditions in avoidable mortality and amenable mortality classifications

Age limit: 0 to 74 years, unless otherwise specified

No.	Group	Condition Cause	Limits: Age, sex	Amenable to health care	Rationale for including in:	
					avoidable mortality	amenable mortality
01	Infections	Tuberculosis		✓	Exposure to <i>Mycobacterium tuberculosis</i> is preventable through reducing poverty and overcrowding, and through contact tracing (with immunisation or prophylactic antibiotic treatment being given to contacts). Infection can also be prevented with reasonable effectiveness through BCG immunisation.	Should infection or disease occur, it is readily treatable with antibiotics, although resistant strains may be a problem. <i>(so considered amenable)</i>
02	Infections	Selected invasive bacterial and protozoal infections		✓	Immunisation can prevent a proportion of these serious infections (eg meningococcal, Hib, pneumococcal).	Although not always successful, early detection and effective intensive support coupled with appropriate antibiotic therapy can massively reduce case fatality rates, eg for meningococcal disease, case fatality rate should not exceed 5%. <i>(so considered amenable)</i>
03	Infections	Hepatitis			Substantially preventable through safe injection practice in the case of the blood borne hepatitis B virus and (with more difficulty) hepatitis C virus. Sexually transmitted HBV preventable through condom use. Waterborne HAV and related viruses controllable through sanitary measures (safe sewage disposal and drinking water supplies, standard food safety measures). In addition, HBV and HAV preventable through immunisation. Vertical transmission of HBV from mother to child similarly preventable in most cases.	
04	Infections	HIV/AIDS			Most infections are potentially preventable through condom use, use of clean needles, appropriate management of pregnancy and postnatal care to prevent vertical transmission.	Should infection occur, early detection coupled with appropriate combination antiviral therapy can slow progression to AIDS and yield reasonable long-term survival. <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>

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Table A3: Rationale for including conditions in avoidable mortality and amenable mortality classifications ... continued

Age limit: 0 to 74 years, unless otherwise specified

No.	Group	Condition		Limits: Age, sex	Amenable to health care	Rationale for including in:	
			Cause			avoidable mortality	amenable mortality
05	Infections		Viral pneumonia and influenza			Major cause is influenza, which is generally preventable (disease, not infection) through immunisation. Antiviral agents also now available that may prevent (and also treat) serious clinical complications. Non-smoking may decrease susceptibility.	
06	Neoplasms		Lip, oral cavity and pharynx			Most are related to tobacco or alcohol consumption, and are therefore theoretically preventable. HPV infection may also play a role in some cases.	Treatment (surgery, with adjunctive radio and chemotherapy) also yields reasonable five-year relative survival if detected at early stage. <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>
07	Neoplasms		Oesophagus			Squamous carcinomas are largely related to tobacco and alcohol consumption and are thus potentially preventable. Adenocarcinomas of the lower third appear to be related to reflux (Barrett's disease) and so are preventable (through weight control or medical treatment of reflux).	
08	Neoplasms		Stomach			Most cases appear to be related to infection with <i>Helicobacter pylori</i> , and so are preventable (eg through control of overcrowding, poverty or antibiotic therapy). Some cases appear to be related to tobacco, alcohol, salt preservative, or lack of vegetables & fruit and so are again preventable. Adenocarcinomas of the gastro-oesophageal junction appear to be related to reflux (see above).	
09	Neoplasms		Colorectal		✓	Known, modifiable risk factors account for a substantial proportion of cases – including physical inactivity, elevated BMI, dietary factors ranging from intake of meat and dairy products to nitrosamines produced by cooking, and inadequate fruits & vegetables. Genetic factors account for about 10% of cases, and are detectable through screening and resection of polyps before they become malignant.	General population screening for faecal occult blood, followed by endoscopy and resection can reduce mortality by up to 20%. Treatment (surgery, chemo, radiotherapy) of established disease is moderately effective, with good 5 year relative survival for early stage lesions. <i>(so considered amenable, including both screening and treatment)</i>

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Table A3: Rationale for including conditions in avoidable mortality and amenable mortality classifications ... continued

Age limit: 0 to 74 years, unless otherwise specified

No.	Group	Condition		Limits: Age, sex	Amenable to health care	Rationale for including in:	
		Cause				avoidable mortality	amenable mortality
10	Neoplasms	Liver				Primary liver cancer is caused predominantly by HBV and HCV infection, and so is theoretically largely preventable through immunisation against HBV. Behavioural measures to reduce exposure to HBV (see above) also important.	Screening HBV carriers for alpha foeto-protein, followed by surgical resection of early stage tumours, also contributes (five year relative survival good provided early stage). <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>
11	Neoplasms	Lung				At least 80% of cases result from tobacco smoke exposure, and so are readily preventable (in principle). Adequate fruit & vegetable intake, and control of radon exposure in homes (if geologically relevant) also contribute. Asbestos exposure interacts synergistically with tobacco.	
12	Neoplasms	Melanoma of skin			✓	Most (although not all) cases reflect excessive intermittent exposure to UV radiation (typically from sun bathing) leading to sunburn in childhood or adolescence. As such these cases are theoretically preventable through sun safe behaviour.	Early stage lesions can often be detected in primary care (aided by regular self assessment) and are then curable by simple resection. Five year relative survival is good even for thicker lesions, given access to modern chemo- and other (radio, immuno) therapy, unless metastasis has occurred. <i>(so considered amenable)</i>
13	Neoplasms	Nonmelanotic skin			✓	Shares similar association with UV exposure as for melanoma, so again largely preventable.	Again, lesions often detectable by patient or primary care provider at early stage when they are easily curable by resection. Even more advanced (but not very late stage) lesions are associated with reasonable five years survival, given access to appropriate treatment modalities. <i>(so considered amenable)</i>
14	Neoplasms	Breast	Female		✓	Increasing evidence that a proportion of cases may be preventable through control of BMI, physical activity level, diet, and alcohol consumption, and through breast-feeding. In addition, 30% or greater reduction in mortality possible through mammographic screening of general population (ages 50-69 years or possibly 40-69 years) and more frequent screening of high-risk women.	Surgery together with radio and chemotherapy, and hormone therapy when indicated (oestrogen receptor positive status), yields reasonable five-year relative survival except in late stage disease. <i>(so considered amenable, taking both screening and treatment of non-screen detected disease into account)</i>

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Table A3: Rationale for including conditions in avoidable mortality and amenable mortality classifications ... *continued*

Age limit: 0 to 74 years, unless otherwise specified

No.	Group	Condition		Limits: Age, sex	Amenable to health care	Rationale for including in:	
		Group	Cause			avoidable mortality	amenable mortality
16	Neoplasms		Cervix		✓	<p>HPV has been identified as the cause, so all cases in theory preventable through condom use. HPV vaccine currently undergoing phase 3 clinical trials with early results highly favourable.</p> <p>Tobacco smoking also contributes to a minority of cases (perhaps 10%).</p> <p>Regular screening with LBC or Pap smear, followed by colposcopy and therapeutic biopsy if positive for precancer, can theoretically prevent up to 90% of cases (screening test is not highly sensitive for adenocarcinomas, which make up about 10% of cases; also some interval squamous cancers cannot realistically be prevented).</p>	<p>Even for invasive cancer, surgical treatment along with radio and chemotherapy as required yields reasonable five-year relative survival rates except for late stage (metastatic) disease. <i>(so considered amenable, taking both screening and treatment into account)</i></p>
15	Neoplasms		Uterus		✓	<p>Control of BMI, reduction in oestrogen exposure, and addition of progestin in HRT (or avoidance of excessive duration of HRT) will prevent a substantial proportion of cases. Hysterectomy for benign disease (eg fibroids) obviously also prevents endometrial cancer. Use of tamoxifen is another modifiable risk factor.</p>	<p>Surgery, radio and chemotherapy yield reasonable five-year relative survival, depending on stage at presentation and age. <i>(so considered amenable)</i></p>
17	Neoplasms		Bladder		✓	<p>A high proportion of cases are associated with tobacco smoking. Occupational chemical exposure in the rubber, organic dye, metal refining, paint and petrochemical industries is another avoidable exposure. Other avoidable exposures are certain drugs (phenacetin, chlornaphazin, and chronic cyclophosphamide exposure), diets rich in meat and fat, and external beam radiation.</p>	<p>Treatment is moderately effective, with good five-year relative survival for early stage disease. <i>(so considered amenable)</i></p>

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Table A3: Rationale for including conditions in avoidable mortality and amenable mortality classifications ... continued

Age limit: 0 to 74 years, unless otherwise specified

No.	Condition		Limits: Age, sex	Amenable to health care	Rationale for including in:	
	Group	Cause			avoidable mortality	amenable mortality
18	Neoplasms	Thyroid		✓	The only known environmental cause is radiation. Many cases seen today reflect therapeutic radiation exposure in the past, given the long latent period. There are some which are genetic/familial (approx. 5% of papillary carcinomas, and others are inherited as a component of familial adenomatous polyposis).	If detected at an early stage (ie as a solitary thyroid nodule), surgical resection followed by adjunctive radioiodine to ablate any remaining thyroid tissue (and lifelong maintenance on replacement thyroid hormone) is almost always curative. Treatment is less successful, but far from useless, at later stages. <i>(so considered amenable, since most cases present at early stage)</i>
19	Neoplasms	Hodgkin's disease		✓	Cause(s) unknown, so prevention not possible.	Highly responsive to chemotherapy with a very high cure rate. <i>(so considered amenable)</i>
20	Neoplasms	Lymphoid leukaemia – acute/ chronic		✓	Limiting exposure to radiation is a proven preventive measure. (Exposure to human or animal viruses suspected but not proven).	Childhood leukaemia is mainly ALL, which responds well to chemotherapy with good cure rates being achievable. Other types are less responsive to treatment, but also less common at younger ages. CLL usually affects adults, and generally has longer survival rates. <i>(so considered amenable)</i>
21	Neoplasms	Benign		✓	Tuberous sclerosis screening.	These cause mortality mainly by acting as space occupying lesions (especially intra-cranially). Almost all are treatable through surgical resection. <i>(so considered amenable)</i>
22	Nutritional, endocrine and metabolic conditions	Thyroid disorders		✓	Iodine deficiency is readily preventable eg through iodisation of table salt or injection of iodised oil depot.	Both hyper- and hypothyroidism are treatable with thyroid hormone replacement or appropriate medical or surgical treatment. <i>(so considered amenable)</i>

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Table A3: Rationale for including conditions in avoidable mortality and amenable mortality classifications ... continued

Age limit: 0 to 74 years, unless otherwise specified

No.	Condition		Limits: Age, sex	Amenable to health care	Rationale for including in:	
	Group	Cause			avoidable mortality	amenable mortality
23	Nutritional, endocrine and metabolic conditions	Diabetes mellitus		✓ (0.5)	Type 2 diabetes is largely preventable through control of body weight, healthy diet and physically active lifestyle. Type 1 is as yet unpreventable (many cases believed related to infection, but unproven), but symptoms can be controlled with insulin.	Tight control of blood glucose with insulin or oral hypoglycaemic drugs, and careful management of blood pressure and blood lipids has been proven to reduce micro and (to a lesser extent) macrovascular complications in both type 1 and type 2 disease. Gestational diabetes can be detected and managed, so avoiding poor reproductive outcomes. <i>(considered to reach 50%, rather than 80% threshold for amenability, so random half of cases considered amenable)</i>
24	Drug use disorders	Alcohol related disease			Preventable in theory by moderating alcohol use.	Dual diagnoses and complications eg nutritional deficiencies can be treated. <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>
25	Drug use disorders	Illicit drug use disorders			As for alcohol.	Injecting drug use can be made safer through use of clean needles. <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>
26	Neurological disorders	Epilepsy		✓	Causes of epilepsy can sometimes be prevented eg meningitis, birth trauma / hypoxia, head injury, alcohol use, drug and toxin exposure, stroke, some space occupying lesions.	Most cases relatively well controlled using appropriate medical therapy. <i>(so considered amenable)</i>
27	Cardiovascular diseases	Rheumatic and other valvular heart disease		✓	Prophylaxis with penicillin generally effective in preventing progression of rheumatic fever (itself largely preventable through effective antibiotic treatment of group A strep infections) to rheumatic heart disease. Poor standards of living especially overcrowding – high prevalence still in remote Aboriginal communities in northern Australia.	Mortality from valvular heart disease (rheumatic, congenital, other) largely preventable through timely and appropriate surgery. <i>(so considered amenable)</i>

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Table A3: Rationale for including conditions in avoidable mortality and amenable mortality classifications ... *continued*

Age limit: 0 to 74 years, unless otherwise specified

No.	Group	Condition Cause	Limits: Age, sex	Amenable to health care	Rationale for including in:	
					avoidable mortality	amenable mortality
28	Cardiovascular diseases	Hypertensive heart disease		✓	Hypertension can often be prevented through salt restriction, healthy diet including adequate fruit & vegetables, control of body weight, sufficient physical activity, and moderation of alcohol use and environmental stress.	If not, and if no specific cause can be found (eg renal disease), most cases are controllable with antihypertensive drugs (if severity of hypertension or absolute five or ten year cardiovascular risk warrants their use). <i>(so considered amenable)</i>
29	Cardiovascular diseases	Ischaemic heart disease		✓ (0.5)	Atherosclerosis is largely preventable through diet (especially fatty acid intake, consumption of fruit & veg, fish, nuts), physical activity, control of body weight and control of diabetes and hypertension. Smoking, high blood pressure and stress are other major modifiable risk factors. It is estimated that at least 80% of cases are preventable. There is good evidence that moderate alcohol use is protective.	Medical treatment of established disease, including thrombolysis for acute myocardial infarction, can reduce mortality substantially. <i>(by about 50%, so random half of cases considered to be amenable)</i>
30	Cardiovascular diseases	Cerebrovascular diseases		✓ (0.5)	Major risk factor for haemorrhagic stroke is high blood pressure. Ischaemic stroke is a manifestation of atherosclerosis, so shares the same risk factors as ischaemic heart disease. Atrial fibrillation is another major modifiable risk factor.	At least 70% of strokes are preventable through primary prevention. Screening for risk factors such as hypertension and atrial fibrillation (with appropriate medical management), preventive carotid endarterectomy when indicated, appropriate use of thrombolysis, and effective management such as provided by dedicated stroke units, can reduce mortality significantly. <i>(by about 50%, so random half of cases considered to be amenable)</i>
31	Cardiovascular diseases	Aortic aneurysm			Abdominal aortic aneurysm is generally a manifestation of atherosclerosis and so shares the same risk and protective factors as ischaemic heart disease.	Recently, screening by ultrasound (followed by surgery) has been shown to be cost effective for middle aged males in European / North American populations. Once leakage or rupture occurs, surgery and intensive care still has some success if rapid transport to an appropriate hospital is possible <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>

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Table A3: Rationale for including conditions in avoidable mortality and amenable mortality classifications ... continued

Age limit: 0 to 74 years, unless otherwise specified

No.	Condition		Limits: Age, sex	Amenable to health care	Rationale for including in:	
	Group	Cause			avoidable mortality	amenable mortality
32	Genitourinary disorders	Nephritis and nephrosis		✓	Some cases can be prevented eg glomerulonephritis resulting from group A streptococcus infection.	Effective medical management is available for most types. If renal failure supervenes, dialysis and transplantation are options. <i>(so considered amenable)</i>
33	Genitourinary disorders	Obstructive uropathy & prostatic hyperplasia		✓		Medical or (more generally) surgical removal of the obstruction is generally curative (eg benign prostatic hypertrophy, urinary calculus), assuming the underlying cause is benign. <i>(so considered amenable)</i>
34	Respiratory diseases	DVT with pulmonary embolism			If the cause of the embolus is DVT, this is theoretically partly preventable eg through avoidance of prolonged periods of immobility, exercise, use of elasticised stockings, and anticoagulation agents.	Treatment of pulmonary embolism can reduce case fatality substantially <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>
35	Respiratory diseases	COPD	45-74 years		Almost all cases are related to tobacco smoking, so are theoretically preventable. Air pollution (sulphur dioxide (SO ₂) and particulate matter) also plays a role and is likewise theoretically preventable. COPD is also more prevalent in workers who engage in occupations exposing them to either inorganic or organic dusts or to noxious gases. Also some evidence that repeated acute respiratory illnesses in smokers, and severe viral pneumonia early in life may lead to chronic obstruction, predominantly in small airways.	Effective treatment can partly control symptoms and prolong survival, especially if detected early. Stopping smoking does not reverse the damage, but slows the rate of further deterioration in lung function. <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>
36	Respiratory diseases	Asthma	0-44 years	✓	Asthma can often be controlled by avoiding allergens and other triggers.	Attacks can also be prevented using prophylactic drugs, or medically treated with generally good results. Mortality from asthma should be a rare event. <i>(so considered amenable)</i>
37	Digestive disorders	Peptic ulcer disease		✓	Cases related to infection with <i>Helicobacter pylori</i> are preventable (eg through control of overcrowding, poverty or antibiotic therapy).	Treatment of <i>H. pylori</i> and pharmacological control of gastric acid secretion (or sensitivity to acid) can effectively cure or control a high proportion of cases. <i>(so considered amenable)</i>

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Table A3: Rationale for including conditions in avoidable mortality and amenable mortality classifications ... *continued*

Age limit: 0 to 74 years, unless otherwise specified

No.	Group	Condition Cause	Limits: Age, sex	Amenable to health care	Rationale for including in:	
					avoidable mortality	amenable mortality
38	Digestive disorders	Acute abdomen, appendicitis, intestinal obstruction, cholecystitis/ lithiasis, pancreatitis, hernia		✓		Medical or surgical management should be effective in a high proportion of cases, depending on the underlying cause, and factors such as age, timeliness of intervention, quality of care. <i>(so considered amenable)</i>
40	Digestive disorders	Chronic liver disease (excluding alcohol related disease)			A substantial proportion can be prevented by HBV immunisation and management of alcohol use.	Progression of several types of chronic liver disease can be halted or at least slowed by appropriate medical management. <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>
41	Maternal & infant causes	Birth defects		✓	At least one third of neural tube defects can be prevented through folic acid supplementation and fortification. Other preventable strategies are immunisation against infections such as rubella, and pre-birth genetic screening.	Many life threatening birth defects can be surgically treated with good outcomes. <i>(so considered amenable)</i>
42	Maternal & infant causes	Complications of perinatal period		✓	Most are related to low birth weight resulting from premature delivery. Others reflect birth trauma / hypoxia. The birth weight distribution can be shifted by improving diet in pregnancy and avoiding exposure to tobacco smoke, alcohol, certain drugs and other toxins. Good obstetric care should minimise the risk of birth trauma / hypoxia.	Given the birth of a very low birth weight infant, neonatal intensive care can make a substantial difference to survival chances. <i>(taking both neonatal intensive care and obstetric care into account, and excluding very low birthweight infants, considered to be amenable)</i>
43	Unintentional injuries	Road traffic injuries			The major risk factors are speed (in excess of what the network will safely allow), drink driving and non-use of safety belts. All are theoretically responsive to engineering, enforcement and educational interventions (preferably in combination). In fact, by definition all injury deaths are potentially avoidable, although this may be unachievable in practice.	Significant advances in emergency retrieval and transport services, trauma and emergency medicine and surgical management have improved survival rates. <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>

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Table A3: Rationale for including conditions in avoidable mortality and amenable mortality classifications ... continued

Age limit: 0 to 74 years, unless otherwise specified

No.	Group	Condition	Limits: Age, sex	Amenable to health care	Rationale for including in:	
		Cause			avoidable mortality	amenable mortality
44	Unintentional injuries	Falls			Most fatal falls involve toddlers, and frail elderly people. In the former case, child proofing home, childcare and other environments in which young children spend time, is highly effective (coupled with close parental or adult supervision, especially in the playground). For older people, the risk of falling can be reduced by checking medications, resistance training, wearing hip protector pads and environmental modification of the home.	Significant advances in emergency retrieval and transport services, trauma and emergency medicine and surgical management have improved survival rates. <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>
45	Unintentional injuries	Fires, burns			Thermal injuries are in theory preventable by environmental modification eg domestic hot water temperature, domestic smoke alarms, short kettle cords, building design and many others. Smoking is a preventable risk factor.	If thermal injury occurs, specialist treatment is effective albeit often prolonged and painful unless the burns are very extensive. <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>
46	Unintentional injuries	Accidental poisonings			Occupational legislation should prevent this in the workplace. In the home, most cases involve toddlers and environmental modifications like child safe closures for medicine and household chemical containers, use of safe storage (eg locked, high medicine cabinet) are highly effective.	If poisoning does occur, prompt advice from a poisons centre and appropriate medical care ensures a very low case fatality rate. <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>
47	Unintentional injuries	Drownings			Recreational drownings account for about half of all immersion injury deaths, and are in theory preventable through environmental or behaviour modification eg swimming between the flags, wearing life jackets when boating. Non-recreational drowning (ie when the contact with the water body was unintentional) is also partly susceptible to environmental modification eg swimming pool fencing laws. Other drownings relate to transport safety and share similar risk factors discussed above for road safety – including having alcohol as an important risk factor.	Significant advances in resuscitation techniques, emergency retrieval and transport services, and emergency medical management have contributed to improved survival rates. <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>

... continued

Table A3: Rationale for including conditions in avoidable mortality and amenable mortality classifications ... *continued*

Age limit: 0 to 74 years, unless otherwise specified

No.	Group	Condition	Limits: Age, sex	Amenable to health care	Rationale for including in:	
		Cause			avoidable mortality	amenable mortality
48	Intentional injuries	Suicide and self inflicted injuries			At the individual level, many suicides (especially among youth and young adults) are associated with treatable factors such as an alcohol or drug problem, or with clinical depression and other serious mental illnesses. These can be effectively treated if youth health services and other community mental health services can overcome access barriers and provide effective counselling, support and other forms of social and medical assistance. At the population level, risk factors for youth suicide include youth unemployment, poverty, stress relating to romantic relationships or other aspects of socialisation (including social isolation, bullying) and concern about academic performance (perhaps related to job prospects). The evidence for effectiveness of services or policies in addressing these social determinants of suicide is less clear.	
49	Intentional injuries	Violence			Again, interpersonal violence is theoretically fully preventable by definition. In practice, however, a range of criminal justice, social and health care interventions may have some effectiveness. Alcohol & drug related interventions are very important. At a population level, however, some societies are clearly much more prone to violence than others. Policies that build social cohesion, promote employment, provide a safety net for those in most need (including access to adequate income and decent housing), foster gender and race equality, minimise harms from alcohol and drug use, and restrict access to handguns, are likely to experience lower levels of violence.	Significant advances in emergency retrieval and transport services, trauma and emergency medicine and surgical management have improved survival rates. <i>(but the contribution of health care insufficient for this cause to be defined as 'mostly' amenable – see Chapter 2, Methods)</i>

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Appendix 1.3: Additional data

Table A4 includes the avoidable mortality rates for the 'other major urban centres' referred to in the map text pages in Chapter 4, *Section 4.4* and Chapter 6, *Section 6.3*.

Table A4: Avoidable mortality (0 to 74 years) by major condition group and cause, other major urban centres, Australia, 1997-2001

ASR per 100,000 population

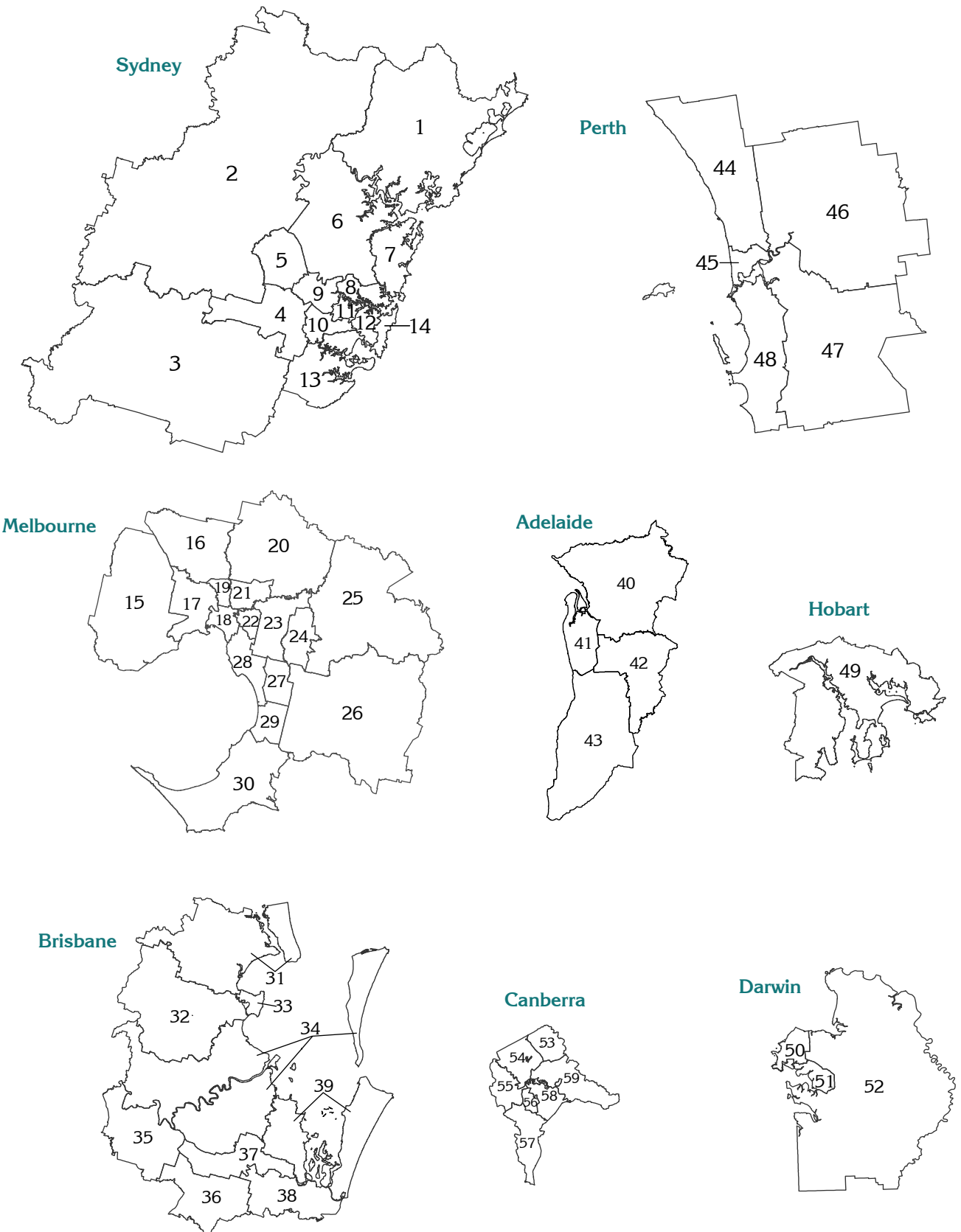
Major condition group/ cause	NSW: Newcastle	NSW: Wollongong	Victoria: Geelong	Queensland: Gold Coast- Tweed Heads	Queensland: Sunshine Coast	Queensland: Townsville- Thuringowa
Avoidable mortality						
All causes	195.1	182.8	184.3	166.8	160.7	209.7
Cancer						
Colorectal cancer	13.2	11.6	13.9	11.8	10.4	13.7
Lung cancer	21.1	21.9	21.5	19.5	16.6	26.1
Cardiovascular diseases						
Ischaemic heart disease	45.5	47.3	39.1	38.8	35.8	50.9
Cerebrovascular diseases	11.5	11.3	11.1	9.5	8.6	12.0
Respiratory diseases						
Chronic obstructive pulmonary disease	10.1	7.8	8.9	6.6	8.4	11.5
Road traffic injuries	9.1	6.4	7.0	7.1	9.0	6.6
Suicide and self-inflicted injuries	14.0	12.9	11.8	15.6	17.4	14.0
Amenable mortality						
All causes	78.3	71.5	72.9	65.9	62.3	90.3

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Appendix 1.4: Geographic areas mapped

Map A1
Key to Statistical Subdivisions mapped for the capital cities, Australia

Alphabetical Key to Statistical Subdivisions in the capital cities, Australia, 2001			
Statistical Subdivision name	Map Ref.	Statistical Subdivision name	Map Ref.
Sydney		Brisbane...continued	
Blacktown	5	Gold Coast City Part A	38
Canterbury-Bankstown	10	Ipswich City	35
Central Northern Sydney	6	Logan City	37
Central Western Sydney	9	Pine Rivers Shire	32
Eastern Suburbs	14	Redcliffe City	33
Fairfield-Liverpool	4	Redland Shire	39
Gosford-Wyong	1		
Inner Sydney	12	Adelaide	
Inner Western Sydney	11	Eastern Adelaide	42
Lower Northern Sydney	8	Northern Adelaide	40
Northern Beaches	7	Southern Adelaide	43
Outer South Western Sydney	3	Western Adelaide	41
Outer Western Sydney	2		
St George-Sutherland	13	Perth	
		Central Metropolitan	45
Melbourne		East Metropolitan	46
Boroondara City	22	North Metropolitan	44
Eastern Middle Melbourne	23	South East Metropolitan	47
Eastern Outer Melbourne	24	South West Metropolitan	48
Frankston City	29		
Greater Dandenong City	27	Hobart	
Hume City	16	Greater Hobart	49
Inner Melbourne	18		
Melton-Wyndham	15	Darwin	
Moreland City	19	Darwin City	50
Mornington Peninsula Shire	30	Litchfield Shire	52
Northern Middle Melbourne	21	Palmerston-East Arm	51
Northern Outer Melbourne	20		
South Eastern Outer Melbourne	26	Canberra	
Southern Melbourne	28	Belconnen	54
Western Melbourne	17	Gungahlin-Hall	53
Yarra Ranges Shire Part A	25	North Canberra	59
		South Canberra	58
		Tuggeranong	57
		Weston Creek-Stromlo	55
		Woden Valley	56
Brisbane			
Beaudesert Shire Part A	36		
Brisbane City	34		
Caboolture Shire Part A	31		



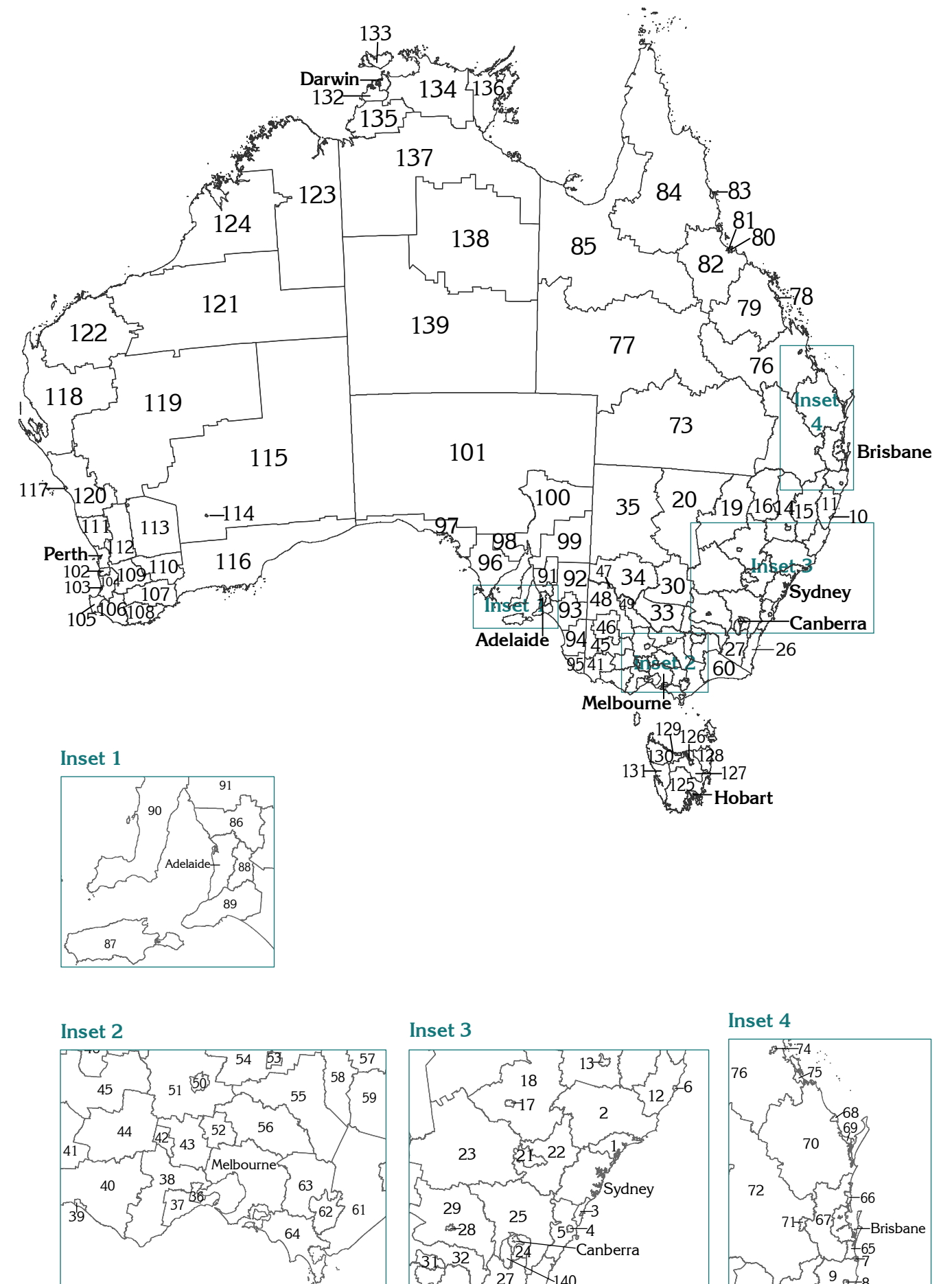
Map A1

Key to Statistical Subdivisions mapped for the capital cities, Australia ... *continued*

Numerical Key to Statistical Subdivisions in the capital cities, Australia, 2001			
Statistical Subdivision name	Map Ref.	Statistical Subdivision name	Map Ref.
Sydney		Brisbane...continued	
Gosford-Wyong	1	Brisbane City	34
Outer Western Sydney	2	Ipswich City	35
Outer South Western Sydney	3	Beaudesert Shire Part A	36
Fairfield-Liverpool	4	Logan City	37
Blacktown	5	Gold Coast City Part A	38
Central Northern Sydney	6	Redland Shire	39
Northern Beaches	7		
Lower Northern Sydney	8	Adelaide	
Central Western Sydney	9	Northern Adelaide	40
Canterbury-Bankstown	10	Western Adelaide	41
Inner Western Sydney	11	Eastern Adelaide	42
Inner Sydney	12	Southern Adelaide	43
St George-Sutherland	13		
Eastern Suburbs	14	Perth	
		North Metropolitan	44
Melbourne		Central Metropolitan	45
Melton-Wyndham	15	East Metropolitan	46
Hume City	16	South East Metropolitan	47
Western Melbourne	17	South West Metropolitan	48
Inner Melbourne	18		
Moreland City	19	Hobart	
Northern Outer Melbourne	20	Greater Hobart	49
Northern Middle Melbourne	21		
Boroondara City	22	Darwin	
Eastern Middle Melbourne	23	Darwin City	50
Eastern Outer Melbourne	24	Palmerston-East Arm	51
Yarra Ranges Shire Part A	25	Litchfield Shire	52
South Eastern Outer Melbourne	26		
Greater Dandenong City	27	Canberra	
Southern Melbourne	28	Gungahlin-Hall	53
Frankston City	29	Belconnen	54
Mornington Peninsula Shire	30	Weston Creek-Stromlo	55
		Woden Valley	56
Brisbane		Tuggeranong	57
Caboolture Shire Part A	31	South Canberra	58
Pine Rivers Shire	32	North Canberra	59
Redcliffe City	33		

Map A2
Key to Statistical Subdivisions mapped for Australia

Alphabetical Key to Statistical Subdivisions in the rest of state/territory areas, Australia, 2001					
Statistical Subdivision name	Map Ref.	Statistical Subdivision name	Map Ref.	Statistical Subdivision name	Map Ref.
New South Wales		Victoria...continued		South Australia...continued	
Albury	31	North Wimmera	46	West Coast	97
Bathurst-Orange	21	South Gippsland	64	Whyalla	98
Central Macquarie	18	South Goulburn	55	Yorke	90
Central Murray	33	South Loddon	52		
Central Murrumbidgee	29	South West Goulburn	56	Western Australia	
Central Tablelands	22	South Wimmera	45	Avon	112
Clarence	11	Warrnambool City	39	Blackwood	106
Coffs Harbour	10	Wellington Shire	61	Bunbury	103
Dubbo	17	West Barwon	38	Campion	113
Far West	35	West Central Highlands	44	Carnegie	119
Hastings	12	West Gippsland	63	De Grey	121
Hunter SD Balance	2	West Mallee	48	Fitzroy	124
Illawarra SD Balance	5	West Ovens-Murray	58	Fortescue	122
Lachlan	23	Wodonga	57	Gascoyne	118
Lismore	8			Geraldton	117
Lower Murrumbidgee	30	Queensland		Greenough River	120
Lower South Coast	26	Bundaberg	68	Hotham	109
Macquarie-Barwon	19	Cairns City Part A	83	Johnston	116
Murray-Darling	34	Central West	77	Kalgoorlie/Boulder City Part A	114
Newcastle	1	Darling Downs SD Balance	72	King	108
North Central Plain	16	Far North SD Balance	84	Lakes	110
Northern Slopes	14	Fitzroy SD Balance	76	Lefroy	115
Northern Tablelands	15	Gladstone	75	Mandurah	102
Nowra-Bomaderry	4	Gold Coast City Part B	65	Moore	111
Port Macquarie	6	Hervey Bay City Part A	69	Ord	123
Queanbeyan	24	Mackay City Part A	78	Pallinup	107
Richmond-Tweed SD Bal.	9	Mackay SD Balance	79	Preston	104
Snowy	27	Moreton SD Balance	67	Vasse	105
Southern Tablelands	25	North West	85		
Tamworth	13	North Northern SD Balance	82	Tasmania	
Tweed Heads	7	Rockhampton	74	Burnie-Devonport	129
Upper Darling	20	South West	73	Central North	127
Upper Murray	32	Sunshine Coast	66	Greater Launceston	126
Wagga Wagga	28	Thuringowa City Part A	81	Lyell	131
Wollongong	3	Toowoomba	71	North Eastern	128
		Townsville City Part A	80	North Western Rural	130
		Wide Bay-Burnett SD Bal	70	Southern	125
Victoria				Northern Territory	
Ballarat City	42	South Australia		Alligator	134
East Barwon	37	Barossa	86	Barkly	138
East Central Highlands	43	Far North	101	Bathurst-Melville	133
East Gippsland Shire	60	Fleurieu	89	Central	139
East Mallee	49	Flinders Ranges	100	Daly	135
East Ovens-Murray	59	Kangaroo Island	87	East Arnhem	136
Glenelg	41	Lincoln	96	Finniss	132
Greater Bendigo City Part A	50	Lower North	91	Lower Top End	137
Greater Geelong City Part A	36	Lower South East	95		
Greater Shepparton City Part A	53	Mt Lofty Ranges	88	Australian Capital Territory	
Hopkins	40	Murray Mallee	93	Australian Capital Territory	140
La Trobe Valley	62	Pirie	99	Balance	
Mildura Rural City Part A	47	Riverland	92		
North Goulburn	54	Upper South East	94		
North Loddon	51				



Map A2

Key to Statistical Subdivisions mapped for Australia ... *continued*

Numerical Key to Statistical Subdivisions in the rest of state/territory areas, Australia, 2001					
Statistical Subdivision name	Map Ref.	Statistical Subdivision name	Map Ref.	Statistical Subdivision name	Map Ref.
New South Wales		Victoria...continued		South Australia...continued	
Newcastle	1	North Loddon	51	Pirie	99
Hunter SD Balance	2	South Loddon	52	Flinders Ranges	100
Wollongong	3	Greater Shepparton City Part A	53	Far North	101
Nowra-Bomaderry	4	North Goulburn	54		
Illawarra SD Balance	5	South Goulburn	55	Western Australia	
Port Macquarie	6	South West Goulburn	56	Mandurah	102
Tweed Heads	7	Wodonga	57	Bunbury	103
Lismore	8	West Ovens-Murray	58	Preston	104
Richmond-Tweed SD Bal.	9	East Ovens-Murray	59	Vasse	105
Coffs Harbour	10	East Gippsland Shire	60	Blackwood	106
Clarence	11	Wellington Shire	61	Pallinup	107
Hastings	12	La Trobe Valley	62	King	108
Tamworth	13	West Gippsland	63	Hotham	109
Northern Slopes	14	South Gippsland	64	Lakes	110
Northern Tablelands	15			Moore	111
North Central Plain	16	Queensland		Avon	112
Dubbo	17	Gold Coast City Part B	65	Campion	113
Central Macquarie	18	Sunshine Coast	66	Kalgoorlie/Boulder City Part A	114
Macquarie-Barwon	19	Moreton SD Balance	67	Lefroy	115
Upper Darling	20	Bundaberg	68	Johnston	116
Bathurst-Orange	21	Hervey Bay City Part A	69	Geraldton	117
Central Tablelands	22	Wide Bay-Burnett SD Bal	70	Gascoyne	118
Lachlan	23	Toowoomba	71	Carnegie	119
Queanbeyan	24	Darling Downs SD Balance	72	Greenough River	120
Southern Tablelands	25	South West	73	De Grey	121
Lower South Coast	26	Rockhampton	74	Fortescue	122
Snowy	27	Gladstone	75	Ord	123
Wagga Wagga	28	Fitzroy SD Balance	76	Fitzroy	124
Central Murrumbidgee	29	Central West	77		
Lower Murrumbidgee	30	Mackay City Part A	78	Tasmania	
Albury	31	Mackay SD Balance	79	Southern	125
Upper Murray	32	Townsville City Part A	80	Greater Launceston	126
Central Murray	33	Thuringowa City Part A	81	Central North	127
Murray-Darling	34	Northern SD Balance	82	North Eastern	128
Far West	35	Cairns City Part A	83	Burnie-Devonport	129
		Far North SD Balance	84	North Western Rural	130
		North West	85	Lyell	131
Victoria		South Australia		Northern Territory	
Greater Geelong City Part A	36	Barossa	86	Finniss	132
East Barwon	37	Kangaroo Island	87	Bathurst-Melville	133
West Barwon	38	Mt Lofty Ranges	88	Alligator	134
Warrnambool City	39	Fleurieu	89	Daly	135
Hopkins	40	Yorke	90	East Arnhem	136
Glenelg	41	Lower North	91	Lower Top End	137
Ballarat City	42	Riverland	92	Barkly	138
East Central Highlands	43	Murray Mallee	93	Central	139
West Central Highlands	44	Upper South East	94		
South Wimmera	45	Lower South East	95	Australian Capital Territory	
North Wimmera	46	Lincoln	96	Australian Capital Territory	140
Mildura Rural City Part A	47	West Coast	97	Balance	
West Mallee	48	Whyalla	98		
East Mallee	49				
Greater Bendigo City Part A	50				

Map A3
Key to District Health Boards mapped for New Zealand



