Appendix

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Appendix 1.1: ICD codes

Table A1 details the ICD-10-AM codes and additional information used in the selection of the ambulatory care sensitive conditions which comprise avoidable hospitalisations.

Table A1: ICD codes and additional selection information for avoidable hospitalisations: hospital admissions resulting from ambulatory care sensitive conditions

Category	ICD-10-AM (2nd edition) codes	Additional selection information
Vaccine-preventable		
Influenza and pneumonia	J10, J11, J13, J14, J15.3, J15.4, J15.7, J15.9, J16.8, J18.1, J18.8	In any diagnosis field; exclude people under 2 months; ICD-10-AM: exclude cases with secondary diagnosis of D57
Other vaccine preventable	A35, A36, A37, A80, B05, B06, B16.1, B16.9, B18.0, B18.1, B26, G00.0, M01.4	In any diagnosis field
Chronic		
Diabetes complications	E10.1-E10.8, E11.0-E11.8, E13.0-E13.8, E14.0-E14.8	In any diagnosis field
Nutritional deficiencies	E40-E43, E55.0, E64.3	Principal diagnosis only
Iron deficiency anaemia	D50.1-D50.9	Principal diagnosis only
Hypertension	I10, I11.9	Principal diagnosis only; ICD-10-AM: exclude cases with procedures in blocks 600-693, 705-707, 717 and procedure codes 38721-00, 38721-01, 90226-00
Congestive heart failure	I11.0, I50, J81	Principal diagnosis only; ICD-10-AM: exclude cases with procedures in blocks 600-693, 705-707, 717 and procedure codes 38721-00, 38721-01, 90226-00
Angina	I20, I24.0, I24.8, I24.9	Principal diagnosis only; ICD-10-AM: exclude cases with procedure codes in blocks 1-1779
Chronic obstructive pulmonary disease	J41-J44, J47, (J20)	Principal diagnosis only; ICD-10-AM: J20 only with second diagnosis of J41, J42, J43, J44, J47
Asthma	J45, J46	Principal diagnosis only
Acute		
Dehydration and gastroenteritis	E86, K52.2, K52.8, K52.9	Principal diagnosis only
Convulsions and epilepsy	G40, G41, O15, R56	Principal diagnosis only
Ear, nose and throat infections	H66, H67, J02, J03, J06, J31.2	Principal diagnosis only
Dental conditions	A69.0, K02-K06, K08, K09.8, K09.9, K12, K13	Principal diagnosis only

Table A1: ICD codes and additional selection information for avoidable hospitalisations: hospital admissions resulting from ambulatory care sensitive conditions ... *continued*

Category	ICD-10-AM (2nd edition) codes	Additional selection information
Acute ... *continued*		
Perforated/bleeding ulcer	K25.0- K25.2, K25.4-K25.6, K26.0-K26.2, K26.4-K26.6, K27.0-K27.2, K27.4-K27.6, K28.0-K28.2, K28.4-K28.6	Principal diagnosis only
Ruptured appendix	K35.0	In any diagnosis field
Pyelonephritis	N10, N11, N12, N13.6	Principal diagnosis only
Pelvic inflammatory disease	N70, N73, N74	Principal diagnosis only
Cellulitis	L03, L04, L08.0, L08.8, L08.9, L88, L98.0, L98.3	ICD-10-AM: Include cases where L03, L04, L08.0, L08.8, L08.9, L88, L98.0, L98.3 is reported as the principal diagnosis AND there were either no procedures reported OR the procedures listed were only in blocks 1604-1606, 1608, 1820-2016 or the procedures 90660-00, 30207-00, 30676-00, 30679-00, 34530-01 and 47912-00 Additionally, check that the procedure is the only procedure when in the list: blocks 1604-1606, 1608, or the procedures are: 90660-00, 30207-00, 30676-00, 30679-00, 34530-01 and 47912-00]
Gangrene	R02	In any diagnosis field

Note: This list is based on the Australian work by Vic DHS and subsequent development by NSW Health: the method of simplifying the procedure exclusions in ICD-10 by the use of procedure code blocks was developed by NSW Health.

Appendix 1.2: Approaches to specification of ambulatory care sensitive conditions

Table A2 outlines the current differences between the ambulatory care sensitive condition lists and coding specifications used by the Victorian Department of Human Services (Vic DHS), New South Wales Department of Health (NSW Health) and the Australian Institute of Health & Welfare (AIHW).

Table A2: Differences in ambulatory care sensitive condition lists under ICD-10-AM: Vic DHS, NSW Health and AIHW, September 2006

Issue/ Condition	Vic DHS 2004; 2005	NSW Health 2004	AIHW 2006
Terminology	Ambulatory Care Sensitive Conditions (ACSC)	Hospitalisation for ambulatory care sensitive conditions	Potentially preventable hospitalisations
Sub-categories (vaccine-preventable; acute; chronic)	No vaccine-preventable; acute; chronic sub-categories included in the latest reports [*The Victorian ACSCs Study 2001/02* (Vic DHS 2004); *Your Health: A report on the health of Victorians 2005* (Vic DHS 2005)]	Include sub-categories (vaccine-preventable; acute; chronic), but also include analysis by individual conditions	Include sub-categories (vaccine-preventable; acute; chronic, including diabetes) – however for time series figures present vaccine-preventable; chronic (excluding diabetes) and acute – and present diabetes complications separately
Procedure codes/ procedure blocks[1]	Use procedure codes for conditions requiring procedure code exclusions	Developed procedure blocks for conditions requiring procedures code exclusions – presented in *The health of the people of NSW: Report of the Chief Health Officer 2004* (Population Health Division 2004)	Use procedure codes for conditions requiring procedure code exclusions
Diabetes complications	E10.1-E10.8, E11.0-E11.8, E13.0-E13.8, E14.0-E14.8 In any diagnosis field [Note: excludes diabetes without complications - E10.9, E11.9 etc.)	Same as Vic DHS	New codes for diabetes included in *Australian Hospital Statistics 2004/05* (AIHW 2006): E10-E14.9 as principal diagnoses and E10-E14.9 as additional diagnoses where the principal diagnosis was: - hypersmolarity (E87.0); acidosis (E87.2); transient ischaemic attack (G45); nerve disorders and neuropathies (G50-G64); cataracts and lens disorders (H25-H28); retinal disorders (H30-H36); glaucoma (H40-H42); myocardial infarction (I21-I22); other coronary heart diseases (I20, I23-I25); heart failure (I50); stroke and sequelae (I60-I64, I69.0-I69.4); peripheral vascular disease (I70-I74); gingivitis and periodontal disease (K05); kidney diseases (N00-N29) (including end-stage renal disease N17-N19); renal dialysis (Z49)

[1] The changes in procedure codes between editions of ICD-10-AM has complicated the method of excluding procedure codes, in particular for the conditions congestive heart failure and hypertension. NSW Health developed a method of using procedure blocks to simplify the process and avoid some of the complications.

Table A2: Differences in ambulatory care sensitive condition lists under ICD-10-AM: Vic DHS, NSW Health and AIHW, September 2006
… continued

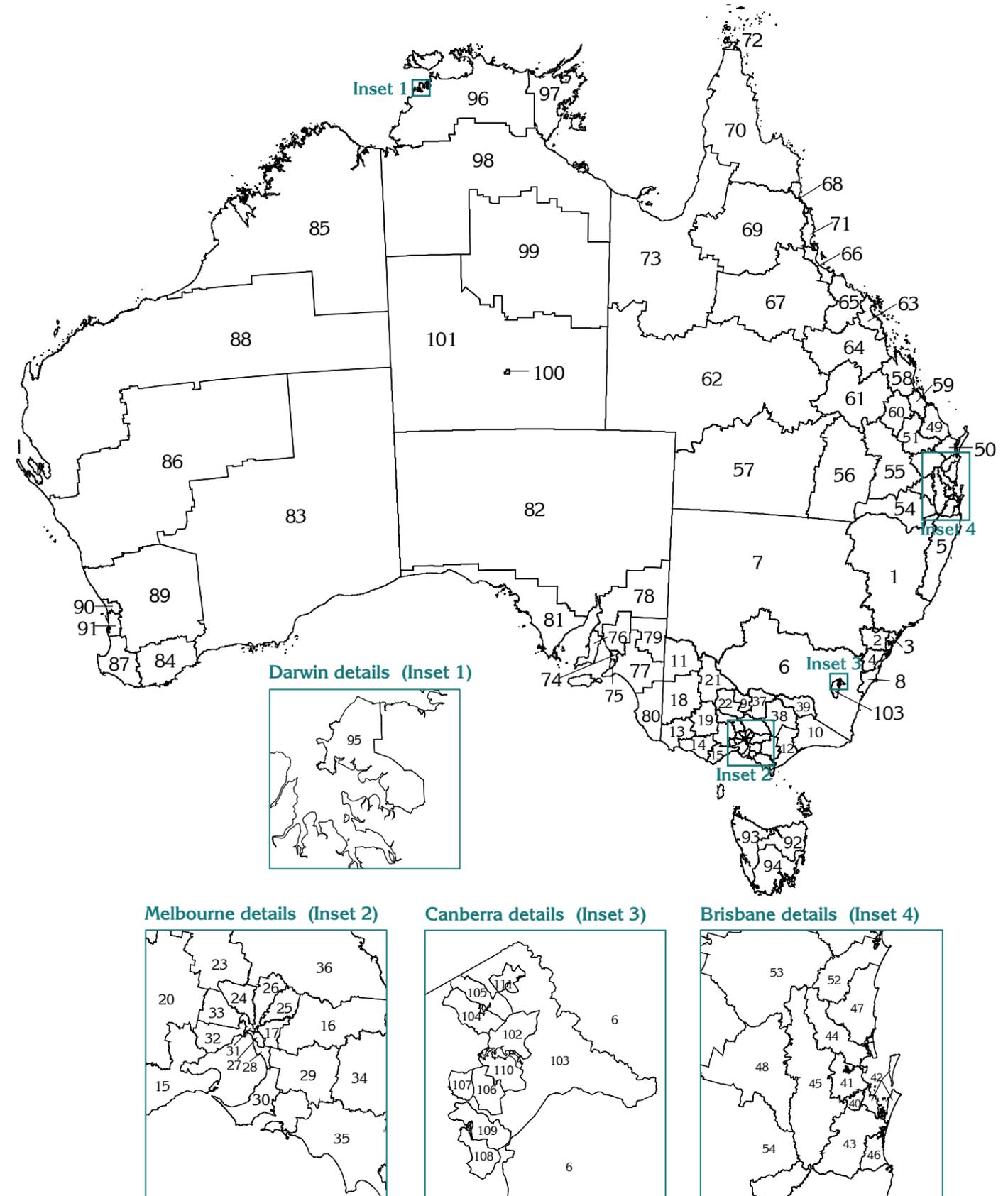| Issue/ Condition	Vic DHS 2004; 2005	NSW Health 2004	AIHW 2006
Rheumatic heart disease	Not included	Not included	New chronic condition included in *Australian Hospital Statistics 2004/05* (AIHW 2006): I00 to I09 as principal diagnosis only (Note: includes acute rhematic fever)
Ruptured appendix	Condition excluded	Condition included (K35.0 in any diagnosis field)	Condition included, same as NSW Health (but termed 'Appendicitis with generalised peritonitis')
Pyelonephritis	Include urinary tract infection (UTI) code N39.0 [Terminology: the condition 'pyelonephritis' denotes kidney infection codes only. Note: some avoidable hospitalisations research does include the condition UTI, accordingly labelled UTI; or Kidney/Urinary infections where jointly included]	Pyelonephritis codes only included – N39.0 excluded	Same as Vic DHS
Cellulitis	Include all L08 (which includes LO8.1 - Erythrasma)	L08.1 excluded	Same as Vic DHS
Dental conditions	A69.0 excluded	A69.0 (Necrotising ulcerative stomatitis) included	Same as Vic DHS

Appendix 1.3: Geographic areas mapped

Key to health regions mapped for Australia

Alphabetical Key to State/Territory health regions, Australia, 2001

Area name	Map Ref.	Area name	Map Ref.	Area name	Map Ref.
New South Wales Area Health Services		**Victoria…**_continued_		**South Australia…**_continued_	
Greater Southern	6	Wimmera	18	Northern & Far Western	82
Greater Western	7			Riverland	79
Hunter/ New England	1	**Queensland District Health Services**		South East	80
North Coast	5	Banana	60	Southern Adelaide[1]	75
Northern Sydney/ Central Coast	3	Bayside	42	Wakefield	76
South Eastern Sydney/ Illawarra	8	Bowen	65		
		Bundaberg	49	**Western Australian Health Regions**	
Sydney South West	4	Cairns	68	Goldfields-South East Coastal	83
Sydney West	2	Cape York	70	Great Southern	84
		Central Highlands	61	Kimberley	85
Victorian Primary Care Partnerships		Central West	62	Midwest-Murchison	86
Banyule/Nillumbik	25	Charleville	57	North Metro	90
Barwon	15	Charters Towers	67	Pilbara-Gascoyne	88
Bendigo/Loddon	22	Fraser Coast	50	South Metro	91
Brimbank/Melton	33	Gladstone	59	South West	87
Campaspe	9	Gold Coast	46	Wheatbelt	89
Central Grampians	19	Gympie	52		
Central Highlands	20	Innisfail	71	**Tasmanian Regions**	
Central Hume	38	Logan-Beaudesert	43	North	92
Central Victorian Health Alliance	23	Mackay	63	North West	93
		Moranbah	64	South	94
Central West Gippsland	34	Mt Isa	73		
East Gippsland	10	North Burnett	51	**Northern Territory Health Services Areas**	
Frankston/Mornington Peninsula	30	Northern Downs	55	Alice Springs Rural	101
		Prince Charles Hospital & District	41	Alice Springs Urban	100
Goulburn Valley	37			Barkly	99
Hume/Moreland	24	Queen Elizabeth II Hospital & District	40	Darwin Rural	96
Inner East	17			Darwin Urban	95
Inner South East	27	Redcliffe-Caboolture	44	East Arnhem	97
Kingston/Bayside	28	Rockhampton	58	Katherine	98
Lower Hume Health & Community Services	36	Roma	56		
		South Burnett	53	**Australian Capital Territory Regions**	
Moonee Valley/Melbourne	31	Southern Downs	54	Australian Capital Territory (ACT)-Balance	103
North Central Metropolitan	26	Sunshine Coast	47		
Northern Mallee	11	Tablelands	69	Gungahlin-Hall	111
Outer East	16	Toowoomba	48	North & West Belconnen	105
South Coast Health Service Consortium	35	Torres	72	North Canberra	102
		Townsville	66	North Tuggeranong	109
South East	29	West Moreton	45	South Belconnen	104
South West	14			South Canberra	110
Southern Grampians/Glenelg	13	**South Australian Health Regions**		South Tuggeranong	108
Swan Hill-Gannawarra-Buloke	21	Central Northern Adelaide[1]	74	Weston Creek-Stromlo	107
Upper Hume	39	Eyre	81	Woden Valley	106
Wellington	12	Hills Mallee Southern	77		
West Bay	32	Mid North	78		

[1] Health Service

Map A1: Health regions mapped for Australia

Inset 1

Darwin details (Inset 1)

Melbourne details (Inset 2)

Canberra details (Inset 3)

Brisbane details (Inset 4)

Inset 2

Inset 3

Inset 4

Key to health regions mapped for Australia … *continued*

Numerical Key to State/Territory health regions, Australia, 2001

Area name	Map Ref.	Area name	Map Ref.	Area name	Map Ref.
New South Wales Area Health Services		**Victoria…*continued***		**South Australia…*continued***	
Hunter/ New England	1	Upper Hume	39	Mid North	78
Sydney West	2			Riverland	79
Northern Sydney/ Central Coast	3	**Queensland District Health Services**		South East	80
Sydney South West	4	Queen Elizabeth II Hospital & District	40	Eyre	81
North Coast	5			Northern & Far Western	82
Greater Southern	6	Prince Charles Hospital & District	41		
Greater Western	7			**Western Australian Health Regions**	
South Eastern Sydney/ Illawarra	8	Bayside	42	Goldfields-South East Coastal	83
		Logan-Beaudesert	43	Great Southern	84
		Redcliffe-Caboolture	44	Kimberley	85
Victorian Primary Care Partnerships		West Moreton	45	Midwest-Murchison	86
Campaspe	9	Gold Coast	46	South West	87
East Gippsland	10	Sunshine Coast	47	Pilbara-Gascoyne	88
Northern Mallee	11	Toowoomba	48	Wheatbelt	89
Wellington	12	Bundaberg	49	North Metro	90
Southern Grampians/Glenelg	13	Fraser Coast	50	South Metro	91
South West	14	North Burnett	51		
Barwon	15	Gympie	52	**Tasmanian Regions**	
Outer East	16	South Burnett	53	North	92
Inner East	17	Southern Downs	54	North West	93
Wimmera	18	Northern Downs	55	South	94
Central Grampians	19	Roma	56		
Central Highlands	20	Charleville	57	**Northern Territory Health Services Areas**	
Swan Hill-Gannawarra-Buloke	21	Rockhampton	58	Darwin Urban	95
Bendigo/Loddon	22	Gladstone	59	Darwin Rural	96
Central Victorian Health Alliance	23	Banana	60	East Arnhem	97
		Central Highlands	61	Katherine	98
Hume/Moreland	24	Central West	62	Barkly	99
Banyule/Nillumbik	25	Mackay	63	Alice Springs Urban	100
North Central Metropolitan	26	Moranbah	64	Alice Springs Rural	101
Inner South East	27	Bowen	65		
Kingston/Bayside	28	Townsville	66	**Australian Capital Territory Regions**	
South East	29	Charters Towers	67	North Canberra	102
Frankston/Mornington Peninsula	30	Cairns	68	Australian Capital Territory (ACT) Balance	103
		Tablelands	69		
Moonee Valley/Melbourne	31	Cape York	70	South Belconnen	104
West Bay	32	Innisfail	71	North & West Belconnen	105
Brimbank/Melton	33	Torres	72	Woden Valley	106
Central West Gippsland	34	Mt Isa	73	Weston Creek-Stromlo	107
South Coast Health Service Consortium	35			South Tuggeranong	108
		South Australian Health Regions		North Tuggeranong	109
Lower Hume Health & Community Services	36	Central Northern Adelaide[1]	74	South Canberra	110
		Southern Adelaide Health[1]	75	Gungahlin-Hall	111
Goulburn Valley	37	Wakefield	76		
Central Hume	38	Hills Mallee Southern	77		

[1] Health Service

Variations from State Health Regions

There are a number of differences between the health region boundaries used in this Atlas and the current government defined health regions for the State of Queensland and for the Northern Territory.

In Queensland, the government defined health regions split the Shire of Cook between the District Health Services of Cairns and Cape York. In this atlas, the Shire of Cook has been grouped only with the District Health Service of Cape York. Furthermore, the Shire of Carpentaria is assigned only to the Mount Isa District Health Service in this atlas; however the government boundaries indicate that it should be split, (north and south at the Gilbert River) between the Cape York and Mount Isa District Health Services.

In the Northern Territory, the SLA of Litchfield (S): Part A is defined as part of Darwin Urban Health Service, however in this atlas it is shown as being part of the Darwin Rural Health Service. The other variations are minor, and occur along the border between the Darwin Rural and Katherine Health Service areas, at the far eastern border of the Katherine and Barkly Health Service areas, and at the far eastern boundary between Barkly and Alice Springs Rural Health Service areas. These latter variations in the boundaries are small and affect minimal population numbers.