



**Queensland
Government**

Death and hospitalisation rates by country of birth in Queensland #1: introduction, data sources and definitions

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In the 2006 census, 75.2% of Queenslanders reported being born in Australia. 9.5% of Queenslanders reported being born overseas in mainly-English speaking countries and 8.4% in non-English speaking countries. Understanding the health profile of this large population group born overseas is important for health service planning.

Australia is a culturally diverse country with more than 1 in 5 people born overseas in 2006 (22%)¹. In Queensland, 18%^{*} of the 2006 population were born overseas (nearly 700,000 people), and of these about half were born in non-English speaking countries.¹ Population growth in Queensland is primarily driven by immigration, with overseas migrants currently representing a key component of population growth.² The Queensland Health Strategic Plan for Multicultural Health 2007-2012³ outlines the strategies required to plan the services for culturally and linguistically diverse (CALD) population groups. Little is known about differences in health status and hospitalisations, in particular for chronic diseases, among CALD population groups in Queensland. Given the size of the overseas born (OSB) population and ongoing projected increases, analysis of the health status and hospital utilisation of these groups is essential for service planning.

This is the first in a series of reports analysing deaths and hospitalisation rates among Queenslanders based on country of birth. The aim of this report is to provide an overview of the data and the population group definitions. Data were not available on health outcomes based on language spoken at home or proficiency in English. It should be noted that overseas-born categories represent only one component of CALD population groups. Those born in Australia to immigrant parents would be considered part of the CALD population, but were not captured by these data.

Table 1. Structure of report series

Report #	Death and hospitalisation rates by country of birth in Queensland:B
1	Introduction, data sources and definitions
2	All-causes
3	Avoidable deaths
4	Potentially preventable hospitalisations
5	Selected chronic conditions
6	Discussion and summary of report series

Country of birth categories

The Australian Bureau of Statistics (ABS) categorises the countries of the world into nine major groups, however for the purpose of this series of reports, these groups were classified into three broad categories based on country of birth:

1. Australian born.
2. Born outside Australia and from a country with a mainly-English speaking background (MESB) (United Kingdom/Ireland, Northern America, New Zealand).
3. Born outside Australia and from a country with a non-English speaking background (NESB).

The assignment of MESB and NESB population groups were based on a person's self-reported country of birth, regardless of whether English was their first or preferred language, or their length of residence in Australia. The country of birth categories mentioned above were further disaggregated into 14 regions (Australia and 13 OSB regions) as shown in Appendix 1.

Data sources and definitions

Death data of Queensland residents were extracted from the Australian Bureau of Statistics (ABS) causes of death dataset based on year of registration for the five year period 2003 to 2007. Deaths flagged with the Statistical Local Area (SLA) code 9299 (overseas) were excluded. The underlying cause of death (the disease or injury which initiated the train of morbid events leading directly to death) was used for the analyses.

Hospital morbidity data were drawn from the Queensland Hospital Admitted Patient Data Collection (QHAPDC) for the five year period 2003/2004 to 2007/2008[†]. A hospitalisation refers to an admitted patient hospital episode of care (about 98% of admissions comprise only one episode of care).

Death and hospitalisation rates per 100,000 population were age-standardised to the 2001 Australian estimated resident population, and were used throughout this series of reports for comparative purposes between population groups.

Rates were assessed in three different ways, by:

- All-causes, which provides an overall picture of hospital service utilisation.
- Avoidable deaths⁴ (Appendix 2) and Queensland Health selected potentially preventable hospitalisations (PPHs)⁵ (Appendix 3).
- Selected chronic diseases identified as a priority for initial action in the Queensland Strategy for Chronic Disease 2005-2015⁶, defined by the following ICD-10-AM codes (Table 2).

Table 2. Selected chronic diseases

Chronic Disease	ICD-10/ICD-10-AM code
Asthma*	J45-J46
Chronic obstructive pulmonary disease (COPD)*	J41-J44
Coronary heart disease (CHD)	I20-I25
Diabetes mellitus	E10-E14
Heart Failure*	I50
Stroke	G45-G46, I60-I69

*Insufficient deaths to analyse death rates by country of birth.

Population data were drawn from the 2006 Census of Population and Housing¹. Australian born residents comprised approximately three quarters of the Queensland population in the 2006 census while MESB and NESB broad OSB groups comprised 9.5% and 8.4% respectively (Table 3). Nearly 7% of the Queensland population could not be categorised as information provided in the census was insufficient to allow assignment into a country of birth group, or they were born at sea. Those not categorised were excluded from further analyses.

Subsequent reports in this series provide further analyses of age-standardised all-cause, avoidable/potentially preventable and selected chronic disease death and hospitalisation rates across the 14 country of birth regions to assess differences from the Australian born population.

* Excludes those with a country of birth not stated or inadequately described.

† Excluding unqualified neonates, boarders, organ procurements, psychiatric hospital episodes, undefined/indeterminate sex and non-Queensland residents.

Table 3. Population and proportion by broad country of birth category, Queensland

Broad country of birth category	Population(2006)	
	Number	%
Australian Born	2,935,353	75.2
Mainly-English Speaking	369,214	9.5
Non-English Speaking	328,855	8.4
At sea	18	< 0.1
Not stated/Inadequately described*	271,091	6.9
Total	3,904,531	100.0

Population data source: ABS 2006 Census of Population and Housing

Cells in this table have been randomly adjusted to avoid the release of confidential data.

No reliance should be placed on small cells.

*Also includes those from "Oceania and Antarctica, not further defined" and "North Africa and the Middle East, not further defined"

References

1. Australian Bureau of Statistics. 2006 Census tables. Cat. no. 2068.0. ABS: Canberra; 2009.
2. Australian Bureau of Statistics. Australian demographic statistics, Mar 2010. Cat. no. 3101.0. ABS: Canberra; 2010.
3. Queensland Health. Strategic Plan for Multicultural Health 2007–2012. Queensland Health Multicultural Services: Brisbane; 2007.
4. Page A, Tobias M, Glover J, Hetzel D, Fisher E. Australian and New Zealand atlas of avoidable mortality. Population Health Information Development Unit. University of Adelaide: Adelaide; 2006.
5. Wills R, Houweling H, Martin C. Introduction of reporting of 'Queensland Health selected potentially preventable hospitalisations'. Technical report no. 5. Health Statistics Centre, Queensland Health; 2009.
6. Queensland Health. Queensland Strategy for Chronic Disease 2005–2015. Queensland Health: Brisbane; 2005.

Appendix 1: Country of birth categories, regions, 2006 Queensland population and constituent countries.

Broad country of birth category	Country of birth region	Population	Countries				
Australian Born	Australia	2,935,353	Australia (includes External Territories), not further defined	Norfolk Island			
			Australia	Australian External Territories, not elsewhere classified			
Mainly-English speaking background	New Zealand	148,759	New Zealand				
	UK/Ireland	200,710	United Kingdom not further defined	Scotland			
			Channel Islands	Wales			
England			Guernsey				
Isle of Man			Jersey				
			Northern Ireland	Ireland			
	Northern America	19,745	Northern America not further defined	St Pierre and Miquelon			
			Bermuda	United States of America			
			Canada				
Non-English speaking background	Other Oceania and Antarctica	31,212	Melanesia, not further defined	Niue			
			New Caledonia	Samoa			
			Papua New Guinea	Samoa, American			
			Solomon Islands	Tokelau			
			Vanuatu	Tonga			
			Micronesia, not further defined	Tuvalu			
			Guam	Wallis and Futuna			
			Kiribati	Pitcairn Islands			
			Marshall Islands	Polynesia (excludes Hawaii), not elsewhere classified			
			Micronesia, Federated States of	Antarctica, not further defined			
			Nauru	Adélie Land (France)			
			Northern Mariana Islands	Argentinian Antarctic Territory			
			Palau	Australian Antarctic Territory			
			Polynesia (excludes Hawaii), not further defined	British Antarctic Territory			
			Cook Islands	Chilean Antarctic Territory			
			Fiji	Queen Maud Land (Norway)			
			French Polynesia	Ross Dependency (New Zealand)			
				Other North-West Europe	53,776	Western Europe, not further defined	Switzerland
						Austria	Northern Europe, not further defined
						Belgium	Denmark
			France	Faeroe Islands			
			Germany	Finland			
			Liechtenstein	Greenland			
			Luxembourg	Iceland			
			Monaco	Norway			
			Netherlands	Sweden			
	Southern and Eastern Europe	55,544	Southern and Eastern Europe, not further defined	Moldova			
			Southern Europe, not further defined	Romania			
			Andorra	Slovenia			
			Gibraltar	Montenegro			
			Holy See	Serbia			
			Italy	Former Yugoslavia not further defined			
			Malta	Serbia and Montenegro not further defined			
			Portugal	Eastern Europe, not further defined			
			San Marino	Belarus			
			Spain	Czech Republic			
			South Eastern Europe, not further defined	Estonia			

		Albania	Hungary
		Bosnia and Herzegovina	Latvia
		Bulgaria	Lithuania
		Croatia	Poland
		Cyprus	Russian Federation
		Former Yugoslav Republic of Macedonia	Slovakia
		Greece	Ukraine
North Africa	4,766	North Africa, not further defined	Sudan
		Algeria	Tunisia
		Egypt	Western Sahara
		Libya	North Africa, not elsewhere classified
		Morocco	
Middle East	7,783	Middle East, not further defined	Lebanon
		Bahrain	Oman
		Gaza Strip and West Bank	Qatar
		Iran	Saudi Arabia
		Iraq	Syria
		Israel	Turkey
		Jordan	United Arab Emirates
		Kuwait	Yemen
South East Asia	60,038	South-East Asia, not further defined	Maritime South-East Asia, not further defined
		Mainland South-East Asia, not further defined	Brunei Darussalam
		Burma (Myanmar)	Indonesia
		Cambodia	Malaysia
		Laos	Philippines
		Thailand	Singapore
		Viet Nam	East Timor
North-East Asia	48,900	North-East Asia, not further defined	Taiwan
		Chinese Asia (includes Mongolia), not further defined	Japan and the Koreas, not further defined
		China (excludes SARs and Taiwan Province)	Japan
		Hong Kong (SAR of China)	Korea, Democratic People's Republic of (North)
		Macau (SAR of China)	Korea, Republic of (South)
		Mongolia	
Southern and Central Asia	19,145	Southern and Central Asia, not further defined	Afghanistan
		Southern Asia, not further defined	Armenia
		Bangladesh	Azerbaijan
		Bhutan	Georgia
		India	Kazakhstan
		Maldives	Kyrgyz Republic
		Nepal	Tajikistan
		Pakistan	Turkmenistan
		Sri Lanka	Uzbekistan
		Central Asia, not further defined	
Other Americas	11,180	South America, not further defined	Caribbean, not further defined
		Argentina	Anguilla
		Bolivia	Antigua and Barbuda
		Brazil	Aruba
		Chile	Bahamas
		Colombia	Barbados
		Ecuador	Cayman Islands
		Falkland Islands	Cuba
		French Guiana	Dominica

		Guyana	Dominican Republic
		Paraguay	Grenada
		Peru	Guadeloupe
		Suriname	Haiti
		Uruguay	Jamaica
		Venezuela	Martinique
		South America, not elsewhere classified	Montserrat
		Central America, not further defined	Netherlands Antilles
		Belize	Puerto Rico
		Costa Rica	St Kitts and Nevis
		El Salvador	St Lucia
		Guatemala	St Vincent and the Grenadines
		Honduras	Trinidad and Tobago
		Mexico	Turks and Caicos Islands
		Nicaragua	Virgin Islands, British
		Panama	Virgin Islands, United States
	Sub-Saharan Africa	36,520	Sub-Saharan Africa, not further defined
			Central and West Africa, not further defined
			Benin
			Burkina Faso
			Burundi
			Cameroon
			Comoros
			Djibouti
			Cape Verde
			Eritrea
			Central African Republic
			Ethiopia
			Chad
			Kenya
			Congo
			Lesotho
			Congo, Democratic Republic of
			Madagascar
			Côte d'Ivoire
			Malawi
			Equatorial Guinea
			Mauritius
			Gabon
			Mayotte
			Gambia
			Mozambique
			Ghana
			Namibia
			Guinea
			Réunion
			Guinea-Bissau
			Rwanda
			Liberia
			St Helena
			Mali
			Seychelles
			Mauritania
			Somalia
			Niger
			South Africa
			Nigeria
			Swaziland
			Sao Tomé and Príncipe
			Tanzania
			Senegal
			Uganda
			Sierra Leone
			Zambia
			Togo
			Zimbabwe
			Southern and East Africa, not further defined
			Southern and East Africa, not elsewhere classified
Not stated/ inadequately described	ABS country codes unable to be assigned to a single country of birth region and therefore excluded from the analysis	271,100	Oceania and Antarctica, not further defined
			At sea
			North-West Europe, not further defined
			Inadequately described/Not elsewhere classified
			North Africa and the Middle East, not further defined
			Not stated
			Americas, not further defined

Source: 2006 Census of Population and Housing, unpublished data.

Appendix 2: Avoidable deaths

Avoidable deaths are defined as death before the age of 75 years, from conditions which are potentially avoidable, given the present health system and social conditions and can be categorised into preventable and treatable⁴.

Condition	ICD-10 codes	Healthcare amenable†	Preventable‡
Infections			
Tuberculosis	A15-A19, B90	100%	
Selected invasive bacterial and protozoal infections	A38-A41, A46, A48.1, B50-54, G00, G03, J02.0, J13-J15, J18, L03	100%	
Hepatitis	B15-B19		100%
HIV/AIDS	B20-B24		100%
Viral pneumonia and influenza	J10, J12, J17.1, J21		100%
Cancer			
Lip, oral cavity and pharynx	C00-C14		100%
Oesophagus	C15		100%
Stomach	C16		100%
Colorectal	C18-C21	100%	
Liver	C22		100%
Lung	C33, C34		100%
Melanoma of skin	C43	100%	
Nonmelanotic skin	C44	100%	
Breast (female)	C50	100%	
Cervix	C53	100%	
Uterus	C54, C55	100%	
Bladder	C67	100%	
Thyroid	C73	100%	
Hodgkin's disease	C81	100%	
Lymphoid leukaemia – acute/chronic	C91.0, C91.1	100%	
Benign cancers	D10-D36	100%	
Nutritional, endocrine and metabolic conditions			
Thyroid disorders	E00-E07	100%	
Diabetes	E10-E14	50%	50%
Drug use disorders			
Alcohol related disease	F10, I42.6, K29.2, K70		100%
Illicit drug use disorders	F11-F16, F18, F19		100%
Neurological disorders			
Epilepsy	G40, G41	100%	
Diseases of the circulatory system			
Rheumatic and other valvular heart disease	I01-I09	100%	
Hypertensive heart disease	I11	100%	
Ischaemic heart disease	I20-I25	50%	50%
Cerebrovascular diseases	I60-I69	50%	50%
Aortic aneurysm	I71		100%
Diseases of the genitourinary system			
Nephritis and nephrosis	I12, I13, N00-N09, N17-N19	100%	
Obstructive uropathy & prostatic hyperplasia	N13, N20, N21, N35, N40, N99.1	100%	
Respiratory diseases			
DVT with pulmonary embolism	I26, I80.2		
COPD (45-74 years)	J40-J44		100%
Asthma (0-44 years)	J45, J46	100%	
Digestive disorders			
Peptic ulcer disease	K25-K28	100%	
Diseases of appendix; hernia; disorders of gallbladder, biliary tract, and pancreas	K35-K38, K40-K46, K80-K83, K85, K86, K91.5	100%	
Chronic liver disease (excluding alcohol related)	K73, K74		100%
Maternal and infant causes			
Birth defects	H31.1, P00, P04, Q00-Q99	100%	
Complications of perinatal period	P03, P05-P95	100%	
Unintentional injuries			

Road traffic injuries	V01-V04, V06, V09-V80, V87, V89, V99	100%
Falls	W00-W19	100%
Fires, burns	X00-X09	100%
Accidental poisonings	X40-X49	100%
Drownings	W65-W74	100%
Intentional injuries		
Suicide and self inflicted injuries	X60-X84, X87.0, Y10-Y34	100%
Violence	X85-Y09, Y87.1	100%

Appendix 3: Potentially preventable hospitalisations

Potentially preventable hospitalisations (PPHs) are defined by the Australian Institute of Health and Welfare (AIHW) as 'conditions where hospitalisation is thought to be avoidable if timely and adequate non-hospital care had been provided'. It is important to note that for the purpose of PPH reporting in Queensland at sub-state levels (such as by country of birth groups), hospitalisations for renal dialysis (ICD-10-AM codes: Z49.x) are excluded from the chronic conditions category due to inconsistencies in the coding of diabetes as an additional diagnosis for renal dialysis same-day episodes.⁴

PPH Category	ICD-10-AM codes
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, excludes cases with additional diagnosis of D57 (sickle-cell disorders) and people under 2 months
Other vaccine-preventable conditions	A35, A36, A37, A80, B05, B06, B16.1, B16.9, B18.0, B18.1, B26, G00.0, M01.4 in any diagnosis field
Chronic	
Asthma	J45, J46 as principal diagnosis only
Congestive cardiac failure	I50, I11.0, J81 as principal diagnosis only, exclude cases with the following procedure codes: 33172-00, 35304-00, 35305-00, 35310-02, 35310-00, 38281-11, 38281-07, 38278-01, 38278-00, 38281-02, 38281-01, 38281-00, 38256-00, 38278-03, 38284-00, 38284-02, 38521-09, 38270-01, 38456-19, 38456-15, 38456-12, 38456-11, 38456-10, 38456-07, 38456-01, 38470-00, 38475-00, 38480-02, 38480-01, 38480-00, 38488-06, 38488-04, 38489-04, 38488-02, 38489-03, 38487-00, 38489-02, 38488-00, 38489-00, 38490-00, 38493-00, 38497-04, 38497-03, 38497-02, 38497-01, 38497-00, 38500-00, 38503-00, 38505-00, 38521-04, 38606-00, 38612-00, 38615-00, 38653-00, 38700-02, 38700-00, 38739-00, 38742-02, 38742-00, 38745-00, 38751-02, 38751-00, 38757-02, 38757-01, 38757-00, 90204-00, 90205-00, 90219-00, 90224-00, 90214-00, 90214-02.
Diabetes complications	E10-E14.9 as principal diagnoses and E10-E14.9 as additional diagnoses where the principal diagnosis was: hyperosmolarity (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)]
COPD	J20, J41, J42, J43, J44, J47 as principal diagnosis only, J20 only with additional diagnoses of J41, J42, J43, J44, J47
Angina	I20, I24.0, I24.8, I24.9 as principal diagnosis only, exclude cases with procedure codes not in blocks [1820] to [2016]
Iron deficiency anaemia	D50.1, D50.8, D50.9 as principal diagnosis only.
Hypertension	I10, I11.9 as principal diagnosis only, exclude cases with procedure codes according to the list of procedures excluded from the Congestive cardiac failure category above.
Nutritional deficiencies	E40, E41, E42, E43, E55.0, E64.3 as principal diagnosis only.
Rheumatic heart disease	I00 to I09 as principal diagnosis only. (Note: includes acute rheumatic fever)
Acute	
Dehydration and gastroenteritis	E86, K52.2, K52.8, K52.9 as principal diagnosis only.
Pyelonephritis	N10, N11, N12, N13.6, N39.0 as principal diagnosis only.
Perforated/bleeding ulcer	K25.0, K25.1, K25.2, K25.4, K25.5, K25.6, K26.0, K26.1, K26.2, K26.4, K26.5, K26.6, K27.0, K27.1, K27.2, K27.4, K27.5, K27.6, K28.0, K28.1, K28.2, K28.4, K28.5, K28.6 as principal diagnosis only.
Cellulitis	L03, L04, L08, L88, L98.0, L98.3 as principal diagnosis only, exclude cases with any procedure except those in blocks 1820 to 2016 or if procedure is 30216-02, 30676-00, 30223-02, 30064-00, 34527-01, 34527-00, 90661-00 and this is the only listed procedure.
Pelvic inflammatory disease	N70, N73, N74 as principal diagnosis only.
Ear, nose and throat infections	H66, H67, J02, J03, J06, J31.2 as principal diagnosis only.
Dental conditions	K02, K03, K04, K05, K06, K08, K09.8, K09.9, K12, K13 as principal diagnosis only.
Appendicitis with generalised peritonitis	K35.0 in any diagnosis field
Convulsions and epilepsy	G40, G41, O15, R56 as principal diagnosis only
Gangrene	R02 in any diagnosis field

*Source: Australian Institute of Health and Welfare 2009. Australian hospital statistics 2007-08. Health services series no. 33. Cat. no. HSE 71. Canberra: AIHW.