

## Supplementary Material

### **Evolution of non-fatal burden estimates for cardiovascular disease in Australia: a comparison of national and state-wide methodology of burden of disease**

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**Supplementary Table S1.** Summary of the methods used to calculate non-fatal burden in four cardiac diseases (stroke, aortic aneurysm, rheumatic valvular heart disease and non-rheumatic valvular heart disease) in 3 methods: the 2011 Australian Burden of Disease Study, the 2015 Australian Burden of Disease Study, and the 2015 Western Australian Burden of Disease Study.

		<b>2011 ABDS</b>	<b>2015 ABDS</b>	<b>2015 WABODS</b>
		<b>Method A</b>	<b>Method B</b>	<b>Method C</b>
<b>Acute Stroke</b>	<b>Definition</b>	Incidence; number of non-fatal hospitalisations due to stroke in 2011.	Incidence; number of non-fatal hospitalisations due to stroke in 2015	Incidence; number of non-fatal episodes due to stroke in 2015
	<b>ICD-10-AM codes</b>	Principal diagnosis of I60-I64.x	Principal diagnosis of I60-I64.x	Principal diagnosis of I60-I64.x
	<b>Duration of episode</b>	28 days	28 days	28 days
	<b>Type of Data</b>	National Hospital Morbidity Database (NHMD)	NHMD	State-level hospitalisation - Hospital Morbidity Data Collection (HMDC)
	<b>Severity</b>	Estimates of prevalence were split into 5 severity levels, using proportions from the Global Burden of Disease (GBD) 2013, and reapportioned to exclude asymptomatic acute stroke. (health states:34, 35, 36,37, 38)	Estimates of prevalence were split into 5 severity levels using GBD 2013, reapportioned to exclude asymptomatic acute stroke. (health states:34, 35, 36, 37, 38)	Estimates of prevalence were split into 5 severity levels using GBD 2013, reapportioned to exclude asymptomatic acute stroke. (health states:34, 35, 36, 37, 38)

	<b>Other criteria</b>	N/A	N/A	Any hospitalisation for the same person, within 28 days of an initial hospitalisation with a diagnosis of stroke were excluded from count.
<b>Chronic Stroke</b>	<b>Definition</b>	People that were hospitalised with a stroke within the prior 11 years leading up to and including 2011, and still alive in 2011	People that were hospitalised with a stroke within the prior 11 years leading up to and including 2015, and were still alive in 2015.	People that were hospitalised with a stroke within the prior 15 years leading up to and including 2015, and were still alive in 2015.
	<b>ICD-10-AM codes</b>	I60-I69	I60-I69	I60-I69
	<b>Severity</b>	Prevalence estimates calculated from the hospitalisation data were re-distributed to adjust for age using estimates from the Perth Community Stroke study 2010. (health state; 34, 35, 36, 37, 38, 262). Prevalence was then divided into severity levels, based on the GBD 2013 estimates.	Prevalence estimates calculated from the hospitalisation data were re-distributed to adjust for age using estimates from the Perth Community Stroke study 2010. (health state; 34, 35, 36, 37, 38, 262). Prevalence was then divided into severity levels, based on the GBD 2013 estimates.	Prevalence estimates calculated from the hospitalisation data were re-distributed to adjust for age using estimates from the Perth Community Stroke study 2010. (health state; 34, 35, 36, 37, 38, 262). Prevalence was then divided into severity levels, based on the GBD 2013 estimates.

	<b>Other criteria</b>	Person:hospitalisation ratios calculated using WA linked hospitalisation and death data were applied to the count of hospital hospitalisations from the NHMD, by age and sex, to estimate the number of people	Person:hospitalisation ratios calculated using WA linked hospitalisation and death data were applied to the count of hospital hospitalisations from the NHMD, by age and sex, to estimate the number of people	Patients were only counted once and were therefore removed if died before 2015.
<b>Aortic aneurysm</b>	<b>Definition</b>	Incidence; number of hospitalisations due to aortic aneurysm in 2011	The number of hospitalisations due to aortic aneurysm having undergone surgical repair in 2015	The number of hospitalisations due to aortic aneurysm having undergone surgical repair in 2015
	<b>ICD-10-AM codes</b>	Principal diagnosis of I71.x	Principal diagnosis of I71, with a procedural code of either “33116-00” (endovascular stent) or '33115-00', '33121-00', '33118-00', '33154-00', '33160-00', '33157-00', '33112-00', , '33151-00', '33136-00', '33103-00', '33145-00', '33109-00', '33181-00', '33080-00' or '33148-00' (open repair)	Principal diagnosis of I71, with procedural code of either “33116-00” (endovascular stent) or '33115-00', '33121-00', '33118-00', '33154-00', '33160-00', '33157-00', '33112-00', , '33151-00', '33136-00', '33103-00', '33145-00', '33109-00', '33181-00', '33080-00' or '33148-00' (open repair)
	<b>Durations</b>	28 days	28 days if ruptured (ICD-10 code of 'I71.0', 'I71.00', 'I71.01', 'I71.02', 'I71.03', 'I71.1', 'I71.3', 'I71.5' or	28 days if ruptured (ICD-10 code of 'I71.0', 'I71.00', 'I71.01', 'I71.02', 'I71.03', 'I71.1', 'I71.3', 'I71.5' or

			I71.8'); 14 days if not ruptured (all other codes within I71.x) 2 days if had endovascular stent or other surgery	I71.8'); 14 days if not ruptured (all other codes within I71.x) 2 days if had endovascular stent or other surgery
	<b>Type of Data</b>	NHMD	NHMD	WA HMDC
	<b>Severity</b>	Prevalence estimates were not distributed by severity; One health state: 194	Prevalence was not distributed by severity, but had two health states: 193 for those with ruptured and non-ruptured aortic aneurysms, 194 for those with an endovascular stent or other surgery	Prevalence was not distributed by severity, but had two health states: 193 for those with ruptured and non-ruptured aortic aneurysms, 194 for those with an endovascular stent or other surgery
	<b>Other criteria</b>	None.	None.	None.
<b>Rheumatic Valvular Heart Disease (Rh-VHD)</b>	<b>Definition</b>	People that were hospitalised with acute rheumatic fever or Rh-VHD within the prior 11 years leading up to 2011, and were still alive in 2011	People that were hospitalised with Rh-VHD within the prior 11 years leading up to 2015, and were still alive in 2015	People that were hospitalised at least once with Rh-VHD within the prior 15 years leading up to 2015, and were still alive in 2015
	<b>ICD-10-AM</b>	I01-I09	I05.0, I05.1, I50.2, I06, I09.  If under the age of 60 and never had non-Rh-VHD (I34-I39) or congenital heart disease (Q20-Q28), then also include Rh-VHD:	I05.0, I05.1, I50.2, I06, I09.  If under the age of 60 and never had non-Rh-VHD (I34-I39) or congenital heart disease (Q20-Q28), then also include Rh-VHD:

			I05.8, I05.9, I08.0, I08.1, I08.3	I05.8, I05.9, I08.0, I08.1, I08.3
	<b>Type of Data</b>	NHMD	NHMD	WA HMDC
	<b>Severity</b>	Prevalence estimates were not distributed by severity; one assigned health state; 207	Prevalence estimates were not distributed by severity; one assigned health state; 207	Prevalence estimates were not distributed by severity; one assigned health state, 207.
	<b>Other criteria</b>	Person:hospitalisation ratios calculated using WA linked hospitalisation and death data were applied to the count of hospital hospitalisations from the NHMD, by age and sex, to estimate the number of people	Acute rheumatic fever counted as a separate, acute condition.  Person:hospitalisation ratios calculated using WA linked hospitalisation and death data were applied to the count of hospital hospitalisations from the NHMD, by age and sex, to estimate the number of people. The ICD-definitions were taken into account within these ratios.	Acute rheumatic fever now counted as a separate, acute condition. Patients with Rh-VHD were only counted once and were removed if died before 2015. N/A
<b>Non-rheumatic valvular heart disease (Non-Rh-VHD)</b>	<b>Definition</b>	People that were hospitalised with Non-Rh-VHD within the prior 11 years leading up to 2011 and were still alive in 2011	People that were hospitalised with Non-Rh-VHD within the prior 11 years leading up to 2015 and were still alive in 2015	People that were hospitalised with Non-Rh-VHD within the prior 15 years leading up to 2015 and were still alive in 2015

	<b>ICD-10-AM codes</b>	I34-I39	<p>I07, I08.2, I08.8, I08.9, I34-I39</p> <p>If patient is 60 years and older, then include: I05.8, I05.9, I08.0, I08.1, I08.3</p> <p>If patient had Q20-Q28 in the presence of I05-I09 then include in count.</p>	<p>I07, I08.2, I08.8, I08.9, I34-I39</p> <p>If patient is 60 years and older, then include: I05.8, I05.9, I08.0, I08.1, I08.3</p> <p>If patient had Q20-Q28 in the presence of I05-I09 then include in count.</p>
	<b>Type of data</b>	NHMD	NHMD	WA HMDC
	<b>Severity/ health states</b>	Prevalence estimates were not distributed by severity; one assigned health state; 207.	Prevalence estimates were not distributed by severity; one assigned health state 207.	Prevalence estimates were not distributed by severity; one assigned health state 207.
	<b>Other criteria</b>	Person:hospitalisation ratios calculated using WA linked hospitalisation and death data were applied to the count of hospital hospitalisations from the NHMD, by age and sex, to estimate the number of people	Person:hospitalisation ratios calculated using WA linked hospitalisation and death data were applied to the count of hospital hospitalisations from the NHMD, by age and sex, to estimate the number of people	Patients were only counted once and therefore removed if died before 2015.