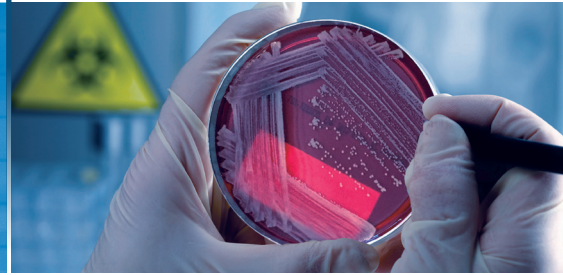


Healthcare-associated *Staphylococcus aureus* bloodstream infections in 2013–14



Published April 2015

Information in this report has been updated in February 2017: see www.myhospitals.gov.au

This report presents rates of healthcare-associated bloodstream infections in Australia’s biggest public hospitals caused by a bacterium called *Staphylococcus aureus*.

Although commonly found on the skin of healthy people, *Staphylococcus aureus* (*S. aureus*) can cause serious illness if it gets into the bloodstream. Evidence suggests 20% to 35% of people with this sort of infection die from it or a related cause.^{1–4} *S. aureus* bloodstream infections contracted while in hospital are considered potentially preventable and hospitals aim to have as few of these infections as possible.

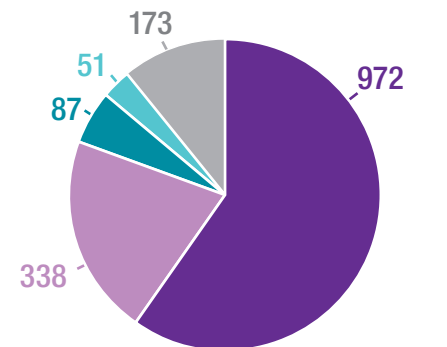
In 2013–14, there were 1,621 cases of healthcare-associated *S. aureus* reported as being acquired while receiving care in a public hospital – around 100, nearly 6%, fewer cases than in 2012–13. Since 2012–13, there were 44 fewer cases in major hospitals with more vulnerable patients, 44 fewer cases in major hospitals with fewer vulnerable patients and 17 fewer cases in large hospitals with fewer vulnerable patients. The number of cases increased by 10 in large hospitals with more vulnerable patients.

The report highlights variation in infection rates across major and large hospitals. Among major hospitals with more vulnerable patients the rate of infection varied more than three-fold. At major hospitals with fewer vulnerable patients the rates showed a similar level of variation.

Healthcare-associated *Staphylococcus aureus* bloodstream infections reported in Australian public hospitals

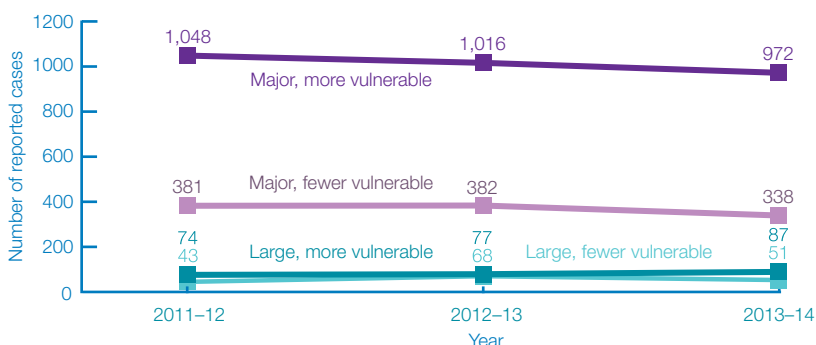
Total cases in 2013–14:

1,621



- Major hospitals, more vulnerable patients
- Major hospitals, fewer vulnerable patients
- Large hospitals, more vulnerable patients
- Large hospitals, fewer vulnerable patients
- Other hospitals

Number of reported cases of healthcare-associated *Staphylococcus aureus* bloodstream infections, by peer group, 2011–2014



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Information on healthcare-associated *S. aureus* bloodstream infections for more than 130 private and 580 public hospitals is available at www.myhospitals.gov.au

* Sources and references can be found in the Technical Note at www.myhospitals.gov.au/publications

Key findings

In 2013–14, 1,448 cases of healthcare-associated *S. aureus* bloodstream infection were reported by the 115 major and large public hospitals covered in this report. This represents nearly 90% of the 1,621 cases of this infection reported by public hospitals nationally.

Results by hospital peer group

Major hospitals reported a disproportionate share of healthcare-associated *S. aureus* bloodstream infections. These hospitals accounted for 81% of all reported cases and 64% of all patient bed days monitored.

- At the 36 **major hospitals** with **more vulnerable patients**, there were 972 cases of *S. aureus* bloodstream infection. The average rate of infection was 1.28 per 10,000 patient bed days.
- At the 40 **major hospitals** with **fewer vulnerable patients**, there were 338 cases of *S. aureus* bloodstream infection. The average rate of infection was 0.78 per 10,000 patient bed days.

Large hospitals accounted for about 9% of all reported cases and 11% of all patient bed days monitored.

- At the 16 **large hospitals** with **more vulnerable patients**, there were 87 cases of *S. aureus* bloodstream infection. The average rate of infection was 1.15 per 10,000 patient bed days.
- At the 23 **large hospitals** with **fewer vulnerable patients**, there were 51 cases of *S. aureus* bloodstream infection. The average rate of infection was 0.42 per 10,000 patient bed days.

Variation in infection rates and counts across similar hospitals

All **major hospitals**, except for one, reported at least one case of healthcare-associated *S. aureus* bloodstream infection.

- At **major hospitals** with **more vulnerable patients** the rate of infection was more than three times higher at some hospitals than others (range: 0.59 to 2.32 per 10,000 patient bed days).
- At **major hospitals** with **fewer vulnerable patients** the rate of infection showed a similar level of variation to other **major hospitals** (range: 0 to 1.67 per 10,000 patient bed days).

Among **large hospitals**, 33 of the 39 hospitals reported at least one case of healthcare-associated *S. aureus* bloodstream infection.

- At **large hospitals** with **more vulnerable patients** the rate of infection ranged from 0 to 2.48 per 10,000 patient bed days.
- At **large hospitals** with **fewer vulnerable patients**, the rate of infection ranged from 0 to 0.97 per 10,000 patient bed days.

Fair comparisons

To allow fairer comparisons, the Authority has allocated hospitals to one of four peer groups based on a combination of hospital size, type of services provided and the percentage of patients more at risk of acquiring a healthcare-associated infection. Hospitals with more vulnerable patients have a higher percentage of patients admitted for the treatment of conditions such as cancer, HIV/AIDS, burns or surgery than other hospitals.

There are uncertainties about the completeness and national consistency of the data across all hospitals. This means that results could be affected by some degree of under-reporting.

Higher rates cannot definitively indicate that patients at those hospitals are at greater risk of harm compared to patients at other hospitals. High values are however a cause for further investigation.

Table 1: Healthcare-associated *S. aureus* bloodstream infections in major and large public hospitals, by reported cases and rate per 10,000 patient bed days, 2013–14

Major hospitals, more vulnerable patients*				Major hospitals, fewer vulnerable patients*				Large hospitals, more vulnerable patients*				Large hospitals, fewer vulnerable patients*			
Total number of hospitals in peer group		36		Total number of hospitals in peer group		40		Total number of hospitals in peer group		16		Total number of hospitals in peer group		23	
All cases reported nationally (%)		60%		All cases reported nationally (%)		21%		All cases reported nationally (%)		5%		All cases reported nationally (%)		3%	
All patient bed days monitored (%)		41%		All patient bed days monitored (%)		23%		All patient bed days monitored (%)		4%		All patient bed days monitored (%)		7%	

State	Hospital	Cases	Rate	State	Hospital	Cases	Rate	State	Hospital	Cases	Rate	State	Hospital	Cases	Rate	
NSW	St Vincent's	32	2.32	NSW	Port Macquarie	10	1.33	NSW	Calvary Mater [Newcastle]	15	2.48	NSW	Bathurst	3	0.85	
	John Hunter	43	1.61		Dubbo	7	1.30		Albury†	8	1.82		Hornsby	3	0.36	
	Westmead	47	1.49		Blacktown	16	1.28		Maitland	10	1.52		Shellharbour	2	0.33	
	St George	31	1.44		Concord	26	1.22		Ryde	6	1.21		Grafton	1	0.29	
	Gosford	25	1.42		Lismore	11	1.19		Canterbury	1	0.17		Auburn	1	0.22	
	Prince of Wales	26	1.39		Bankstown	14	0.89		Peter MacCallum‡	11	2.30		Fairfield	1	0.13	
	Nepean	26	1.30		Campbelltown	13	0.89	Wimmera [Horsham]	3	1.23	Manly		0	0.00		
	Liverpool	37	1.26		Wyong	9	0.82	Mildura	6	1.21	Mona Vale		0	0.00		
	Royal North Shore	29	1.23		Sutherland	9	0.80	Monash [Moorabbin]	4	1.00	Goulburn		0	0.00		
	Royal Prince Alfred	34	1.18		Manning	4	0.79	Northeast Health [Wangaratta]	4	0.90	Vic		Angliss	5	0.78	
	Wollongong	11	0.59		Wagga Wagga	7	0.77	West Gippsland [Warragul]	1	0.34		Wodonga	4	0.78		
	Vic	Monash [Clayton]	39		1.65	Shoalhaven	4	0.73	Victorian Eye & Ear	0		0.00	Central Gippsland [Sale]	2	0.66	
		St Vincent's	26		1.47	The Tweed	5	0.56	Qld	Hervey Bay	8	1.56	Werribee Mercy Public	4	0.56	
Royal Melbourne		31	1.35	Coffs Harbour	5	0.52	Queen Elizabeth II	2		0.32	Sandringham	1	0.37			
Ballarat		12	1.35	Coffs Harbour	5	0.52	SA	Modbury		2	0.28	Qld	Redland	3	0.51	
Western		17	1.31	Tamworth	3	0.38		Tas	North West Regional [Burnie]	6	1.65		Mount Isa	0	0.00	
Austin		29	1.25	Orange	1	0.09	Vic		Peer result	87	1.15	WA	Rockingham	6	0.97	
The Alfred		27	1.13	Vic	Frankston	25		1.67	Qld	Peer result	87		1.15	Geraldton	2	0.62
Dandenong		16	0.86		Bendigo	9		0.98						Armadale-Kelmscott	4	0.49
The Northern		12	0.80		Goulburn Valley [Shepparton]	5		0.66						Kalgoorlie	1	0.37
Box Hill		11	0.73		Maroondah	7		0.64						Albany	1	0.26
Geelong	12	0.66	Casey		5	0.62		Swan District				0		0.00		
Qld	Royal Brisbane & Women's	72	2.18		Sunshine	5		0.33				SA		Repatriation General	7	0.67
	Townsville	40	1.98		Sunshine	5		0.33						Peer result	51	0.42
	Princess Alexandra	36	1.20		Latrobe Regional [Traralgon]	3		0.32								
	Mater Adult	6	1.13		South West [Warrnambool]	0		0.00								
	Prince Charles	14	0.75		Qld	Bundaberg	7	0.98								
WA	Royal Perth	58	1.90	Toowoomba		10	0.94									
	Sir Charles Gairdner	41	1.70	Rockhampton		7	0.87									
	Fremantle	17	0.83	Nambour		13	0.84									
SA	Royal Adelaide	27	0.93	Ipswich		8	0.71									
	Queen Elizabeth	10	0.70	Logan		8	0.70									
	Flinders	16	0.66	Redcliffe		7	0.70									
Tas	Royal Hobart	14	0.90	Cairns		11	0.65									
ACT	Canberra	26	1.05	Gold Coast		18	0.55									
NT	Royal Darwin	22	1.23	Mackay		3	0.44									
	Peer result	972	1.28	Caboolture	2	0.26										
Peer result	972	1.28	338	0.78	WA	South West [Bunbury]	3	0.61								
					SA	Lyell McEwin	11	0.74								
					Tas	Launceston	13	1.09								
					ACT	Calvary Public	3	0.33								
					NT	Alice Springs	11	1.08								

About the data

Cases of healthcare-associated *S. aureus* bloodstream infection are identified when a medical professional notices the symptoms and orders a blood test. If this blood test identifies a bloodstream infection by *S. aureus*, the infection control officer for the hospital is notified. These experts judge if the infection is healthcare-associated and if it is attributable to a hospital. Many steps are necessary for a case of healthcare-associated *S. aureus* bloodstream infection to be recorded. Failure of any of these steps can interrupt this sequence and lead to under-reporting of this infection.

* More and fewer vulnerable patients refers to hospitals deemed to have, for their peer group, a high or low percentage of patient bed days under surveillance attributable to patients with one or more of the identified risk factors. Risk factors were not weighted to account for differences in the degree to which each factor contributes to risk of *S. aureus* infection. For more information on measures and peer groups, see the Technical Note www.myhospitals.gov.au

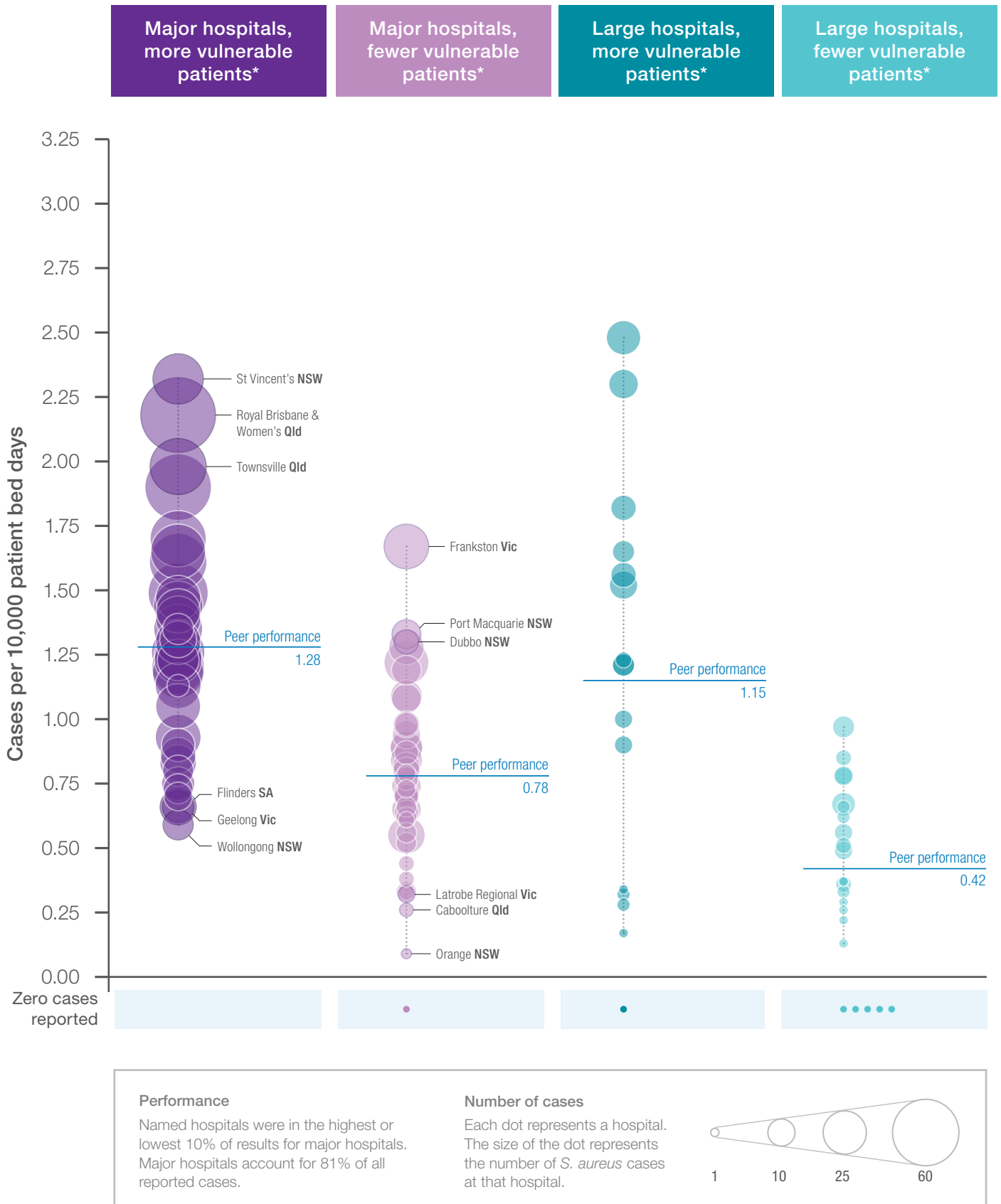
† Albury hospital is located in NSW but is managed by Victoria.

‡ The percentage of vulnerable patients at this hospital was much higher than other hospitals in this peer group; this was due to the high percentage of cancer patients at Peter MacCallum.

Note: The government-agreed target calls for a rate of no more than 2.0 healthcare-associated *S. aureus* bloodstream infections per 10,000 patient bed days for each state and territory.

Sources: National Health Performance Authority analysis of Australian Institute of Health and Welfare, National *Staphylococcus aureus* Bacteraemia Data Collection 2013–14, data extracted 24 December 2014 and Australian Institute of Health and Welfare, Admitted Patient Care National Minimum Dataset 2011–12, data extracted 26 March 2012.

Figure 1: Healthcare-associated *S. aureus* bloodstream infections in public hospitals, by major and large hospitals, 2013–14



The government-agreed target calls for a rate of no more than 2.0 healthcare-associated *S. aureus* bloodstream infections per 10,000 patient bed days for each state and territory.


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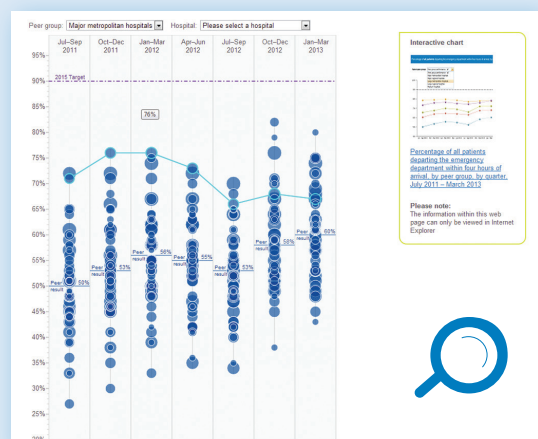
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Acknowledgements

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Please note that there is the potential for minor revisions of this document.