POPULATION HEALTH SERVICES

Tasmanian Acute Public Hospitals

Healthcare Associated Infection Surveillance Report

Report 22 – Annual Report 2013-14



Department of Health and Human Services

Tasmanian Government

Tasmanian Acute Public Hospitals Healthcare Associated Infection Surveillance Report

Tasmanian Infection Prevention and Control Unit (TIPCU)

Department of Health and Human Services, Tasmania

Published 2014

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Suggested reference: Wells, A., Wilson, F., McGregor, A., Mitchell, B. (2014). Tasmanian Acute Public Hospitals Healthcare Associated Infection Report No 22, Annual Report 2013 - 2014. Hobart: Department of Health and Human Services.

Peer reviewed and approved by the Tasmanian Healthcare Associated Advisory Committee and Chief Medical Officer, DHHS Tasmania.

Notes

- This report does not contain the methodology used to collect the data. Protocols relating to the surveillance programs are published on the TIPCU website, www.dhhs.tas.gov.au/tipcu
- Data from previous reports should not be relied upon. Use the most up to date report when quoting/using data.

TASMANIAN INFECTION PREVENTION AND CONTROL UNIT

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Executive summary

This annual report provides an overview of the Tasmanian acute public hospitals healthcare associated infection surveillance. This complements the quarterly surveillance data reports that the Tasmanian Infection Prevention and Control Unit (TIPCU) has been publishing since March 2009. The TIPCU website (www.dhhs.tas.gov.au/tipcu) contains details of the surveillance program, including the rationale for the indicators surveyed and the methodologies used in data collection, validation and analysis. These details are not contained in this report but are freely available online should further information be required.

Any form of comparison between hospitals should be done with extreme caution and direct comparisons are not recommended. Information about how Tasmanian rates compare with those of other Australian states (where available), are provided in the Key Points sections of this report. The Appendices in this report contain more detailed information.

Compared to the quarterly reports published by the TIPCU, this report contains some additional detail, such as infection rates by financial year and antimicrobial use. From this report, the following findings can be made:

- the rate of healthcare associated *Staphylococcus aureus* bacteraemia remains low
- there has been an increase in the number of community associated SAB during 2013-14 which requires further investigation
- the number and rate of hospital identified and 'healthcare associated-healthcare facility onset (HCA-HCF) *Clostridium difficile* infection (CDI) is lower in 2013-14 compared to 2012-13
- the numbers of persons with VRE continue to remain low
- most hospitals are trending well in relation to antibiotic use.
- the rate of hand hygiene compliance has increased significantly since the commencement of the National Hand Hygiene Initiative, and all hospitals have a compliance rate above the 'My Hospitals' threshold of 70%.





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Progress

The past year has seen the consolidation of work in the in the area of infection prevention and control in Tasmania. The focus and outcomes of this work are in line with the overarching objectives detailed in the 'Strategy for the prevention and control of healthcare associated infection in Tasmania 2013 – 2015'. This can be demonstrated through:

Governance

- performance indicators for key healthcare associated infections
- review and updating of state-wide infection prevention and control policies, procedures and protocols for those working in the DHHS.
- continued interaction with the private healthcare sector and education providers
- ongoing involvement with work undertaken by the Australian Commission of Safety & Quality in Healthcare

Education and Training

- provision of infection prevention and control education and training programs in acute, non-acute, aged care and mental health healthcare settings

Surveillance

- implementation and continuation of surveillance programs based on nationally agreed methodology
- the sustained and improved hand hygiene initiative within hospitals
- review of a range of guidance and information material for healthcare workers and the public on important issues related to healthcare associated infections
- development of an environmental cleaning assessment program
- development of process surveillance modules for non-acute healthcare settings
- ongoing development and implementation of the infection control assessment program for rural hospitals and non-acute settings

Staphylococcus aureus bacteraemia (SAB)

Bloodstream infections (BSIs) are arguably one of the most important category of healthcare associated infections (HAI) as they cause significant patient morbidity and mortality. *Staphylococcus aureus* is the most common cause of serious healthcare associated BSI and has an estimated mortality of around 25-30%. Many of these healthcare associated SAB are preventable.

Staphylococcus aureus bacteraemia was made a notifiable condition in Tasmania in 2008 pursuant to the Public Health Act 1997. Tasmania is the first and only Australian jurisdiction to introduce this measure.

Surveillance of SAB is carried out in Tasmania using the nationally agreed surveillance definitions published by the Australian Commission on Safety and Quality in Health Care (ACSQHC). Under this definition a SAB is defined as healthcare associated if the patients first SAB positive blood culture was collected either >48 hours after hospital admission or <48 hours after discharge (Criterion A) **OR** 2) ≤48 hours after hospital admission and one of 4 key clinical criteria was met (Criterion B).

The National Healthcare Agreement (2011) target is no more than of 2 HCA SAB/10 000 patient days[1]

Tasmanian rates

Figure **1** outlines the Tasmanian combined acute public hospital rates of healthcare associated *Staphylococcus aureus* bacteraemia (HCA SAB).

The mean (average) rate of healthcare associated *Staphylococcus aureus* bacteraemia between July 1st 2013 and June 30th 2014 is 1.05 per 10 000 patient days (95% CI 0.70 – 1.39).

Figure 1 Healthcare associated *Staphylococcus aureus* bacteraemia rate.

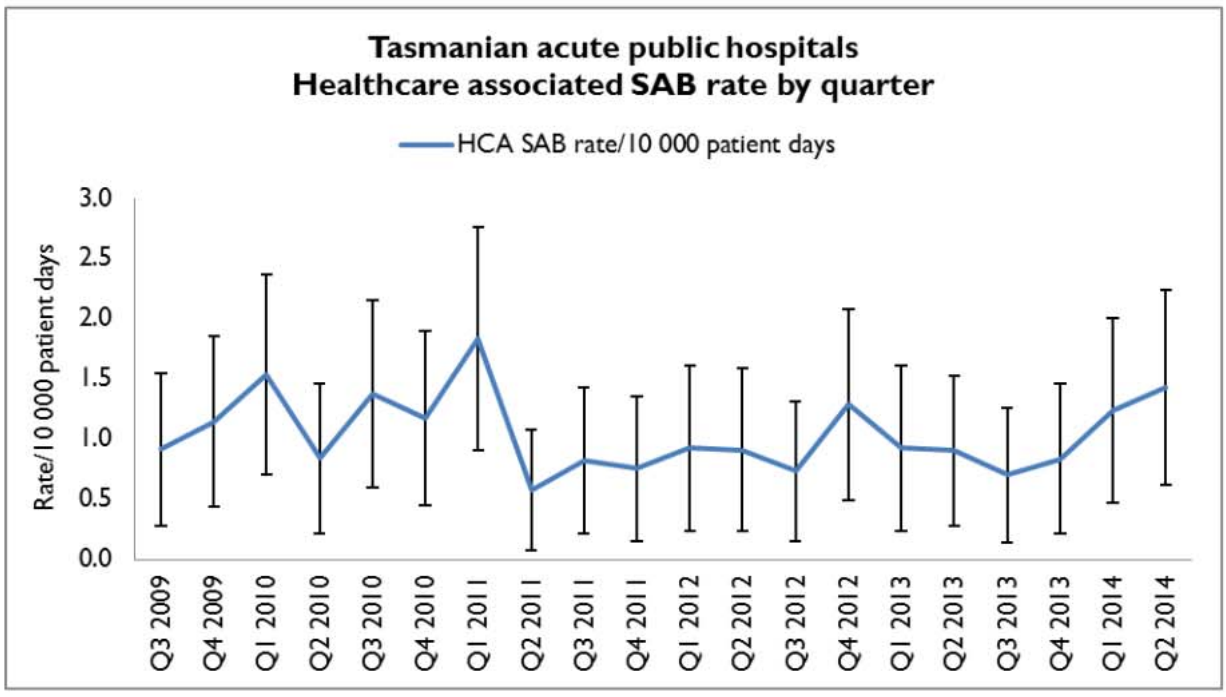


Table 1 and **Figure 2** outline the Tasmanian combined acute public hospital annual rate, including confidence intervals, of healthcare associated *Staphylococcus aureus* bacteraemia and **Table 2** categorises HCA SAB by criteria.

Table 1 Healthcare associated *Staphylococcus aureus* bacteraemia - rate by financial year.

Financial Year	Rate per 10 000 patient days	Lower 95% Confidence Interval	Upper 95% Confidence Interval
2009 - 10	1.11	0.76	1.46
2011 - 11	1.23	0.86	1.60
2011 - 12	0.85	0.53	1.17
2012 - 13	0.96	0.62	1.29
2013 - 14	1.05	0.70	1.39

Figure 2 Healthcare associated *Staphylococcus aureus* bacteraemia - rate by financial year.

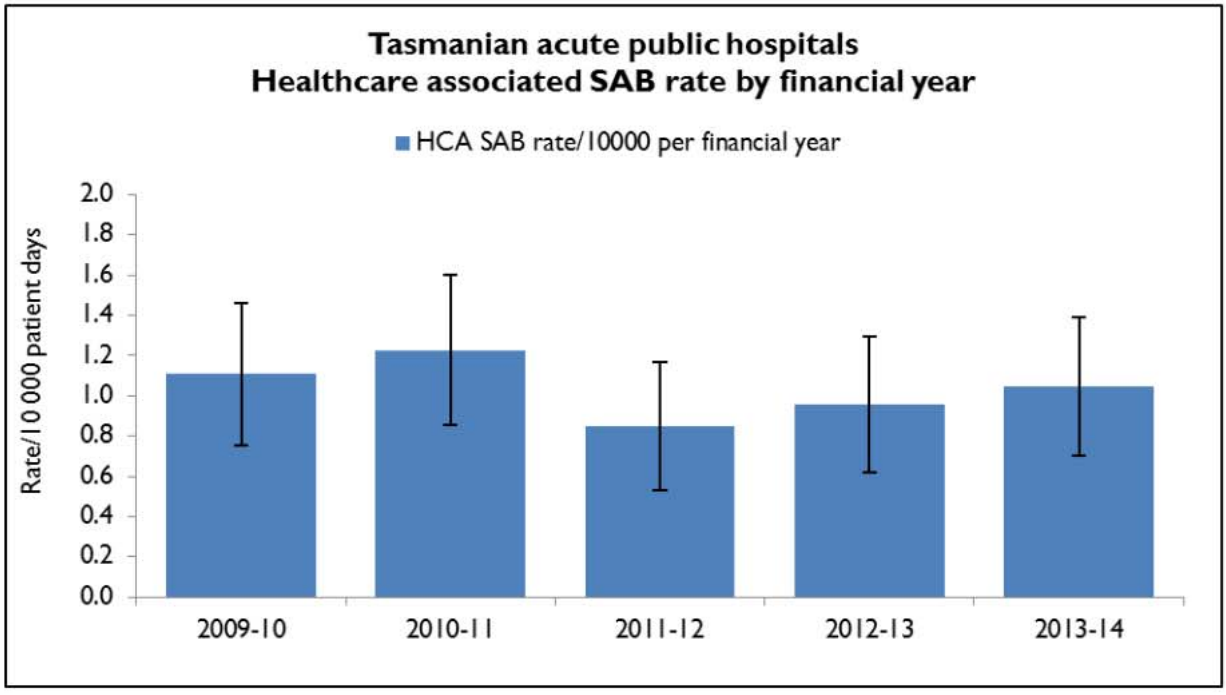
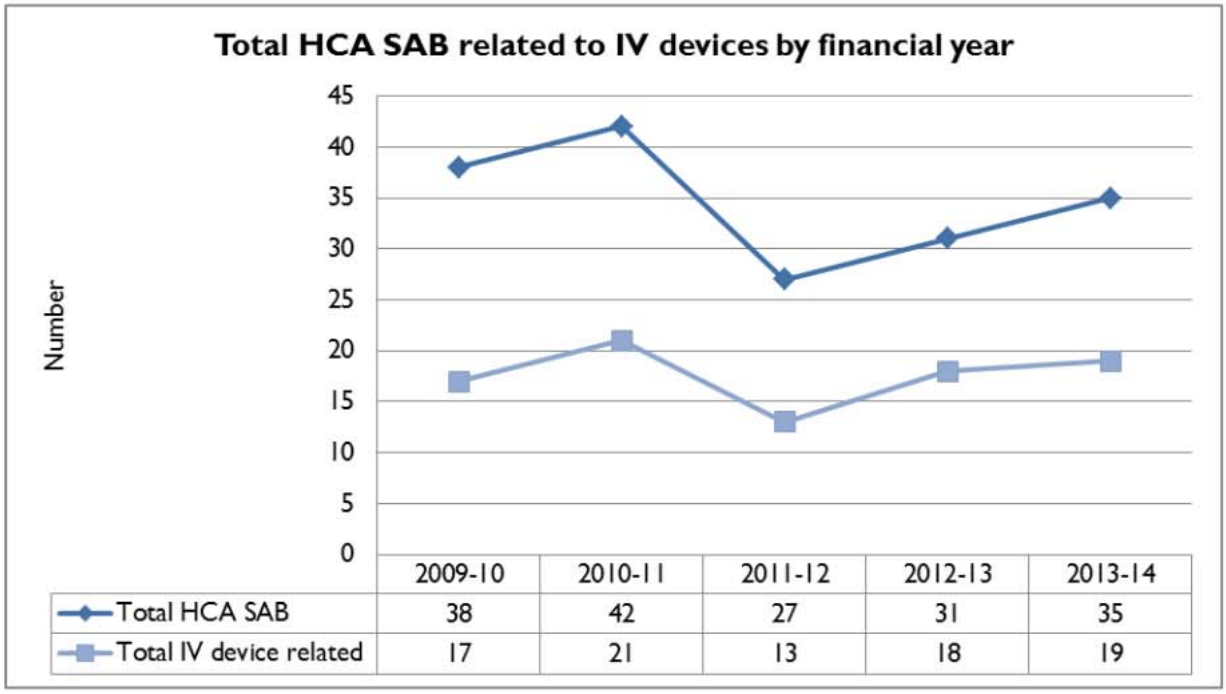


Table 2 Categorisation of public hospital HCA SAB

Financial Year	Total HCA SAB	Criterion A - SAB taken >48 hours after hospital admission or <48 hours after discharge	Criterion B - SAB taken ≤ 48 hours after hospital admission and has a key clinical criteria
2009 - 10	38	26	12
2010 - 11	42	29	13
2011 - 12	27	15	12
2012 - 13	31	21	10
2013 - 14	35	23	12

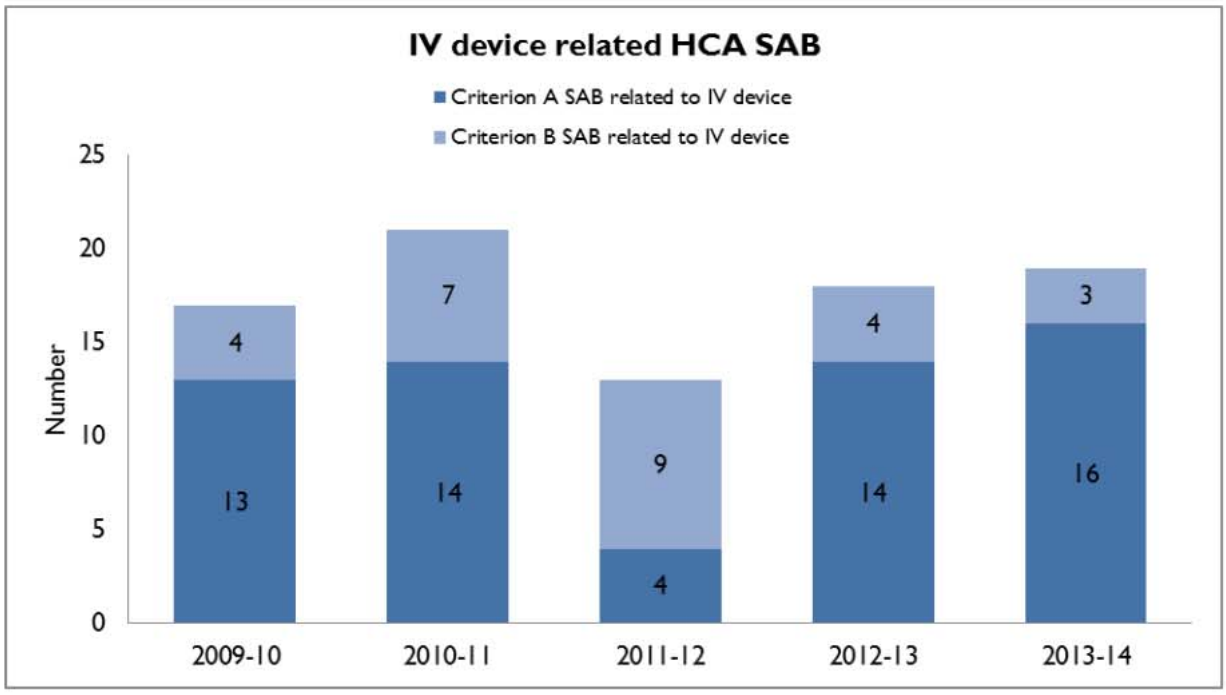
Figure 3 outlines the number of HCA SAB that are related to intravenous (IV) devices by financial year while **Figure 4** outlines IV device related HCA SAB by criterion of HCA SAB.

Figure 3 Total IV device related HCA – SAB



	2009-10	2010-11	2011-12	2012-13	2013-14
Total HCA SAB	38	42	27	31	35
Total IV device related	17	21	13	18	19

Figure 4 IV device related HCA-SAB by criterion by financial year.



Hospital rates

Figure 5 and **Figure 6** outline the individual acute public hospitals rates of healthcare associated *Staphylococcus aureus* bacteraemia. This information is also contained in tables within the Appendix.

Figure 5 Healthcare associated *Staphylococcus aureus* bacteraemia - rate by quarter.

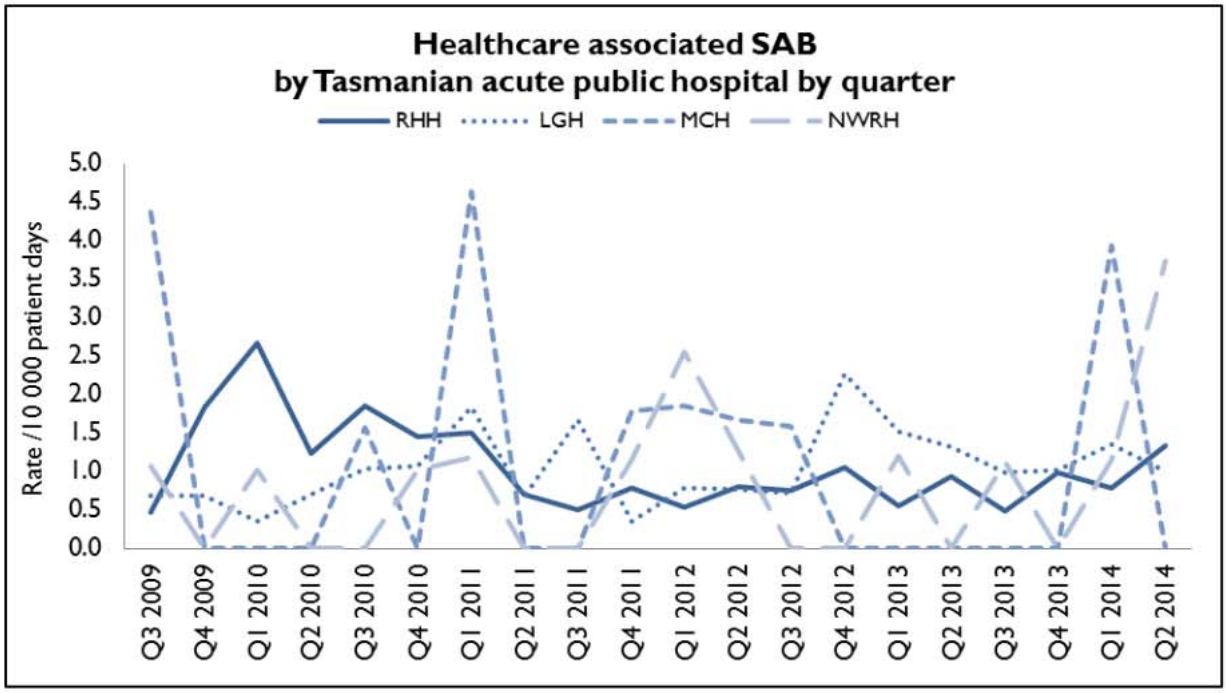
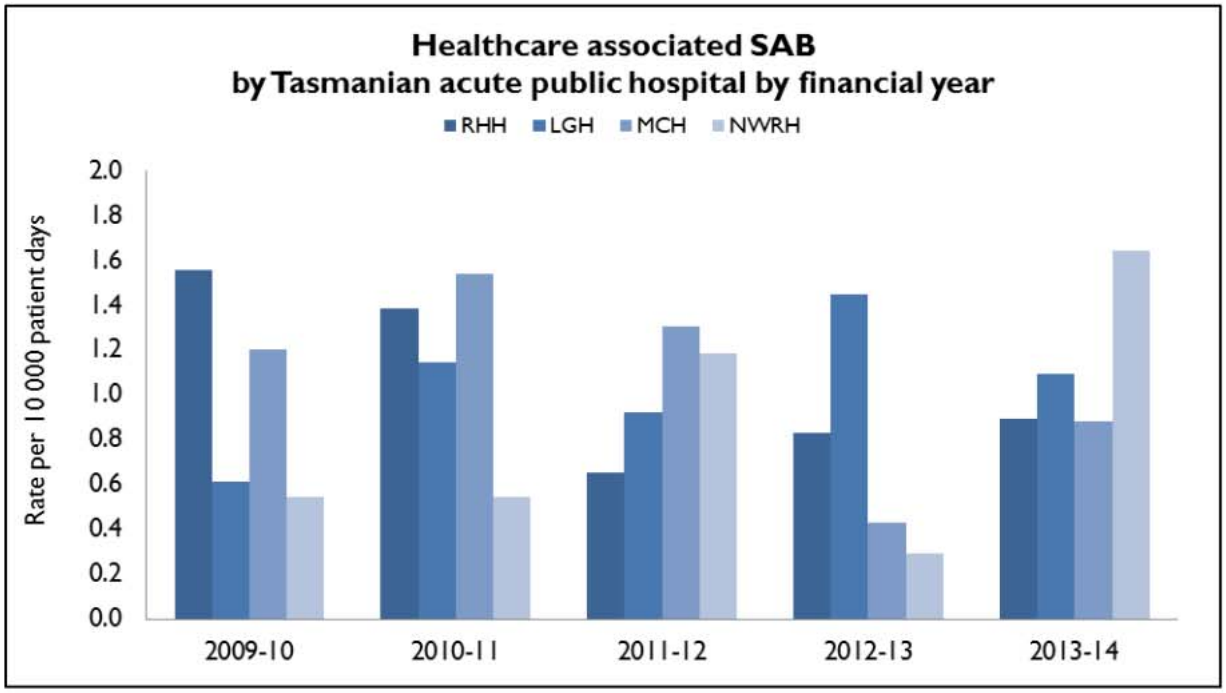


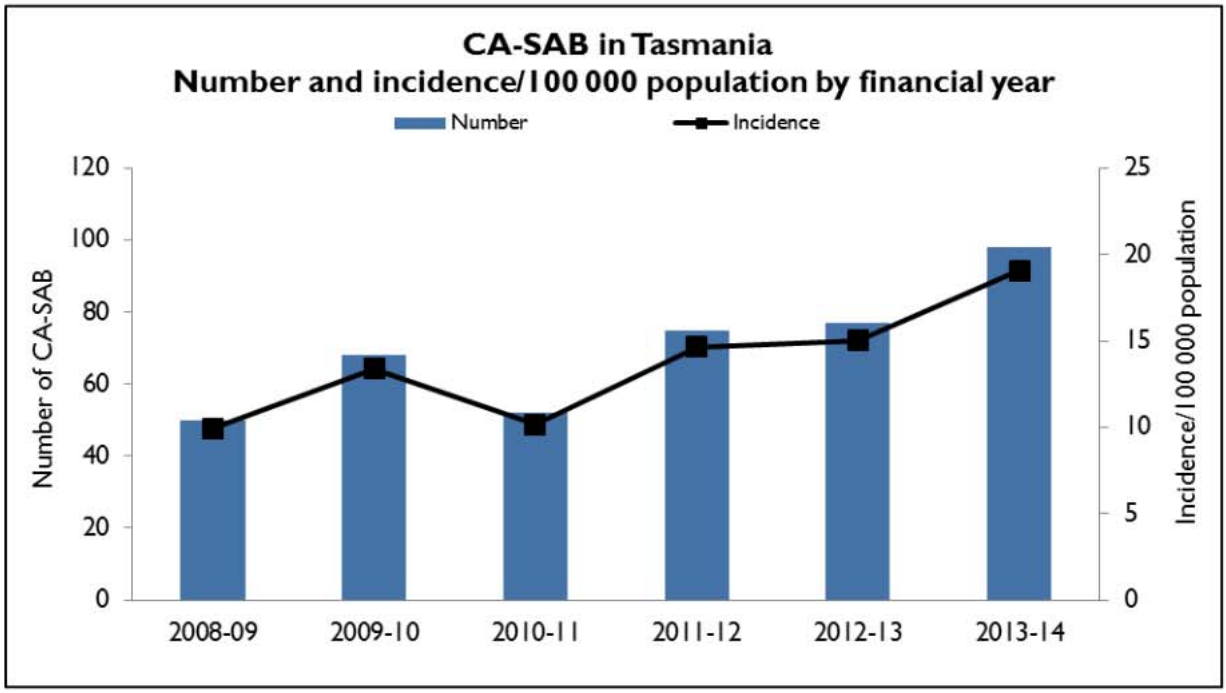
Figure 6 Healthcare associated *Staphylococcus aureus* bacteraemia - rate by financial year.



Community associated

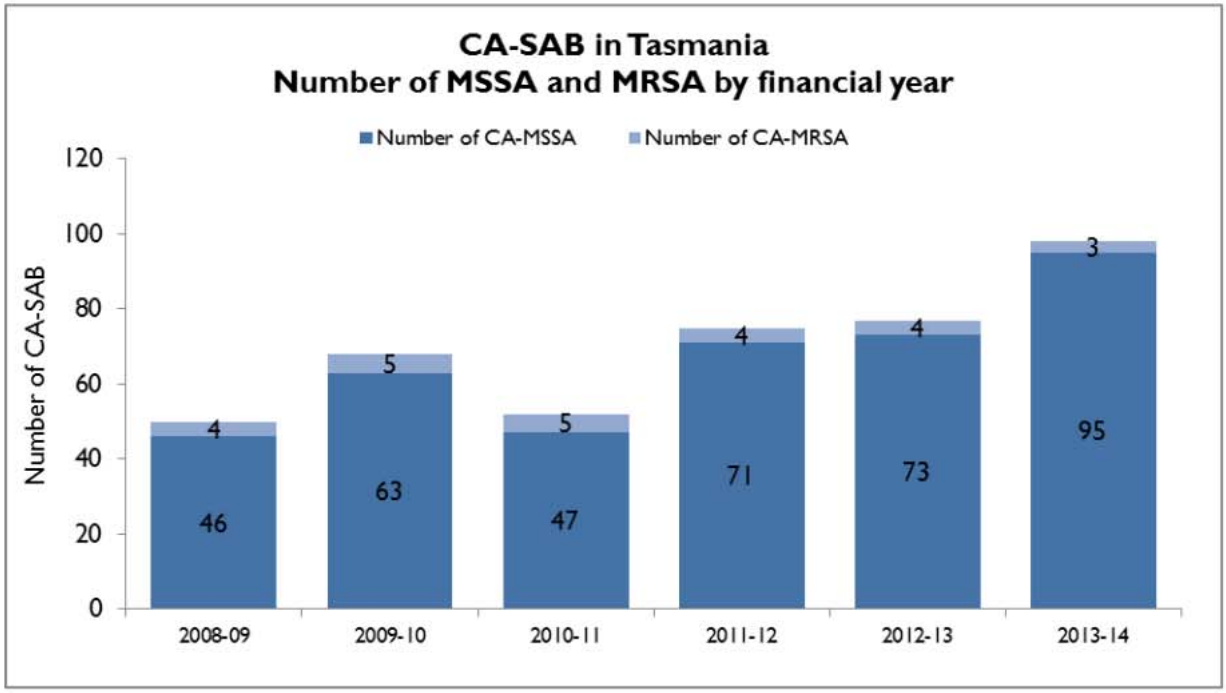
Figure 7 outlines the Tasmanian number and incidence/100 000 population of community associated SAB (CA-SAB) by financial year and **Figure 8** outlines CA-SAB numbers caused by methicillin sensitive *Staphylococcus aureus* (CA-MSSA) and methicillin resistant *Staphylococcus aureus* (CA-MRSA).

Figure 7 Community associated CA-SAB – number and incidence/100 000 population



*Population figures from Australian demographic statistics, ABS CAT NO 3101.0: TABLES 2, 16A & 16B

Figure 8 Community associated CA-SAB – number of MSSA and MRSA/quarter



Key points

- The Tasmanian rate of healthcare associated *Staphylococcus aureus* bacteraemia (HCA SAB) for 2013 – 14 is 1.05 per 10 000 patient days. During 2013 -14 all of the larger public hospitals had HCA SAB rates below the National Healthcare Agreement (2011) target of no more than of 2 HCA SAB/10 000 patient days[1].
- The Tasmanian HCA SAB rate is comparable to the most recently published data reported in other Australian states and territories.
    - The HCA SAB aggregate rate in Q1 2014 in Western Australia was 0.68 per 10 000 bed days (multi-day and same-day bed days)[2].
    - The rate of HCA SAB at The Canberra Hospital in 2012-2013 is reported as 1.72 cases per 10,000 days of patient care[3].
- The percentage of HCA SAB that is secondary to an indwelling intravenous device has remained stable over the past few years. This is an area where infection prevention strategies such as intravenous device management procedures in conjunction with aseptic technique can reduce the risk of patients developing a SAB.
- There has been an increase in both the number and rates of community associated SAB during 2013-14. The reasons for this increase are unclear and require further investigation. It is not possible to compare rates with other jurisdictions as Tasmania is the only State/Territory where SAB is a notifiable disease.
- The number and proportion of community associated SAB caused by MRSA has decreased since 2009 and continues to remain extremely low with only 3 being identified in 2013-14.

1. MyHospitals http://www.myhospitals.gov.au/publications/sab/march-2014
2. HISWA Quarterly Aggregate Report Quarter 1, 2014 – Number 35
3. MyHospitals http://www.myhospitals.gov.au/hospital/the-canberra-hospital/safety-and-quality/sab

Clostridium difficile infection

Clostridium difficile infection (CDI) is a bowel infection caused by the bacterium *Clostridium difficile* and is a common cause of healthcare associated diarrhoea. CDI causes significant patient morbidity and mortality and can result in increased hospital stays and costs. Factors that may contribute to higher CDI rates include the overuse of antibiotics, ineffective infection control processes and suboptimal levels of environmental cleanliness.

Surveillance of CDI in Tasmania uses the nationally agreed surveillance definitions published by the ACSQHC. Hospital identified CDI includes both healthcare facility and community associated infections while healthcare associated – healthcare facility onset (HCA-HCF) CDI are those infections that occurred 48 hours or more after a patient was admitted to hospital. A 3 point rolling average is used to report Tasmanian CDI rates to detect changes in trends in CDI rates over time.

Tasmanian rates

Figure 9 outlines the Tasmanian combined acute public hospital rates of both hospital identified CDI and HCA-HCF CDI.

The mean (average) rate of hospital identified CDI between July 1st 2013 and June 30th 2014 is 5.5 per 10 000 patient days (95% CI 4.7-6.3) while the mean rate of HCA-HCF CDI between July 2013 and June 2014 is 2.7 per 10 000 patient days (95% CI 2.1-3.2).

Figure 9 Hospital identified and HCA-HCF CDI - rate by quarter.

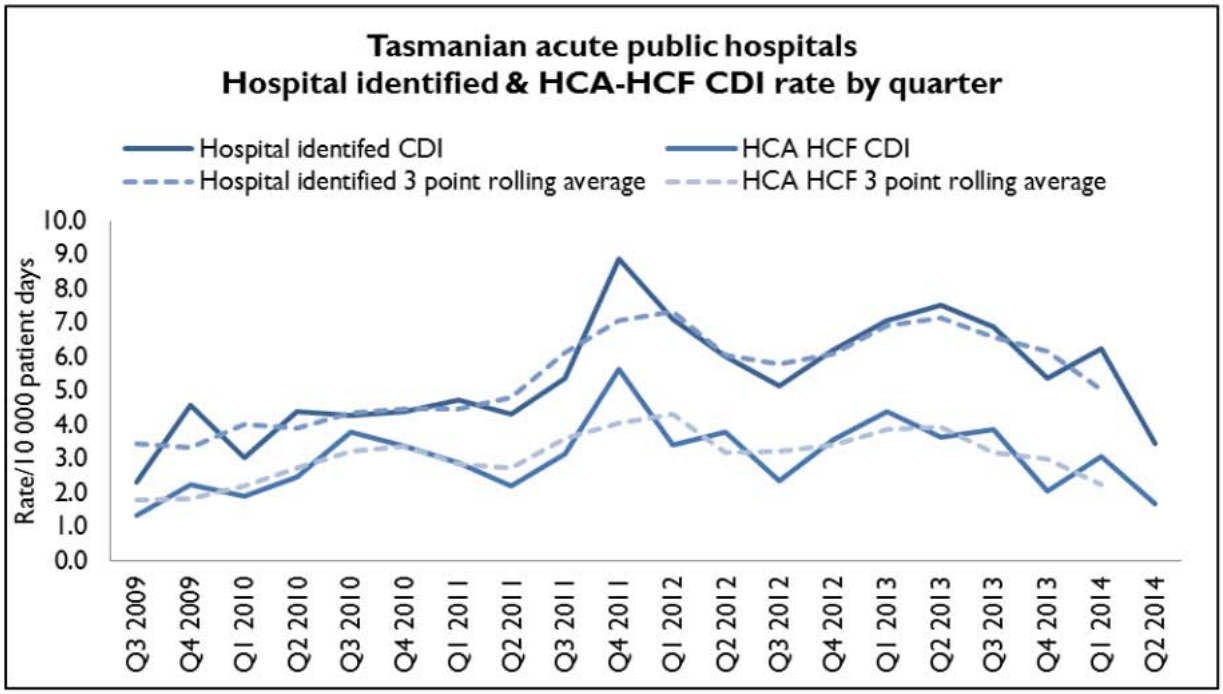
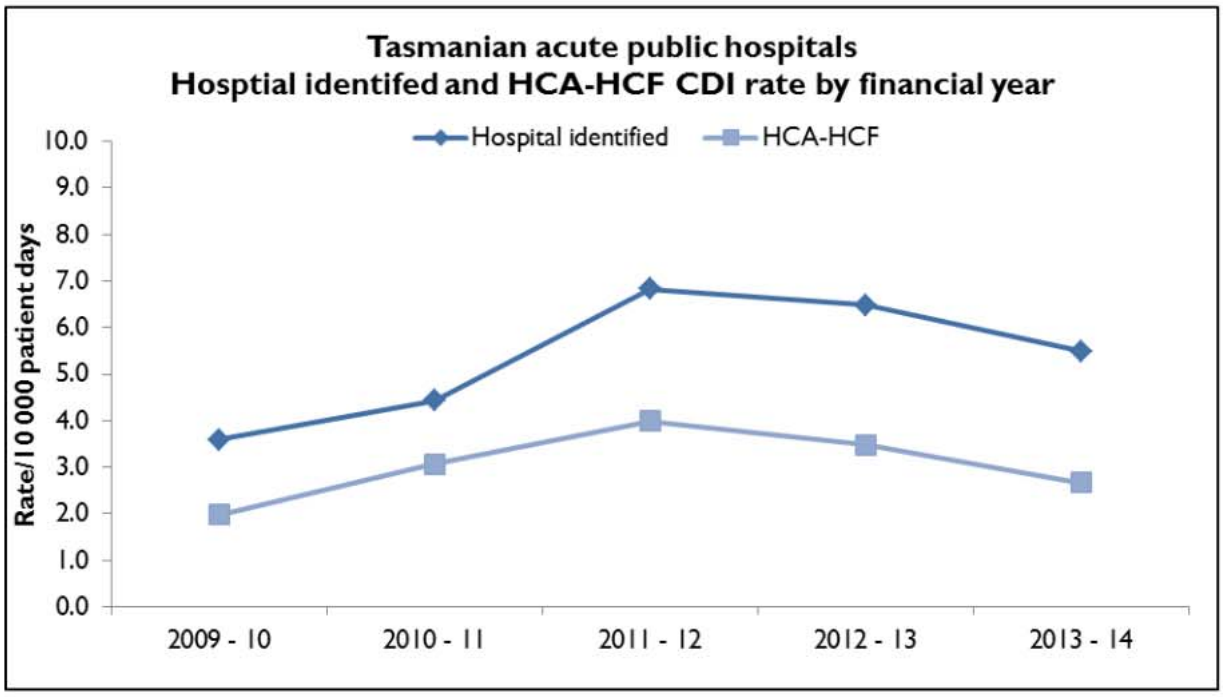


Table 3 outlines the Tasmanian combined acute public hospital rates of **hospital identified** and **healthcare associated –healthcare facility onset (HCA-HCF)** *Clostridium difficile* infection by financial year and **Figure 10** shows the same information graphically without confidence intervals.

Table 3 Hospital identified and HCA-HCF CDI – rate by financial year

	Hospital identified			HCA-HCF		
Financial Year	Rate per 10 000 patient days	Lower 95% Confidence Interval	Upper 95% Confidence Interval	Rate per 10 000 patient days	Lower 95% Confidence Interval	Upper 95% Confidence Interval
2009 - 10	3.6	2.9	4.2	2.0	1.5	2.5
2010 - 11	4.4	3.7	5.2	3.1	2.5	3.7
2011 - 12	6.8	5.9	7.8	4.0	3.3	4.7
2012 - 13	6.5	5.6	7.4	3.5	2.8	4.1
2013 - 14	5.5	4.7	6.3	2.7	2.1	3.2

Figure 10 Hospital identified and HCA-HCF CDI – rate by financial year



Hospital rates

Figure 11 and **Figure 12** outline the individual acute public hospital rates by quarter and by financial year of **hospital identified CDI** while

Figure 13 and **Figure 14** outline the individual acute public hospital rates of **healthcare associated –healthcare facility onset CDI.**

Figure 11 Individual hospital identified CDI - rate by quarter.

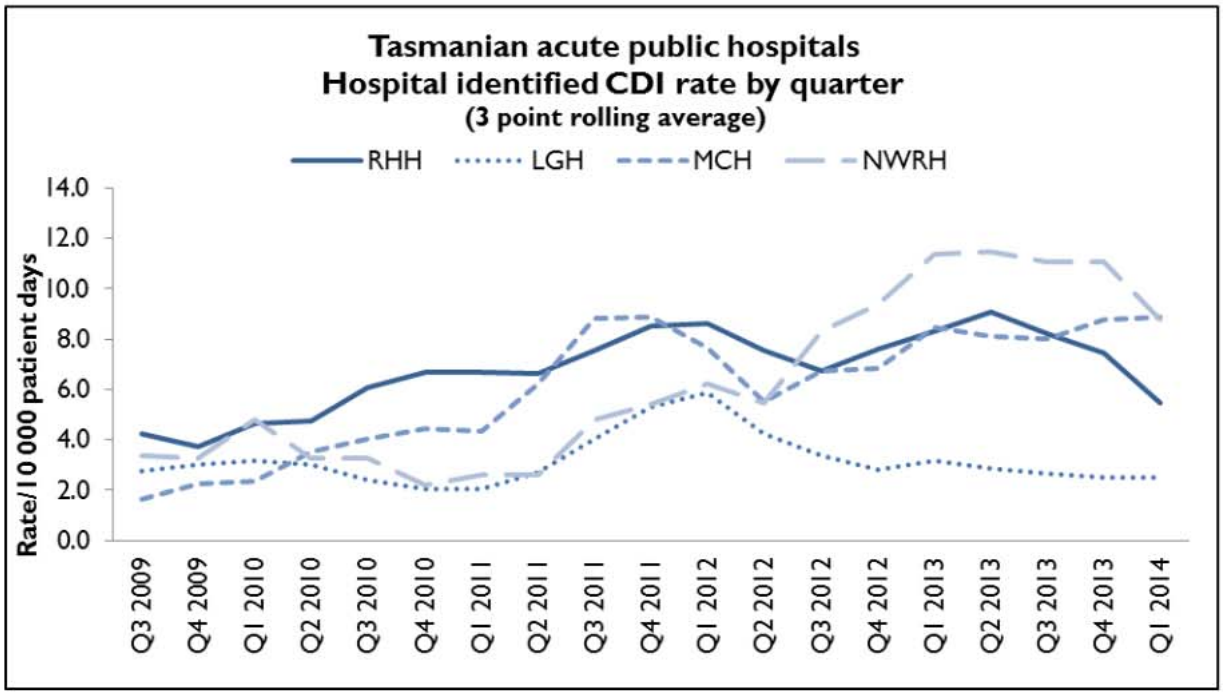


Figure 12 Individual hospital identified CDI - rate by financial year

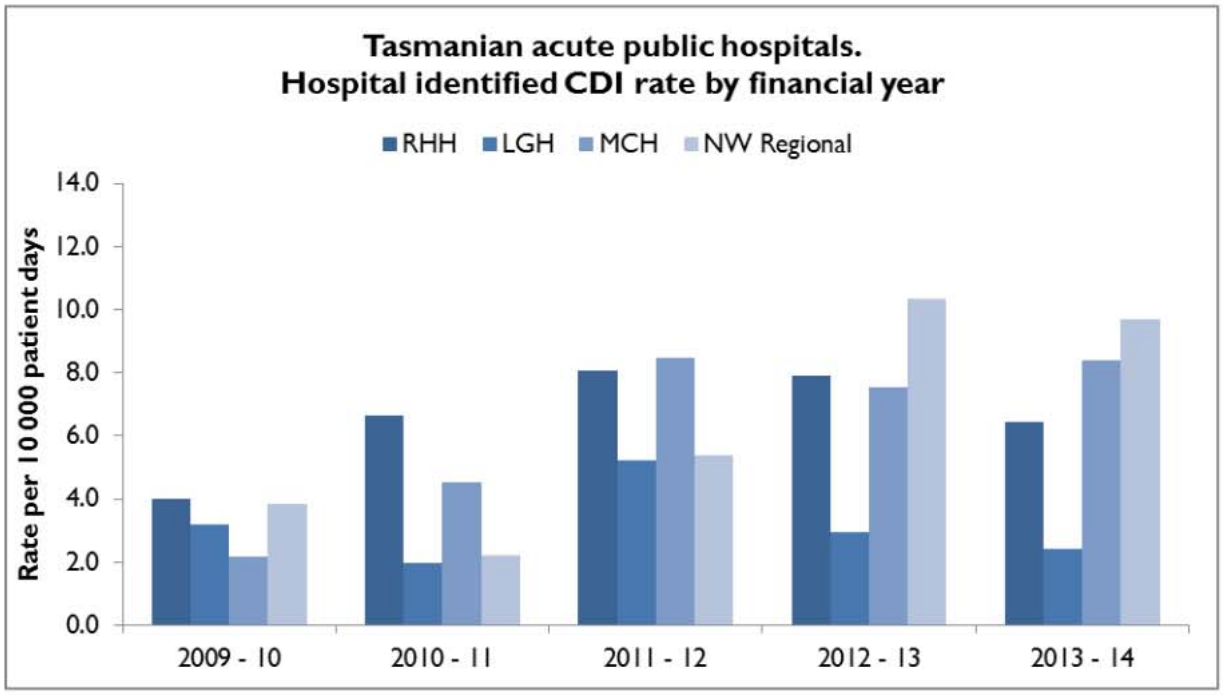


Figure 13 Individual hospital HCA-HCF CDI - rate by quarter

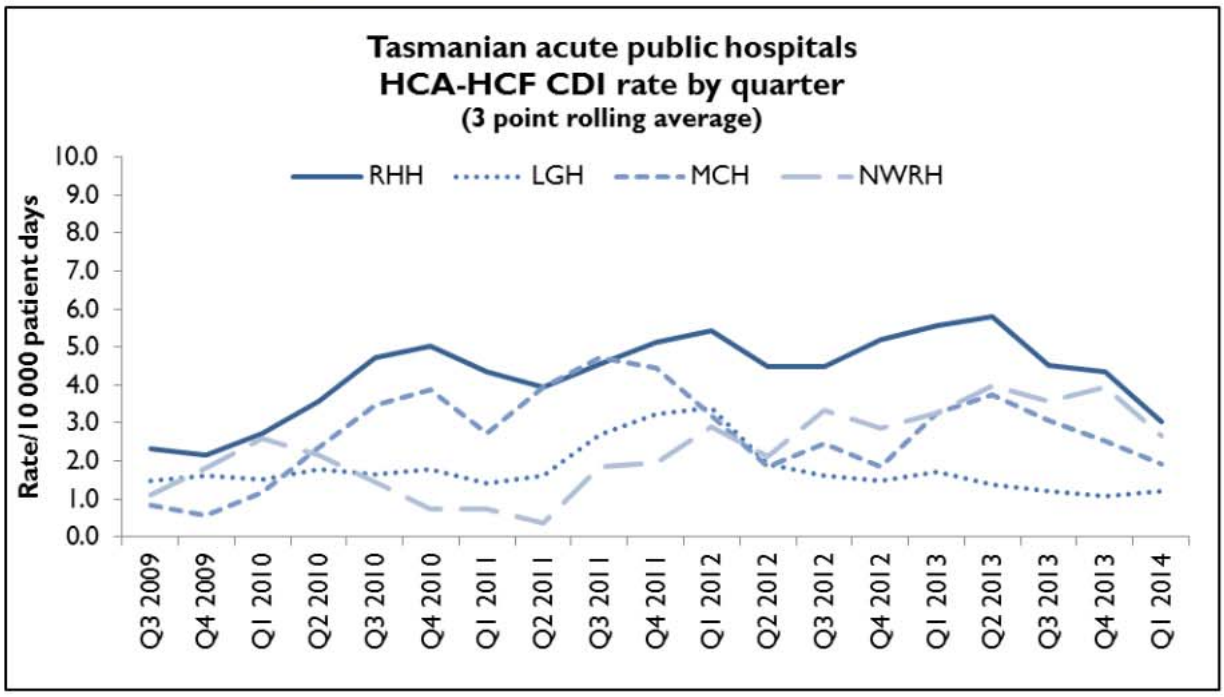
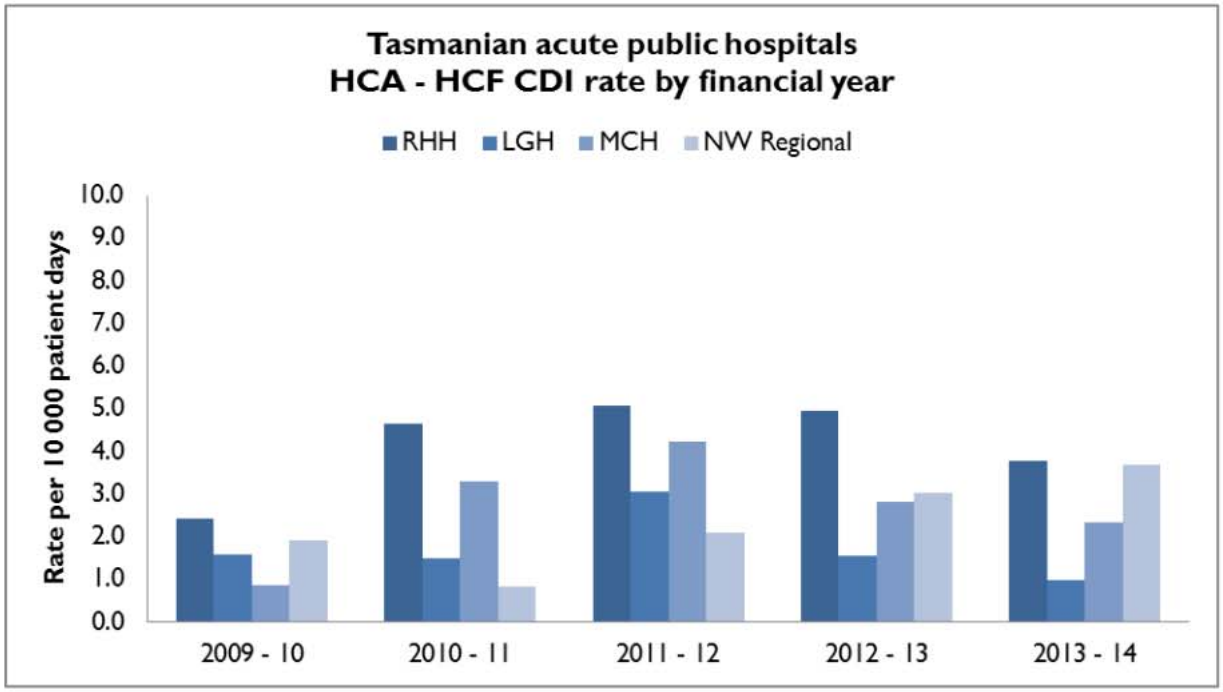


Figure 14 Individual hospital HCA-HCF CDI - rate by financial year



Key points

- Hospital identified CDI includes both healthcare facility and community associated infections.
- The HCA – HCF rate excludes persons who present to hospital with symptoms of CDI and/or develop symptoms within 2 days of admission.
- The three point rolling average calculates the average rate of the previous, current and next quarter thus this rate will always be reported up to the end of the previous quarter.
- The Tasmanian number and rate of both hospital identified and HCA-HCF CDI has decreased in the twelve months of 2013-14 compared to 2012-13. In 2013-14:
    - the number of public hospital identified CDI was 171 cases compared with 192 in 2012-13
    - the number of HCA-HCF CDI was 83 cases compared with 103 in 2012-13
    - the rate of public hospital identified CDI was 5.5/10 000 patient days compared with 6.5/10 000 patient days in 2012-13
    - the rate of HCA-HCF CDI was 2.7/10 000 patient days compared with 3.5/10 000 patient days in 2012-13
- The rate of HCA-HCF CDI is the lowest since 2010-11.

Vancomycin resistant *enterococcus* (VRE)

Enterococci are bacteria that are normally present in the human gastrointestinal and female genital tract. *Enterococci* can cause infections of the urinary tract, bloodstream and wounds. *Enterococci* that have acquired resistance to the antibiotic vancomycin are called vancomycin-resistant *enterococci* or VRE. VRE infections can be more difficult to treat then those caused by *Enterococci* sensitive to vancomycin. Factors that are believed to contribute to the transmission of VRE in hospitals are ineffective infection control practices, a lack of an antimicrobial stewardship program and suboptimal environmental cleanliness.

Identification of VRE is a notifiable condition in Tasmania pursuant to the Public Health Act 1997 and as such, all isolates of VRE are notified to TIPCU.

Tasmanian numbers

Table 4 VRE isolates identified per quarter within 1) acute public hospitals and 2) total Tasmanian isolates identified.

	RHH	LGH	MCH	NWRH	Total Tasmanian
Q1 2008	11	-	-	-	13
Q2 2008	17	6	-	7	32
Q3 2008	1	1	-	10	12
Q4 2008	3	9	-	5	18
Q1 2009	-	4	2	3	9
Q2 2009	8	-	4	2	14
Q3 2009	1	-	2	1	4
Q4 2009	2	2	1	-	6
Q1 2010	1	-	1	-	2
Q2 2010	4	-	1	-	5
Q3 2010	10	-	2	2	14
Q4 2010	3	-	3	1	8
Q1 2011	-	-	2	1	3
Q2 2011	3	1	-	-	8
Q3 2011	1	1	-	-	3
Q4 2011	3	-	-	-	5
Q1 2012	3	2	2	2	10
Q2 2012	4	2	-	1	7
Q3 2012	3	2	2	-	8
Q4 2012	1	7	1	1	12
Q1 2013	13	0	3	-	18
Q2 2013	8	3	-	1	15
Q 3 2013	8	1	-	2	12
Q4 2013	5	3	-	3	16
Q1 2014	5	-	1	1	8
Q2 2014	3	6	1	1	13

Key points

- This table provides information on both new VRE isolates identified in acute public hospitals and the total number of new VRE isolates identified across Tasmania.
- The isolates that have been identified within hospitals do not necessarily mean that VRE was acquired at that hospital. Numbers of VRE isolates identified are affected by the amount of screening undertaken by hospitals. Some hospitals may be more aggressive in their approach and hence may identify more VRE.
- The 'total isolates identified' includes all new cases identified in Tasmania and includes isolates from public and private hospitals, GP clinics and long term and residential care facilities.
- There were 40 new VRE cases identified within Tasmanian public hospitals in 2013/14 – only one of these was an infection while 39 of these were colonisations.

Hand hygiene compliance data

Tasmanian rates

Figure 15 Hand hygiene compliance rate in Tasmanian public hospitals

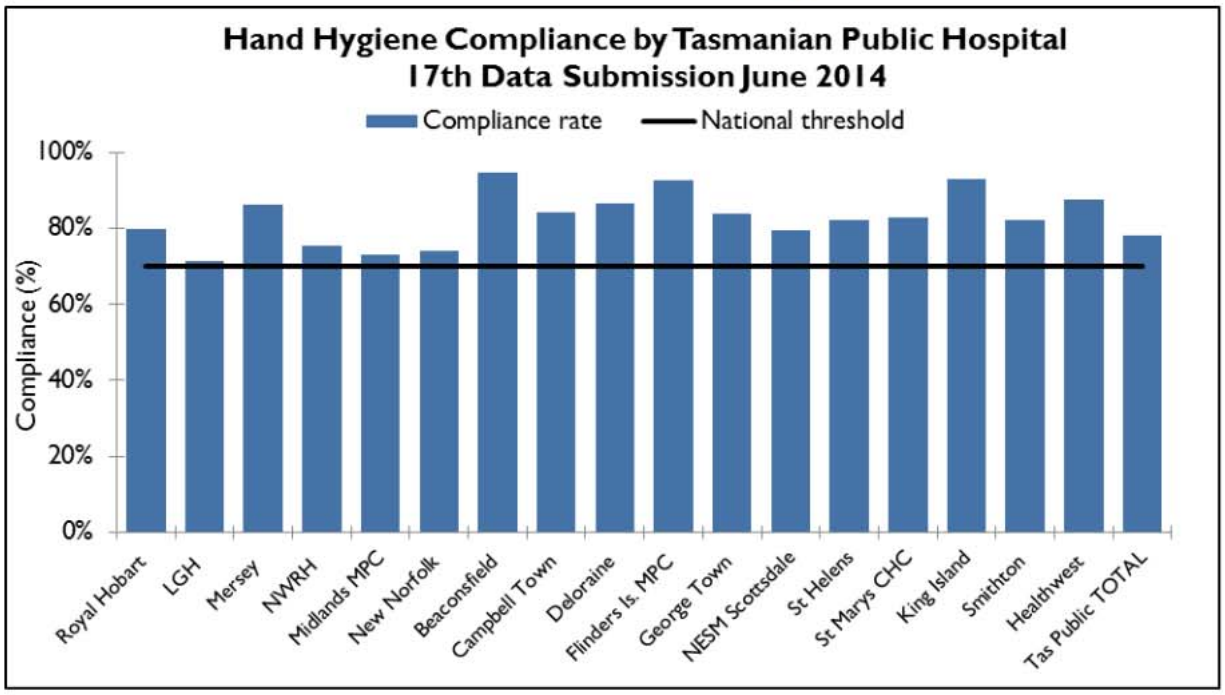


Figure 16 Hand hygiene compliance by moment

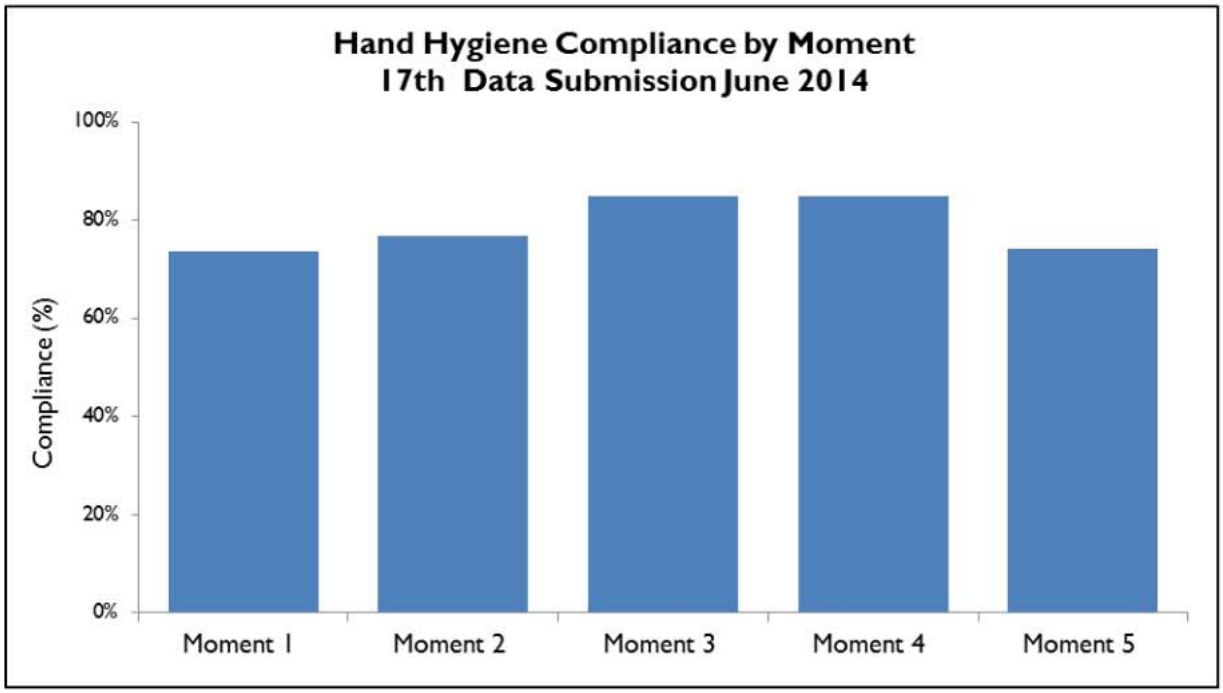
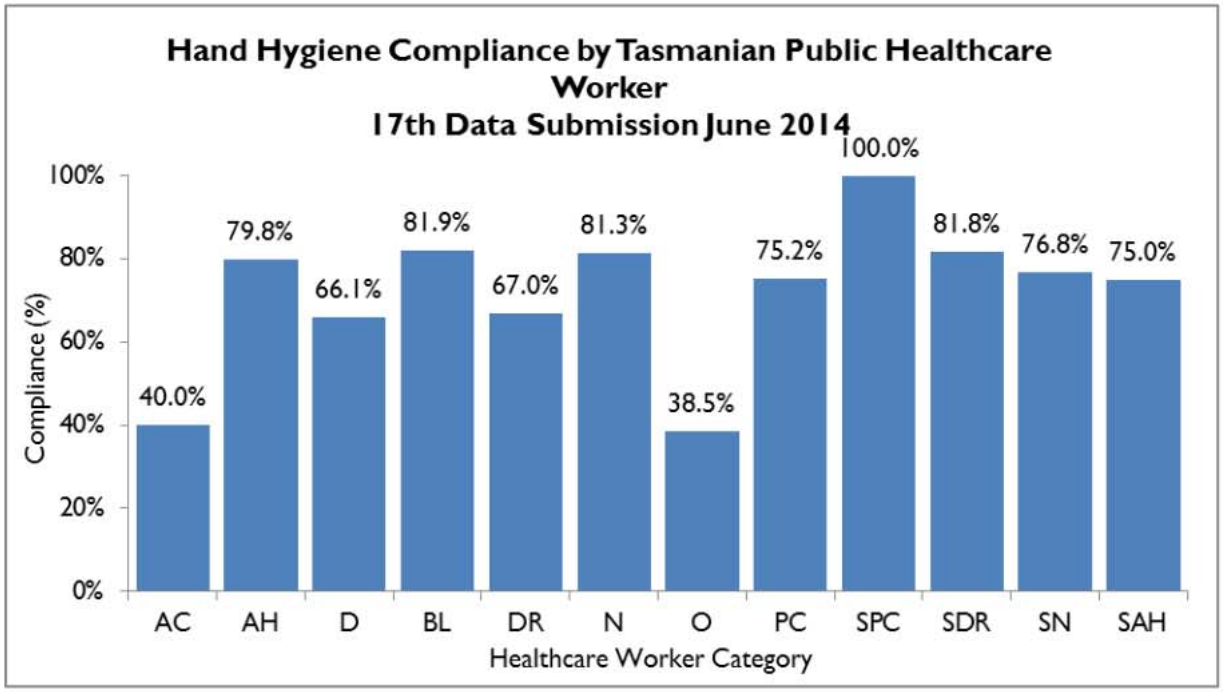


Figure 17 Hand hygiene compliance by healthcare worker



Key points

- Rural hospitals do not collect as much data as the four acute public hospitals, so comparisons between rural and acute hospitals are not recommended.
- The overall rate of Tasmanian hand hygiene compliance has increased from a baseline of 35.5% in March 2009 to 78.2% in June 2014.
- The rate of hand hygiene compliance in Tasmania is comparable with other states. In the same data collection period of 2014, published hand hygiene rates were 79.9% in Victoria[1], while in the first data collection period of 2014 the National rate was 80.3%[2] and in the last data collection period for 2013 the rate was 77% in Western Australia[3].
- The majority of hand hygiene compliance data (68% in the latest report) is collected from nurse patient interactions.
- Hand hygiene compliance before touching a patient (Moment 1), undertaking a procedure (Moment 2) and after touching patient surroundings (Moment 5) are lower than those reported after undertaking a procedure (Moment 3) or after touching a patient (Moment 4).

1. VICNISS Hand Hygiene report – NHHI Audit 2, 2014 - http://www.vicniss.org.au/Resources/HandHygiene/NHHI_2014_Audit2_VictorianAggregateComplianceData.pdf
2. HHA – National data period 1, 2014 http://www.hha.org.au/LatestNationalData.aspx
3. HISWA Quarterly Aggregate Report Quarter 4, 2013 – Number 34

Antibiotic utilisation surveillance

Introduction

Antimicrobial use is inevitably associated with the emergence of antimicrobial -resistant bacteria. Antimicrobial resistance is regarded as a significant and growing threat to public health worldwide. The National Antimicrobial Utilisation Surveillance Program (NAUSP) was commenced in 2004 to conduct surveillance of hospital antimicrobials, principally antibiotic use. The program enables individual institutions to examine their own antimicrobial usage rates and trends over time and provides peer group benchmarks for comparison. This data can be used to identify both trends in antimicrobial use over time and develop local interventions to promote appropriate antimicrobial use.

The Royal Hobart Hospital has been contributing data to the NAUSP since July 2004 while Launceston General Hospital, North West Regional Hospital and Mersey Community Hospital have been contributing since January 2009.

Antimicrobial utilisation rates are calculated using the number of defined daily doses (DDDs) of specific antimicrobial agents or classes that are consumed each month per 1000 occupied bed days. This is the most widely accepted and used method of measuring antimicrobial use in hospital settings both nationally and internationally.

Rates presented in this report are for two antimicrobial classes - third and fourth generation cephalosporins (ceftriaxone, cefotaxime, ceftazidime, cefepime) and fluoroquinolones (ciprofloxacin, moxifloxacin). These two classes were chosen as they are relevant to other indicators in this report. Cephalosporin use has been linked with the emergence of MRSA while both cephalosporins and fluoroquinolones have been identified as risk factors for the development of *Clostridium difficile* infection.

The graphs compare cephalosporin and fluoroquinolone use for each hospital with the NAUSP national rate for similarly-peer contributing hospitals.

As Tasmanian hospitals vary in services provided, comparisons between Tasmanian hospitals are not recommended. For example, a hospital that has a dedicated cancer service may use more antimicrobials to combat infections in this susceptible patient group.

Please note the following in relation to the antimicrobial use data:

- Comparator data for all sites has been amended from 2011 by NAUSP as additional hospitals have joined NAUSP (number of A1 hospitals has almost doubled since 2010) and some of these hospitals have provided retrospective data.
- North West Regional hospital has been reclassified as a B2 hospital in line with the AIHW classification 2011-12 (it had been classified as a C2 hospital). In line with this change, retrospective data is only available for NWRH from January 2011.

Hospital rates

Royal Hobart Hospital

Figure 18 Cephalosporin use – Royal Hobart Hospital

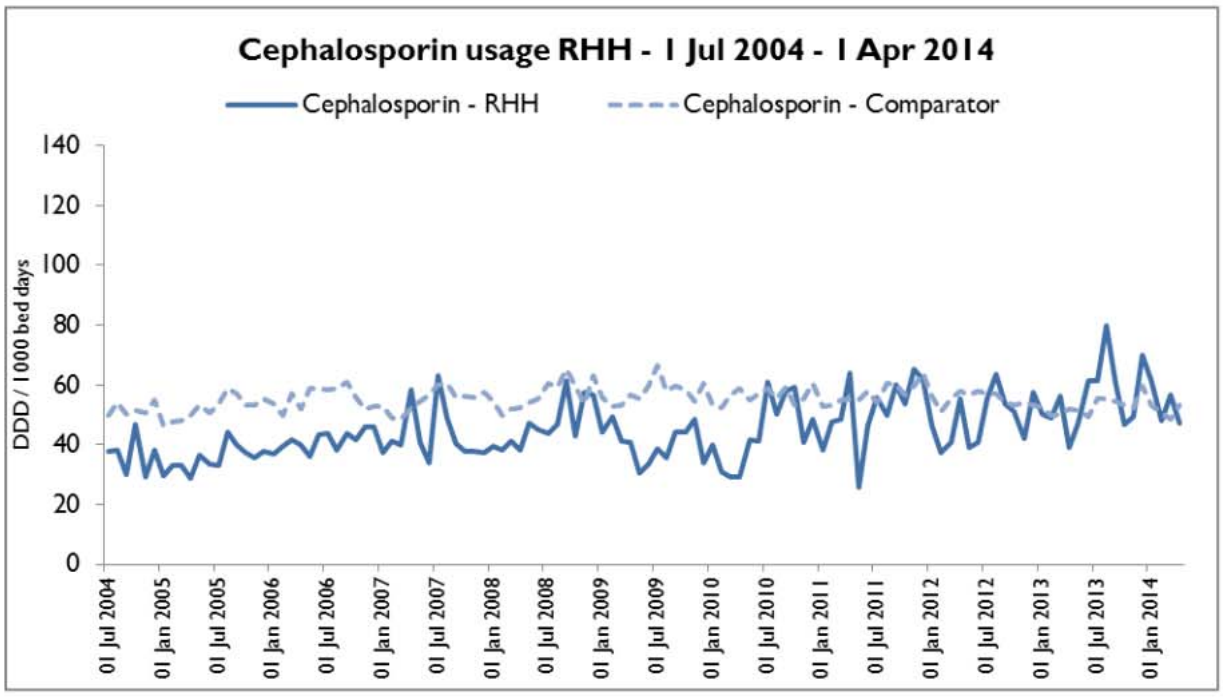
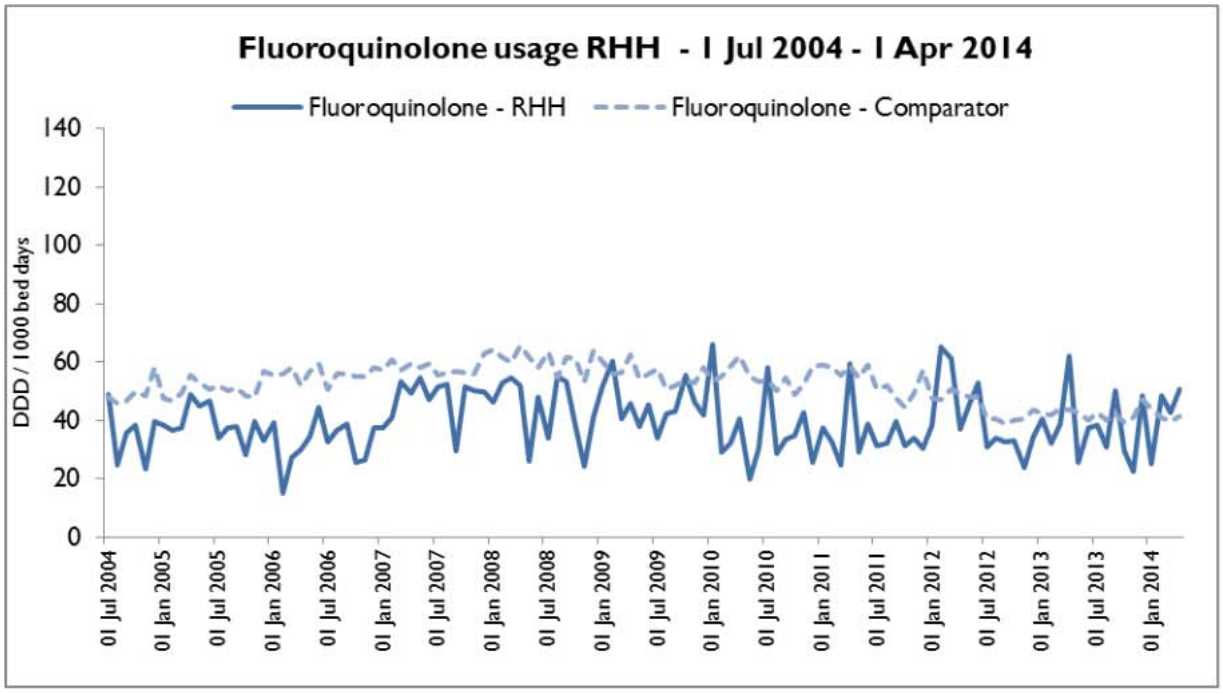


Figure 19 Fluoroquinolone use – Royal Hobart Hospital



Launceston General Hospital.

Figure 20 Cephalosporin use – Launceston General Hospital

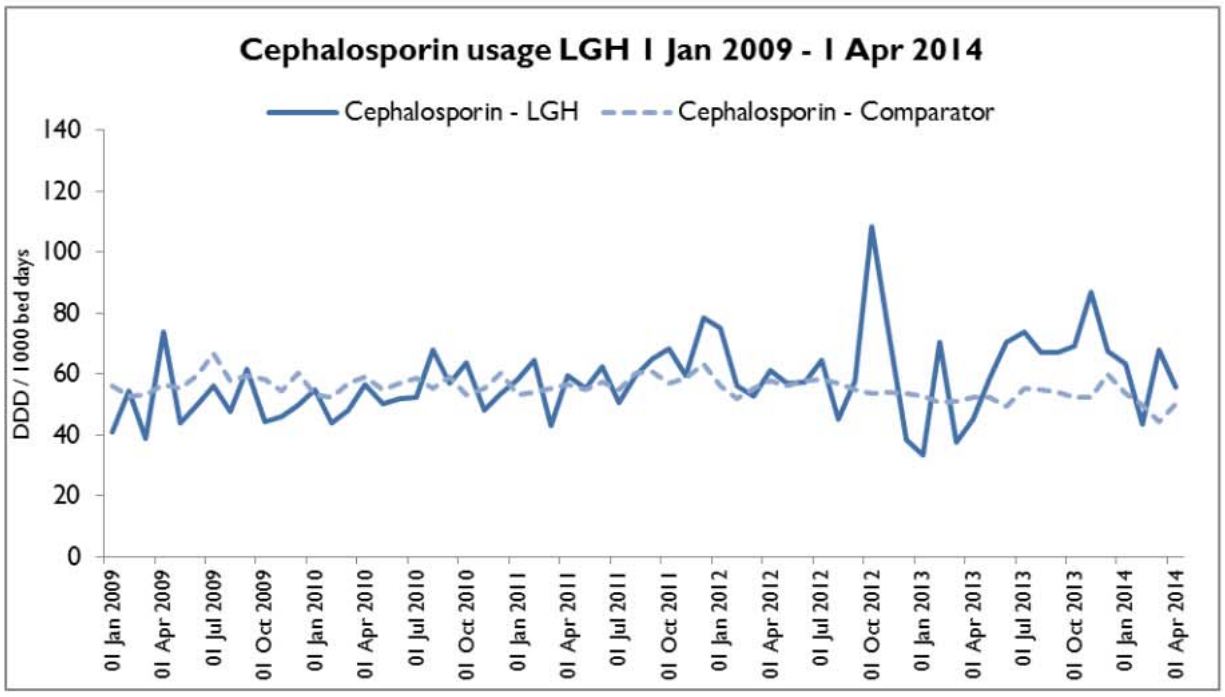
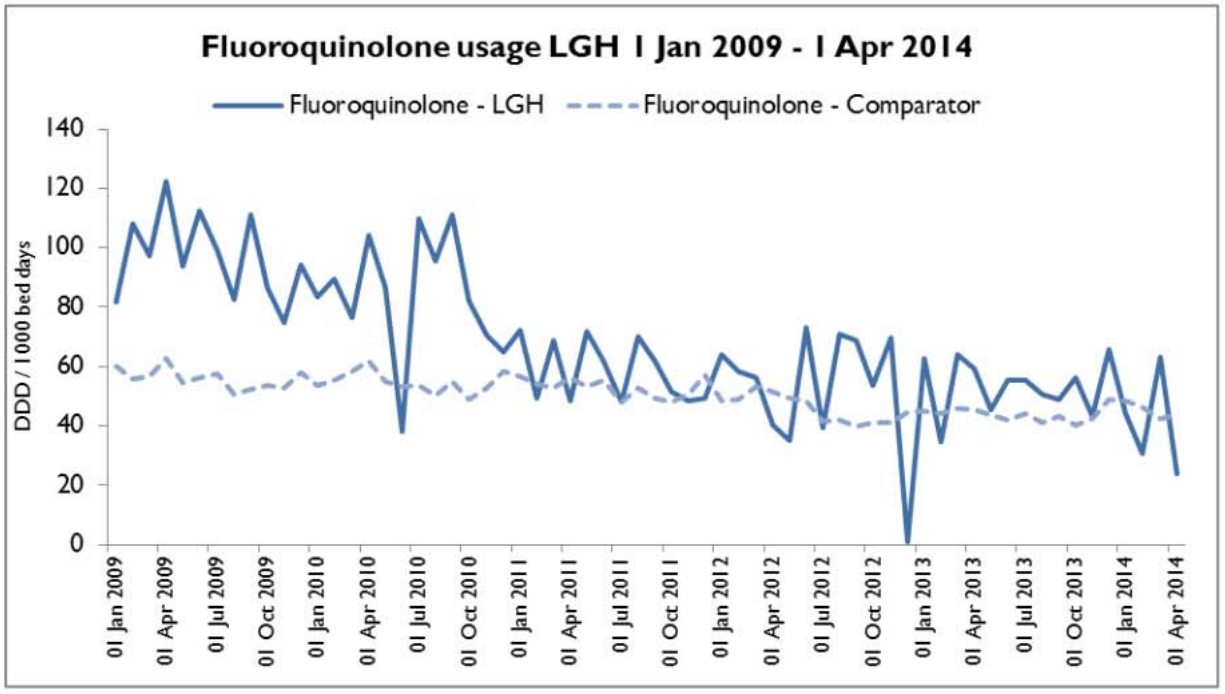


Figure 21 Fluoroquinolone use – Launceston General Hospital



Mersey Community Hospital

Figure 22 Cephalosporin use – Mersey Community Hospital

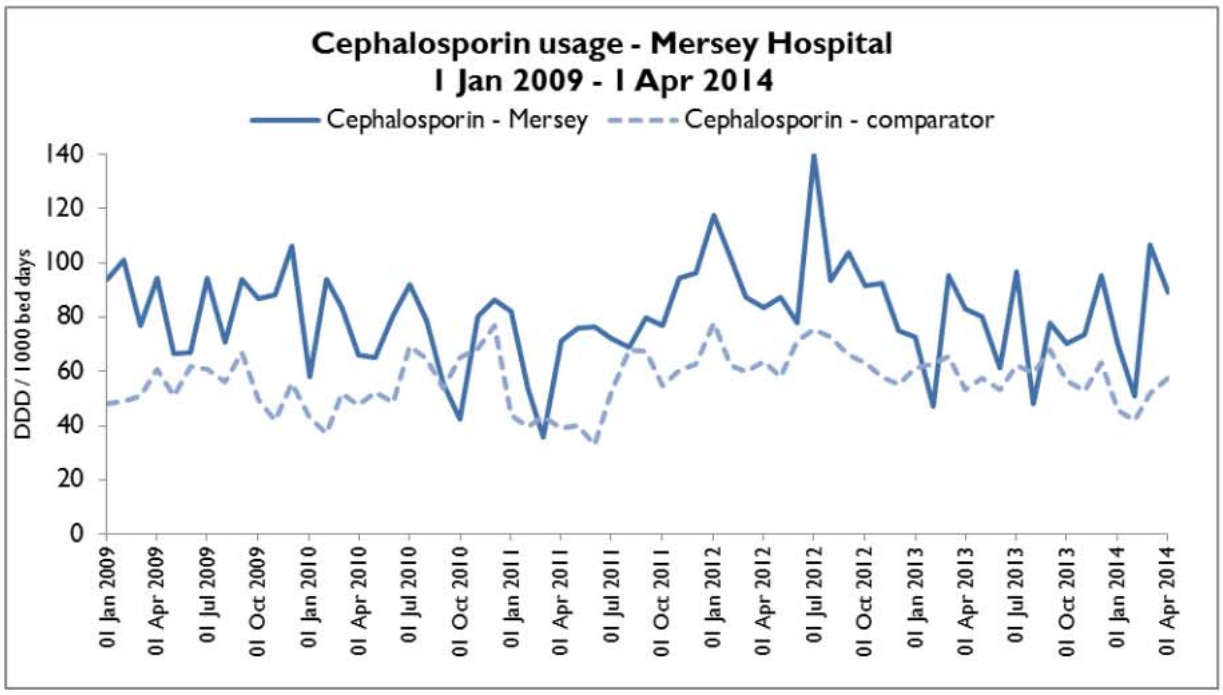
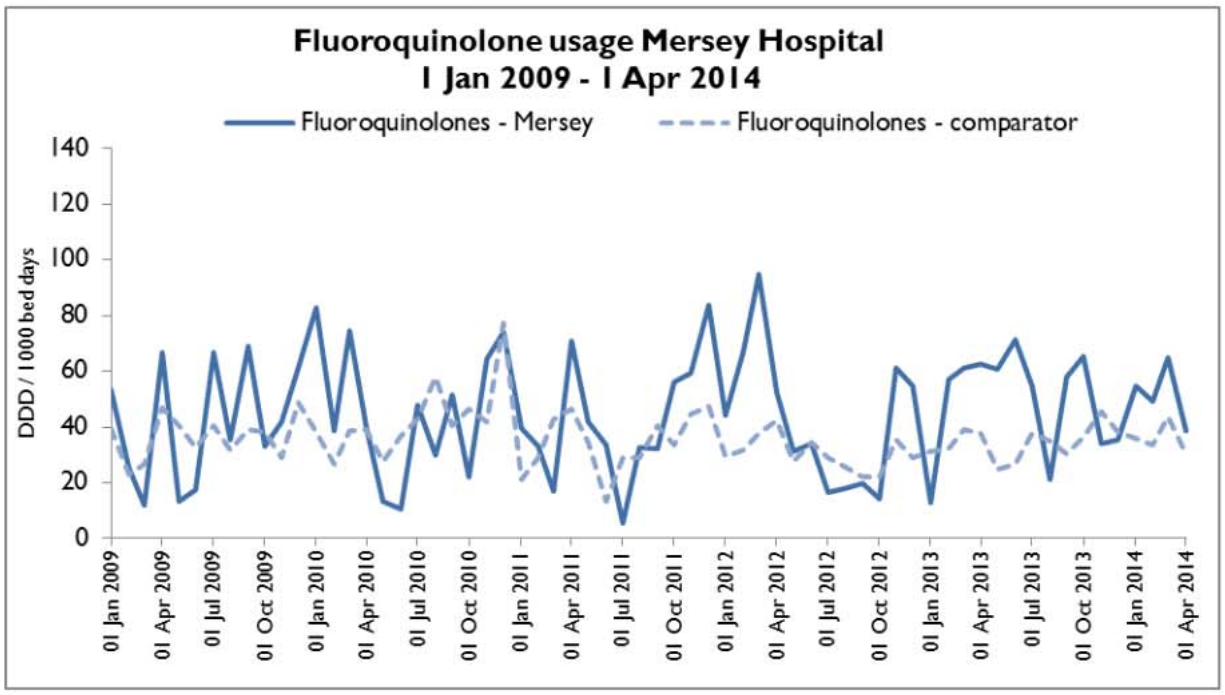


Figure 23 Fluoroquinolone use – Mersey Community Hospital



North West Regional Hospital

Figure 24 Cephalosporin use – North West Regional Hospital

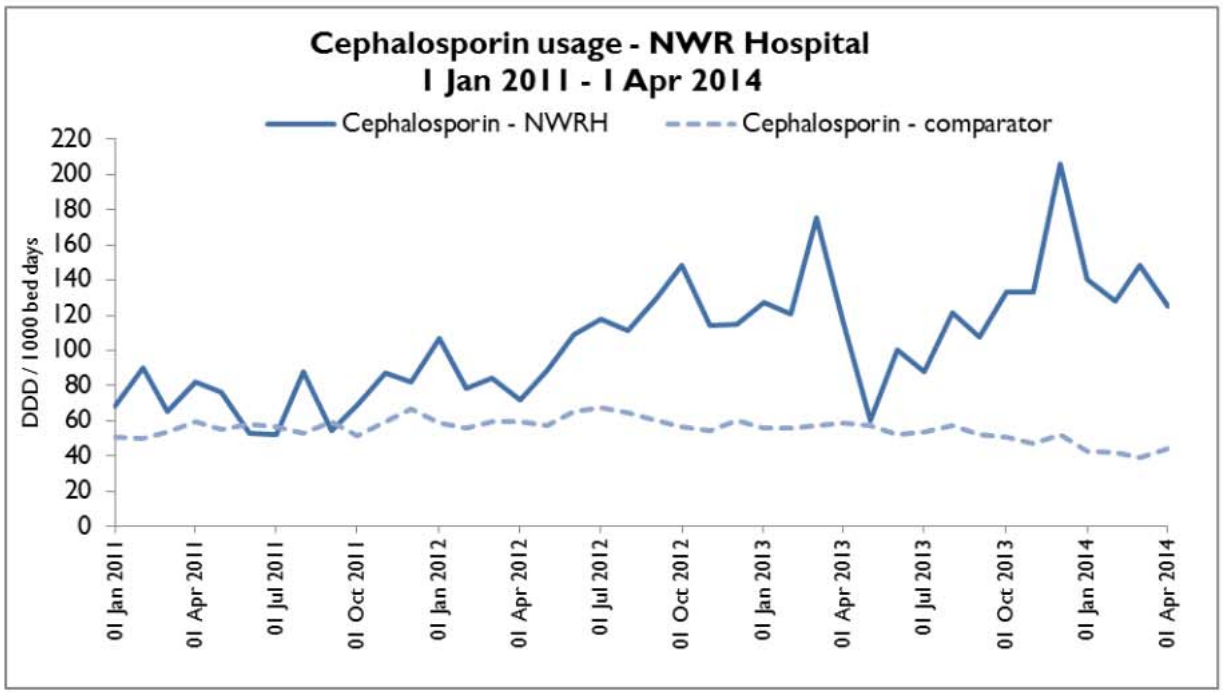
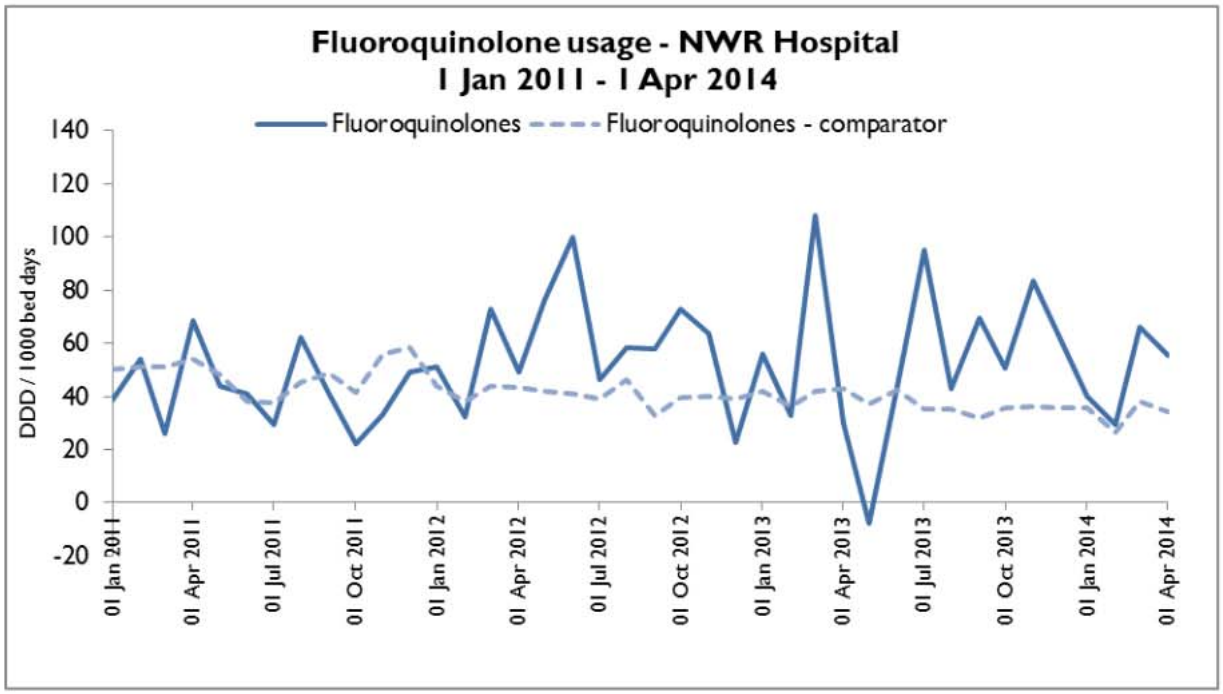


Figure 25 Fluoroquinolone use – North West Regional Hospital



Acknowledgements

The production of this report is the culmination of data collection, analysis and input from a number of different organisations. In particular, we would like to acknowledge:

- Executive Director of Nursing THO North
- Executive Director of Nursing THO North West
- Executive Director of Nursing THO South
- Launceston General Hospital Infection Control Unit
- North West Regional Hospital Infection Control Team
- Mersey Community Hospital Infection Control Team
- Royal Hobart Hospital Infection Prevention and Control Unit
- The National Antimicrobial Utilisation Surveillance Program (NAUSP)
- Microbiology Departments at the Royal Hobart Hospital, Launceston General Hospital and DSPL
- Hand Hygiene Australia
- Communicable Diseases Prevention Unit, Population Health
- Contributing Primary Health Sites

Appendix 1

Explanatory notes

What healthcare associated infection (HAI) indicators are used in Tasmania?

TIPCU undertakes surveillance of the following indicators:

- *Staphylococcus aureus* bacteraemia (bloodstream infection)
- *Clostridium difficile* infection (CDI)
- Vancomycin resistant enterococci (VRE)
- Hand hygiene compliance rates
- Antibiotic utilisation surveillance

What do the rates mean?

The rates of infections presented in the TIPCU report are presented as a rate per 10 000 patient days (SAB and CDI) or as a percentage (hand hygiene compliance).

What are the definitions for healthcare associated SAB?

TIPCU use the national surveillance definitions published by the Australian Commission on Safety and Quality in Health Care (ACSQHC) to classify SAB. There are two categories of HCA SAB. A SAB is considered to be healthcare associated if it fits one of the following two criteria:

Criterion A the patient's first SAB blood culture was collected more than 48 hours after hospital admission or less than 48 hours after discharge

OR

Criterion B the patient's first positive SAB blood culture was collected less than or equal to 48 hours after hospital admission and one or more of the following key clinical criteria was met for the patient-episode of SAB.

Key clinical criteria:

1. SAB is a complication of the presence of an indwelling medical device (e.g. Intravascular line, haemodialysis vascular access, CSF shunt, urinary catheter)
2. SAB occurs within 30 days of a surgical procedure where the SAB is related to the surgical site
3. SAB was diagnosed within 48 hours of a related invasive instrumentation or incision
4. SAB is associated with neutropenia (less 1 x 10^9/L) contributed to by cytotoxic therapy

Confidence intervals

Confidence intervals are used to calculate the range in which the true rate lies. As an example, when looking at the hand hygiene compliance data "confidence intervals calculate the range in which the true compliance result lies, based on the data collected and the compliance measured, thus providing an indication of the reliability of the reported HHC level. When only a small number of moments are collected, the confidence interval will be larger, as it is more difficult to establish the true compliance level from a small sample of moments. If a large number of moments are collected the confidence interval will be smaller, meaning the reliability of the result is higher. HHA calculate 95% confidence intervals, indicating the intervals in which 95% of the time the true compliance level lies". (HHA 2011).

Patient Care Days

Patient days is the term given to explain the total days patients are in hospital. In each of Tasmania's four larger acute public hospitals, there are around 330 000 patient care days per year. When a rate is presented as a number per 10 000 patient days, this presents the number of infections that occur for every 10 000 patient care days.

Can I Compare Tasmanian Hospital Infection Rates?

It is important to be wary when comparing data between hospitals. Each Tasmanian hospital provides different services and has patients with different levels of illness. This affects infection rates. For example, very sick immuno-compromised patients may be more likely to get infections. It is difficult to remove all of the factors outside the control of a hospital that can cause its infection rate to differ from other hospitals.

There are other reasons why hospitals should not be directly compared. These include:

- Some hospitals may look for infections more than others. This can affect rates for CDI and VRE.
- Hospital laboratories may use different ways of identifying organisms. A laboratory that has a very sensitive way of looking for organisms may find more.
- For hand hygiene, rural hospitals do not collect as much data as the four acute public hospitals, so comparisons between rural and acute hospitals are not recommended.

Appendix 2

Staphylococcus aureus bacteraemia (SAB)

Data which classifies healthcare associated *Staphylococcus aureus* bacteraemia into Criterion A (>48 after admission or <48 hours after discharge) OR Criterion B (≤ 48 hours after hospital admission and one of more key clinical criteria met) is available upon request.

Table 5 Tasmanian numbers and rate/10 000 patient days of healthcare associated SAB (HCA-SAB).

Quarter	Total HCA-SAB	Number MSSA	Number MRSA	HCA SAB Rate
Q3 2009	8	7	1	0.91
Q4 2009	10	10	0	1.15
Q1 2010	13	13	0	1.53
Q2 2010	7	7	0	0.84
Q3 2010	12	11	1	1.47
Q4 2010	10	7	3	1.27
Q1 2011	15	13	2	1.83
Q2 2011	5	5	0	0.67
Q3 2011	7	7	0	0.82
Q4 2011	6	4	2	0.85
Q1 2012	7	6	1	0.92
Q2 2012	7	6	1	0.91
Q3 2012	6	6	0	0.73
Q4 2012	10	9	1	1.28
Q1 2013	7	7	0	0.92
Q2 2013	8	7	1	0.90
Q3 2013	6	6	0	0.70
Q4 2013	7	7	0	0.84
Q1 2014	10	9	1	1.24
Q2 2014	12	10	2	1.43

Table 6 Royal Hobart Hospital numbers and rates/10 000 patient days of healthcare associated SAB.

Quarter	Total HCA-SAB	Number MSSA	Number MRSA	HCA SAB Rate
Q3 2009	2	2	0	0.48
Q4 2009	8	8	0	1.85
Q1 2010	11	11	0	2.68
Q2 2010	5	5	0	1.23
Q3 2010	8	7	1	1.86
Q4 2010	6	5	1	1.45
Q1 2011	6	4	2	1.51
Q2 2011	3	3	0	0.71
Q3 2011	2	2	0	0.50
Q4 2011	3	2	1	0.79
Q1 2012	2	2	0	0.54
Q2 2012	3	3	0	0.80
Q3 2012	3	3	0	0.75
Q4 2012	4	4	0	1.06
Q1 2013	2	2	0	0.56
Q2 2013	4	4	0	0.93
Q3 2013	2	2	0	0.49
Q4 2013	4	4	0	0.99
Q1 2014	3	3	0	0.80
Q2 2014	5	4	1	1.33

Table 7 Launceston General Hospital numbers and rates/10 000 patient days of healthcare associated SAB .

Quarter	Total HCA-SAB	Number MSSA	Number MRSA	HCA SAB Rate
Q3 2009	2	1	1	0.68
Q4 2009	2	2	0	0.69
Q1 2010	1	1	0	0.36
Q2 2010	2	2	0	0.71
Q3 2010	3	3	0	1.04
Q4 2010	3	1	2	1.08
Q1 2011	5	5	0	1.84
Q2 2011	2	2	0	0.67
Q3 2011	5	5	0	1.67
Q4 2011	1	1	0	0.36
Q1 2012	2	1	1	0.79
Q2 2012	2	2	0	0.78
Q3 2012	2	2	0	0.73
Q4 2012	6	5	1	2.27
Q1 2013	4	4	0	1.53
Q2 2013	4	3	1	1.32
Q3 2013	3	3	0	0.99
Q4 2013	3	3	0	1.03
Q1 2014	4	4	0	1.36
Q2 2014	3	2	1	1.00

Table 8 Mersey Community Hospital numbers and rates/10 000 patient days of healthcare associated SAB.

Quarter	Total HCA-SAB	Number MSSA	Number MRSA	HCA SAB Rate
Q3 2009	3	3	0	4.38
Q4 2009	0	0	0	0.00
Q1 2010	0	0	0	0.00
Q2 2010	0	0	0	0.00
Q3 2010	1	1	0	1.58
Q4 2010	0	0	0	0.00
Q1 2011	3	3	0	4.64
Q2 2011	0	0	0	0.00
Q3 2011	0	0	0	0.00
Q4 2011	1	0	1	1.79
Q1 2012	1	1	0	1.86
Q2 2012	1	1	0	1.67
Q3 2012	1	1	0	1.59
Q4 2012	0	0	0	0.00
Q1 2013	0	0	0	0.00
Q2 2013	0	0	0	0.00
Q3 2013	0	0	0	0.00
Q4 2013	0	0	0	0.00
Q1 2014	2	2	0	3.94
Q2 2014	0	0	0	0.00

Table 9 North West Regional Hospital numbers and rates/10 000 patient days of healthcare associated SAB.

Quarter	Total HCA-SAB	Number MSSA	Number MRSA	HCA SAB Rate
Q3 2009	1	1	0	1.07
Q4 2009	0	0	0	0.00
Q1 2010	1	1	0	1.02
Q2 2010	0	0	0	0.00
Q3 2010	0	0	0	0.00
Q4 2010	1	1	0	1.02
Q1 2011	1	1	0	1.19
Q2 2011	0	0	0	0.00
Q3 2011	0	0	0	0.00
Q4 2011	1	1	0	1.16
Q1 2012	2	2	0	2.56
Q2 2012	1	0	1	1.28
Q3 2012	0	0	0	0.00
Q4 2012	0	0	0	0.00
Q1 2013	1	1	0	1.21
Q2 2013	0	0	0	0.00
Q3 2013	1	1	0	1.12
Q4 2013	0	0	0	0.00
Q1 2014	1	0	1	1.16
Q2 2014	4	4	0	3.75

Clostridium difficile infection (CDI)

Table 10 Tasmanian numbers and rates/10 000 patient days of CDI.

Quarter	Total hospital identified CDI	Rate	Total HCA HCF	Rate
Q3 2009	19	2.3	11	1.4
Q4 2009	37	4.6	18	2.2
Q1 2010	24	3.0	15	1.9
Q2 2010	34	4.4	19	2.5
Q3 2010	34	4.3	30	3.8
Q4 2010	35	4.4	27	3.4
Q1 2011	35	4.7	22	2.9
Q2 2011	35	4.3	18	2.2
Q3 2011	43	5.4	25	3.1
Q4 2011	66	8.9	42	5.6
Q1 2012	50	7.1	24	3.4
Q2 2012	43	6.0	27	3.8
Q3 2012	39	5.1	18	2.4
Q4 2012	45	6.2	26	3.6
Q1 2013	50	7.1	31	4.4
Q2 2013	57	7.4	27	3.5
Q3 2013	55	6.9	31	3.9
Q4 2013	42	5.4	16	2.1
Q1 2014	47	6.3	23	3.1
Q2 2014	27	3.5	13	1.7

Table 11 Hospital numbers and rates/10 000 patient days of **hospital identified** CDI.

Quarter	Royal Hobart		Launceston General		Mersey Community		NW Regional	
	Total	Rate	Total	Rate	Total	Rate	Total	Rate
Q3 2009	8	2.1	9	3.3	1	1.6	1	1.1
Q4 2009	25	6.4	6	2.2	1	1.7	5	5.8
Q1 2010	10	2.7	9	3.5	2	3.5	3	3.1
Q2 2010	18	4.9	10	3.8	1	1.9	5	5.6
Q3 2010	25	6.7	5	1.9	3	5.1	1	1.1
Q4 2010	25	6.6	4	1.5	3	4.9	3	3.1
Q1 2011	25	6.9	7	2.8	2	3.3	2	2.4
Q2 2011	25	6.5	5	1.8	3	4.9	2	2.2
Q3 2011	24	6.5	10	3.6	6	10.8	3	3.2
Q4 2011	34	9.8	18	7.0	6	11.5	8	9.4
Q1 2012	32	9.4	13	5.5	2	4.0	3	3.9
Q2 2012	23	6.7	12	5.0	4	7.3	4	5.2
Q3 2012	24	6.6	6	2.4	3	5.1	6	7.3
Q4 2012	24	6.9	7	2.8	4	7.9	10	12.3
Q1 2013	31	9.4	8	3.3	4	7.7	7	8.6
Q2 2013	32	8.7	9	3.4	5	9.8	11	13.2
Q3 2013	34	9.1	6	2.1	4	7.0	11	12.5
Q4 2013	25	6.8	7	2.6	4	7.3	6	7.3
Q1 2014	22	6.4	8	2.9	6	12.5	11	13.2
Q2 2014	11	3.2	6	2.1	4	7.3	6	3.1

Table 12 Hospital numbers and rates/10 000 patient days of HCA-HCF CDI.

Quarter	Royal Hobart		Launceston General		Mersey Community		NW Regional	
	Total	Rate	Total	Rate	Total	Rate	Total	Rate
Q3 2009	6	1.6	5	1.8	0	0.0	0	0.0
Q4 2009	12	3.1	3	1.1	1	1.7	2	2.3
Q1 2010	7	1.9	5	1.9	0	0.0	3	3.1
Q2 2010	12	3.3	4	1.5	1	1.9	2	2.2
Q3 2010	21	5.6	5	1.9	3	5.1	1	1.1
Q4 2010	20	5.3	4	1.5	2	3.2	1	1.0
Q1 2011	15	4.1	5	2.0	2	3.3	0	0.0
Q2 2011	14	3.7	2	0.7	1	1.6	1	1.1
Q3 2011	15	4.1	6	2.1	4	7.2	0	0.0
Q4 2011	21	6.0	14	5.4	3	5.8	4	4.7
Q1 2012	18	5.3	5	2.1	0	0.0	1	1.3
Q2 2012	17	5.0	6	2.5	2	3.6	2	2.6
Q3 2012	12	3.3	3	1.2	1	1.7	2	2.4
Q4 2012	18	5.2	3	1.2	1	2.0	4	4.9
Q1 2013	24	7.2	5	2.1	1	1.9	1	1.2
Q2 2013	16	4.4	5	1.9	3	5.9	3	3.6
Q3 2013	22	5.9	1	0.4	2	3.5	6	6.8
Q4 2013	12	3.2	4	1.5	0	0.0	0	0.0
Q1 2014	13	3.8	4	1.4	2	4.2	4	4.8
Q2 2014	7	2.0	2	0.7	1	1.8	3	3.1

Hand hygiene compliance data June 2014

Table 13 Hand hygiene compliance rates by Tasmanian hospital and state level

Hospital Name	HH Correctly Performed	HH Moments	Compliance rate	Lower 95% confidence interval	Upper 95% confidence interval
Royal Hobart	2179	2723	80.0%	78.5%	81.5%
LGH	1306	1830	71.4%	69.3%	73.4%
Mersey	469	544	86.2%	83.1%	88.9%
NWRH	711	942	75.5%	72.6%	78.1%
Midlands MPC	38	52	73.1%	59.7%	83.2%
New Norfolk	40	54	74.1%	61.1%	83.9%
Beaconsfield	71	75	94.7%	87.1%	97.9%
Campbell Town	43	51	84.3%	72.0%	91.8%
Deloraine	103	119	86.6%	79.3%	91.6%
Flinders Is. MPC	51	55	92.7%	82.7%	97.1%
George Town	63	75	84.0%	74.1%	90.6%
NESM Scottsdale	58	73	79.5%	68.8%	87.1%
St Helens	46	56	82.1%	70.2%	90.0%
St Marys CHC	49	59	83.1%	71.5%	90.5%
King Island	54	58	93.1%	83.6%	97.3%
Smithton	46	56	82.1%	70.2%	90.0%
Healthwest	49	56	87.5%	76.4%	93.8%
Tas Public TOTAL	**5376**	**6878**	**78.2%**	**77.2%**	**79.1%**

Table 14 Tasmanian hand hygiene compliance rates by moment

Moments	HH Correctly Performed	Total HH Moments	Compliance rate	Lower 95% confidence interval	Upper 95% confidence interval
Moment 1	1299	1767	73.5%	71.4%	75.5%
Moment 2	379	494	76.7%	72.8%	80.2%
Moment 3	612	721	84.9%	82.1%	87.3%
Moment 4	1588	1873	84.8%	83.1%	86.3%
Moment 5	1498	2023	74.0%	72.1%	75.9%
Tas Public TOTAL	**5376**	**6878**	**78.2%**	**77.2%**	**79.1%**

Table 15 Tasmanian hand hygiene compliance rates by healthcare worker

Staff Type - Public	HH Correctly Performed	HH Moments	Compliance rate	Lower 95% confidence interval	Upper 95% confidence interval
Clerical	6	15	40.0%	19.8%	64.3%
Allied Health	213	267	79.8%	74.6%	84.2%
Domestic	146	221	66.1%	59.6%	72.0%
Invasive Technician	59	72	81.9%	71.5%	89.1%
Doctor	630	940	67.0%	64.0%	70.0%
Nurse/Midwife	3781	4648	81.3%	80.2%	82.4%
Other	5	13	38.5%	17.7%	64.5%
Personal care staff	294	391	75.2%	70.7%	79.2%
Student Personal carer	4	4	100.0%	51.0%	100.0%
Student Doctor	36	44	81.8%	68.0%	90.5%
Student Nurse/Midwife	199	259	76.8%	71.3%	81.6%
Student Allied Health	3	4	75.0%	30.1%	95.4%
Tas Public TOTAL	**5376**	**6878**	**78.2%**	**77.2%**	**79.1%**