PUBLIC HEALTH SERVICES

Tasmanian Acute Public Hospitals

Healthcare Associated Infection Surveillance Report

Report 26 – Annual Report 2014-2015

Department of Health and Human Services

Tasmanian Government

Tasmanian Acute Public Hospitals Healthcare Associated Infection Surveillance Report

Public Health Services

Department of Health and Human Services, Tasmania

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Editors

- Ms Anne Wells, TIPCU
- Ms Fiona Wilson, TIPCU
- Dr Alistair McGregor, TIPCU
- Dr Brett Mitchell, Avondale College, Faculty of Nursing and Health, Wahroonga, NSW

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Peer reviewed and approved by the Tasmanian Healthcare Associated Infection Advisory Committee and the Acting Director of Public Health, DHHS Tasmania.

Notes

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

Public Health Services

Department of Health and Human Services

GPO Box 125 Hobart 7001

www.dhhs.tas.gov.au/tipcu

tipcu@dhhs.tas.gov.au

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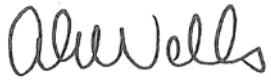
Executive summary

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.

Any form of comparison between hospitals should be done with caution because data are not adjusted for patient characteristics that vary between hospitals. Further, the relatively small Tasmanian population and small number of events can result in volatility of rates from time to time. The raw data in the appendices illustrates this.

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. This report contains the following findings.

- The rate of healthcare associated *Staphylococcus aureus* bacteraemia (SAB) remains low.
- There has been a small decrease in the number of community associated SAB during 2014-15.
- The number and rate of both 'hospital identified *Clostridium difficile* infection (CDI)' and 'healthcare associated-healthcare facility onset (HCA-HCF) CDI, are lower in 2014-15 compared to 2013-14.
- The numbers of new isolates of VRE have increased over the first two months of 2015.
- There remains room for improvement in the judicious use of antibiotics, in line with best practice, in some Tasmanian acute care settings.
- All hospitals have a hand hygiene compliance rate above the National Benchmark of 70 per cent.



Ms Anne Wells

Assistant Director of Nursing, TIPCU

Dr Alistair McGregor

Specialist Medical Advisor, TIPCU

Progress

The past year has seen a continuation of work in the area of infection prevention and control in Tasmania. This work is in line with the overarching objectives detailed in the 'Strategy for the prevention and control of healthcare associated infection in Tasmania 2013 – 2015'.

The TIPCU review was undertaken in 2014 to specifically examine the role and function, accountabilities, key relationships and appropriate resourcing of TIPCU. The findings of the review indicate there is strong support for the maintenance of the current TIPCU service and a desire for further enhancement and expansion in some areas.

The strategy will expire at the end of 2015 and with the move to One Health System from 1 July 2015 it is a good time to review and re-set the goals and objectives for infection prevention and control in Tasmania. The recommendations from the TIPCU Review will inform the new Infection Prevention and Control Strategy to be published in 2016.

2014-15 TIPCU achievements of particular note include:

Governance

- review and updating of statewide infection prevention and control policies, procedures and protocols for those working in the DHHS
- ongoing involvement with work undertaken by the Australian Commission of Safety & Quality in Healthcare
- provision of advice in relation to the Tasmanian response to the threats associated with Ebola and Middle East Respiratory Syndrome (MERS)
- submission on behalf of Tasmania infection control stakeholders during the development of the One Health System
- Closer organisational links with the Communicable Diseases Prevention Unit (CDPU) within Public Health Services.

Education and Training

- provision of infection prevention and control education and training programs in acute, non-acute, aged care and mental health settings as well as for ambulance Tasmania and the TAFE Enrolled Nurse program
- facilitation of a Healthcare Associated Infection Surveillance Workshop and Seminar on the newly published Australian/New Zealand Standard for Cleaning, Disinfection and Sterilisation
- access to and development of online training resources for acute, non-acute and rural hospital settings
- review of a range of guidance and information for healthcare workers and the public on key issues related to healthcare associated infections.

Progress (continued)

Surveillance

- implementation and continuation of surveillance programs based on nationally agreed methodology and Tasmanian notifiable microorganisms
- provision of an environmental cleaning assessment program
- provision of process surveillance modules for non-acute healthcare settings including an antimicrobial use surveillance module for rural hospitals and non-acute settings.

Staphylococcus aureus bacteraemia (SAB)

Staphylococcus aureus, a common cause of serious healthcare associated bloodstream infection, causes significant patient morbidity and has an estimated mortality of around 25-30 per cent. Many healthcare associated *Staphylococcus aureus* bloodstream infections (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 patient's 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 four key clinical criteria was met (Criterion B).

The National Healthcare Agreement (2011) target is no more than two HCA SAB/10 000 patient days.

Tasmanian rates

Figure 1 and **Figure 2** presents the Tasmanian combined acute public hospital rates of healthcare associated *Staphylococcus aureus* bacteraemia (HCA SAB) by quarter and by financial year.

Figure 1 Healthcare associated *Staphylococcus aureus* bacteraemia rate by quarter

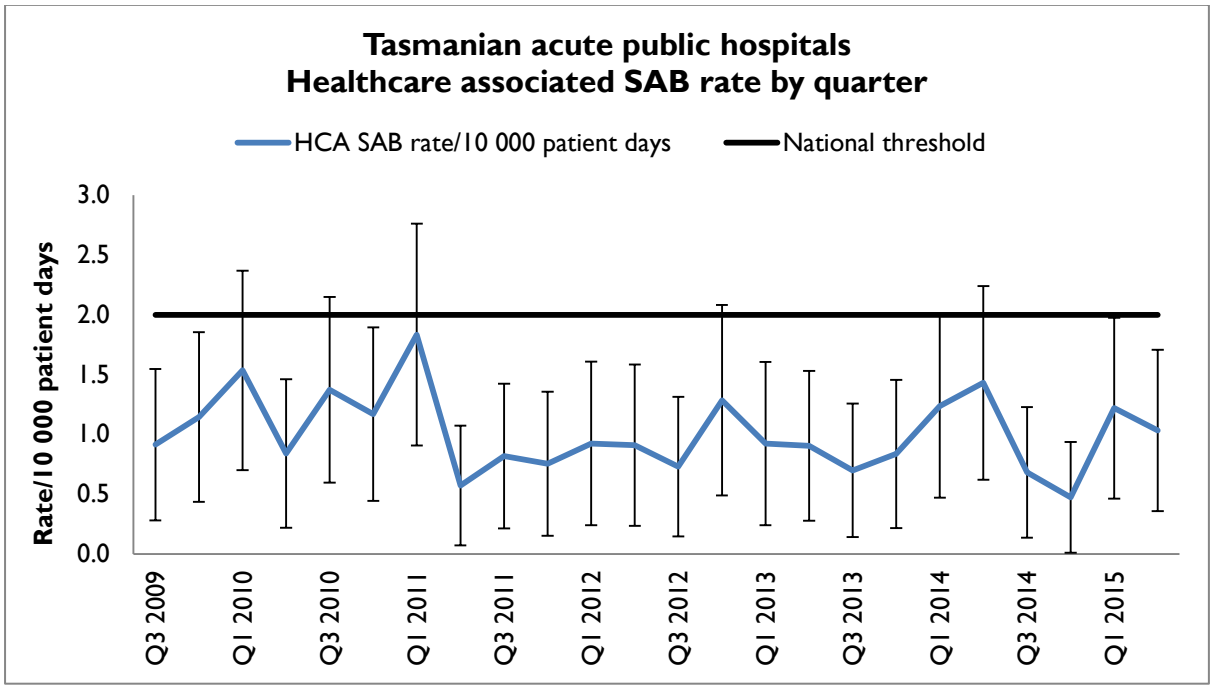
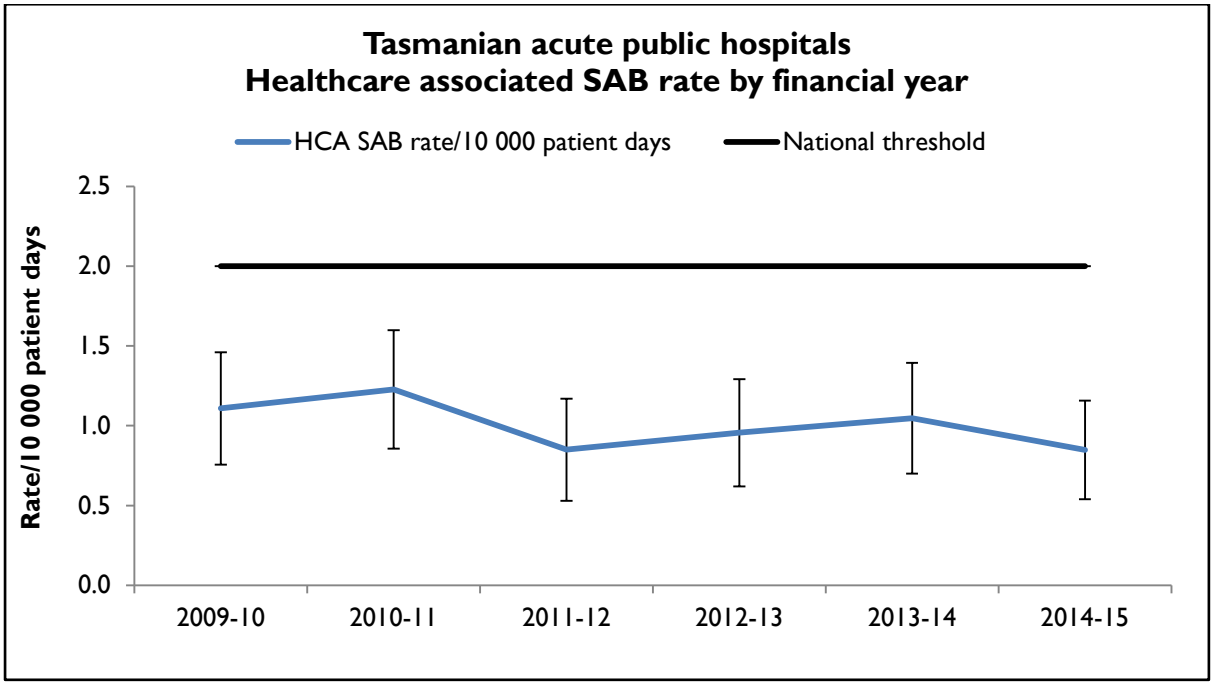


Figure 2 Healthcare associated *Staphylococcus aureus* bacteraemia rate by financial year



- The rate of healthcare associated *Staphylococcus aureus* bacteraemia for Q2 2015 was one per 10 000 patient days (95 per cent CI 0.4 – 1.7) and the rate of healthcare associated *Staphylococcus aureus* bacteraemia for 2014-15 was 0.8 per 10 000 patient days (95 per cent CI 0.5-1.2).
- The quarterly and annual Tasmanian combined acute public hospital HCA SAB rates remain less than the National Healthcare Agreement target of no more than two HCA SAB/10 000 patient days.

Hospital rates

Figure 3 and **Figure 4** present the individual acute public hospitals rates of healthcare associated *Staphylococcus aureus* bacteraemia. This information is also contained in tables within the appendix.

Figure 3 Healthcare associated *Staphylococcus aureus* bacteraemia - rate by quarter

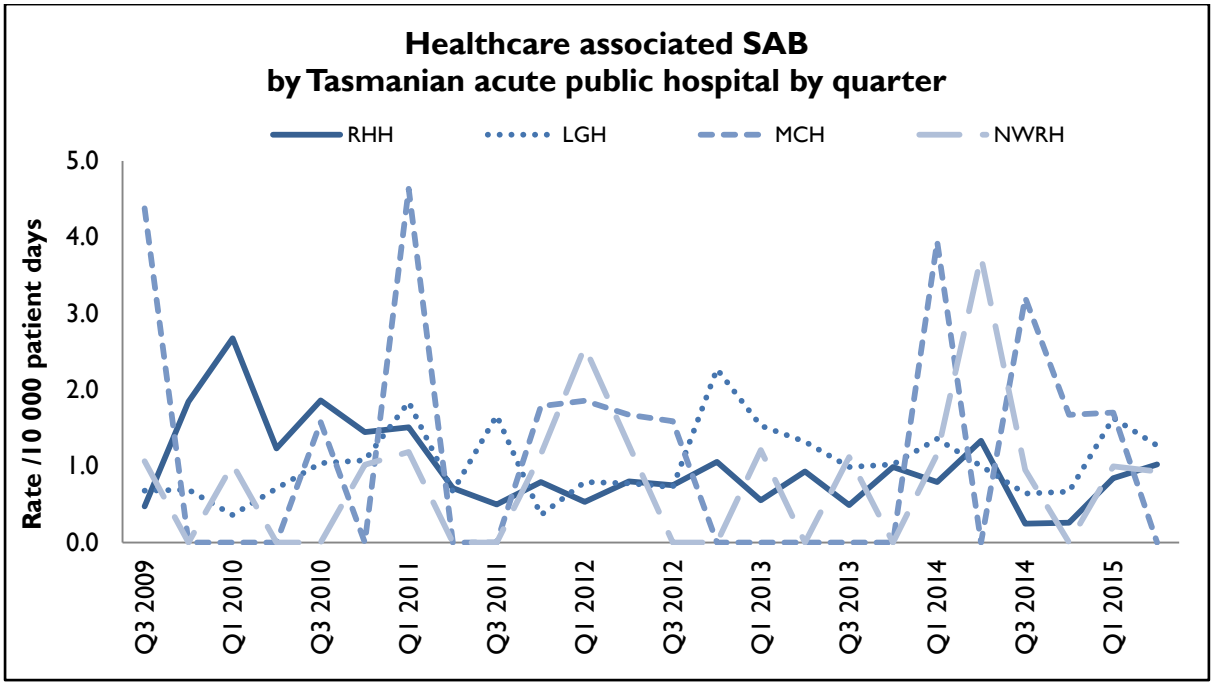
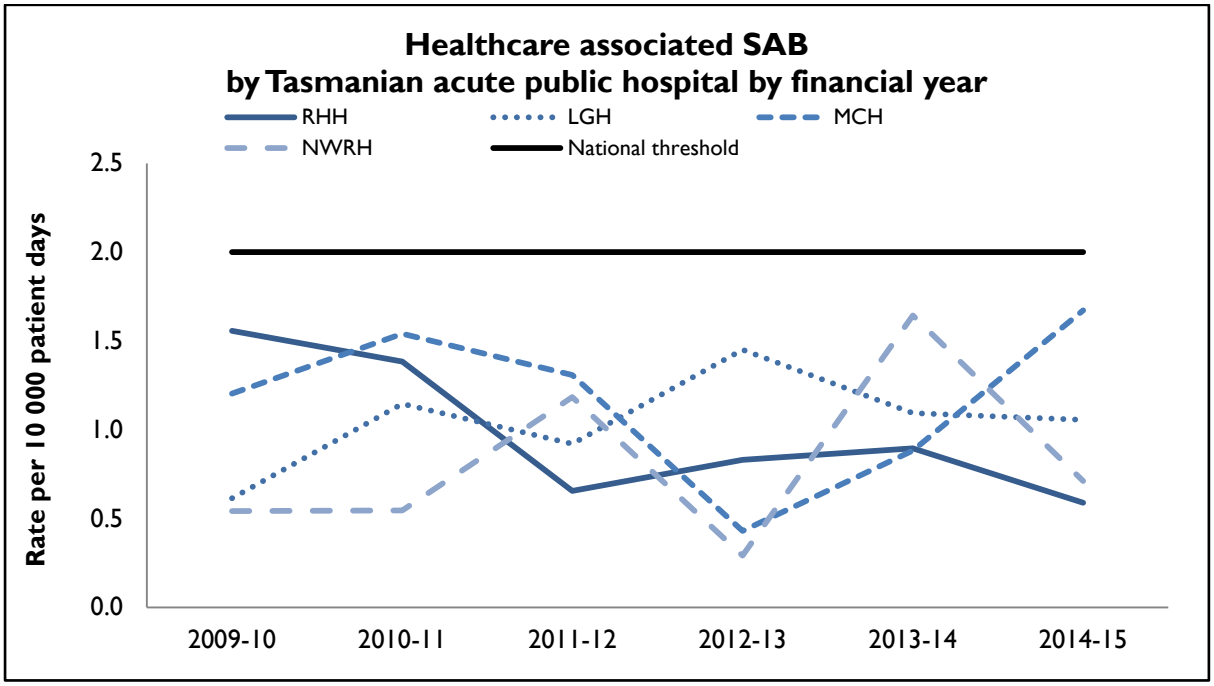


Figure 4 Healthcare associated *Staphylococcus aureus* bacteraemia - rate by financial year

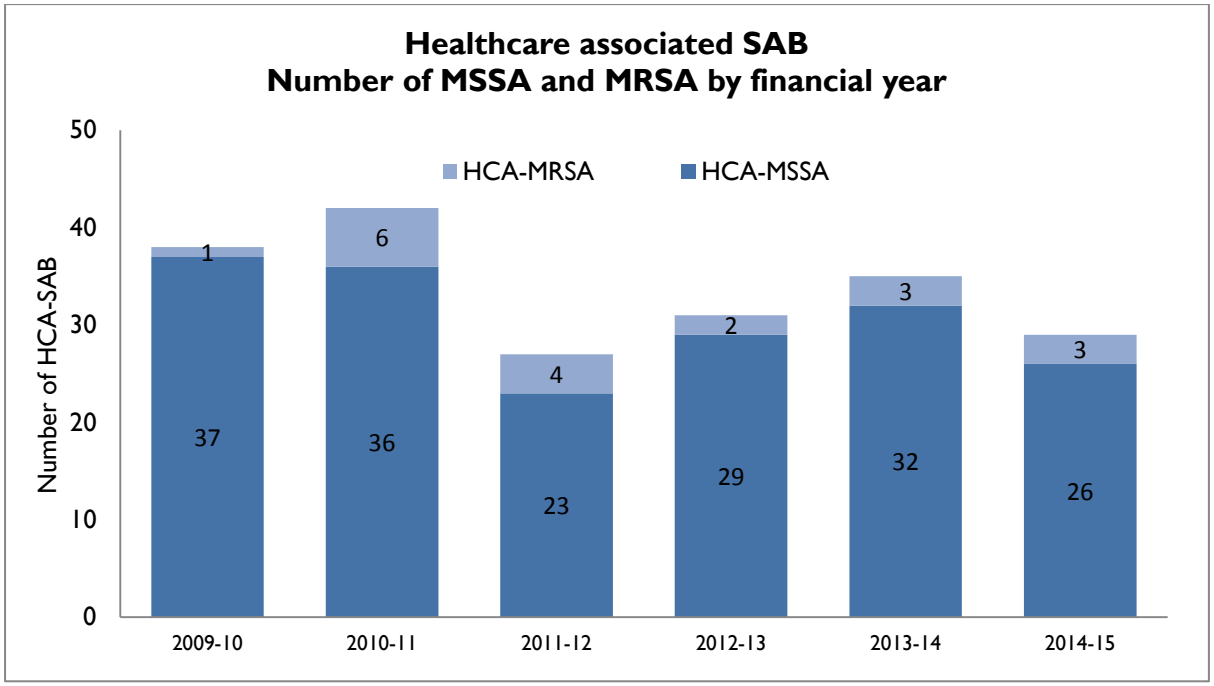


- During 2014-15 all of the larger public hospitals had annual HCA SAB rates below the National Healthcare Agreement target of no more than two HCA SAB/10 000 patient days.

HCA SAB related to MSSA or MRSA

Figure 5 presents HCA-SAB numbers caused by methicillin sensitive *Staphylococcus aureus* (HCA-MSSA) and methicillin resistant *Staphylococcus aureus* (HCA-MRSA) by financial year.

Figure 5 Healthcare associated MSSA and MRSA SAB – number by financial year

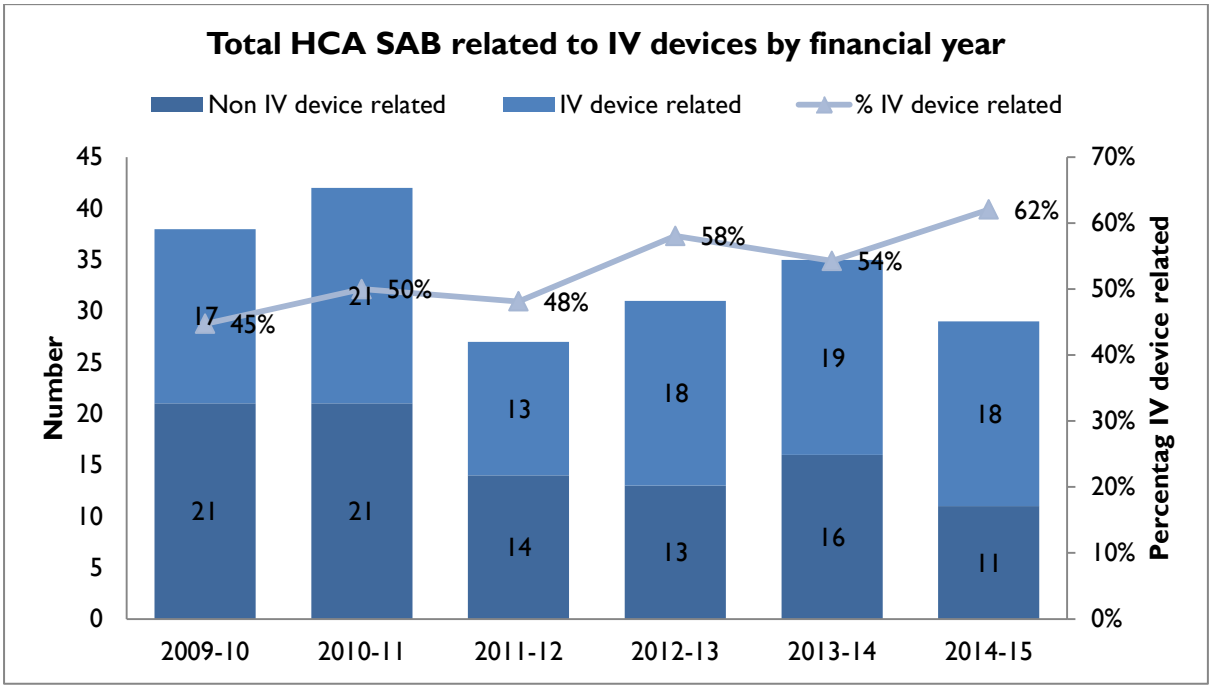


The number of HCA- MRSA SAB remains low and has remained stable over the past three years.

HCA SAB related to IV devices

Healthcare associated SAB are classified where possible into four categories. These classify whether the HCA SAB was related to an indwelling device, a surgical wound infection, invasive instrumentation or neutropenia. TIPCU reports annually on all HCA SAB related to one type of indwelling device – intravenous devices (IV devices). **Figure 6** presents the number and percentage of IV device related HCA SAB.

Figure 6 Total IV device related HCA – SAB – number and percentage by financial year



- The number of HCA SAB secondary to an IV device has remained stable over the past few years but the overall proportion has been increasing.
- This is an area where infection prevention strategies such as intravenous device management procedures and processes, in conjunction with aseptic technique, can reduce the risk of patients developing a SAB secondary to an IV device. These strategies should be implemented and evaluated n all healthcare settings where IV devices are used.

Community associated SAB

Figure 7 and **Figure 8** present the Tasmanian number and incidence/100 000 population of community associated SAB (CA-SAB) by financial year and presents 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

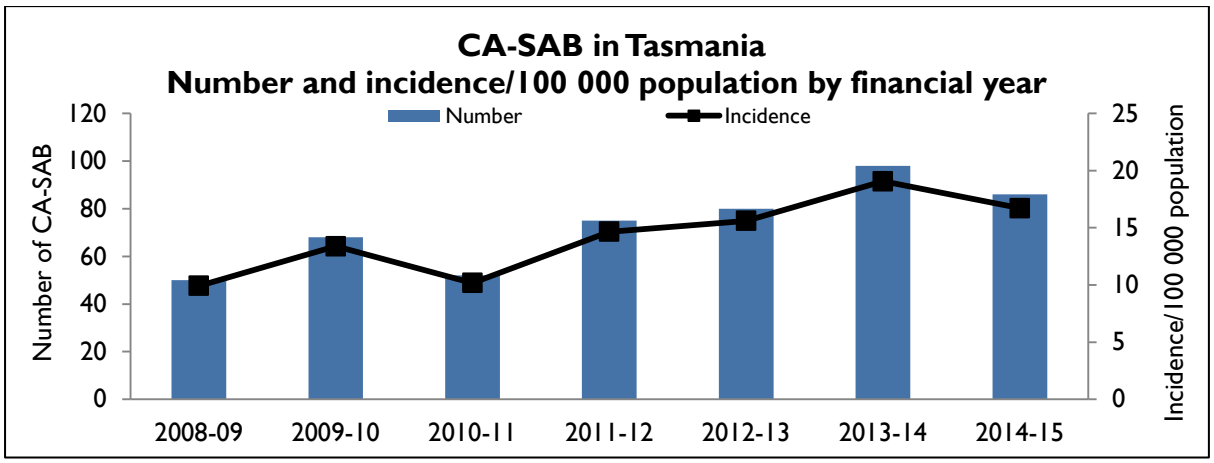
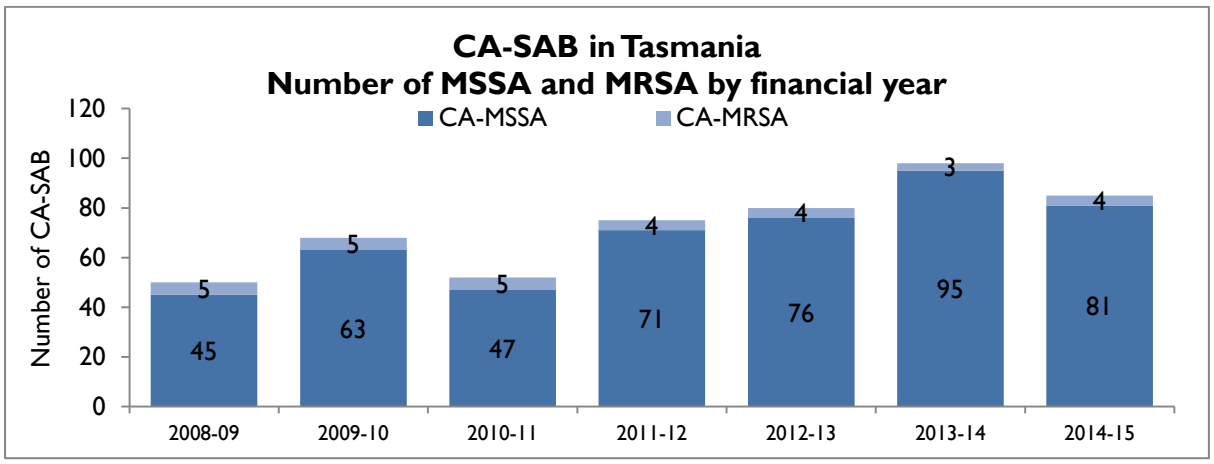


Figure 8 Community associated CA-SAB – number of MSSA and MRSA/financial year



- There has been a small decrease in both the number and rates of community associated SAB during 2014-15 compared to 2013-14. The reasons for the earlier increase in community associated SAB, particularly in 2013-14, are unclear, but do not appear to be related to an increase in one or another region, or related to an increase in a particular age group.
- The number of CA-SAB caused by MRSA remains low.
- It is not possible to compare rates with other jurisdictions as Tasmania is the only state/territory where SAB is a notifiable disease.

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 ACSQHC's nationally agreed surveillance definitions. **Hospital identified CDI** are CDI infections identified in a hospital; this category includes healthcare facility and community associated infections.

Healthcare associated – healthcare facility onset (HCA-HCF) CDI are a sub-group of hospital identified cases. This category only includes infections that occurred 48 hours or more after a patient was admitted to hospital. The HCA – HCF rate excludes people who present to hospital with symptoms of CDI and/or develop symptoms within two days of admission.

TIPCU use a three point rolling average to calculate the average rate of the current and two previous quarters and uses this to show changes in trends over time. This rate will always be reported up to the end of the previous quarter. Data for the quarter are in the accompanying tables in Appendix 2.

Tasmanian rates

Figure 9 and **Figure 10** presents the Tasmanian combined acute public hospital rates of hospital identified CDI and HCA-HCF CDI by quarter and by financial year.

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

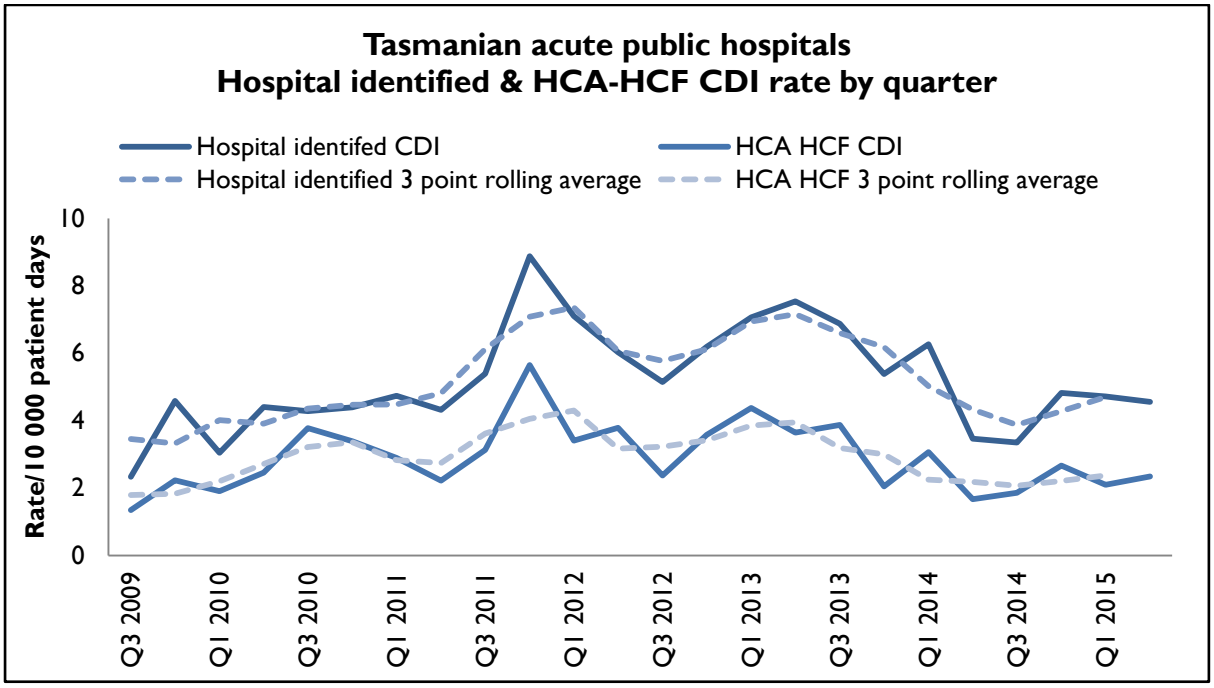
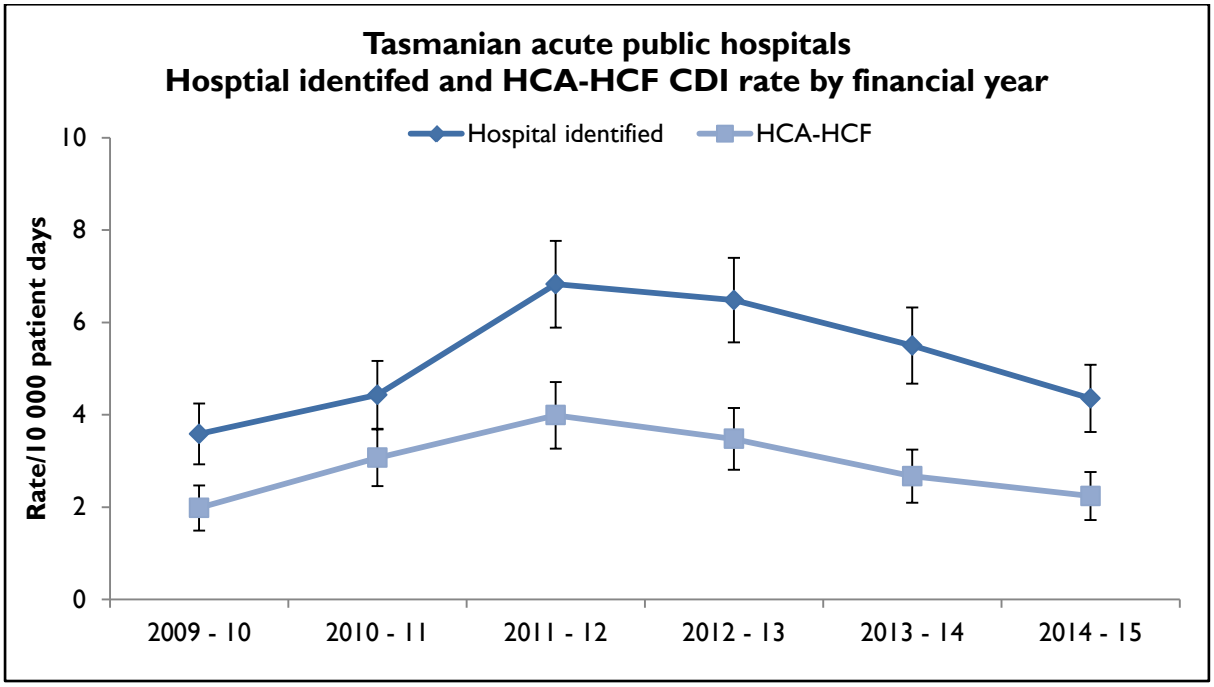


Figure 10 Hospital identified and HCA-HCF CDI - rate by financial year.



- The rate of hospital identified CDI for Q2 2015 was 4.6/10 000 patient days (95 per cent CI 3.1- 6) and the rate of HCA-HCF over the same period was 2.3/10 000 patient days (95 per cent CI 1.3-3.4).
- The mean (average) rate of hospital identified CDI between 1 July 2014 and 30 June 2015 was 4.4 per 10 000 patient days (95 per cent CI 3.6-5.1) and the mean rate of HCA-HCF CDI over the same period was 2.2 per 10 000 patient days (95 per cent CI 1.7-2.8).
- The number and rate of hospital identified and HCA-HCF have decreased over the past year and are at the lowest level since 2010-11.

Hospital rates – by quarter

Figure 11 and **Figure 12** presents the individual acute public hospital rates of **hospital identified CDI** and **healthcare associated – healthcare facility onset (HCA-HCF) CDI** by quarter**.**

Figure 11 Hospital identified CDI by quarter

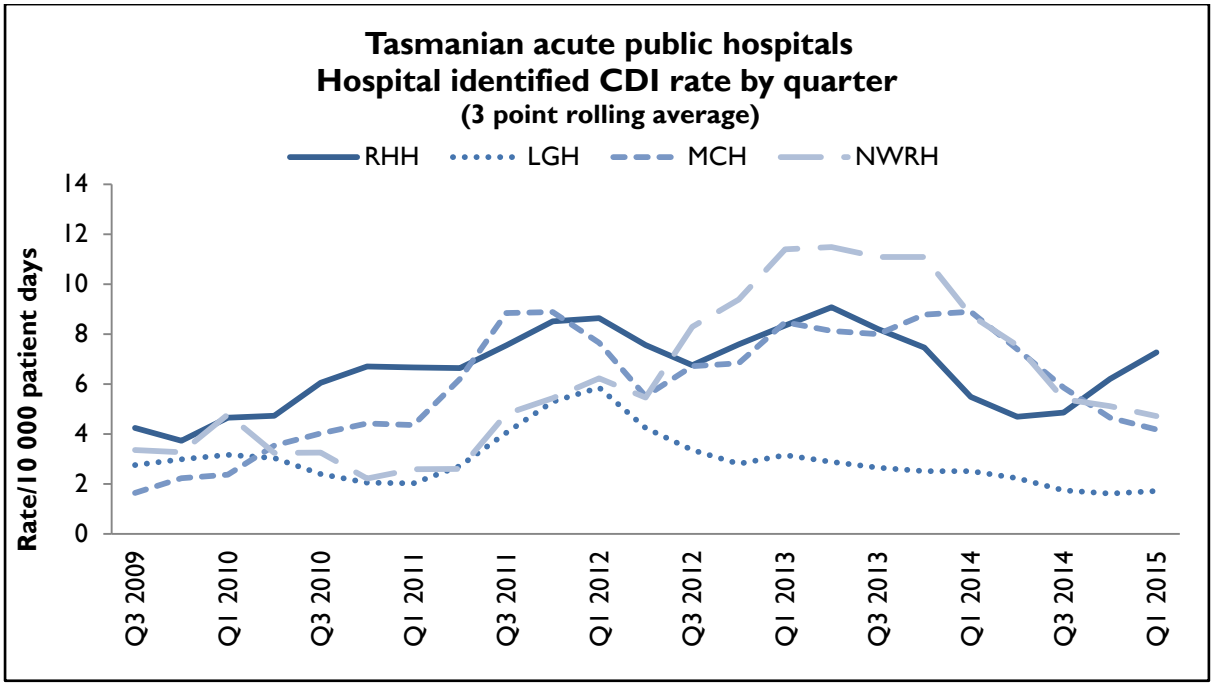
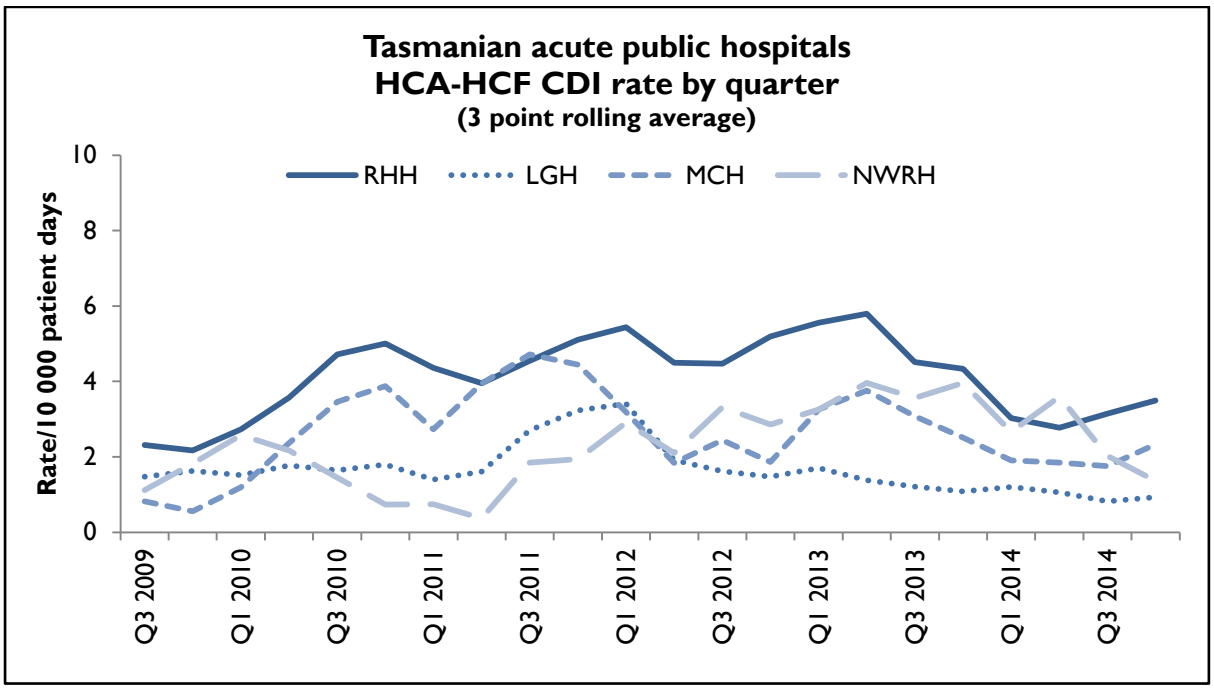


Figure 12 HCA-HCF CDI by quarter



Hospital rates – by financial year

Figure 13 and **Figure 14** presents the individual acute public hospital rates of **hospital identified CDI** and **healthcare associated – healthcare facility onset (HCA-HCF) CDI** by financial year.

Figure 13 Individual hospital identified CDI by financial year

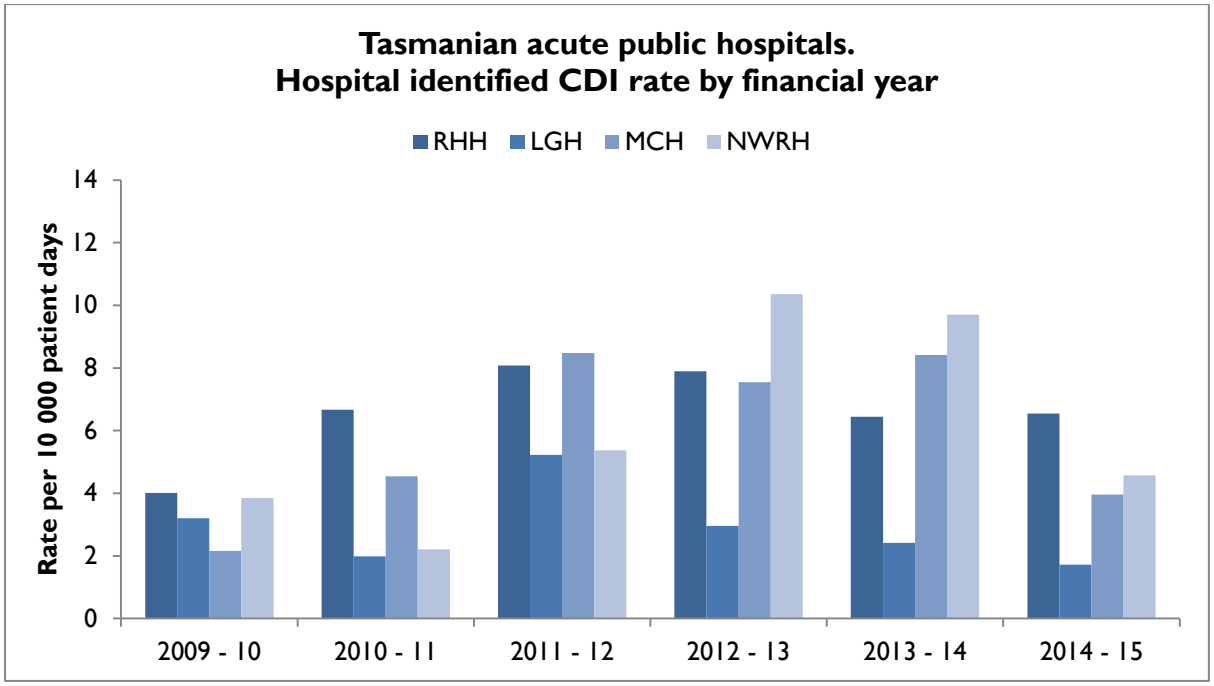
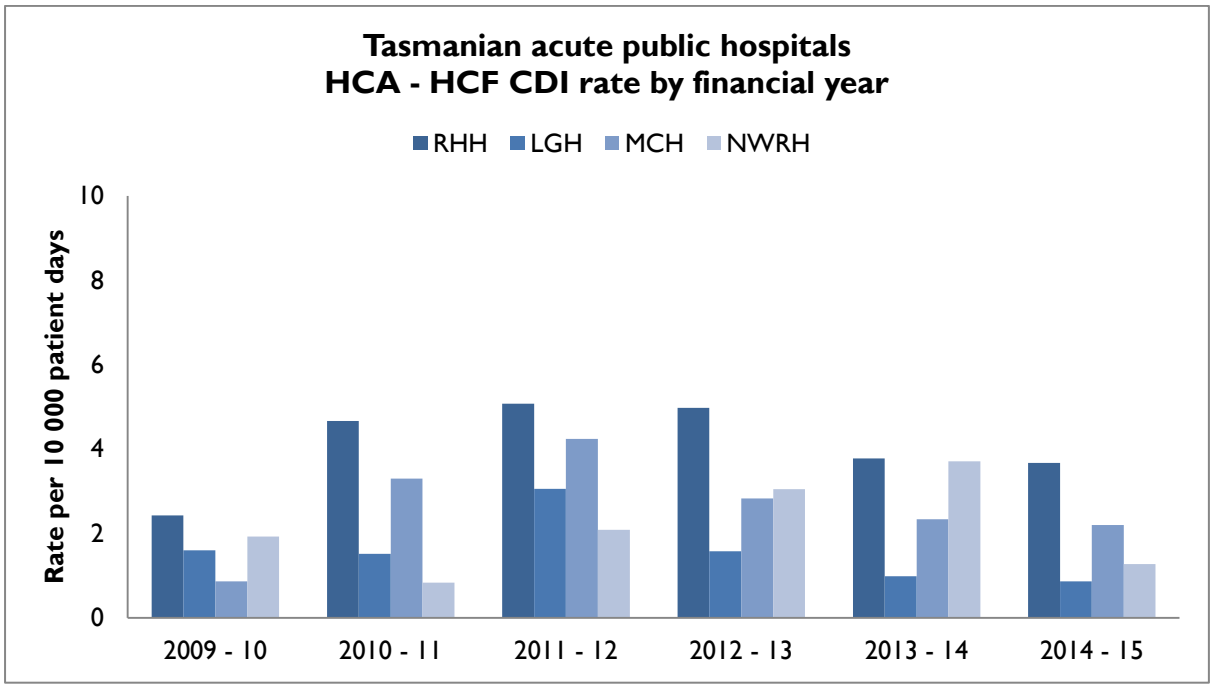


Figure 14 Individual hospital HCA-HCF CDI by financial year



Vancomycin resistant enterococcus (VRE)

Enterococci are bacteria 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 Enterococcus or VRE. VRE infections can be more difficult to treat then those caused by vancomycin sensitive Enterococci sensitive. Factors believed to contribute to the transmission of VRE in hospitals are ineffective infection control practices, overuse of antibiotics and suboptimal environmental cleanliness.

Identification of VRE is a notifiable condition in Tasmania pursuant to the *Public Health Act 1997*.

The number of people newly identified with VRE within hospitals via either a clinical or screening specimen, does not necessarily reflect that VRE was acquired at that hospital. Numbers of VRE isolates identified can be affected by the amount of screening undertaken by hospitals. Some hospitals may have a more intense screening program and hence may identify more VRE.

The total number of reported cases of people newly identified with VRE includes all new cases identified within Tasmania and includes isolates from public and private hospitals, rural hospitals, GP clinics and long term and residential care facilities.

Figure 15 and **Figure 16** present the total of all new VRE isolates identified within Tasmania by quarter and by financial year.

Figure 15 New VRE isolates by quarter

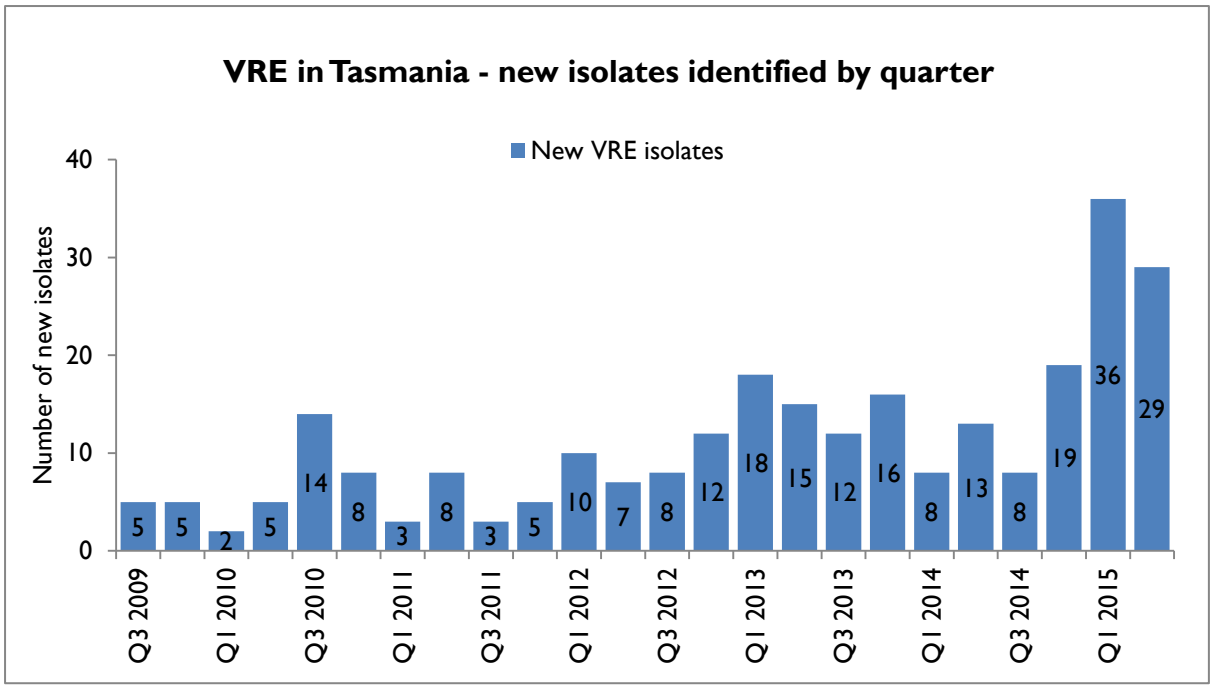
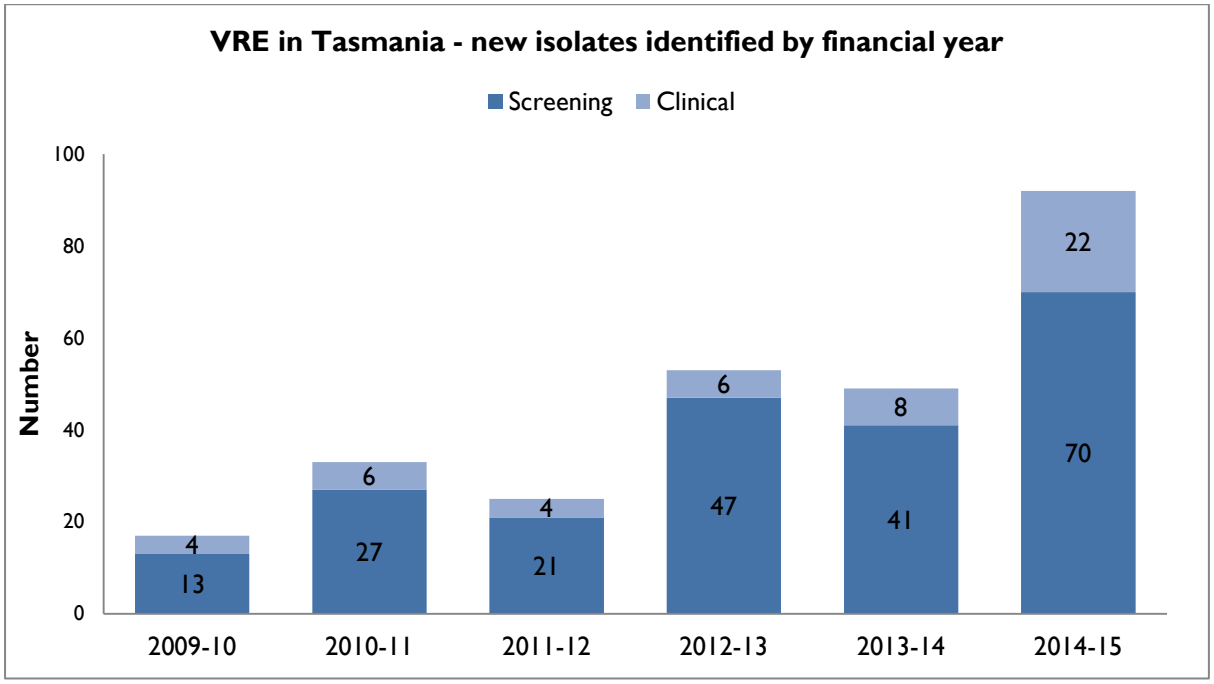


Figure 16 New VRE clinical and screening isolates by financial year



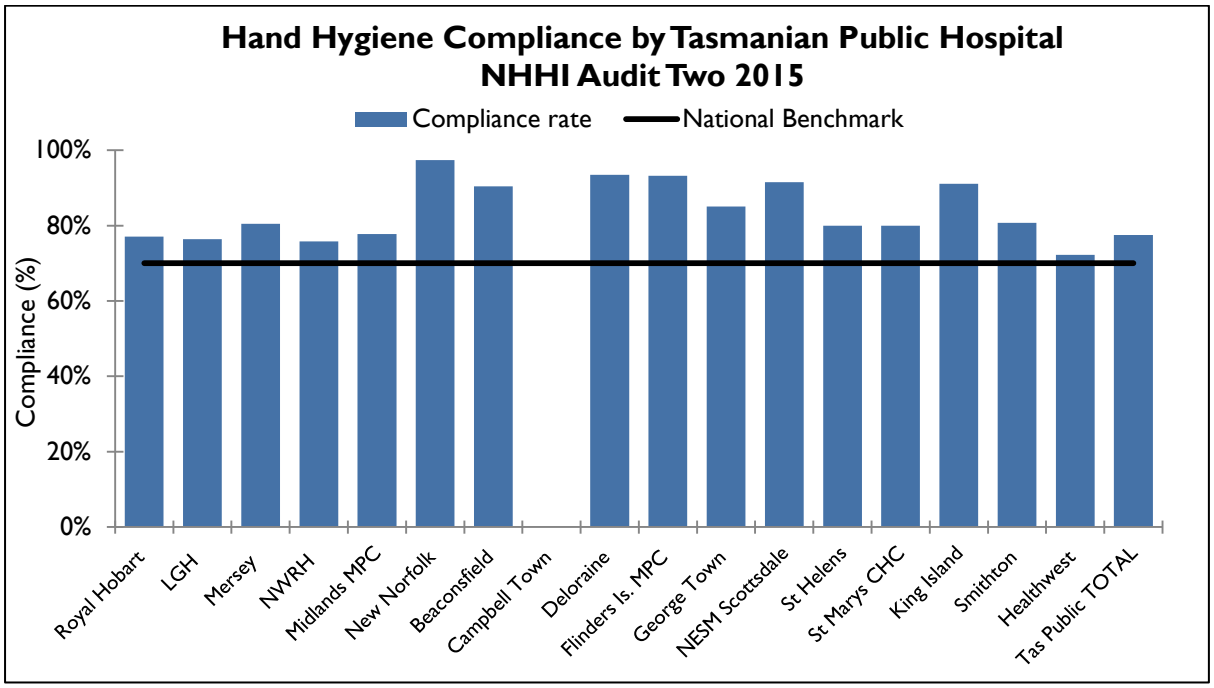
- There has been a large increase in newly identified VRE isolates in 2014-15 with the increase occurring from late 2014.
- In 2014-15 the number of both screening and clinical detections of VRE increased. This included four blood-steam infections identified in 2014-15. The blood stream isolates appeared epidemiologically unrelated and comprised at least three different strains of VRE.
- This increased identification has occurred across the State and is not solely associated with the acute public hospitals. TIPCU publish the hospital where the isolate was first identified – this does not necessarily mean VRE was acquired at that hospital.
- The reasons for this increase are not clear but could be related to one or more of the following factors:
    - transmission of VRE amongst hospitalised patients
    - VRE cases in the community presenting to hospital
    - improved screening processes leading to better targeted screening
    - an overall increase in screening.
- Management of people with VRE in acute hospitals includes using Contact Precautions – single room with ensuite (if available); staff wear gowns and gloves when caring for the patient, enhanced environmental cleaning and surveillance screening of contacts.
- Further molecular typing of a number of these new isolates to identify strain similarities to better understand the epidemiology of the increase is currently being undertaken.

Hand hygiene compliance data

The National Hand Hygiene Initiative was introduced in Tasmania in 2009 to increase healthcare workers hand hygiene compliance and monitor its effectiveness by measuring reductions in HCA SAB. Hand hygiene compliance is monitored by observing if healthcare workers perform hand hygiene at the appropriate times.

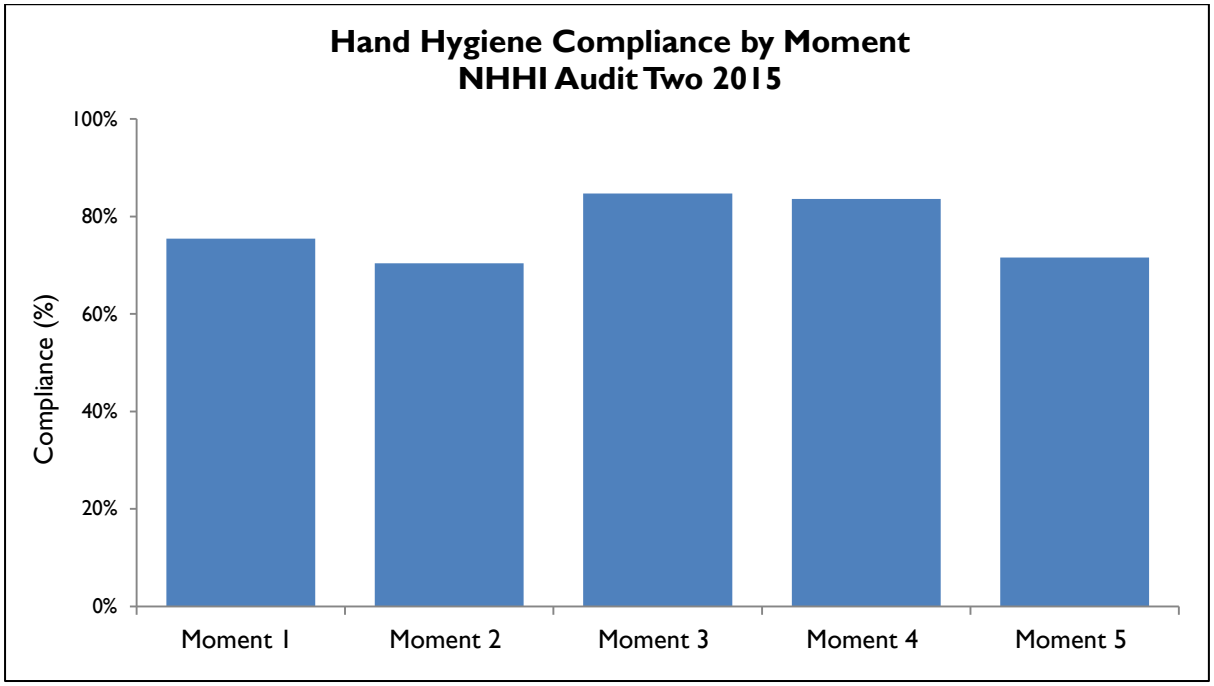
Tasmanian rates

Figure 17 Hand hygiene compliance in Tasmanian public hospitals



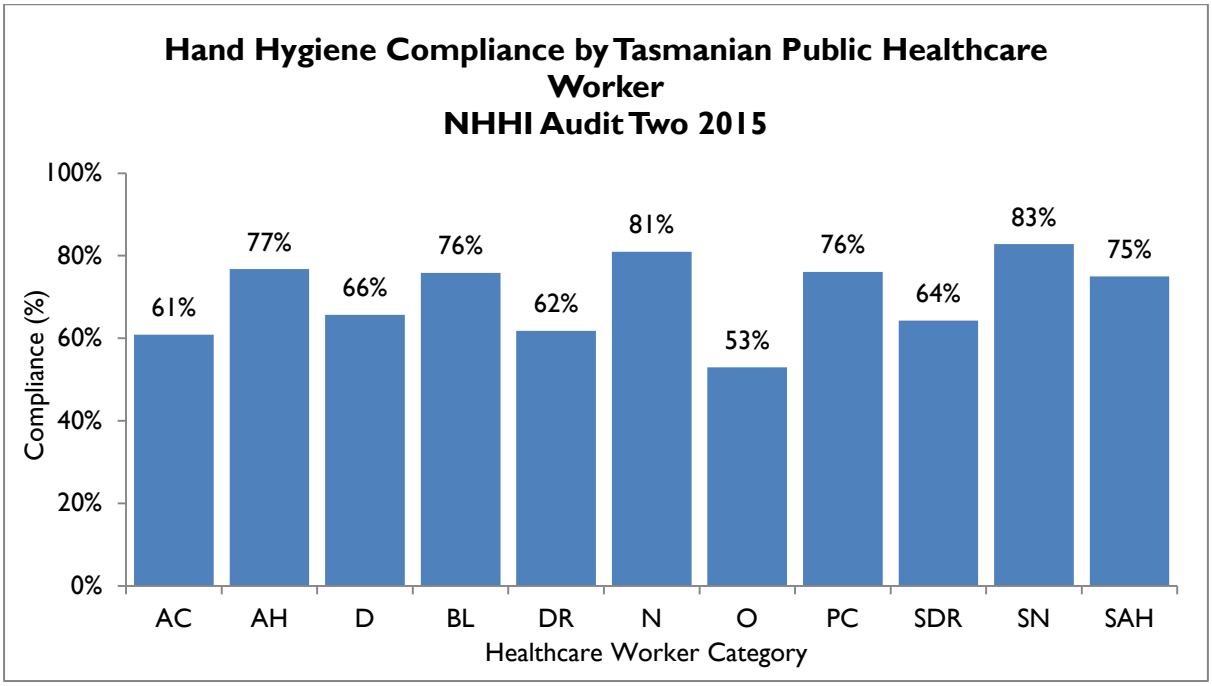
- Campbell Town Hospital did not submit hand hygiene compliance data for Audit period two, 2015.
- The National Hand Hygiene Compliance Benchmark is 70 per cent and this was exceeded by all of the individual participating hospitals. The overall Tasmanian public hospital rate of 79 per cent compliance was also above National Benchmark.
- There are differences in the number of hand hygiene moments observed in the acute hospitals versus the rural hospitals and these numbers are presented in the tables in Appendix 2

Figure 18 Hand hygiene compliance by moment



- 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).

Figure 19 Hand hygiene compliance by healthcare worker



AC	Clerical	DR	Doctor	SPC	Student Personal Carer
AH	Allied Health	N	Nurse/Midwife	SDR	Student Doctor
D	Domestic	O	Other	SN	Student Nurse/Midwife
BL	Invasive Technician	PC	Personal Care Staff	SAH	Student Allied Health

- There are differences in the number of hand hygiene moments observed in in each healthcare worker group and these numbers are presented in the tables in Appendix 2.
- The majority of hand hygiene compliance data (70 per cent in the latest report) is collected from nurse-patient interactions with the next highest being doctor-patient interactions (13 per cent).

Antibiotic utilisation surveillance

Antimicrobial use is inevitably associated with the emergence of antimicrobial-resistant bacteria. Antimicrobial resistance is a significant and growing threat to public health worldwide. The National Antimicrobial Utilisation Surveillance Program (NAUSP) began in 2004 to conduct surveillance of hospital antimicrobials, principally antibiotic use. The program enables individual institutions to examine their own antimicrobial use rates and trends over time and provides peer group benchmarks for comparison. This data can be used to identify 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 consumed each month per 1 000 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 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.

Because 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.

Hospital rates

Royal Hobart Hospital

Figure 20 Cephalosporin use – Royal Hobart Hospital

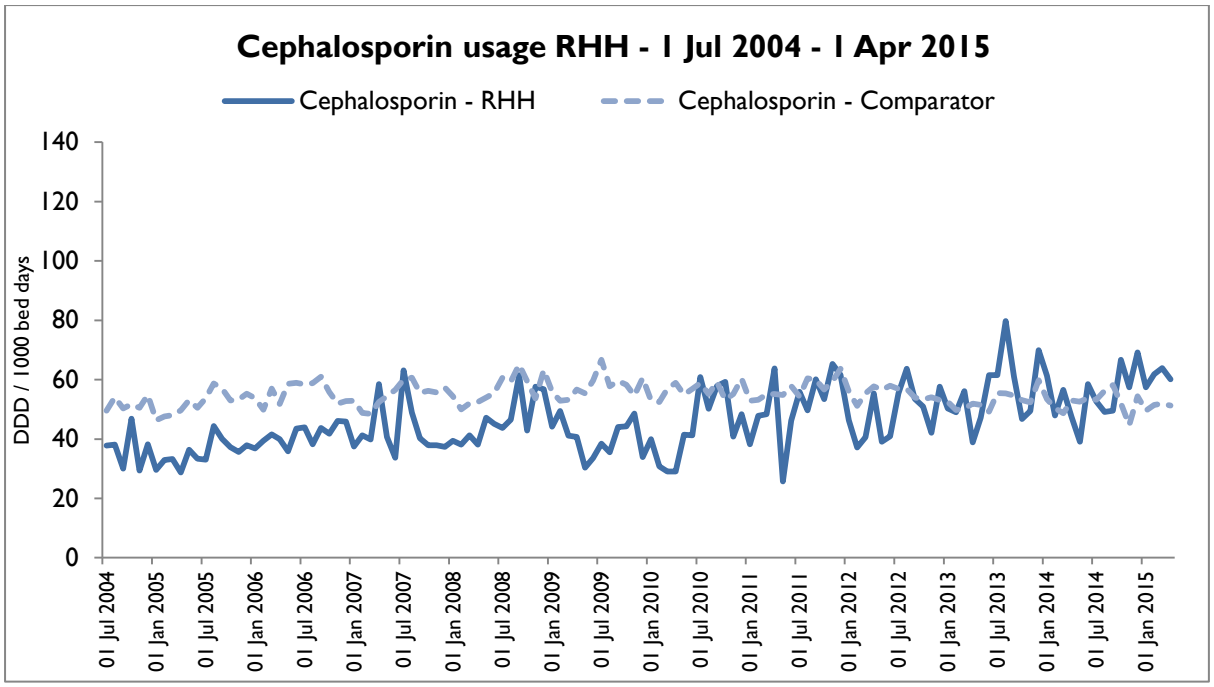
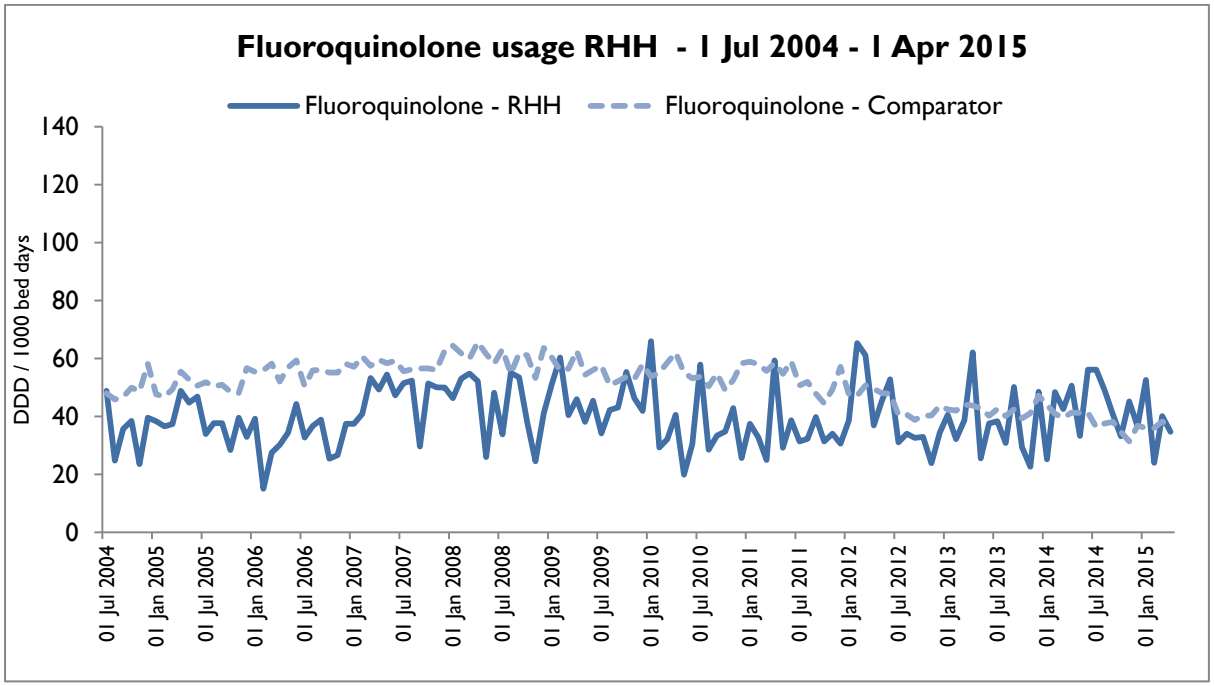


Figure 21 Fluoroquinolone use – Royal Hobart Hospital



Launceston General Hospital.

Figure 22 Cephalosporin use – Launceston General Hospital

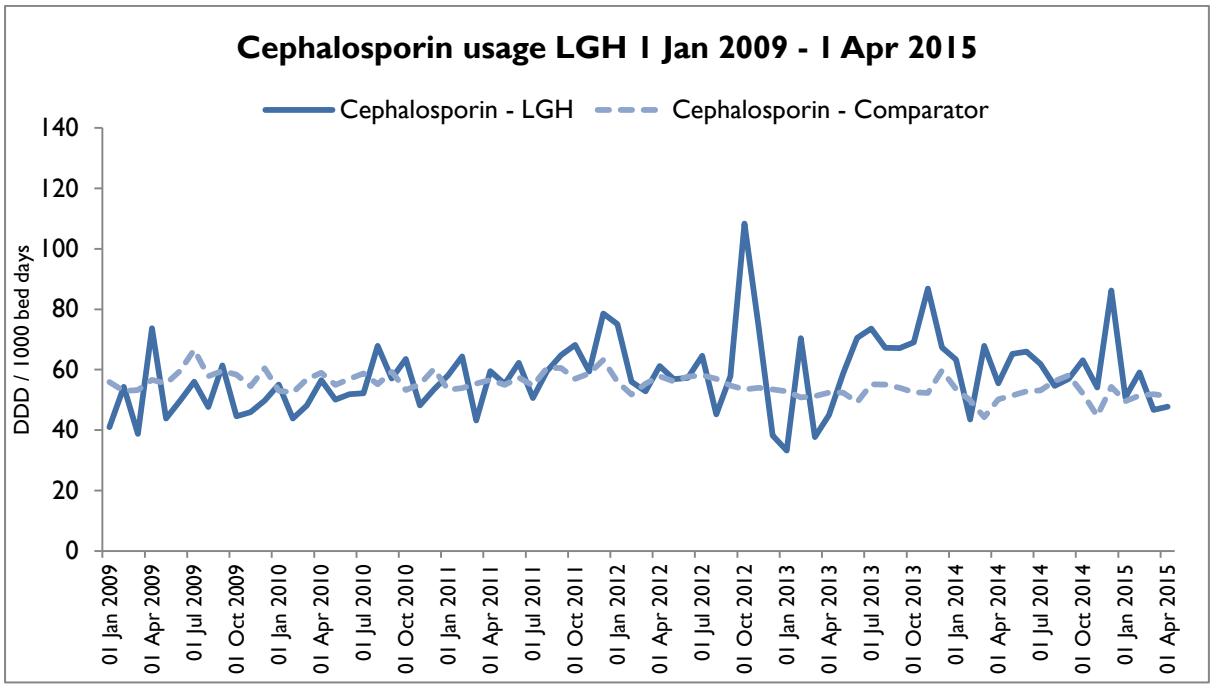
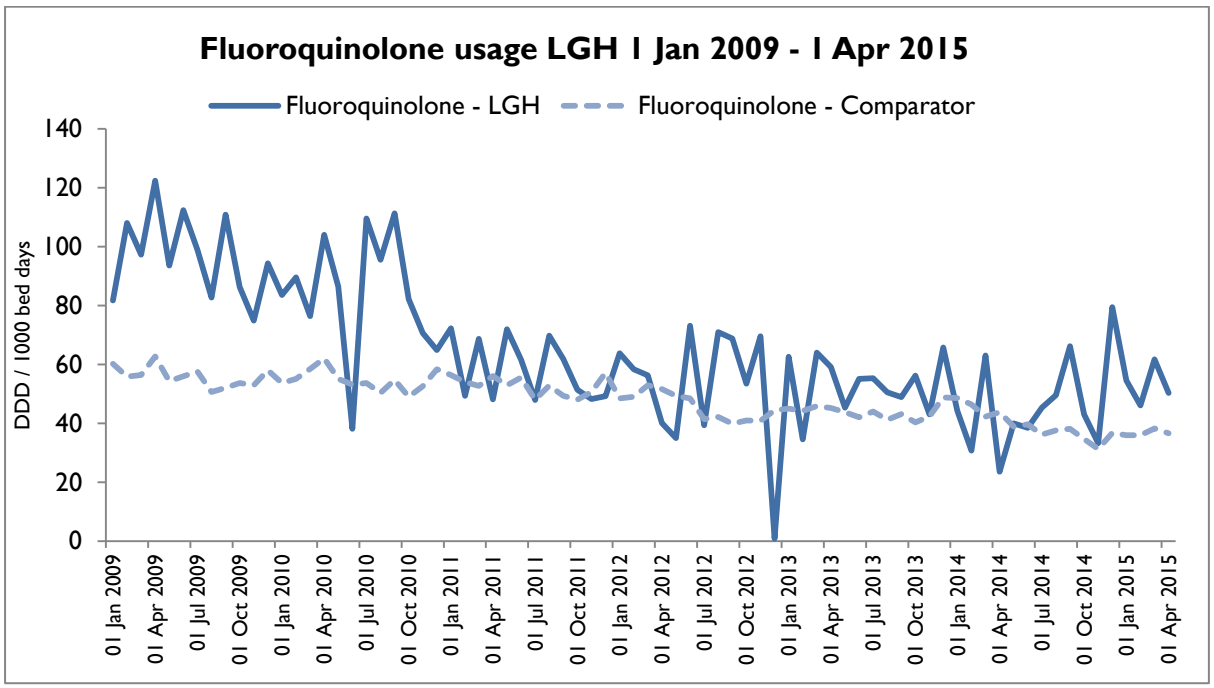


Figure 23 Fluoroquinolone use – Launceston General Hospital



Mersey Community Hospital

Figure 24 Cephalosporin use – Mersey Community Hospital

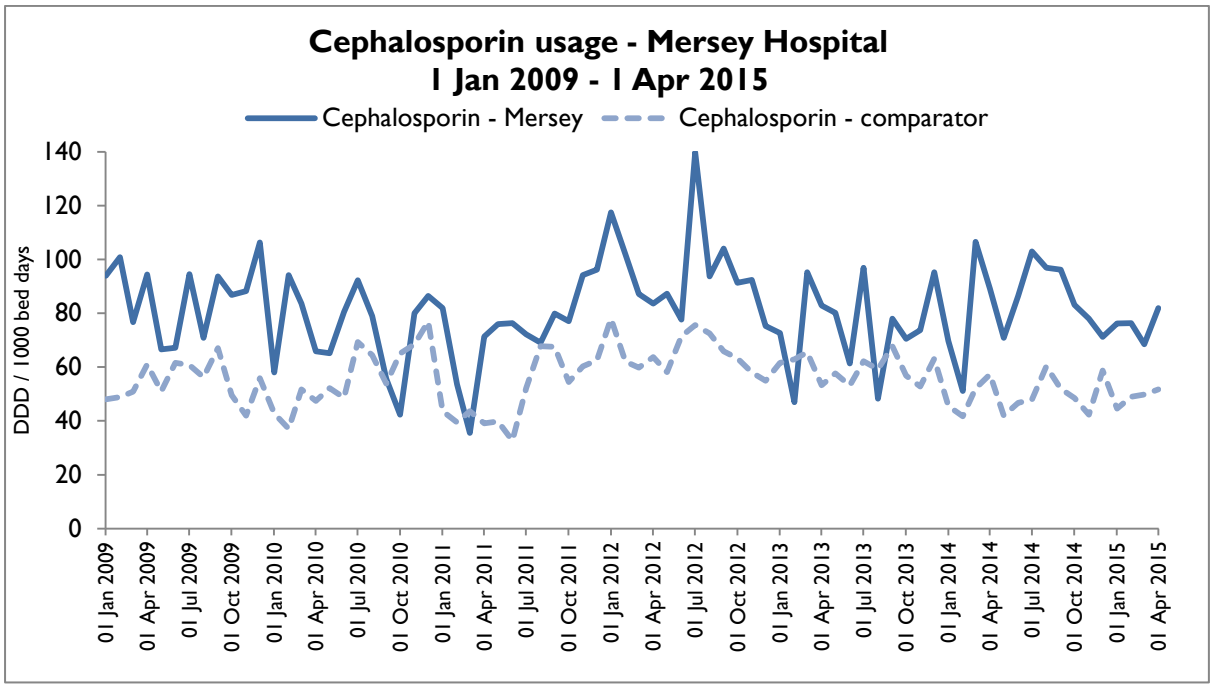
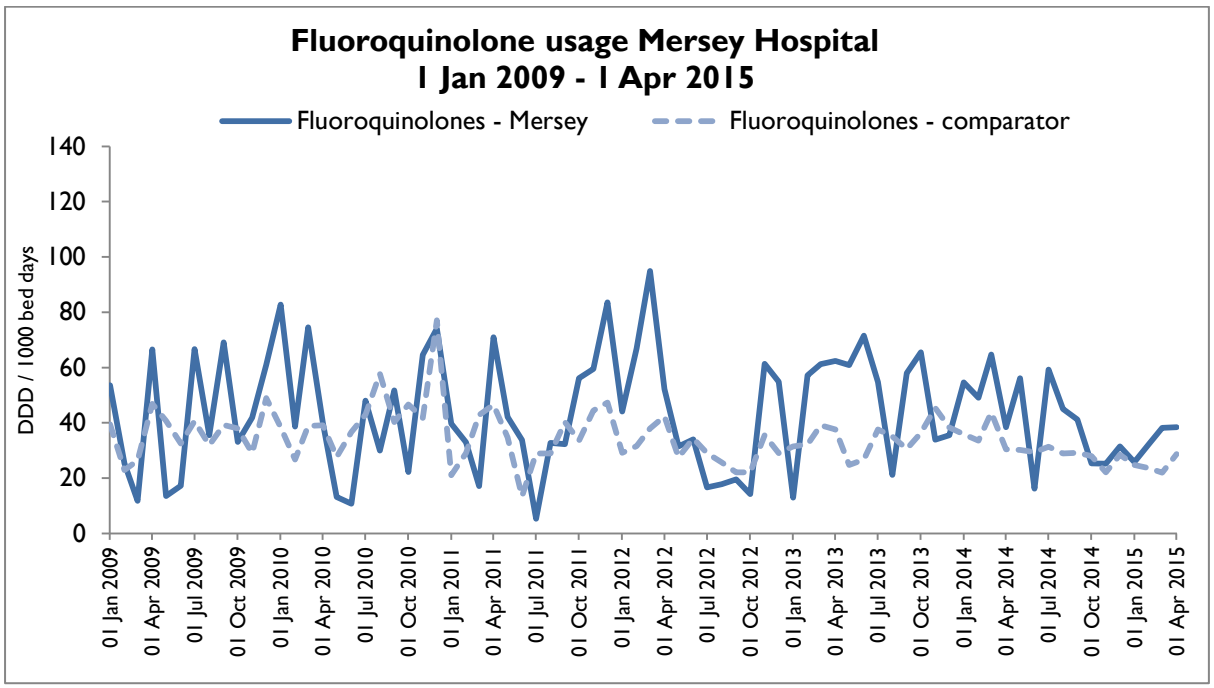


Figure 25 Fluoroquinolone use – Mersey Community Hospital



North West Regional Hospital

Figure 26 Cephalosporin use – North West Regional Hospital

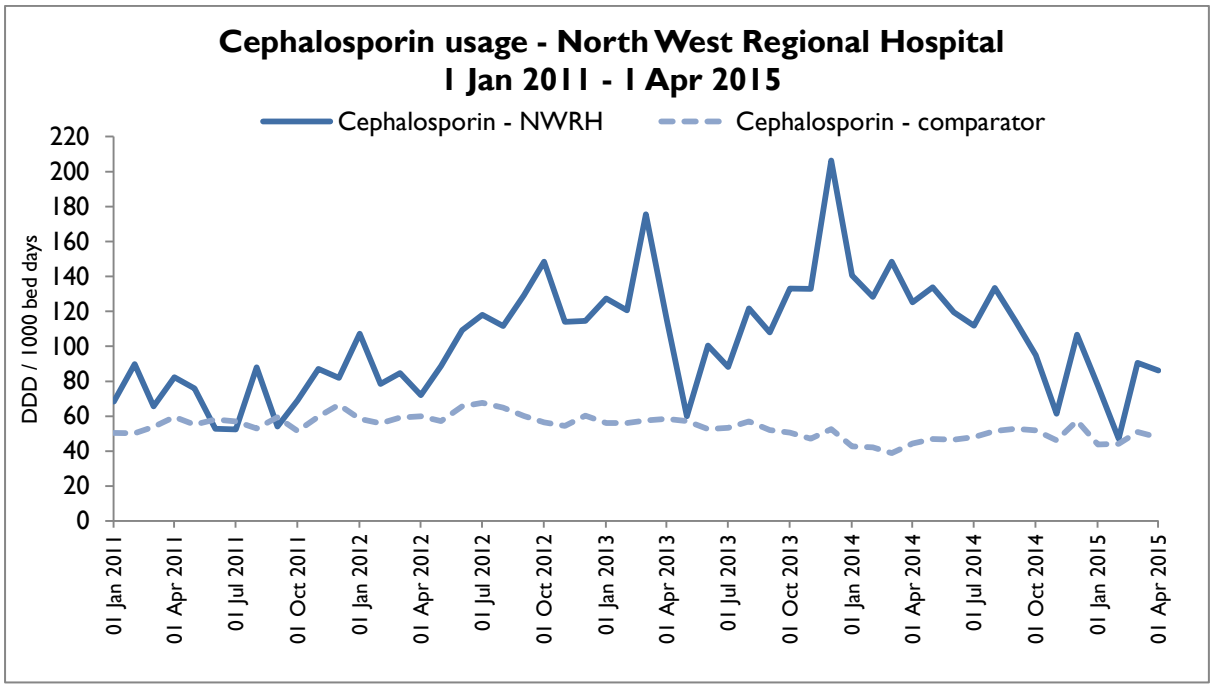
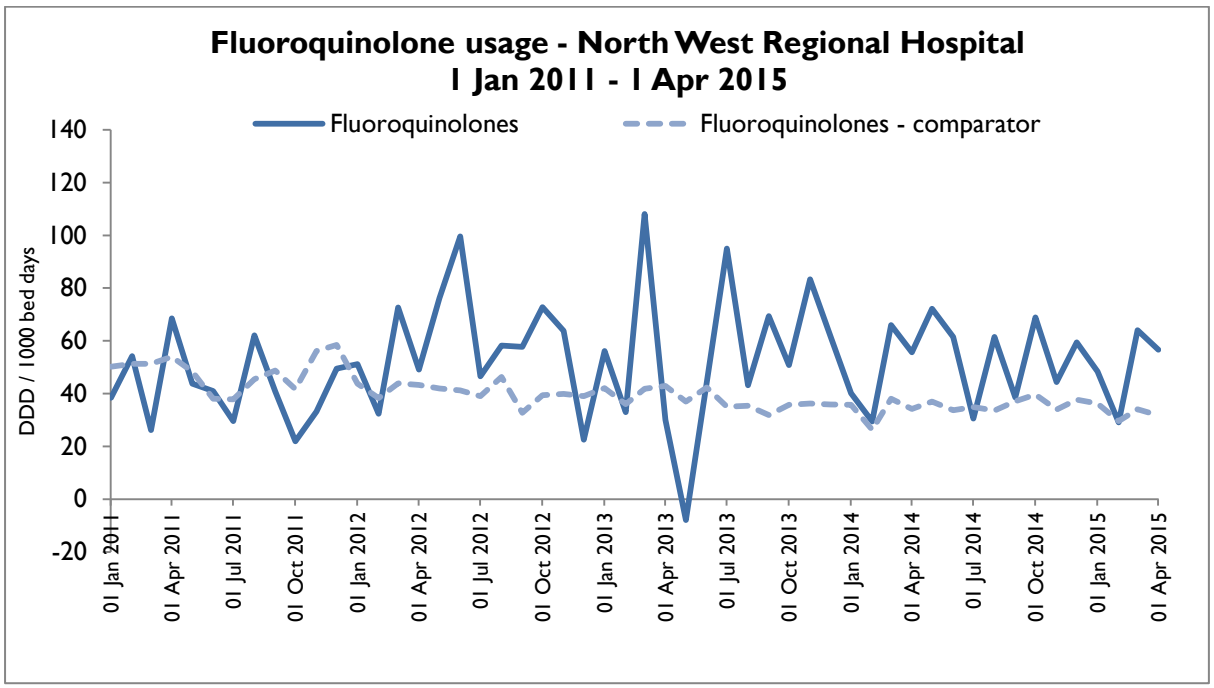


Figure 27 Fluoroquinolone use – North West Regional Hospital



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- Royal Hobart Hospital Infection Prevention and Control Unit
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- Hand Hygiene Australia
- Communicable Diseases Prevention Unit, Public Health Services
- Contributing Primary Health Sites

Appendix 1

Explanatory notes

What healthcare associated infection 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 *Clostridium difficile* infection (CDI)?

TIPCU use the national surveillance definitions published by the Australian Commission on Safety and Quality in Health Care (ACSQHC) to classify CDI. TIPCU reports on:

1. **Hospital identified CDI** is defined as a case diagnosed in a patient attending an acute care facility. This includes positive specimens obtained from admitted patients and those attending the emergency department and outpatient departments. This definition excludes patients less than two years old and cases with a positive test within the previous eight weeks.
2. **Healthcare associated – healthcare facility onset CDI** (HCA-HCF CDI) is defined as a patient with CDI symptom onset (or date and time of stool specimen collection if a laboratory system is used) more than 48 hours after admission to a healthcare facility. This definition excludes patients less than two years old and cases with a positive test within the previous 8 weeks.

What are the definitions for healthcare associated *Staphylococcus aureus* bacteraemia (SAB)?

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 (eg 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.

What are the definitions for vancomycin resistant enterococci (VRE)?

The definition for VRE is an isolate identified as VRE by an accredited laboratory. TIPCU reports on the total number of people with new isolates of VRE identified in Tasmania per quarter and this number includes all people with new VRE isolates from public and private hospitals, rural hospitals, GP clinics and long term and residential care facilities.

Confidence intervals

Confidence intervals are used to calculate the range in which the true rate probably lies. As an example, when looking at the hand hygiene compliance (HHC) 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. Hand Hygiene Australia (HHA) calculate 95 per cent confidence intervals, indicating the intervals in which 95 per cent of the time the true compliance level lies." (HHA 2011)

Patient care days

Patient days is the term 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 a 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.

Other reasons for caution when comparing hospitals include:

- some hospitals may screen patients 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 that 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 1 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	0.9
Q4 2009	10	10	0	1.1
Q1 2010	13	13	0	1.5
Q2 2010	7	7	0	0.8
Q3 2010	12	11	1	1.4
Q4 2010	10	7	3	1.2
Q1 2011	15	13	2	1.8
Q2 2011	5	5	0	0.6
Q3 2011	7	7	0	0.8
Q4 2011	6	4	2	0.8
Q1 2012	7	6	1	0.9
Q2 2012	7	6	1	0.9
Q3 2012	6	6	0	0.7
Q4 2012	10	9	1	1.3
Q1 2013	7	7	0	0.9
Q2 2013	8	7	1	0.9
Q3 2013	6	6	0	0.7
Q4 2013	7	7	0	0.8
Q1 2014	10	9	1	1.2
Q2 2014	12	10	2	1.4
Q3 2014	6	6	0	0.7
Q4 2014	4	4	0	0.5
Q1 2015	10	9	1	1.2
Q2 2015	9	7	2	1.0

Table 2 Royal Hobart Hospital numbers and rates/10 000 patient days of HCA-SAB

Quarter	Total HCA-SAB	Number MSSA	Number MRSA	HCA SAB Rate
Q3 2009	2	2	0	0.5
Q4 2009	8	8	0	1.8
Q1 2010	11	11	0	2.7
Q2 2010	5	5	0	1.2
Q3 2010	8	7	1	1.9
Q4 2010	6	5	1	1.4
Q1 2011	6	4	2	1.5
Q2 2011	3	3	0	0.7
Q3 2011	2	2	0	0.5
Q4 2011	3	2	1	0.8
Q1 2012	2	2	0	0.5
Q2 2012	3	3	0	0.8
Q3 2012	3	3	0	0.8
Q4 2012	4	4	0	1.1
Q1 2013	2	2	0	0.6
Q2 2013	4	4	0	0.9
Q3 2013	2	2	0	0.5
Q4 2013	4	4	0	1.0
Q1 2014	3	3	0	0.8
Q2 2014	5	4	1	1.3
Q3 2014	1	1	0	0.3
Q4 2014	1	0	0	0.3
Q1 2015	3	2	1	0.8
Q2 2015	4	4	0	1.0

Table 3 Launceston General Hospital numbers and rates/10 000 patient days of HCA-SAB

Quarter	Total HCA-SAB	Number MSSA	Number MRSA	HCA SAB Rate
Q3 2009	2	1	1	0.7
Q4 2009	2	2	0	0.7
Q1 2010	1	1	0	0.4
Q2 2010	2	2	0	0.7
Q3 2010	3	3	0	1.0
Q4 2010	3	1	2	1.1
Q1 2011	5	5	0	1.8
Q2 2011	2	2	0	0.7
Q3 2011	5	5	0	1.7
Q4 2011	1	1	0	0.4
Q1 2012	2	1	1	0.8
Q2 2012	2	2	0	0.8
Q3 2012	2	2	0	0.7
Q4 2012	6	5	1	2.3
Q1 2013	4	4	0	1.5
Q2 2013	4	3	1	1.3
Q3 2013	3	3	0	1.0
Q4 2013	3	3	0	1.0
Q1 2014	4	4	0	1.4
Q2 2014	3	2	1	1.0
Q3 2014	2	2	0	0.6
Q4 2014	2	2	0	0.7
Q1 2015	5	5	0	1.6
Q2 2015	4	2	2	1.3

Table 4 Mersey Community Hospital numbers and rates/10 000 patient days of HCA-SAB

Quarter	Total HCA-SAB	Number MSSA	Number MRSA	HCA SAB Rate
Q3 2009	3	3	0	4.4
Q4 2009	0	0	0	0.0
Q1 2010	0	0	0	0.0
Q2 2010	0	0	0	0.0
Q3 2010	1	1	0	1.6
Q4 2010	0	0	0	0.0
Q1 2011	3	3	0	4.6
Q2 2011	0	0	0	0.0
Q3 2011	0	0	0	0.0
Q4 2011	1	0	1	1.8
Q1 2012	1	1	0	1.9
Q2 2012	1	1	0	1.7
Q3 2012	1	1	0	1.6
Q4 2012	0	0	0	0.0
Q1 2013	0	0	0	0.0
Q2 2013	0	0	0	0.0
Q3 2013	0	0	0	0.0
Q4 2013	0	0	0	0.0
Q1 2014	2	2	0	3.9
Q2 2014	0	0	0	0.0
Q3 2014	2	2	0	3.2
Q4 2014	1	1	0	1.7
Q1 2015	1	1	0	1.7
Q2 2015	0	0	0	0.0

Table 5 North West Regional Hospital numbers and rates/10 000 patient days of HCA-SAB.

Quarter	Total HCA-SAB	Number MSSA	Number MRSA	HCA SAB Rate
Q3 2009	1	1	0	1.1
Q4 2009	0	0	0	0.0
Q1 2010	1	1	0	1.0
Q2 2010	0	0	0	0.0
Q3 2010	0	0	0	0.0
Q4 2010	1	1	0	1.0
Q1 2011	1	1	0	1.2
Q2 2011	0	0	0	0.0
Q3 2011	0	0	0	0.0
Q4 2011	1	1	0	1.2
Q1 2012	2	2	0	2.6
Q2 2012	1	0	1	1.3
Q3 2012	0	0	0	0.0
Q4 2012	0	0	0	0.0
Q1 2013	1	1	0	1.2
Q2 2013	0	0	0	0.0
Q3 2013	1	1	0	1.1
Q4 2013	0	0	0	0.0
Q1 2014	1	0	1	1.2
Q2 2014	4	4	0	3.7
Q3 2014	1	1	0	1.0
Q4 2014	0	0	0	0.0
Q1 2015	1	1	0	1.0
Q2 2015	1	1	0	0.9

Clostridium difficile infection (CDI)

Table 6 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	7.5	27	3.6
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
Q3 2014	27	3.4	15	1.9
Q4 2014	38	4.8	21	2.7
Q1 2015	36	4.7	16	2.1
Q2 2015	37	4.6	19	2.3

Table 7 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	6.1
Q3 2014	16	4.5	5	1.7	2	3.4	4	4.1
Q4 2014	24	6.9	4	1.4	4	7.1	6	5.9
Q1 2015	24	7.4	5	1.7	2	3.6	5	5.3
Q2 2015	27	7.5	6	2.0	1	1.8	3	3.0

Table 8 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
Q3 2014	9	2.5	3	1.0	0	0.0	3	3.1
Q4 2014	17	4.9	2	0.7	2	3.5	0	0.0
Q1 2015	10	3.1	3	1.0	2	3.6	1	1.1
Q2 2015	15	4.2	2	0.7	1	1.8	1	1.0

Vancomycin resistant enterococcus (VRE) data

Table 9 VRE isolates identified per quarter within one) acute public hospitals two) other healthcare settings (private hospitals, rural hospitals, GP clinics and long term and residential care facilities) and three) total Tasmanian isolates.

	RHH	LGH	MCH	NWRH	Other healthcare settings	Total
Q1 2008	11	-	-	-	2	13
Q2 2008	17	6	-	7	3	32
Q3 2008	1	1	-	10	-	12
Q4 2008	3	9	-	5	1	18
Q1 2009	-	4	2	3	-	9
Q2 2009	8	-	4	2	-	14
Q3 2009	1	-	2	1	-	4
Q4 2009	2	2	1	-	1	6
Q1 2010	1	-	1	-	-	2
Q2 2010	4	-	1	-	-	5
Q3 2010	10	-	2	2	-	14
Q4 2010	3	-	3	1	1	8
Q1 2011	-	-	2	1	-	3
Q2 2011	3	1	-	-	4	8
Q3 2011	1	1	-	-	1	3
Q4 2011	3	-	-	-	2	5
Q1 2012	3	2	2	2	1	10
Q2 2012	4	2	-	1	-	7
Q3 2012	3	2	2	-	1	8
Q4 2012	1	7	1	1	2	12
Q1 2013	13	0	3	-	2	18
Q2 2013	8	3	-	1	3	15
Q 3 2013	8	1	-	2	1	12
Q4 2013	5	3	-	3	5	16
Q1 2014	5	-	1	1	1	8
Q2 2014	3	6	1	1	2	13
Q3 2014	1	2	3	2	-	8
Q4 2014	1	5	1	5	7	19
Q1 2015	10	12	2	5	7	36
Q2 2015	5	13	2	1	8	29

Hand hygiene compliance data June 2015

Table 10 Hand hygiene compliance rates by Tasmanian hospital and state level

Hospital Name	HH Correctly Performed	HH Moments	Compliance	Lower 95% confidence interval	Upper 95% confidence interval
Royal Hobart	2053	2664	77%	75%	79%
LGH	3705	4850	76%	75%	78%
Mersey	251	312	80%	76%	84%
NWRH	740	976	76%	73%	78%
Midlands MPC	42	54	78%	65%	87%
New Norfolk	74	76	97%	91%	99%
Beaconsfield	47	52	90%	79%	96%
Campbell Town	No data submitted for Q2 2015				
Deloraine	114	122	93%	88%	97%
Flinders Is. MPC	55	59	93%	84%	97%
George Town	57	67	85%	75%	92%
NESM Scottsdale	54	59	92%	82%	96%
St Helens	68	85	80%	70%	87%
St Marys CHC	72	90	80%	71%	87%
King Island	51	56	91%	81%	96%
Smithton	42	52	81%	68%	89%
Healthwest	39	54	72%	59%	82%
Tas Public TOTAL	**7464**	**9628**	**77.5%**	**77%**	**78%**

Table 11 Tasmanian hand hygiene compliance rates by moment

Moments	HH Correctly Performed	Total HH Moments	Compliance	Lower 95% confidence interval	Upper 95% confidence interval
Moment 1	2032	2692	75%	74%	77%
Moment 2	407	578	70%	67%	74%
Moment 3	761	898	85%	82%	87%
Moment 4	2476	2961	84%	82%	85%
Moment 5	1788	2499	72%	70%	73%
Tas Public TOTAL	**7464**	**9628**	**78%**	**77%**	**78%**

Table 12 Tasmanian hand hygiene compliance rates by healthcare worker

Staff Type	HH Correctly Performed	HH Moments	Compliance	Lower 95% confidence interval	Upper 95% confidence interval
Clerical	14	23	61%	41%	78%
Allied Health	374	487	77%	73%	80%
Domestic	113	172	66%	58%	72%
Invasive Technician	66	87	76%	66%	84%
Doctor	783	1267	62%	59%	64%
Nurse/Midwife	5443	6723	81%	80%	82%
Other	9	17	53%	31%	74%
Personal care staff	360	473	76%	72%	80%
Student Doctor	36	56	64%	51%	76%
Student Nurse/Midwife	251	303	83%	78%	87%
Student Allied Health	15	20	75%	53%	89%
Tas Public TOTAL	**7464**	**9628**	**78%**	**77%**	**78%**