Government of **Western Australia**
Department of **Health**

Healthcare Infection Surveillance Western Australia

Quarterly aggregate report

Quarter 2, 2023-2024

Data for October to December 2023

Infection Prevention, Policy and Surveillance Unit

Communicable Disease Control Directorate

15 February 2024

Contents

Abreviations

AVF	Arteriovenous fistula
AVG	Arteriovenous graft
BSI	Bloodstream infection
CAI	Community associated infection
CC	Cuffed catheter
CDI	*Clostridioides difficile* infection
CI	Confidence interval
CI/PI	Centrally inserted or peripherally inserted central lines
CLABSI	Central line associated bloodstream infection
CPO	Carbapenemase-producing organisms
HAI	Healthcare associated infection
HA-MRSA	Healthcare associated methicillin-resistant *Staphylococcus aureus* infection
HA-SABSI	Healthcare-associated *Staphylococcus aureus* bloodstream infections
HCW	Healthcare worker
HD-BSI	Haemodialysis bloodstream infection
HI-CDI	Hospital-identified *Clostridioides difficile* infection
HISWA	Healthcare Infection Surveillance Western Australia
ICU	Intensive care unit
IPPSU	Infection Prevention, Policy and Surveillance Unit
IVD	Intravascular device
MRSA	Methicillin-resistant *Staphylococcus aureus*
MSSA	Methicillin-sensitive *Staphylococcus aureus*
OE	Occupational exposure
PICC	Peripherally inserted central catheter
PIVC	Peripheral intravenous cannula
SABSI	*Staphylococcus aureus* bloodstream infections
SSI	Surgical site infection
VRE	Vancomycin-resistant *Enterococci*
WACHS	Western Australia Country Health Service

Overview

Healthcare Infection Surveillance Western Australia (HISWA) is an established program for monitoring and reporting healthcare-associated infections (HAIs). It is increasingly recognised that HAIs are preventable adverse events rather than an inevitable complication of medical care. The Infection Prevention Policy and Surveillance Unit provides the governance over the HISWA program in WA. Both private and public healthcare facilities (HCFs) in WA contribute data to the HISWA program.

Feedback of analysed data to key stakeholders is an important requirement of surveillance programs to drive change and improve outcomes and has been demonstrated to be effective in reducing infections when provided to clinicians. Surveillance results need to be communicated to appropriate committees and to the executive management who are accountable for patient safety and quality and can make changes within the facility.

The HISWA Quarterly Aggregate Report contains deidentified aggregated data from all HISWA contributing sites, including contracted private services and the private hospitals. This aggregate report is an analysis of surveillance data reported for the period 1 October to 31 December 2023, with trends shown for the five-year period.

IPPSU News

Committees

- Key infection prevention and control issues can be raised by your teams at the following committees.
- **The Healthcare Infection Council of Western Australia (HICWA)**
- **The Infection Prevention and Control Advisory Group (IPCAG)**
- **Western Australia Multi Resistant Organism Expert Group (WAMRO)**
- **ICNet Advisory Group**

Terms of reference and meeting dates of the above committees are available on the Infection Prevention, Policy and Surveillance Unit (IPPSU) website.

IPPSU forum

IPPSU forum is scheduled for **13th March 2024**.

Reminders

IPPSU staff made 21 corrections to numerator data this quarter – these occurred at multiple hospital sites, and all were simple data entry errors.

Data quality is paramount to producing meaningful reports, please ensure you check your data prior to finalising, including date of birth, infection onset date and that the 30- and 90-day rule is applied to superficial and deep SSI respectively. Please do not enter strain data for either MRSA or CDI, and ALL HI-CDI are entered as ‘CDI Hospital’ in the ‘place of acquisition’.

Check the HISWA manual for HCW categories before entering occupational exposures as ‘other’. Common mistakes include not entering student HCWs under their respective specialty or technicians not being entered as patient support services.

Report notes

Report highlights

- Hip arthroplasty SSI rates decreased this Qtr with a reduction in both deep and superficial SSIs.
- The total HA-SABSI rate decreased for the 2nd consecutive Qtr. The MSSA HA-SABSI rate decreased, however the MRSA rate increased slightly but remains below the comparator.
- The metropolitan tertiary intravascular device (IVD) related HA-SABSI rate decreased for the 2nd consecutive Qtr.
- MRSA HAI rates remain stable and significantly below the comparator rate.
- Three adult ICU BSIs were reported from the 12 ICUs.
- HI-CDI rates decreased slightly or remained stable across all hospital groups except WACHS and private hospital groups.
- The rate of total occupational exposures decreased for the 2nd consecutive Qtr.

Report concerns

- Knee arthroplasty SSI rates increased slightly this Qtr, however, the rate remains lower than the comparator rate.
- The total caesarean section SSI rate increased this Qtr, and the increase was evident for both deep SSIs and following emergency procedures.
- A total of 36 HA-SABSI were reported, and of these 58% (n=21) are classified as preventable adverse events. Of the 15 HA-SABSI attributed to IVDs, 67% (n=10) were associated with PIVC, of which four had a time insitu recorded as <72 hours, three as 72 hours and three as > 72 hours.
- The cuffed catheter access-associated BSI rate increased compared to the previous reporting period and maintains an upward trend with 11 BSIs reported from this group for the Qtr.
- There were nine VRE sterile site infections reported this Qtr, the majority (n=7) were bloodstream infections.

Surgical site infection following hip arthroplasty

Key points

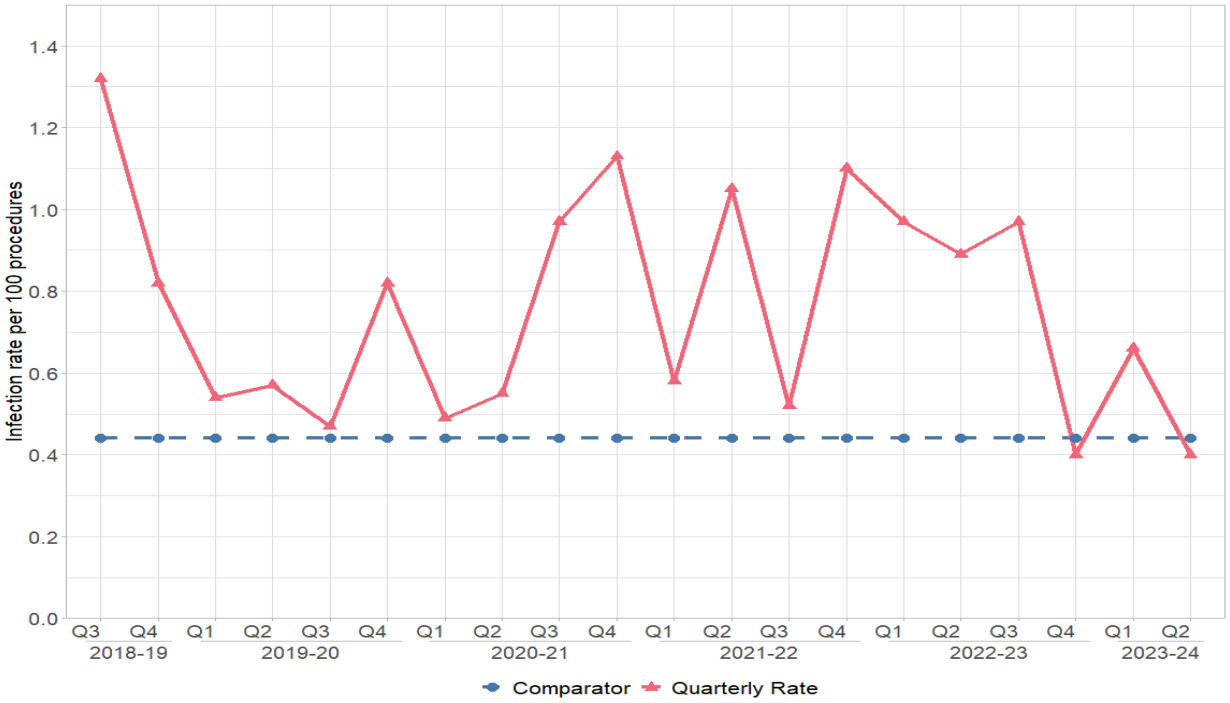
- ☐ There were 1,503 procedures reported (1,394 primary; 109 revision).
- ☐ A total of 1096 (73%) of procedures were performed by private hospitals.
- ☐ A total of six SSIs following hip arthroplasty were reported, five from primary procedures and one from a revision procedure.
- ☐ Six SSIs were deep or organ space infections.
- ☐ The total SSI rate following hip arthroplasty decreased to 0.40 infections per 100 procedures from 0.66 reported in Qtr 1, 2023-24 (Figure 1).
- ☐ The deep SSI hip rate decreased to 0.40 infections per 100 procedures from 0.59 reported for Qtr 1, 2023-24 (Table 3, Figure 3).

Table 1 Hip arthroplasty SSI rate, by risk index

Risk index*	Number of contributing hospitals	Number of procedures	Number of SSI	Aggregate rate (95% CI)	Cumulative aggregate rate (95% CI)
Risk index 0	23	849	3	0.35 [0-0.75]	0 [0-0]
Risk index 1	23	596	2	0.34 [0-0.81]	1 [0.81-1.19]
Risk index 2	23	58	1	1.72 [0-5.07]	3 [2.04-3.96]
Risk index 3	23	0	0	0 [0-0]	14 [5.07-22.93]
Total hip arthroplasty	**23**	**1,503**	**6**	**0.40 [0.08-0.72]**	**0.75 [0.65-0.85]**

Refer to Appendix 1- SSI Data Notes

Figure 1 Hip arthroplasty SSI rate



Surgical site infection following knee arthroplasty

Key points

- ☐ There were 2,202 procedures reported (2,054 primary; 148 revision).
- ☐ A total of 1755 (79%) of procedures were performed by private hospitals.
- ☐ A total of six SSIs following knee arthroplasty were reported, five from primary procedures and one from revision procedures.
- ☐ Five SSIs were deep or organ space infections, all of which were identified on readmission to hospital.
- ☐ The total SSI rate following knee arthroplasty increased to 0.27 infections per 100 procedures from 0.24 reported in Qtr 1, 2023-24 (Figure 2).
- ☐ The deep SSI knee rate increased to 0.23 infections per 100 procedures from 0.19 reported for Qtr 1, 2023-24 (Table 3, Figure 4)

Table 2 Knee arthroplasty SSI rate, by risk index

Risk index*	Number of contributing hospitals	Number of procedures	Number of SSI	Aggregate rate (95% CI)	Cumulative aggregate rate (95% CI)
Risk index 0	23	1,199	1	0.08 [0-0.24]	0 [0-0]
Risk index 1	23	888	3	0.34 [0-0.72]	0 [0-0]
Risk index 2	23	110	2	1.82 [0-4.32]	1 [0.59-1.41]
Risk index 3	23	5	0	0 [0-0]	1 [0-3.1]
Total knee arthroplasty	**23**	**2,202**	**6**	**0.27 [0.05-0.49]**	**0.31 [0.25-0.37]**

Refer to Appendix 1- SSI Data Notes

Figure 2 Knee arthroplasty SSI rate

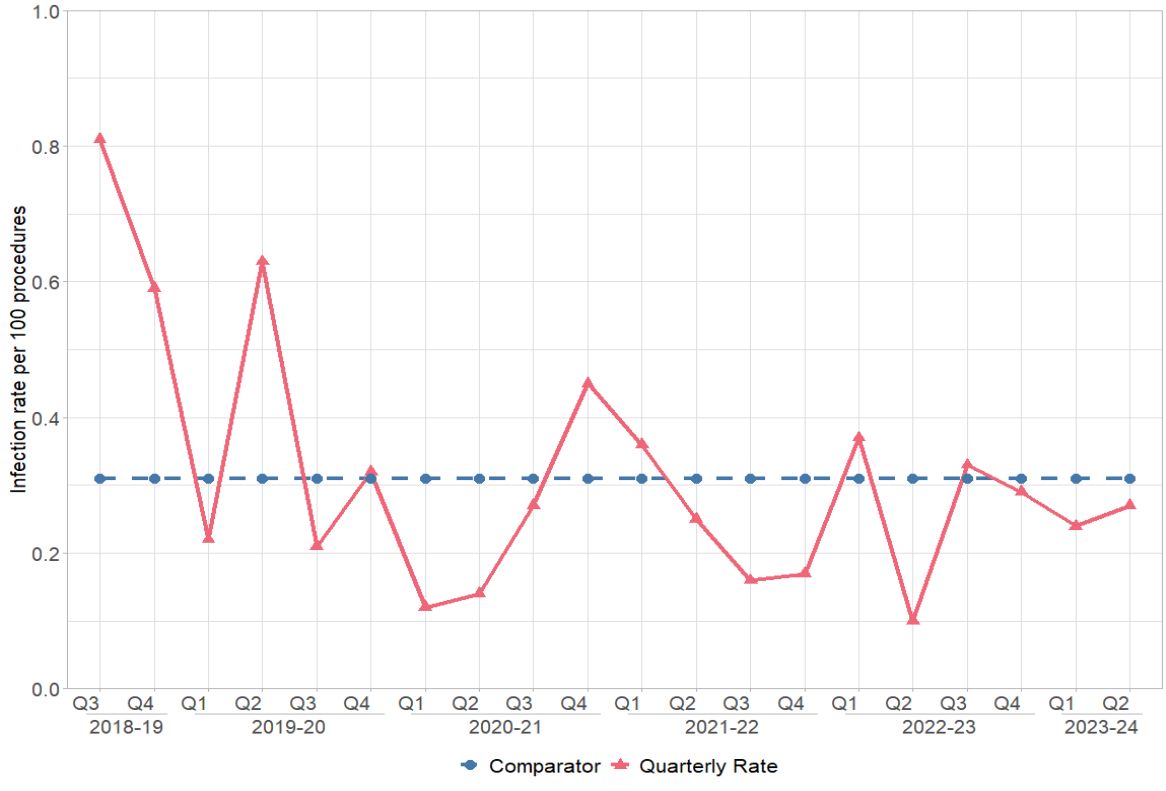


Table 3 SSI rates, by superficial and deep or organ/ space infections

Type	Number of superficial SSI	Number of deep SSI	Total number of SSI	Number of procedures	Aggregate superficial SSI rate (95% CI)	Aggregate deep SSI rate (95% CI)
Hip arthroplasty	0	6	6	1,503	0.00 [0.00-0.00]	0.40 [0.08-0.72]
Knee arthroplasty	1	5	6	2,202	0.05 [0-0.14]	0.23 [0.03-0.43]
Total	**1**	**11**	**12**	**3,705**	**0.03 [0-0.09]**	**0.30 [0.12-0.48]**

Figure 3 Hip arthroplasty SSI rate, by superficial and deep

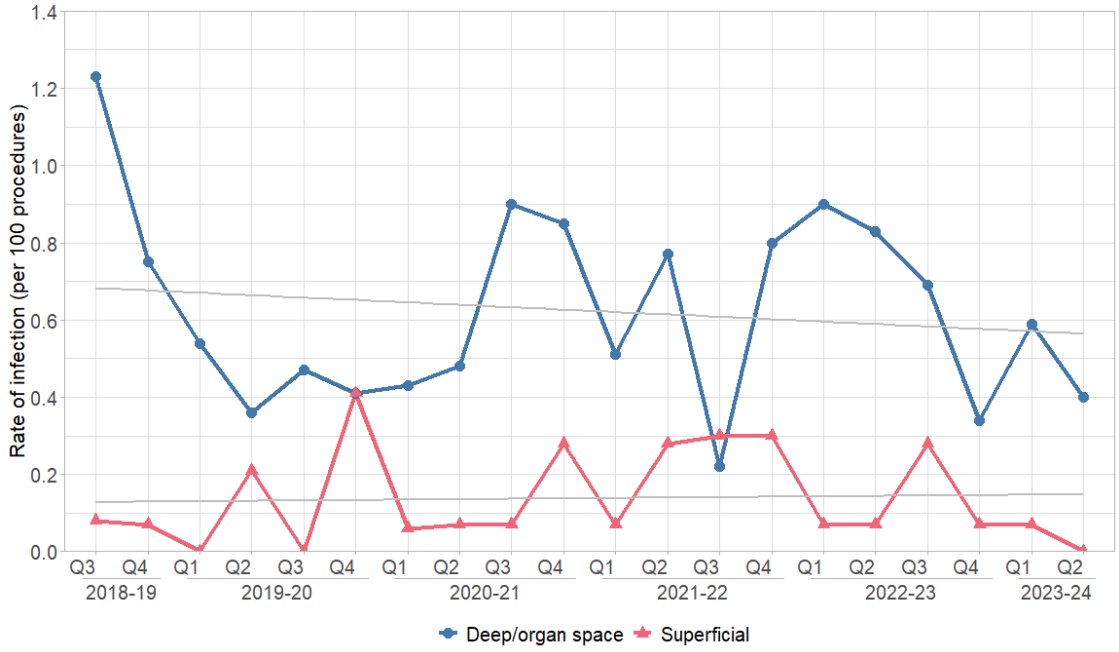
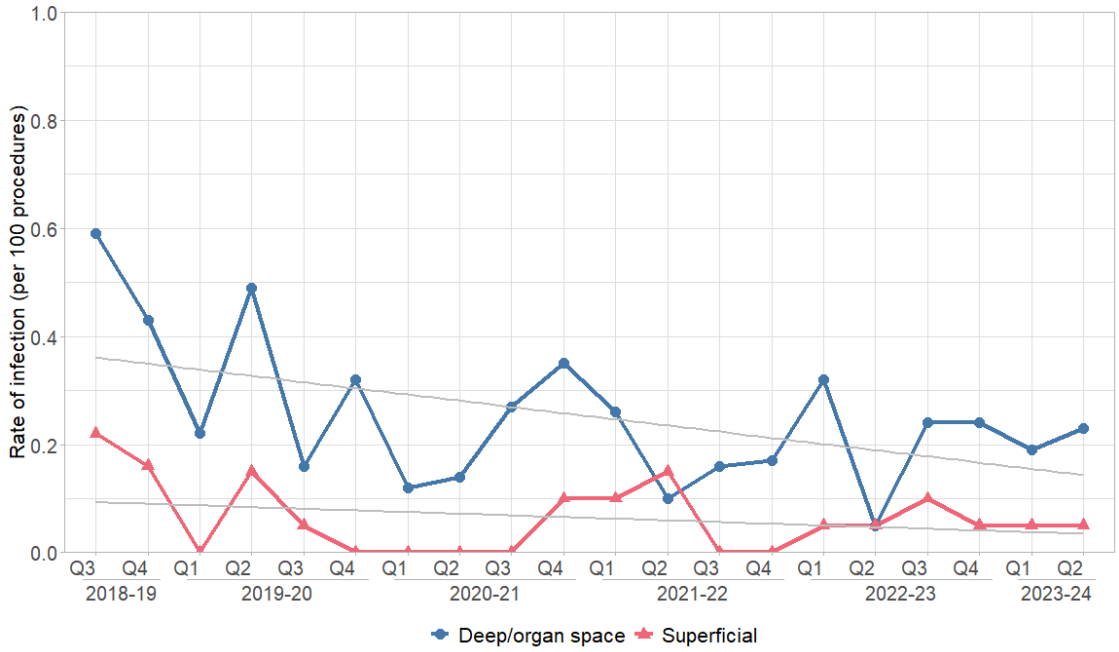


Figure 4 Knee arthroplasty SSI rate, by superficial and deep



Surgical site infection following caesarean section

Key points

- 2,796 caesarean section procedures were reported, of which 1,496 (53.5%) were emergency and 1,300 (46.5%) were elective procedures.
- A total of 51 SSIs were reported, 22 of which were identified post-discharge and are not included in further data analysis or in HISWA calculated rates*.
- Of the remaining 29 SSIs, 18 were classed as superficial and 11 deep/organ space SSI.
- The majority (93.1%) of SSI were identified when the patient required readmission to hospital for care, with two superficial SSI identified on initial admission.
- Twenty-two (75.9%) SSIs were following emergency procedures and included 11 deep/organ space SSIs.
- The total inpatient SSI rate (includes readmissions and excludes post-discharge) increased to 1.04 infections per 100 procedures from 1.03 reported in Qtr 1, 2023-24.
- The superficial SSI rate decreased (from 0.67 to 0.64 infections per 100 procedures) the and deep/organ space SSI rate increased (from 0.35 to 0.39 infections per 100 procedures) (Figure 5).
- The elective procedure SSI rate decreased to 0.25 infections per 100 procedures from 0.42 reported in Qtr 1, 2023-24 (Figure 6).
- The emergency procedure SSI rate increased to 0.79 infections per 100 procedures from 0.60 reported in Qtr 1, 2023-24 (Figure 6).

Table 4 Caesarean section SSI rate per 100 procedures, by risk index

Item	Number of contributing hospitals	Number of procedures	Number of superficial SSI	Number of deep SSI	Total number of SSI	Total aggregate rate (95% CI)	Cumulative aggregate rate (95% CI)
Risk All	4	40	0	1	1	2.50 [0-7.34]	1.23 [0.51-1.95]
Risk index 0	24	1,272	3	2	5	0.39 [0.05-0.73]	0.44 [0.36-0.52]
Risk index 1	24	1,097	10	6	16	1.46 [0.75-2.17]	0.93 [0.79-1.07]
Risk index 2	24	355	4	2	6	1.69 [0.35-3.03]	2.04 [1.68-2.4]
Risk index 3	24	32	1	0	1	3.12 [0-9.14]	2.83 [1.42-4.24]
Post-discharge	0	0	22	0	22	NA	NA
Total Inpatient	28	2,796	18	11	29	1.04 [0.66-1.42]	0.84 [0.76-0.92]
Total SSI*	**NA**	**2,796**	**40**	**11**	**51**	**NA**	**NA**

****HISWA does not include SSI detected by post discharge surveillance (PDS) or identified in outpatient clinics or emergency department presentations in calculated rates as not all hospitals perform PDS.***

Figure 5 Caesarean section SSI rates by deep and superficial (inpatient only)

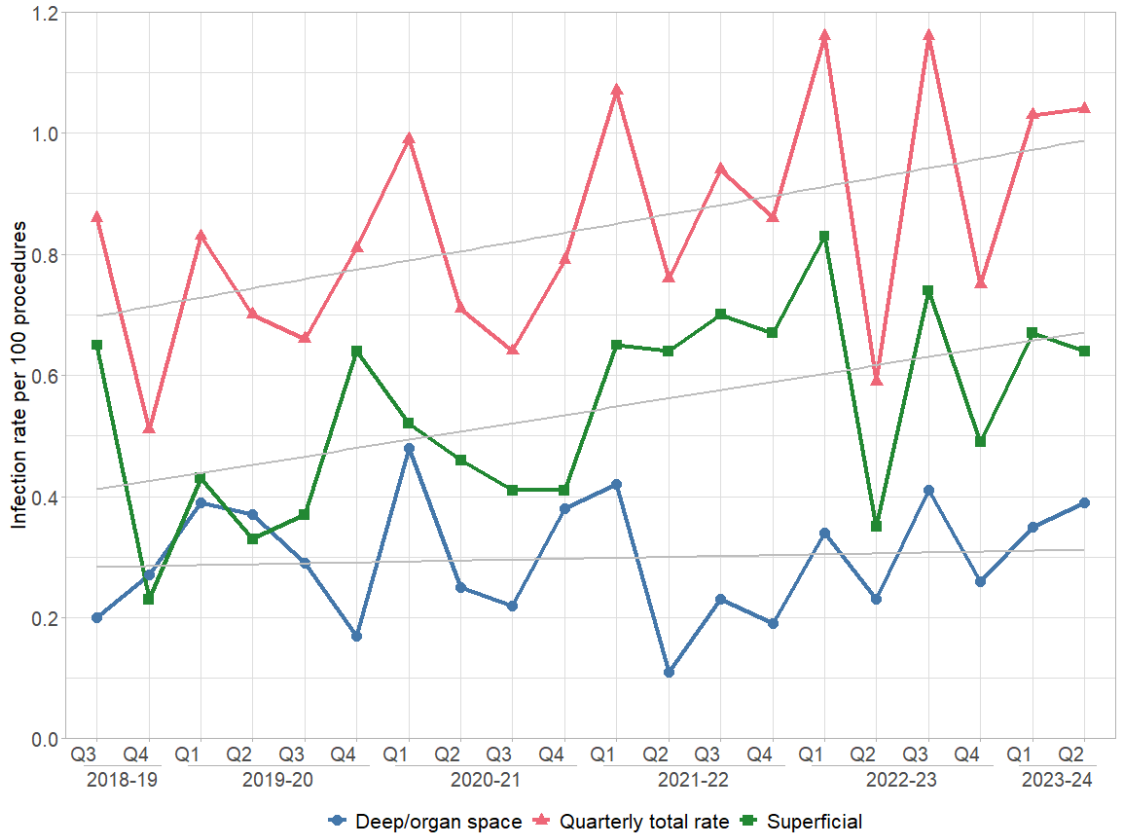
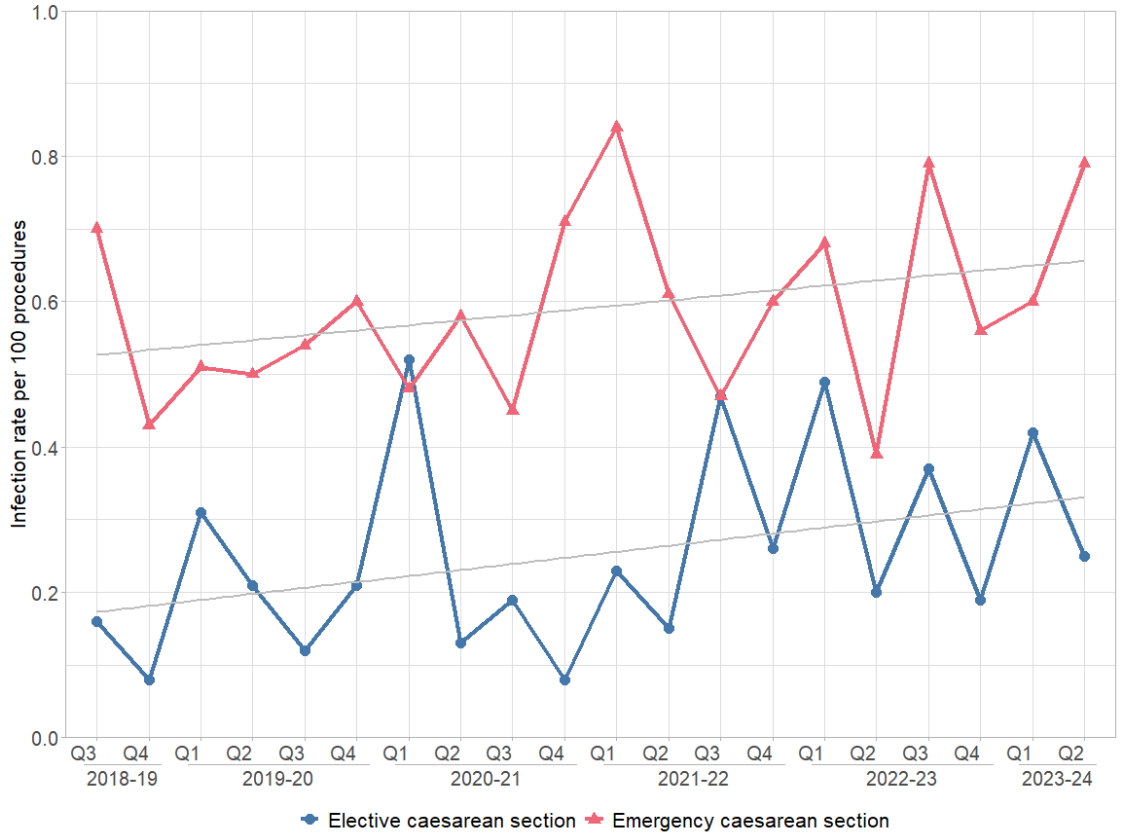


Figure 6 Caesarean section SSI rates by elective and emergency procedures (inpatient only)



Healthcare associated *Staphylococcus aureus* bloodstream infection

Key points

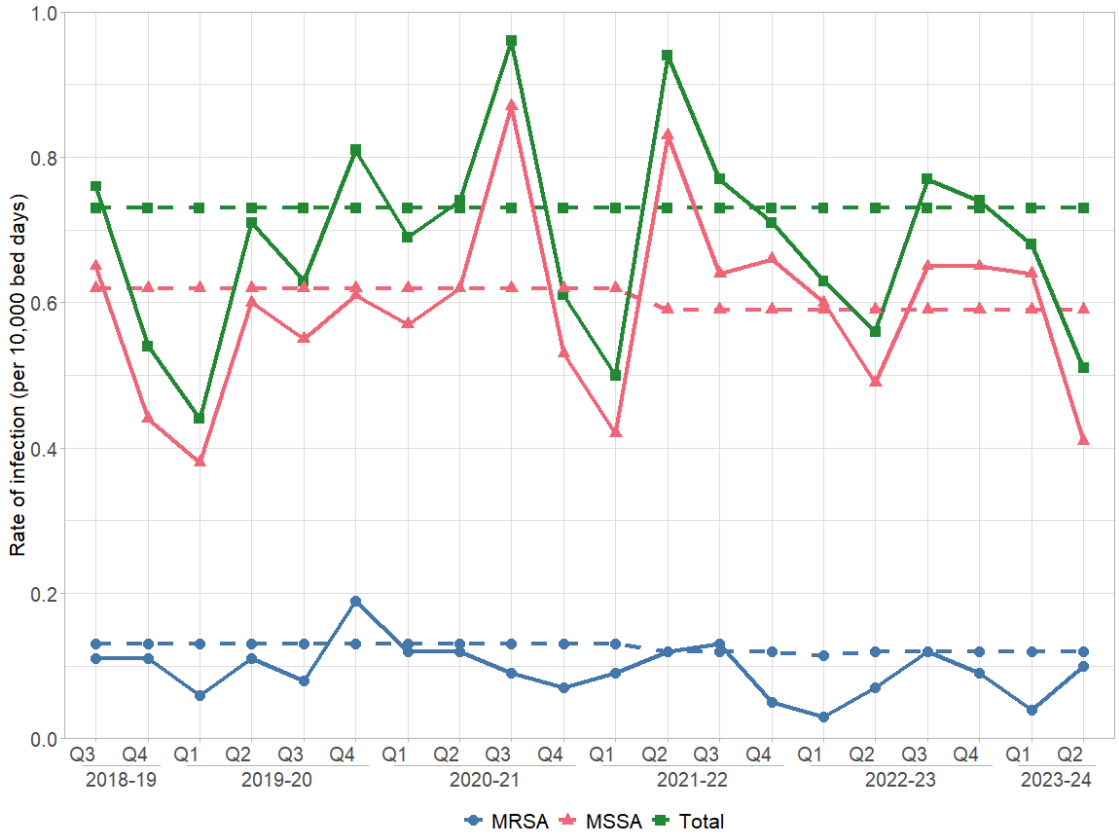
- There were 36 HA-SABSI (MSSA 29; MRSA 7) reported.
- The total HA-SABSI rate decreased to 0.51 infections per 10,000 bed-days from 0.68 reported in Q1, 2023-24. This remains below the national benchmark of 1.0 infection per 10,000 patient days and is also below the national comparator rate of 0.73 (Figure 7).
- The MSSA HA-SABSI rate decreased to 0.41 infections per 10,000 bed-days from 0.64 reported in Q1, 2023-24 and is below the comparator rate of 0.59 (Figure 7).
- The MRSA HA-SABSI rate increased to 0.10 infections per 10,000 bed-days from 0.04 reported in Q1, 2023-24 and remains below the comparator rate of 0.12 (Figure 7).
- Of the 36 HA-SABSI reported, 15 (42%) were associated with IVDs, six (17%) were procedure related and nine (25%) had an organ site focus (Figure 8).
- Of the 15 IVD related HA-SABSI, 10 (67%) were attributed to PIVC, three (20.0%) were attributed to cuffed catheters and two (13%) were attributed to PICC lines (Figure 9).
- The HA-SABSI rate from the metropolitan tertiary, non-tertiary and WACHS hospital groups decreased while, the rate from private hospital groups increased (Figure 11).
- The IVD SABSI rate decreased to 0.21 infections per 10,000 bed-days from 0.40 reported in Q1, 2023-24 (Figure 12).
- Seven (46.7%) of the 15 IVD SABSI were reported from tertiary hospitals (Figure 13).

NOTE: As of July 1 2020 the National benchmark for HA-SABSI decreased to 1.0 per 10,000 patient days (previously a rate of 2.0) and this will align with the existing WA benchmark utilised for health service performance reporting. ***The comparator rates in Figure 7 are the Australian Institute Health and Welfare (AIHW) National public hospital aggregate rates.*** *Refer to data notes for information on comparator rates.*

Table 5 HA-SABSI rates per 10,000 bed-days

Organism name	Number of contributing hospitals	Number of bed-days	Number of HA-SABSI	Aggregate rate (95% CI)	Cumulative aggregate rate (95% CI)
Total methicillin-sensitive *Staphylococcus aureus* (MSSA) bloodstream infection	48	709,288	29	0.41 [0.4-0.42]	0.18 [0.18-0.18]
Total methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infection	48	709,288	7	0.1 [0.09-0.11]	0.03 [0.03-0.03]
Total *Staphylococcus aureus* bloodstream infection	**48**	**709,288**	**36**	**0.51 [0.49-0.53]**	**0.21 [0.21-0.21]**

Figure 7 HA-SABSI rates, by MRSA, MSSA and total



Note: The dotted line is the comparator rate for the corresponding infection.

Figure 8 Number of HA-SABSI, by attributable source

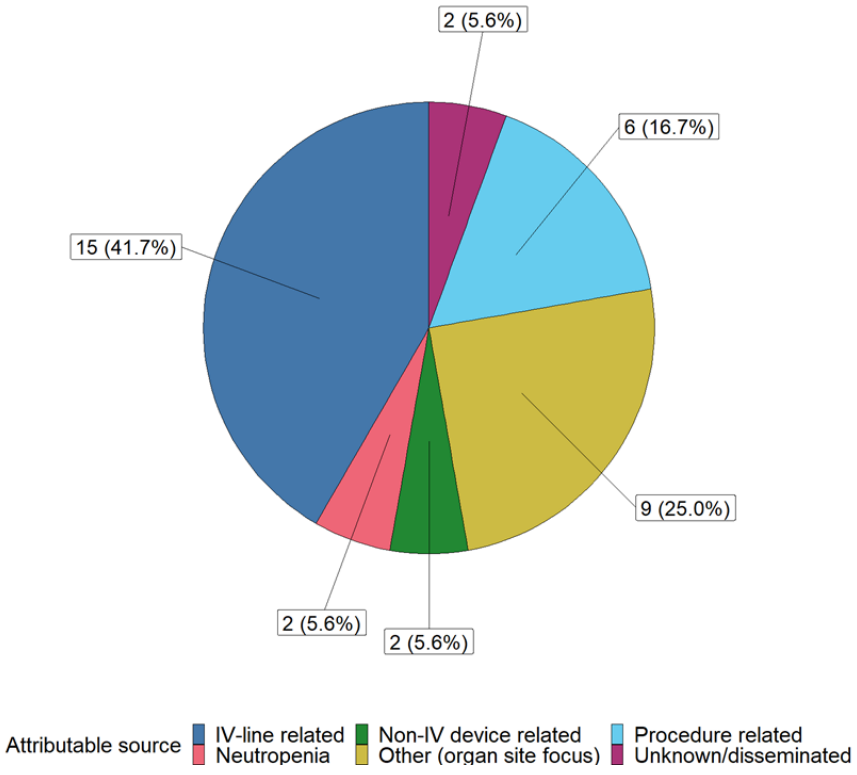


Figure 9 Number of HA-SABSI by intravascular device type

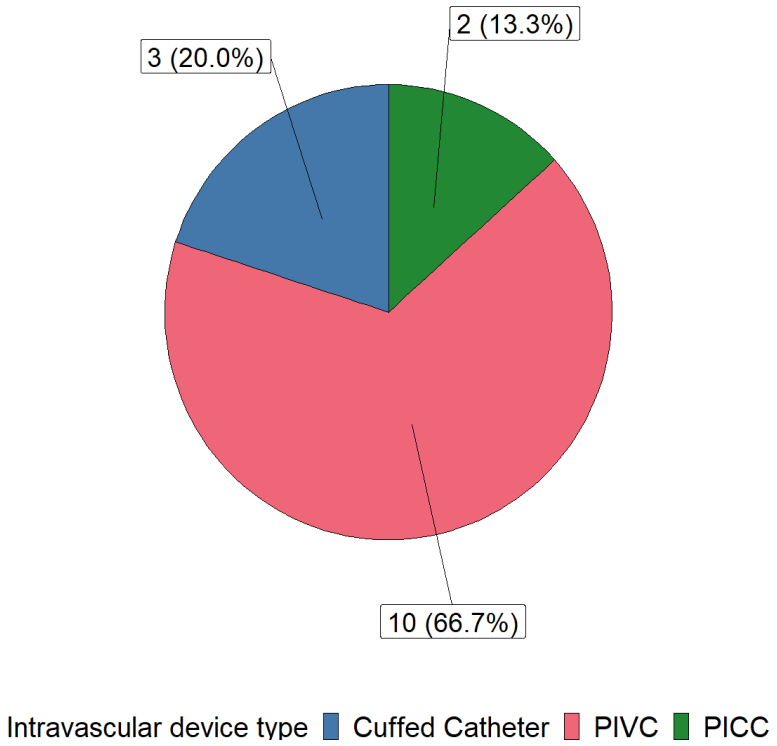


Figure 10 Time in situ (hours) for HA-SABSI attributed to PIVC

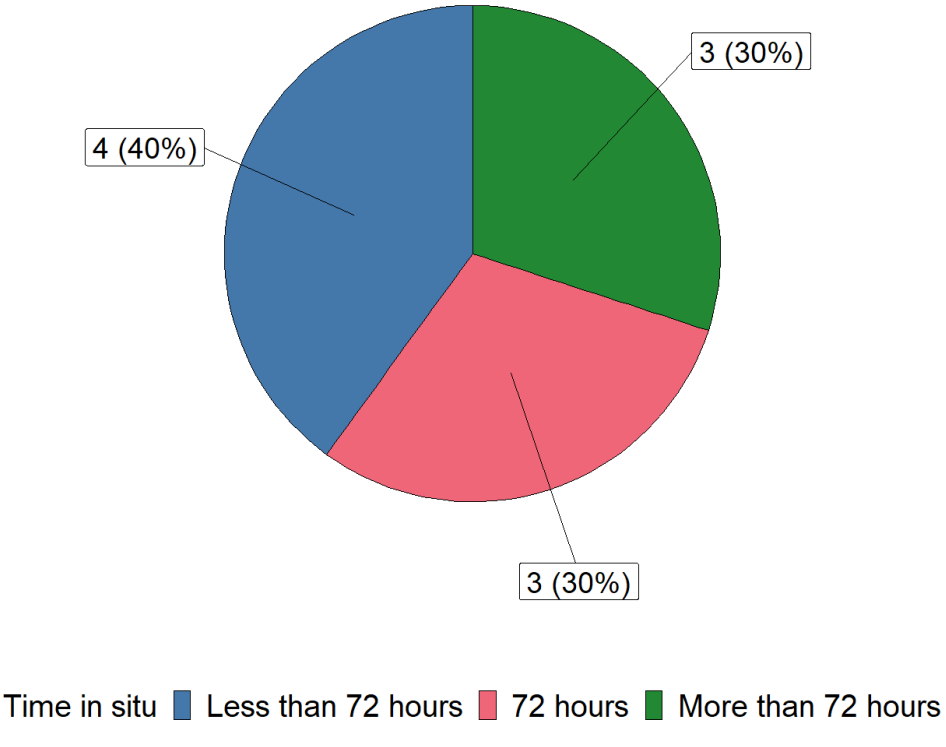


Figure 11 HA-SABSI intravascular device rates, by hospital group

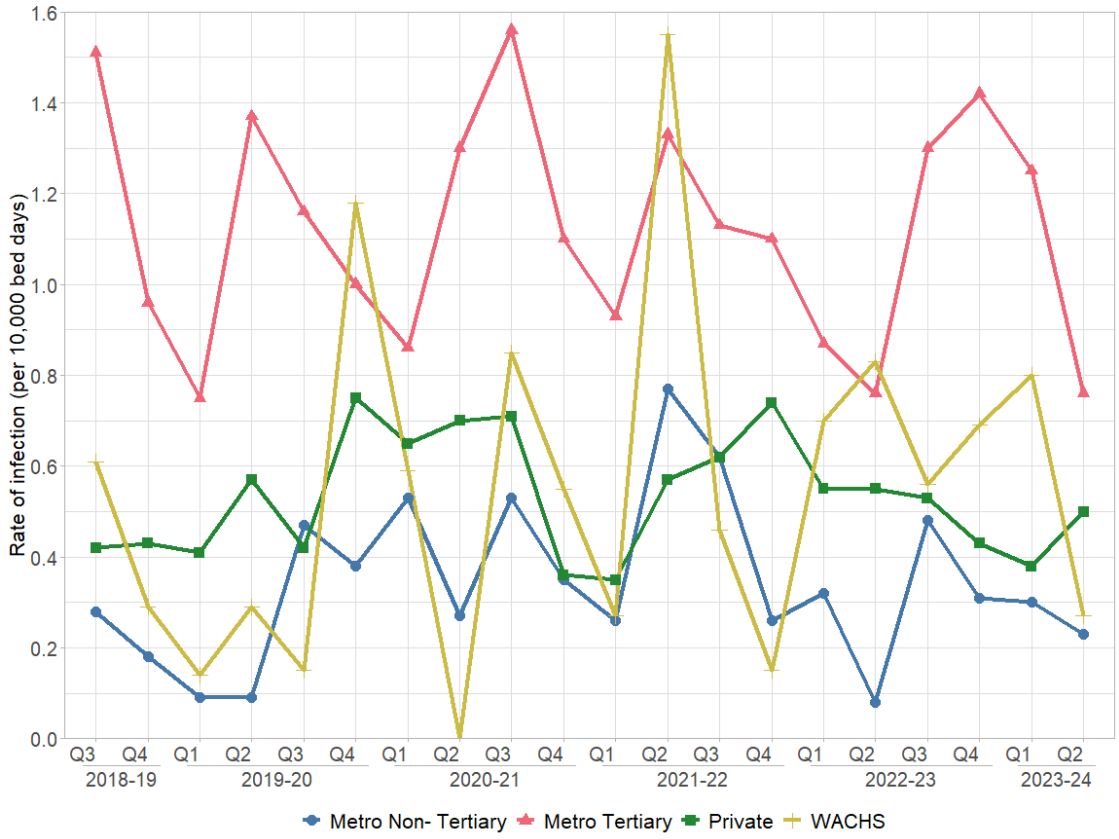


Figure 12 Rate and percentage of HA-SABSI attributed to intravascular devices by patient location

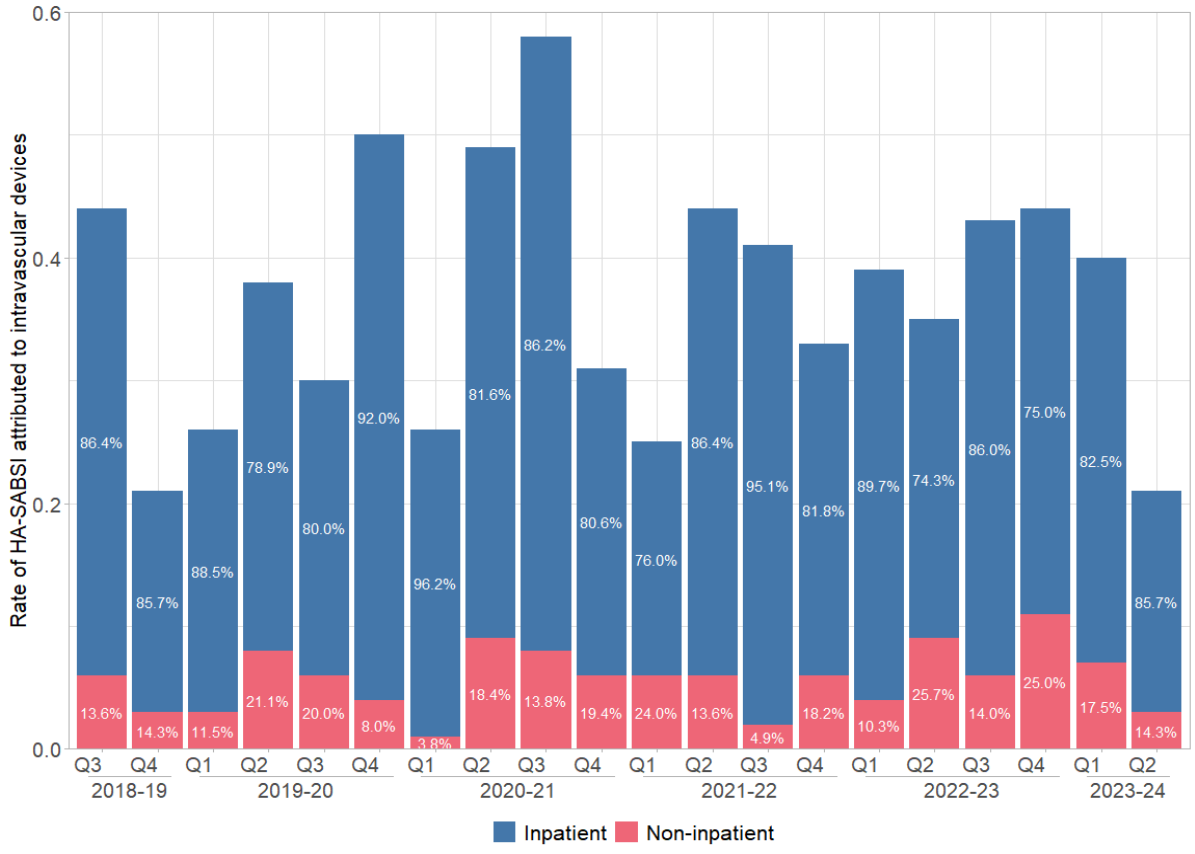
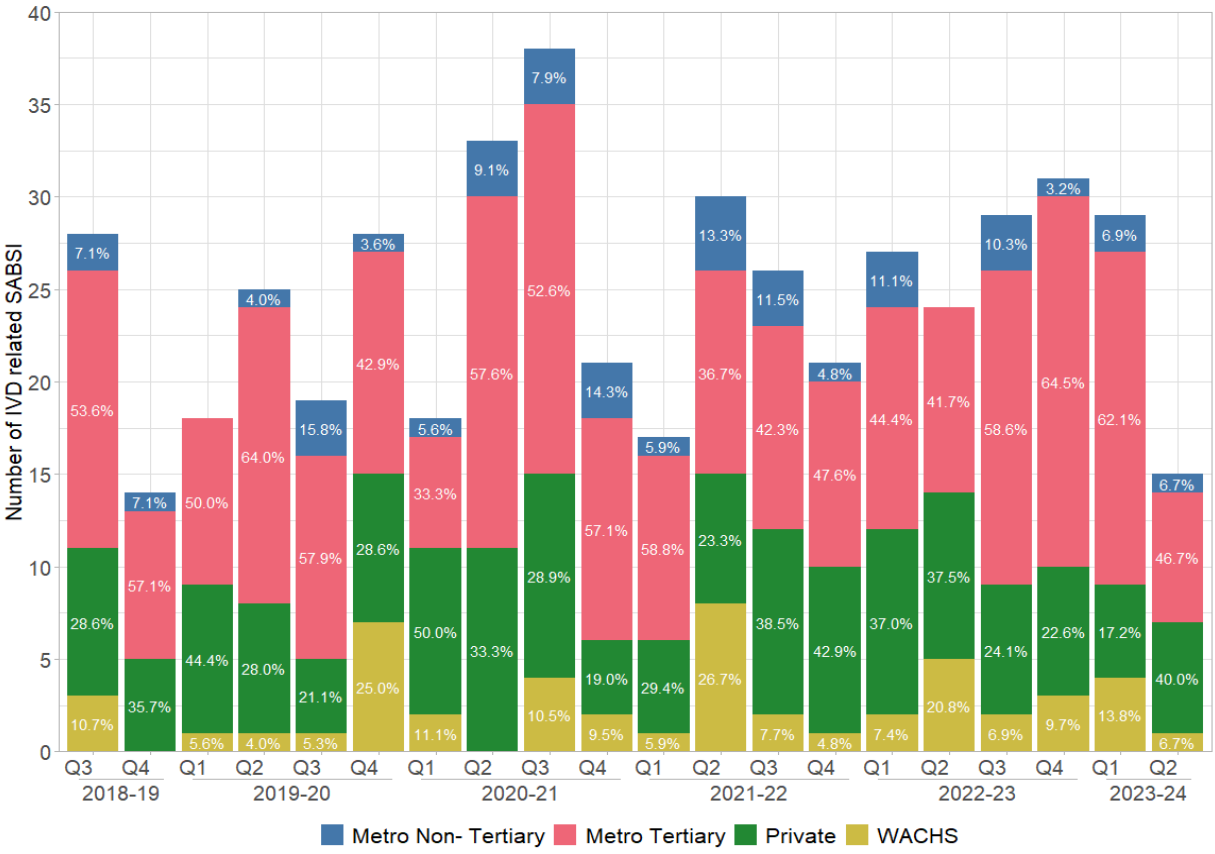


Figure 13 Number and percentage of HA-SABSI attributed to intravascular devices, by hospital group



Haemodialysis access-associated bloodstream infections

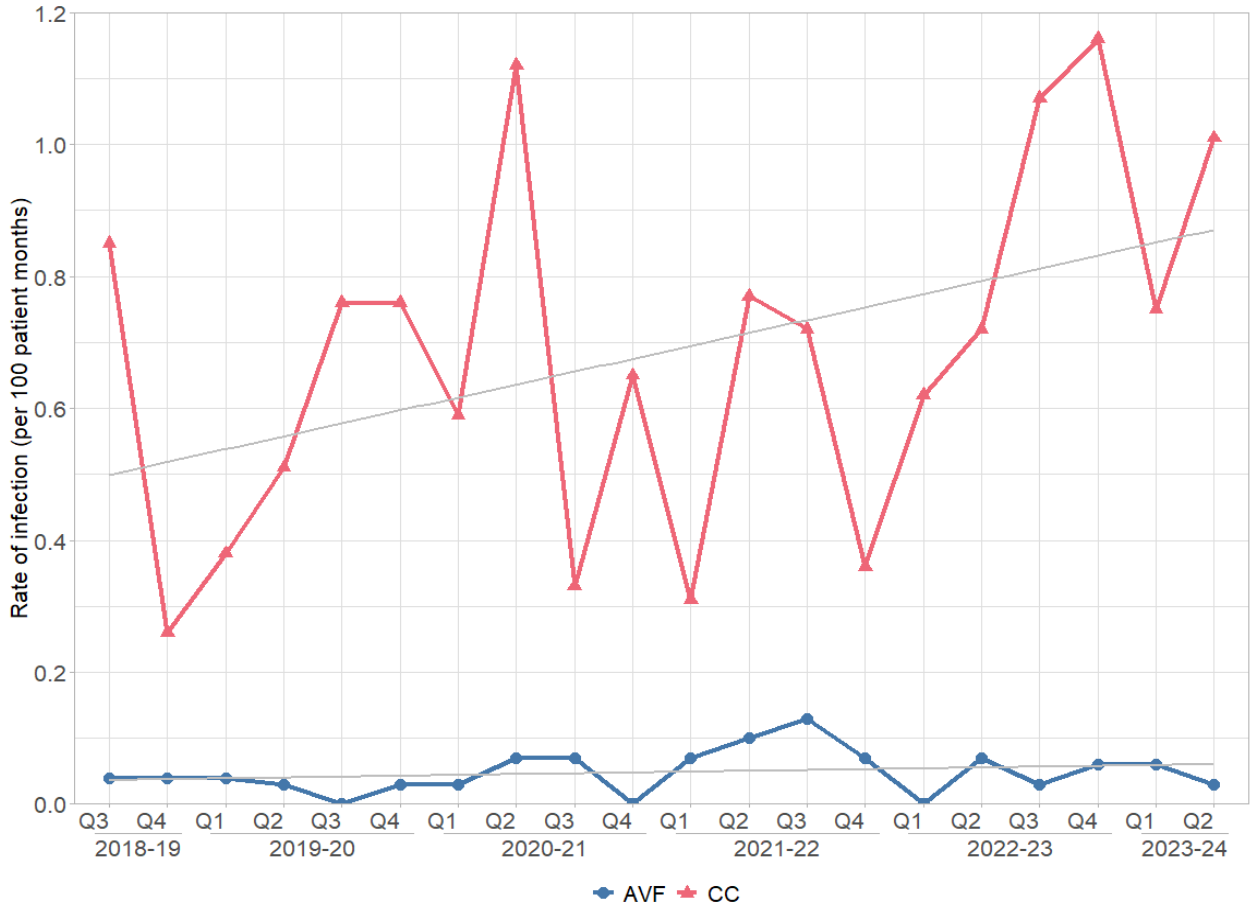
Key points

- ☐ The majority (73.72%) of patients received haemodialysis via an AVF.
- ☐ Eleven cuffed catheter (CC) access-associated BSI were reported.
- ☐ The CC BSI rate increased to 1.01 infections per 100 patient-months from 0.75 reported in Q1, 2023-24 (Figure 14).
- ☐ There was one AVF access-associated BSIs reported.
- ☐ The AVG BSI rate remained stable at 0 infections per 100 patient-months from 0 reported in Q1, 2023-24.

Table 6 HD-BSI rate, by type of access

Type of access	Number of contributing units	Aggregate utilisation ratio (%)	Number of BSI	Number of patient months	Aggregate rate (95% CI)	Cumulative aggregate (95% CI)
AVF	26	73.72	1	3,252	0.03 [0-0.09]	0.05 [0.03-0.07]
AVG	26	1.36	0	60	0 [0-0]	0.34 [0.04-0.64]
Cuffed catheter (CC)	26	24.71	11	1,090	1.01 [0.42-1.6]	0.7 [0.58-0.82]
Non-cuffed catheter	3	0.20	0	9	0 [0-0]	1.48 [0.19-2.77]

Figure 14 AVF and cuffed catheter BSI rate



Central line-associated bloodstream infection

Key points

- ☐ There were three adult ICU CLABSIs reported this quarter.
- ☐ The total ICU CLABSI rate increased to 0.36 infections per 1,000 line-days from 0.35 reported in Q1, 2023-24.
- ☐ The majority (75%) of central lines utilised in adult ICUs were centrally-inserted (Table 7).
- ☐ Two haematology CLABSIs were reported this quarter and the rate decreased to 0.36 infections per 1,000 line days from 0.75 reported in Q1, 2023-24 (Figure 15).
- ☐ Three oncology CLABSIs was reported and the rate increased to 0.04 infections per 1,000 line days from 0 reported in Q1, 2023-24 (Figure 15).

Table 7 Adult ICU CLABSI

Central line type	Number of contributing hospitals	Number of line days	Number of CLABSI	Aggregate rate (95% CI)	Cumulative aggregate rate (95% CI)
Peripherally inserted CLABSI	12	2,076	1	0.48 [0.18-0.78]	0.26 [0.19-0.33]
Centrally inserted CLABSI	12	6,291	2	0.32 [0.18-0.46]	0.52 [0.47-0.57]
Total CLABSI	**12**	**8,367**	**3**	**0.36 [0.23-0.49]**	**0.46 0.42-0.5]**

Table 8 Adult ICU central line utilisation ratio (CLUR)

Central line type	Number of contributing hospitals	Number of line days	Number of bed-days	Tertiary Aggregate CLUR (%)	Total Aggregate CLUR (%)
Adult ICU peripherally inserted CLUR	12	2,076	13,734	24.81	15.12
Adult ICU centrally inserted CLUR	12	6,291	13,734	75.19	45.81

Table 9 Haematology Unit CLABSI

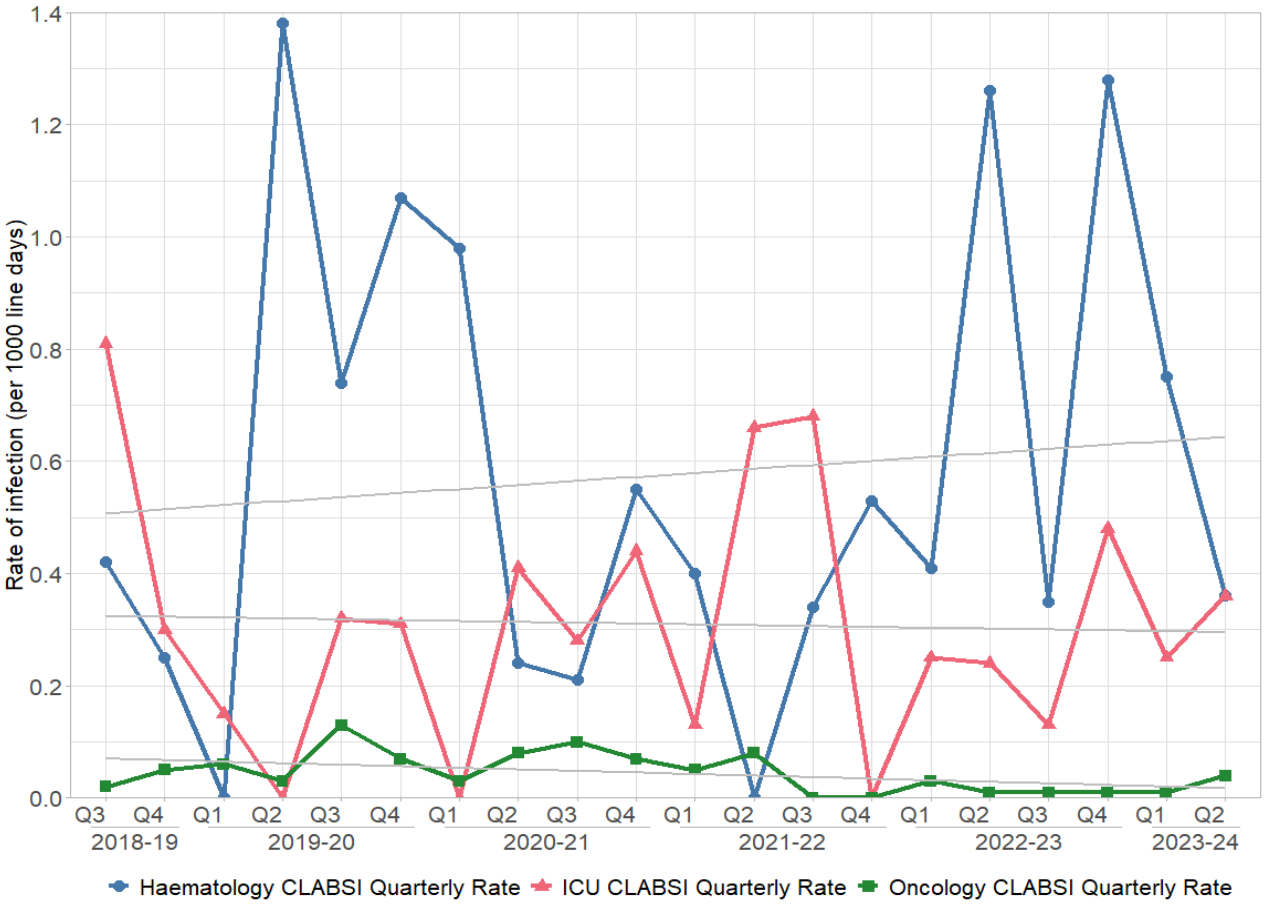
Central line type	Number of contributing hospitals	Number of line days	Number of CLABSI	Aggregate rate (95% CI)	Cumulative aggregate rate (95% CI)
Haematology peripherally inserted CLABSI	1	4,001	1	0.25 [0.1-0.4]	0.45 [0.4-0.5]
Haematology centrally inserted CLABSI	1	1,498	1	0.67 [0.26-1.08]	0.79 [0.7-0.88]
Total Haematology CLABSI	**1**	**5,499**	**2**	**0.36 [0.2-0.52]**	**0.57 [0.52-0.62]**

Table 10 Oncology Unit CLABSI

Central line type	Number of contributing hospitals	Number of line days	Number of CLABSI	Aggregate rate (95% CI)	Cumulative aggregate rate (95% CI)
Oncology peripherally inserted CLABSI	4	17,115	2	0.12 [0.07-0.17]	0.16 [0.14-0.18]
Oncology centrally inserted CLABSI	4	59,044	1	0.02 [0.01-0.03]	0.02 [0.02-0.02]
Total Oncology CLABSI	**4**	**76,159**	**3**	**0.04 [0.03-0.05]**	**0.05 [0.05-0.05]**

All rates per 1,000 central line days

Figure 15 ICU, haematology, and oncology unit CLABSI rates



Methicillin-resistant *Staphylococcus aureus* healthcare associated infection

Key points

- There were 38 MRSA HAIs reported.
- The total MRSA HAI rate decreased to 0.60 infections per 10,000 bed-days compared to 0.65 reported in Q1, 2023-24, and remains below the comparator rate of 0.96 (Figure 16).
- Thirty-seven of the 38 MRSA HAIs reported were identified from the inpatient setting (3 ICU).
- Eighteen (47%) patients were known to be colonised prior to developing an infection.
- Of the 38 MRSA HAIs, 16 (42%) were related to surgical wounds and seven (18%) were BSIs. A further 12 (32%) were classified as 'wound-other'. The remaining infections were isolated from sputum, aseptic tissue or peritoneum samples (Figure 17).
- The majority (55%) of MRSA HAIs were caused by micro B PVL negative strains (Figure 19).
- Twenty-one (55%) of all MRSA HAIs were reported from the tertiary hospitals, with 13% (n=5) attributed to one tertiary facility (Figure 20).

Table 11 MRSA HAI rate per 10,000 bed-days (inpatient and non-inpatient)

MRSA	Number of contributing hospitals	Number of MRSA HAI	Number of bed days	Aggregate rate (95% CI)	Cumulative aggregate (95% CI)
MRSA Non-ICU sterile site	48	6	468,840	0.13 [0.12-0.14]	0.06 [0-0]
MRSA Non-ICU non-sterile site	48	28	468,840	0.60 [0.58-0.62]	0.16 [0-0]
MRSA ICU sterile site	48	1	18,978	0.53 [0.43-0.63]	0.11 [0-0]
MRSA ICU non-sterile site	48	2	18,978	1.05 [0.9-1.2]	0.63 [0-0]
Total inpatient MRSA HAI	48	37	487,818	0.76 [0.74-0.78]	0.25 [0-0]
MRSA HAI non-inpatient	48	1			
Total MRSA healthcare associated infection	**48**	**38**	**635,228**	**0.60 [0.58-0.62]**	**0.21 [0.21-0.21]**

**Rates per 10,000 multi and same-day bed-days*

Table 12 MRSA HAI, by strain group, site, and place of acquisition

Setting	Micro-B PVL negative MRSA	Micro-B PVL positive MRSA	Micro-C MRSA	Not Typed	total
Non-ICU sterile	4	1	1	0	6
Non-ICU non-sterile	16	8	4	0	28
ICU sterile	0	1	0	0	1
ICU non-sterile	1	1	0	0	2
Proportion	57 %	30 %	14 %	0 %	37 %
Strain	NA	Qld Clone (7) / WA121 (3) / ST1232-MRSA-V (1)	UK 15 (5)		
Total	**21**	**11**	**5**	**0**	**37**

Figure 16 Total MRSA HAI rate per 10,000 multi and same day bed-days (inpatient and same-day patient)

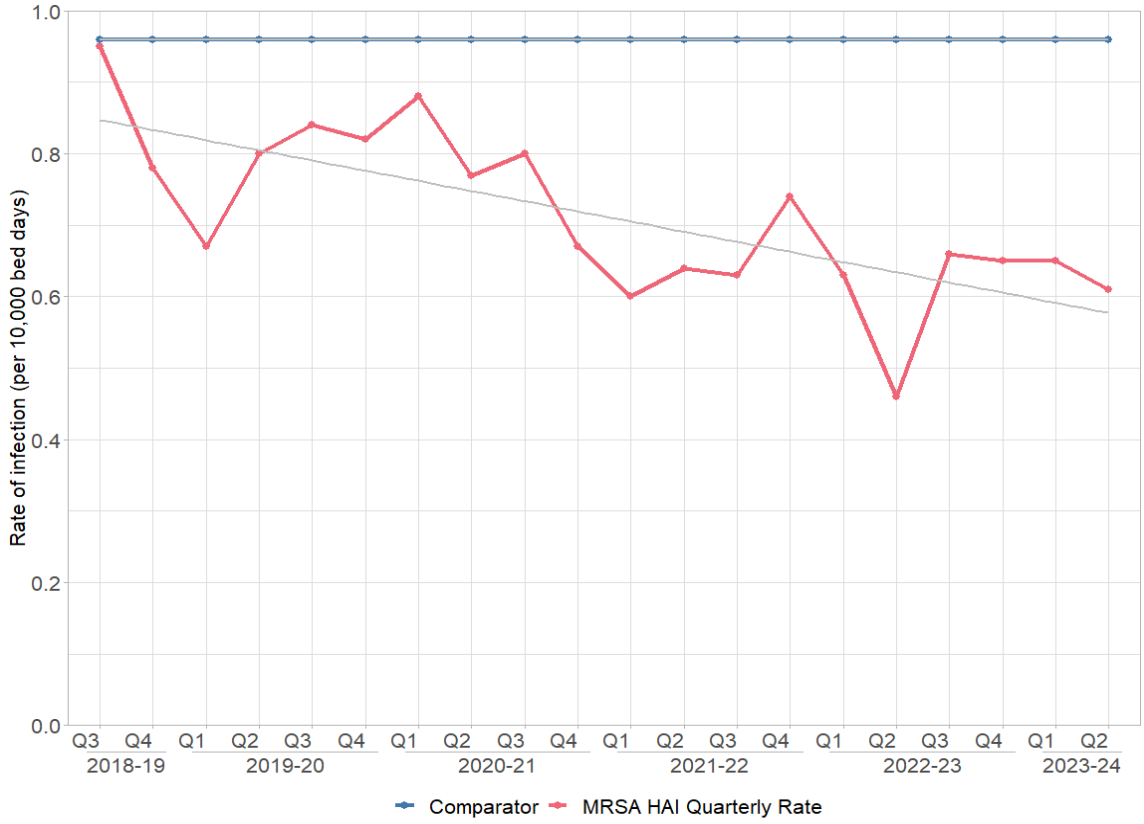


Figure 17 Percentage of MRSA HAIs by specimen site

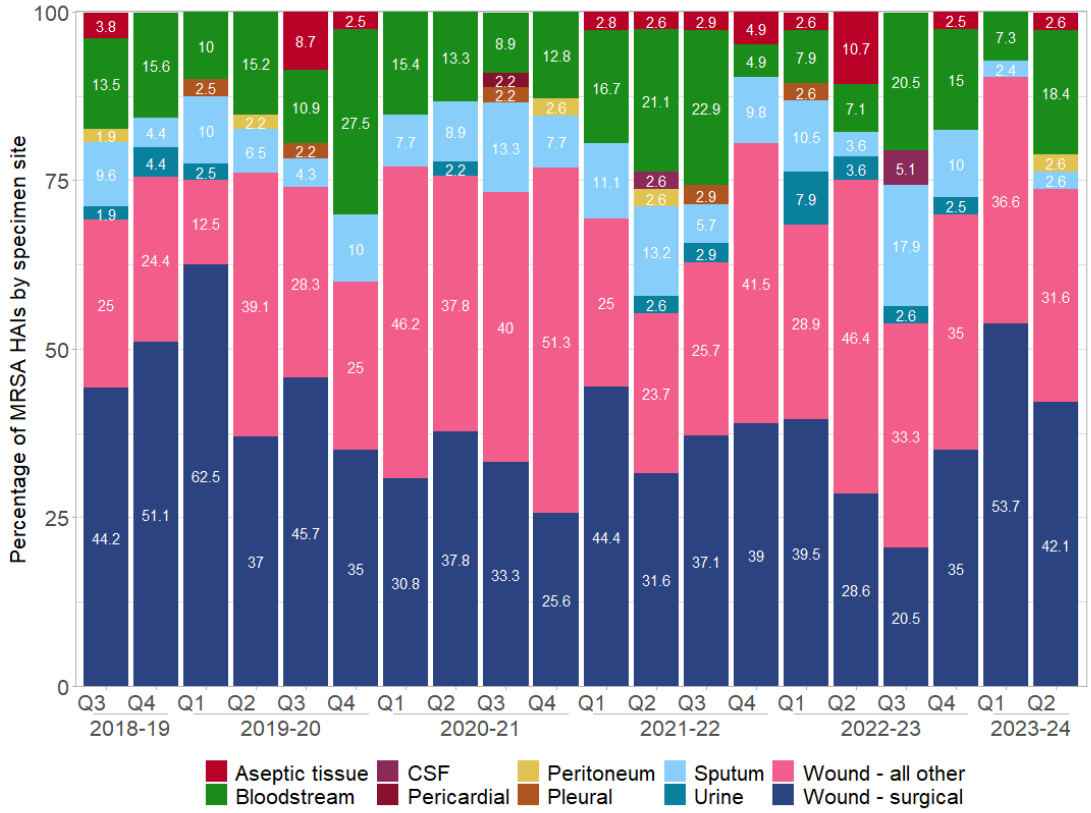


Figure 18 Rate of MRSA HAI, by strain group

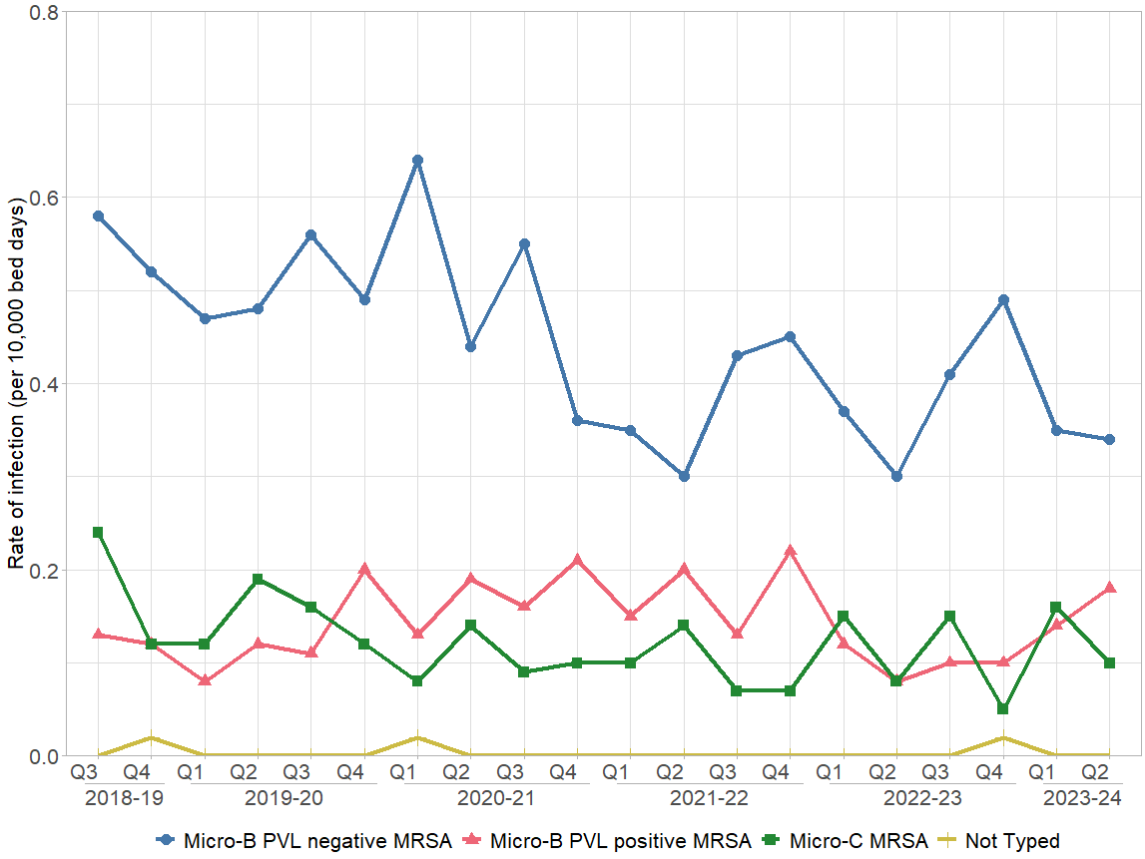


Figure 19 Proportion of MRSA HAI, by strain group

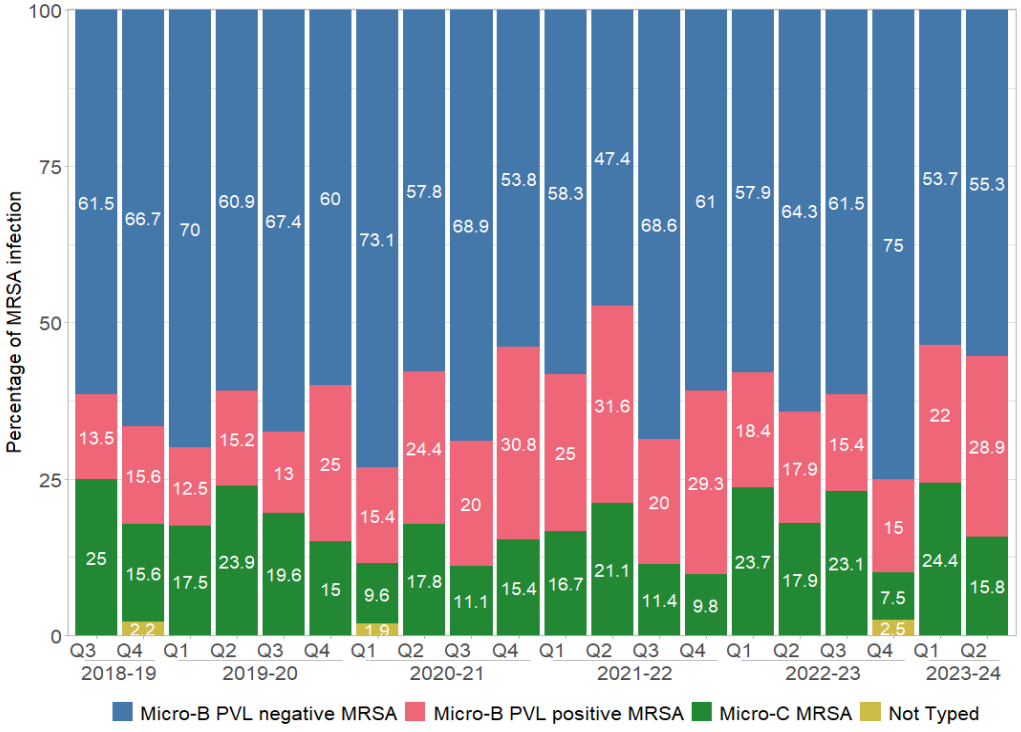
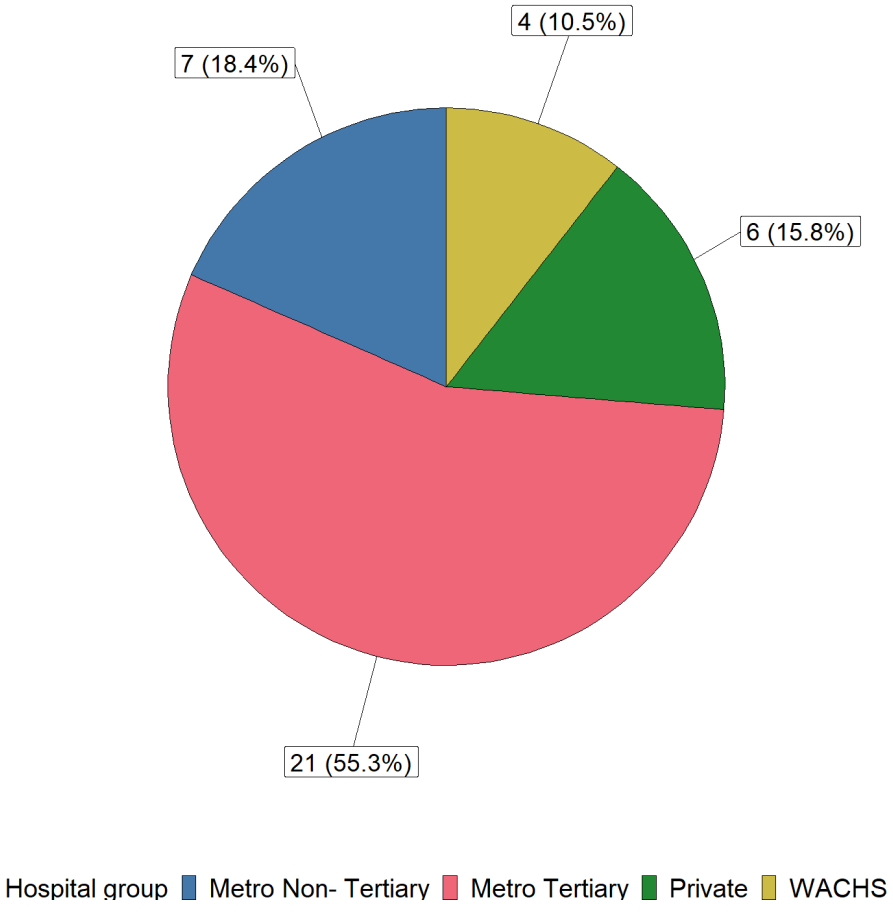


Figure 20 Proportion of MRSA HAI, by hospital group, Qtr 2 2023-24



Hospital-identified *Clostridioides difficile* infection

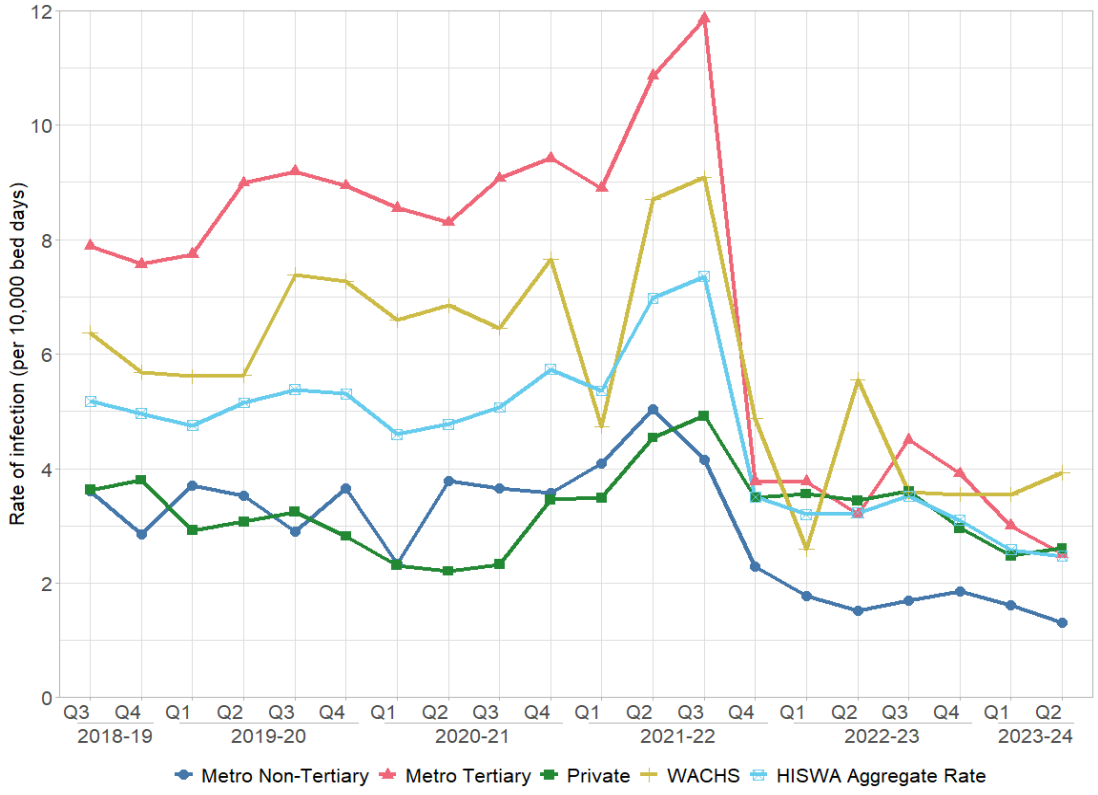
Key points

- ☐ The HISWA aggregate HI-CDI rate decreased to 2.47 per 10,000 bed-days from 2.58 reported in Q1, 2023-24.
- ☐ Rates remained stable in all hospital groups except for WACHS and private hospital groups which reported an increase (Figure 21).
- ☐ WACHS and private hospital group rates remained above the HISWA aggregate rate.
- ☐ Sixty-two (34.6%) of all HI-CDI were reported from the tertiary hospitals, and 70 (39.1%) were reported from private hospitals. The majority of HI-CDI in private hospitals occurred at four of the larger metropolitan hospitals

Table 13 HI-CDI rates, by hospital group

Hospital Group	Number of contributing hospitals	Number of infections	Number of bed-days	Aggregate rate (95% CI)	Cumulative aggregate (95% CI)
Tertiary	5	52	207,082	2.51 [2.44-2.58]	2.06 [2.05-2.07]
Metropolitan non-tertiary	8	17	129,810	1.31 [1.25-1.37]	0.8 [0.79-0.81]
WACHS	21	28	71,171	3.93 [3.79-4.07]	1.78 [1.77-1.79]
Private	14	72	275,840	2.61 [2.55-2.67]	1.02 [1.02-1.02]
Total	**48**	**169**	**683,903**	**2.47 [2.43-2.51]**	**1.38 [1.38-1.38]**

Figure 21 HI-CDI rates, by hospital group



*Please note: Some private hospitals are still reporting CDI-positive cases based on PCR, whilst all public hospital groups report CDI-positive cases based on toxin-positive enzyme immunoassay (EIA) testing. The move to EIA testing began in Q4 2021-22.

Vancomycin-resistant *Enterococci* sterile-site infections

Key points

- ☐ There were nine VRE sterile site infections reported, from five metropolitan facilities, including the three adult tertiary hospitals, one private and one non-tertiary hospital. (Figure 22).
- ☐ All nine infections were classified as healthcare associated.
- ☐ One (11.1%) was identified as *Enterococcus faecium* van A and eight (88.9%) were *E. faecium* van B (Figure 23).
- ☐ Five of the nine patients (55.6%) were known to be colonised prior to the onset of their infection and no patients identified were from a residential care facility.
- ☐ Seven (77.8%) VRE HAIs were isolated from blood cultures, one (11.1%) from peritoneal cultures, and one (11.1%) from bone and joint cultures (Figure 22).

Figure 22 Number of VRE infections by sterile body sites

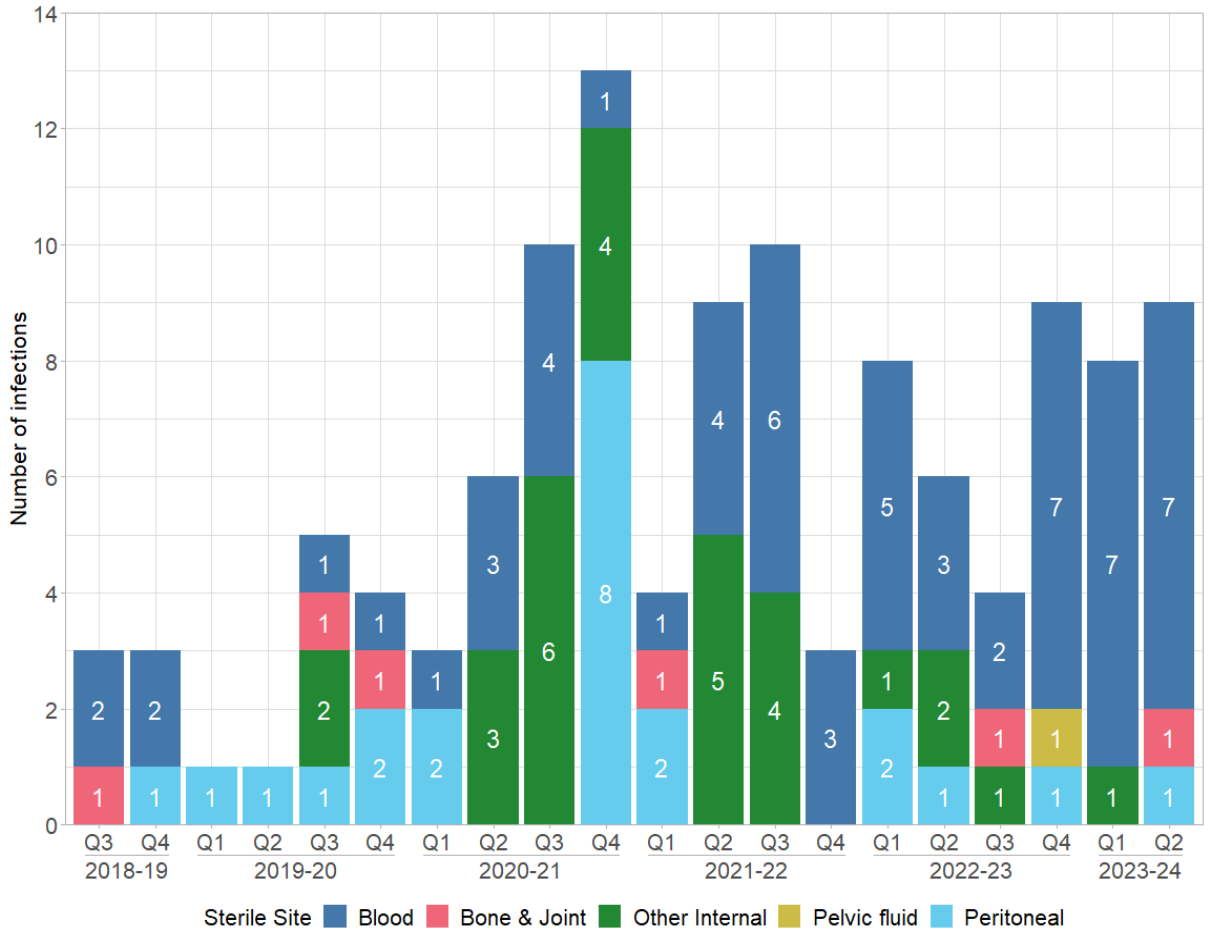
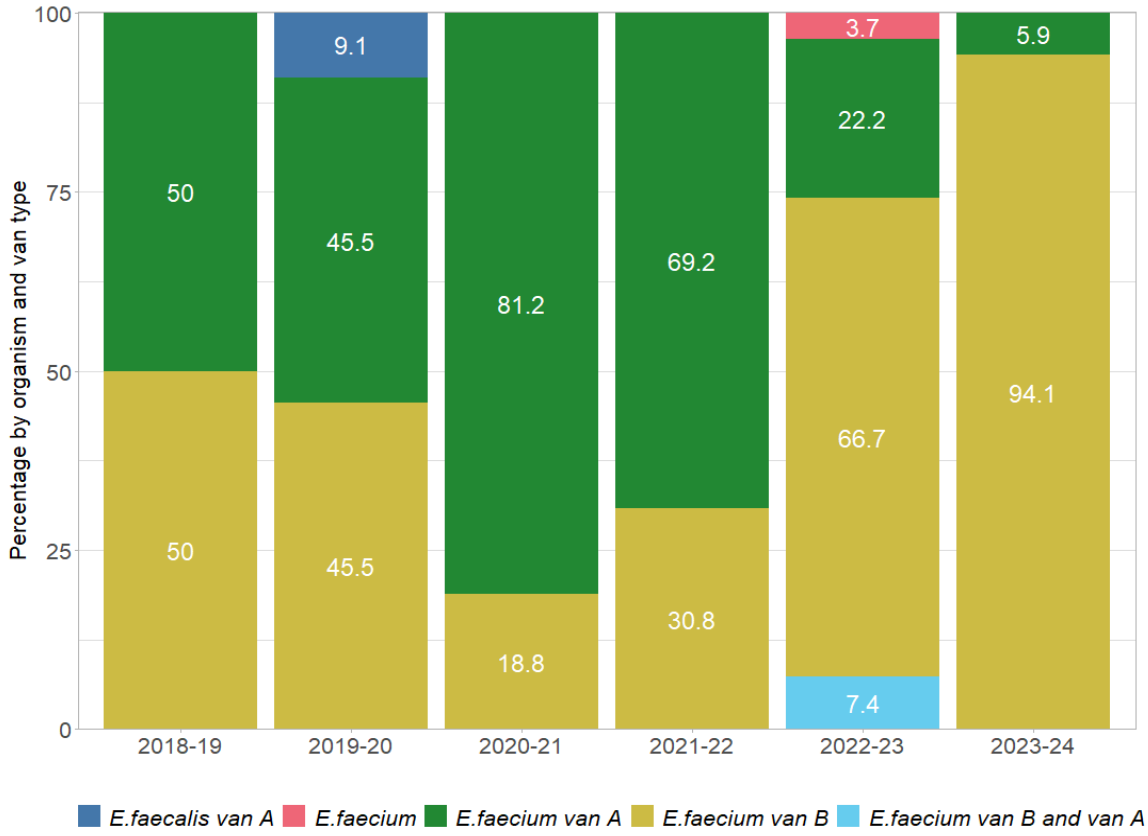


Figure 23 Percentage of VRE HAI and CAI sterile site infections by organism and van type, 2018-19 to current financial year to date



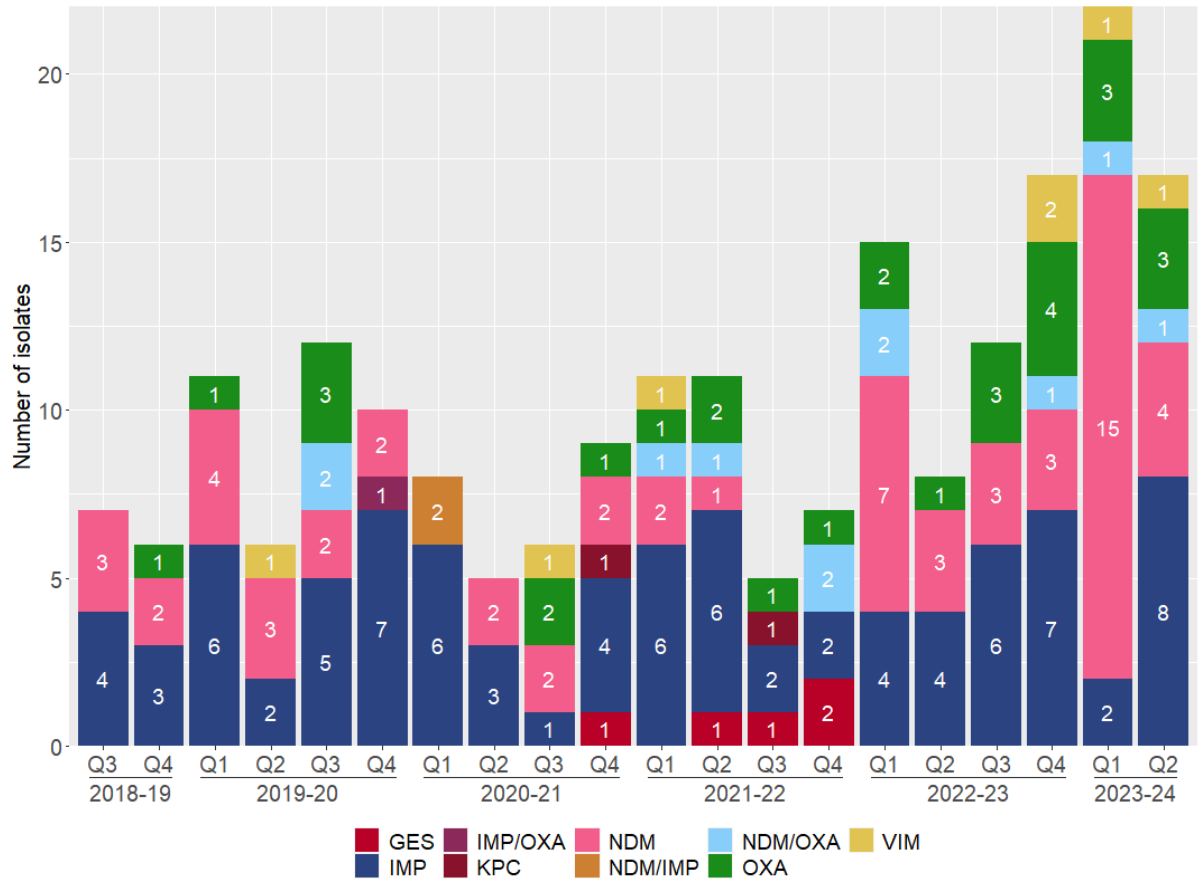
Carbapenemase-producing organisms

Key points

- ☐ Surveillance of carbapenemase-producing organisms (CPOs) is performed by the IPPSU in liaison with the PathWest Gram-negative Reference Laboratory located at the QEII site. All isolates with confirmed carbapenemase resistance are referred to the reference laboratory for confirmatory testingfor the production of a carbapenemase.
- ☐ Of the 44 referred patient isolates, 18 were confirmed to be CPO (17 unique CPO isolates and one duplicate).
- ☐ Of the 17 confirmed unique CPO isolates, eight of the patients were confirmed with IMP, four were NDM, three were OXA, one was VIM and one was NDM/OXA (Figure 24).

** Unique isolate: One record per patient with the same species and carbapenemase type isolated from the same patient within one year. If there are multiple isolates from one patient with a different organism/s and/or enzyme/s then this is counted as another unique isolate.*

Number of unique CPO isolates by type



Occupational exposures

Key points

- A total of 320 occupational exposures were reported by healthcare workers this quarter.
- Both the number of parenteral and the number of non-parenteral exposures reported for this quarter remained stable or decreased compared with Q1, 2023-24.
- The total occupational exposure rate decreased to 4.50 exposures per 10,000 bed-days, from 4.75 reported in Q1, 2023-24 (Figure 25).
- The parenteral occupational exposure rate remained stable to 3.44 exposures per 10,000 bed-days from 3.44 reported in Q1, 2023-24 (Figure 25).
- The non-parenteral occupational exposure rate decreased to 1.07 exposures per 10,000 bed-days from 1.30 reported in Q1, 2023-24 (Figure 25).
- The majority of parenteral exposures (43.4%; n=106) were reported by nurses (Figure 26).
- The majority of non-parenteral exposures (67.1%; n=51) were reported by nurses (Figure 27).
- There were 19 (7.79%) parenteral exposures sustained by HCWs who were not the primary user of the sharp.

Table 14 Occupational exposures, by parenteral and non-parenteral

Exposure Type	Number of contributing hospitals	Number of Exposures	Number of bed-days	Aggregate rate (95% CI)	Cumulative aggregate (95% CI)
Parenteral	49	244	710,328	3.44 [3.4-3.48]	1.15 [1.15-1.15]
Non-Parenteral	49	76	710,328	1.07 [1.05-1.09]	0.35 [0.35-0.35]
Total Exposures	**49**	**320**	**710,328**	**4.50 [4.45-4.55]**	**1.50 [1.5-1.5]**

Figure 24 Occupational exposure rate, by parenteral and non-parenteral

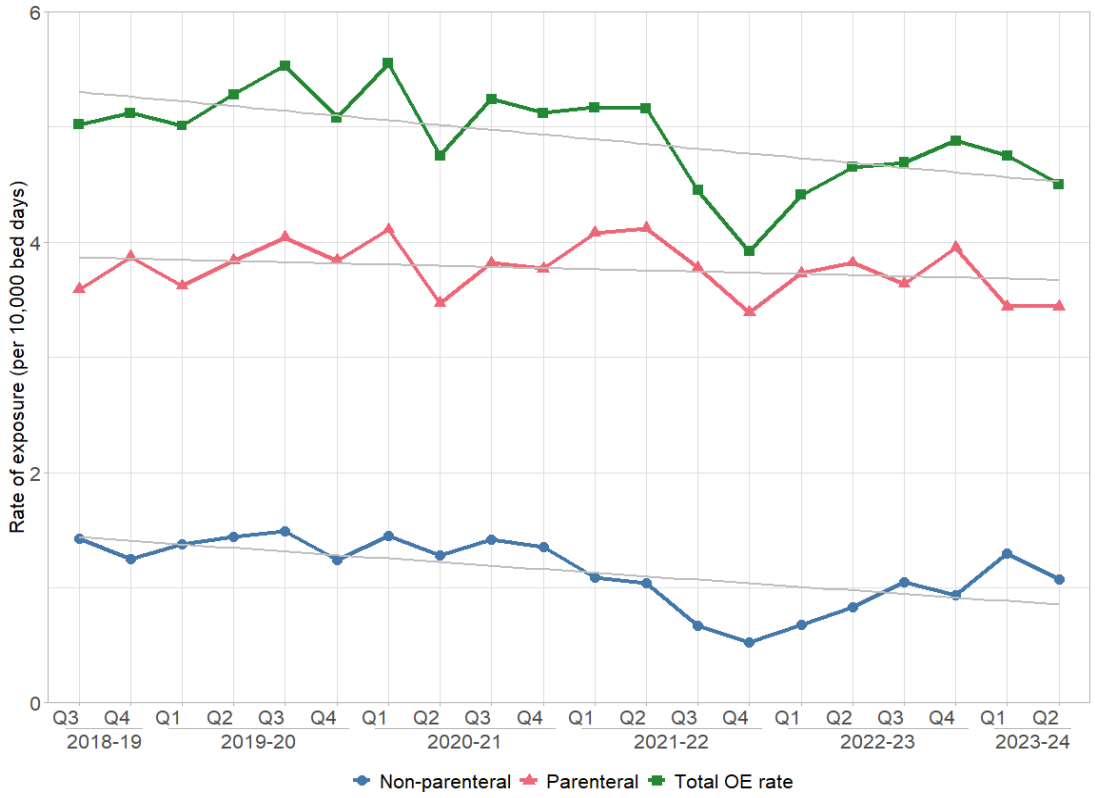


Figure 25 Parenteral occupational exposures, by HCW category

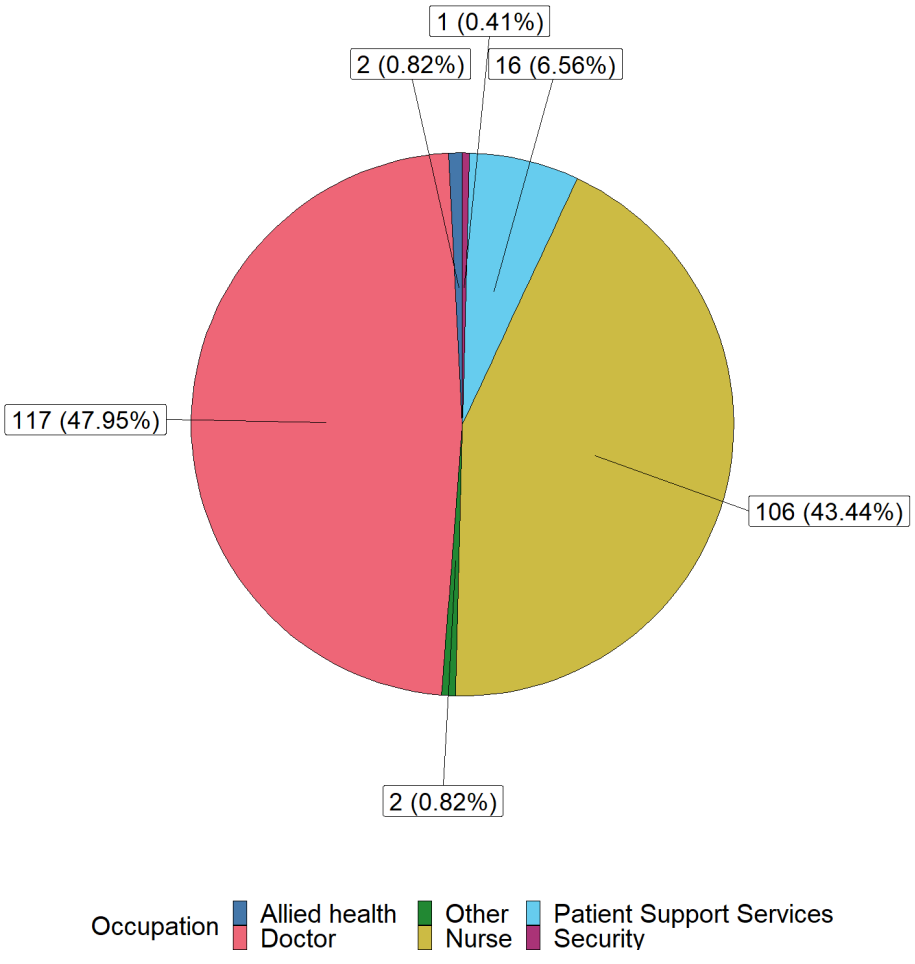
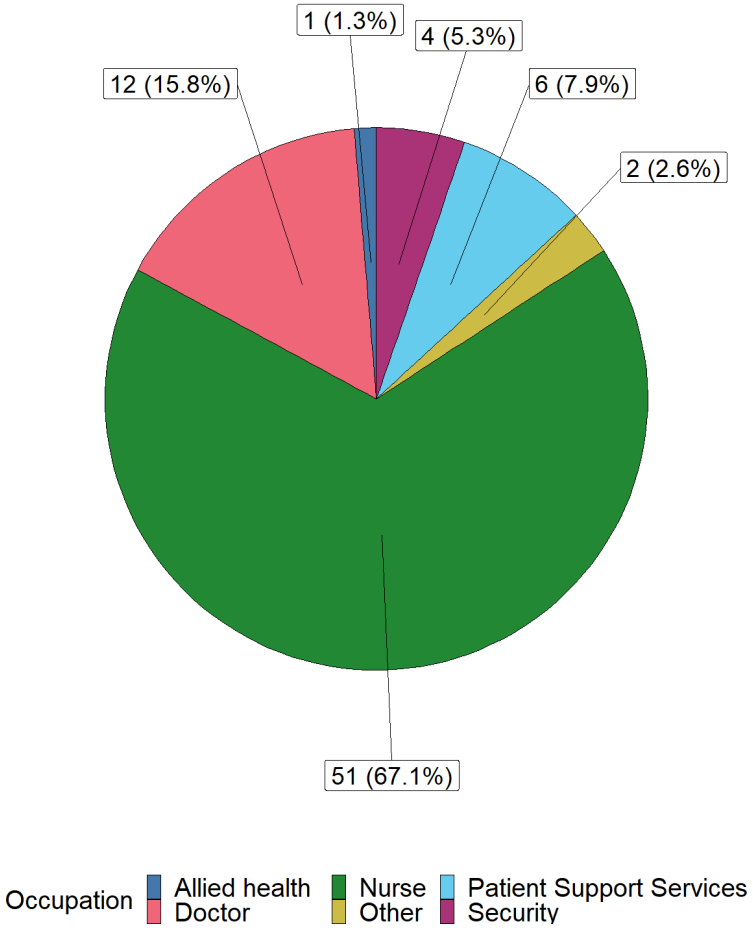


Figure 26 Non-parenteral occupational exposures, by HCW category



Data notes

Data quality statement

Date Extracted: 2024-02-20 Publication Date: 2024-02-20

The following may impact on aggregated rates:

2023-24

Q1 2023-24: JHC haemodialysis data is reported via SCGH

Q1 2023-24: KEMH Neonatology numerators and denominators are reported via PCH.

December 2023: Glengarry and SJG Mt Lawley ceased performing caesarean section procedures.

Prior to 2023-24

Please refer to previous reports or contact IPPSU for details if you wish your data to be updated.

Data finalisation

All HISWA Contributors are to finalise data as soon as possible to meet prescribed data submission deadlines. If there are issues with finalising data please advise IPPSU as soon as possible.

Data refresh

All data changes requested by HISWA contributors or late submissions are refreshed each quarter when HISWA data are extracted for each reporting period and therefore data from previous reports may not reflect current data.

Data comparators

We continue to seek suitable up-to-date comparators for the surveillance indicators. Refer to specific indicator notes for information on available comparators.

Mandatory indicators

Mandatory indicators were introduced for public hospitals and those contracted health entities who provide contracted services to public patients in 2007. Mandatory Indicators are those marked with an asterisk*.

Cumulative aggregate rates

Cumulative aggregate rates have historically been calculated using the full HISWA data set. This calculation has been updated to now use only the previous five years of data.

HISWA indicators

Surgical site infections

Arthroplasty*

- ☐ 23 hospitals (8 private; 15 public) submit data to HISWA. This represents 100% of all hospitals in WA that perform hip and knee arthroplasty procedures. One integrated district hospital commenced performing these procedures in July 2018.

- ☐ The comparator is Public Health England, *Surveillance of Surgical Site Infections in NHS hospitals in England, 2022-23 Report (Table 3).* (https://assets.publishing.service.gov.uk/media/65805a711c0c2a001318cfb7/SSISS-annual-report-2022-to-2023.pdf).
- ☐ The follow up period for surveillance on implanted devices changed from 365 days to 90 days in July 2014.
- ☐ Risk stratification:
    - Risk stratification is based on the CDC-NHSN (USA) risk index.
    - Risk 'All' applies to HISWA hospitals that perform fewer than 100 procedures annually and are not required to assign a risk index score.
    - Procedure type: primary and revision procedures.
- ☐ The IPPSU commenced data submission to the WA Department of Health, Performance Reporting Branch in February 2019 for SSIs following primary hip and knee arthroplasty for inclusion in the Health Service Perfomance Report (HSPR).

Caesarean section

- ☐ 28 hospitals (5 private and 23 public) submit data to HISWA.
- ☐ Risk stratification:
    - Risk stratification is based on the CDC-NHSN (USA) risk index.
    - Risk 'All' applies to HISWA hospitals that perform fewer than 100 procedures annually and are not required to assign a risk index score.
    - Procedure type: elective and non elective procedures.
- ☐ Caesarean section SSI are frequently superficial infections that are treated outside the hospital setting. There is no standardised post-discharge surveillance methodology used in WA. SSI detected and treated post-discharge (i.e. as outpatients or by primary care provider) are likely to be an under-estimation and are not included in HISWA rate calculations or used for benchmarking purposes.

Bloodstream infections

HA-SABSI*

- ☐ 48 hospitals (11 private, 37 public) submit data to HISWA. Data are included from North Metropolitan Mental Health Service since 2014-15.
- ☐ HA-SABSI data have been included as an indicator in National Healthcare Agreements since 2009 and are reported on the MyHospitals website. The IPPSU also submits HA-SABSI data to the Department of Health, Performance Reporting Branch on behalf of public hospitals and Contracted Health Entities (CHEs) as they are included in the HSPR.
- ☐ Data collection is in accordance with the Australian national definition.
- ☐ From 1 July 2017, unqualified newborn bed-day data were excluded from denominator data to align with changes to National definitions. This was also retrospectively applied to reporting periods and therefore previously published data will not align.
- ☐ All public hospital HA-SABSI data are validated by the Infection Prevention, Policy, & Surveillance Unit.
- ☐ The national benchmark for HA-SABSI is set at 1.00 infection per 10,000 patient days, as per the Australian Commission on Safety and Quality in Health Care.

- The comparator for HA-SABSI is the Australian national public hospital aggregate 2019-20 rate (0.71 per 10,000 patient days). The MSSA rate is 0.59 and the MRSA rate is 0.12 per 10,000 bed days. Australian Institute of Health and Welfare. (2021). *Bloodstream infections associated with hospital care 2019–20.* Retrieved from https://www.aihw.gov.au/reports/health-care-quality-performance/bloodstream-infections-associated-with-hospital-care.

Haemodialysis*

- 26 haemodyalisis units (15 private, 11 public) submit data to HISWA, including two home dialysis units.
- The rate per 100 patient months can be interpreted as: the average % of dialysis patients acquiring an access associated BSI per month.
- Arterio-venous grafts (AVG) - synthetic and native vessel grafts are combined in data.
- There is currently no suitable comparator.

Central Line-associated BSI

- CLABSI definitions changed in July 2014. The new definitions identify BSI that are likely to be related to mucosal barrier injury as a result of neutropenia or graft versus host disease and exclude them from CLABSI data.
- Data are risk adjusted to peripherally and centrally inserted central lines.
- Adult ICU CLABSI - 12 adult ICUs (4 private, 8 public) submit data to HISWA.
- Oncology CLABSI - 1 oncology units (0 private, 1 public) submit data to HISWA.
- Haematology CLABSI - 4 haematology units (2 private, 2 public) submit data to HISWA.

Multi-resistant organism HAIs

Methicillin-resistant *Staphylococcus aureus**

- MRSA (infection and colonisation) is a notifiable condition in WA under the *Public Health Act 2016* via laboratory reporting.
- 48 hospitals (11 private, 37 public) submit data to HISWA.
- Data are risk adjusted by ICU / non-ICU and inpatient / non-inpatient.
- Since 1 July 2014 there have been three MRSA strain reporting groups in WA:
    - Micro-alert B PVL negative (strain not characterised).
    - Micro-alert B PVL positive (strain characterised).
    - Micro-alert C (strain characterised).
- The comparator is SA Health, Infection Prevention and Control Service, 2018-19 (personal communication).

Vancomycin-resistant *Enterococci**

- VRE (infection and colonisation) is a notifiable condition in WA under the Public Health Act 2016 via laboratory reporting.
- HISWA VRE data includes all VRE isolates, both community and healthcare associated.
- HISWA currently only reports sterile site infections.
- The IPPSU receives VRE data from
    - HISWA Surveillance – VRE sterile site infections submitted by ICPs

- Notification of all VRE clinical isolates referred to the PathWest Gram-positive Reference Laboratory.

- ☐ Categories for sterile site specimens:
  - Blood
  - Peritoneal: fluid and tissue from peritoneal space / peritoneum (includes abdominal fluid and ascites)
  - Bone and joint: bone biopsy, synovial fluid
  - Other internal sites: specimens from body sites that are normally sterile where a specimen has been obtained surgically or by aspirate e.g., deep soft tissue (muscle and fascia), pleura, liver, pancreas, kidney, spleen, vascular tissue, heart, brain, lymph node, ovarian tissue.

Carbapenemase-producing organisms

- ☐ CPO (infection and colonisation) is a notifiable condition in WA under the Public Health Act 2016 via laboratory reporting.
- ☐ The IPPSU collates all CPO data submitted to the PathWest QEII Gram-negative Reference Laboratory.

Hospital-identified *Clostridioides difficile* Infection*

- ☐ Data collection is in accordance with the Australian national definition.
- ☐ The purpose of this indicator is to describe the burden of disease presenting at hospitals and includes both community and healthcare associated infections.
- ☐ Laboratory testing moved to PCR during mid-2010 leading to a doubling of cases identified.
- ☐ A second increase in cases identified in the second half of 2011 corresponded to the appearance of several “new” strains of *C. difficile*, possibly imported from the USA.
- ☐ These data are not suitable for use as a perfomance measure or for benchmarking.
- ☐ *C. difficile* toxin A and B enzyme immunoassay (EIA) was implemented on the 6th March 2022.
- ☐ Metropolitan non-tertiary group includes North Metropolitan Mental Health Service data since July 2014 and Fremantle Hospital since January 2015.

Healthcare worker exposures

Occupational exposures*

- ☐ 49 hospitals (12 private, 37 public) voluntarily submit data on parenteral (percutaneous) and non-parenteral (mucous membrane or non-intact skin) exposures.
- ☐ Participation in this indicator includes mental health facilities in WA.
- ☐ Data are risk adjusted by healthcare worker classification and type of exposure.

This document can be made available in alternative formats on request for a person with disability.