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

Healthcare Infection Surveillance Western Australia (HISWA)

Quarterly Aggregate Report

Quarter 1, 2023-2024

Data for July to September 2023

Infection Prevention, Policy and Surveillance Unit

Communicable Disease Control Directorate

22 November 2023

Contents

Data Quality Statement

Date Extracted: 22/11/2023 Publication Date: 27/11/2023

The following may impact on aggregated rates:

2022-23

April 2023: Glengarry commenced reporting caesarean section data.

March 2023: Mount Hospital bed day and separation denominators not available.

February and May 2023: No denominator data for haemodialysis patient months submitted by SCGH.

January and February 2023: Fitzroy Renal Health Centre was temporarily closed due to flooding. Services were transferred to Derby Renal Health Centre.

December 2022: Carnarvon Hospital haemodialysis denominators not available.

May, June and October 2022: No denominator data for haemodialysis patient months submitted by SCGH.

May 2022: Northam Dialysis Clinic commenced reporting.

March 14, 2022: Category 2 and 3 elective surgeries across WA were deferred until May 2022.

March 2022: Fresenius Home Dialysis Clinic Midland commenced reporting.

Prior to 2022-23

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

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IPPSU News

Committees

Key infection prevention and control issues can be raised by your teams at the following committees. Please discuss with your representatives. Terms of Reference and Membership will be made available on the IPPSU website soon.

- **The Healthcare Infection Council of Western Australia (HICWA)** - next meeting 1st Dec 2023.
- **The Infection Prevention and Control Advisory Group (IPCAG)** - next meeting 15th Feb 2024.
- **Western Australia Multi Resistant Organism Expert Group (WAMRO)** - next meeting 23rd Feb 2024.

HISWA Forum

The next forum is scheduled for **6th December 2023**.

The presentation by Dr Tammy Wijesuriya (Clinical Microbiologist, FSH) on CPOs has been deferred until 2024 and the ICNet/ PathWest iSOFT mapping has been completed.

Reminders

IPPSU staff made 40 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.

Data finalisation

Please finalise your data as soon as possible to meet prescribed data submission deadlines. If a data deadline is on the horizon please let us know so we can assist in your data finalisation.

ICNet

The WebPAS unmerging of records continues. In ICNet, a tag for these records 'PAS unmerged record' is in place to alert the IPC staff that the information in these records is incorrect. If you come across a record with this tag, please refer to your ICNet downtime procedures in place as this record should not be used.

A new "Respiratory Precautions" option in ICNET Isolation Tab has been implemented.

Duplicate Caesarean section management guide and alert implemented.

The next user forum is scheduled for **5th February 2024**. Please continue to contact us for support and upskilling through MS Teams channel and DoH.ICNet@health.wa.gov.au

Report Notes

Report Highlights

- Knee arthroplasty SSI rates decreased for the 2nd consecutive Qtr. There was a reduction in deep SSIs.
- The total HA-SABSI rate decreased compared to the previous reporting period. Both methicillin-sensitive HA-SABSI rate and the methicillin-resistant rate decreased. The MRSA HA-SABSI rate remains below the comparator rate.
- The private hospital intravascular device related (IVD) HA-SABSI rate decreased for the 4th consecutive Qtr.
- MRSA HAI rates remain stable and significantly below the comparator rate.
- Central line BSIs from adult ICU, haematology and oncology all decreased this Qtr.
- HI-CDI numbers decreased slightly or remained stable across all hospital groups.
- The rate of total occupational exposures decreased this Qtr.

Report Concerns

- Hip arthroplasty SSI rates increased this Qtr.
- The total caesarean section SSI rate increased this Qtr, and the increase was evident for both deep and superficial SSIs and emergency and elective procedures.
- A total of 49 HA-SABSI were reported, and of these 67% (n=33) are classified as preventable adverse events. These included 29 IVD and 4 procedural related HA-SABSI.
- Of the 29 HA-SABSI attributed to IVDs, 74% (n=20) were associated with PIVC, of which seven had a time insitu recorded as less than 72 hours, five as 72 hours, four as more than 72 hours, and four recorded as unknown.
- The HA-SABSI IVD attributable rate increased for the WACHS hospital group.
- The cuffed catheter access-associated BSI rate decreased compared to the previous reporting period and maintains an upward trend with 8 BSIs reported from this group for the Qtr.
- There were eight VRE sterile site infections reported this Qtr, the majority (n=7) were blood stream infections.

Surgical site infection following hip arthroplasty

Key Points

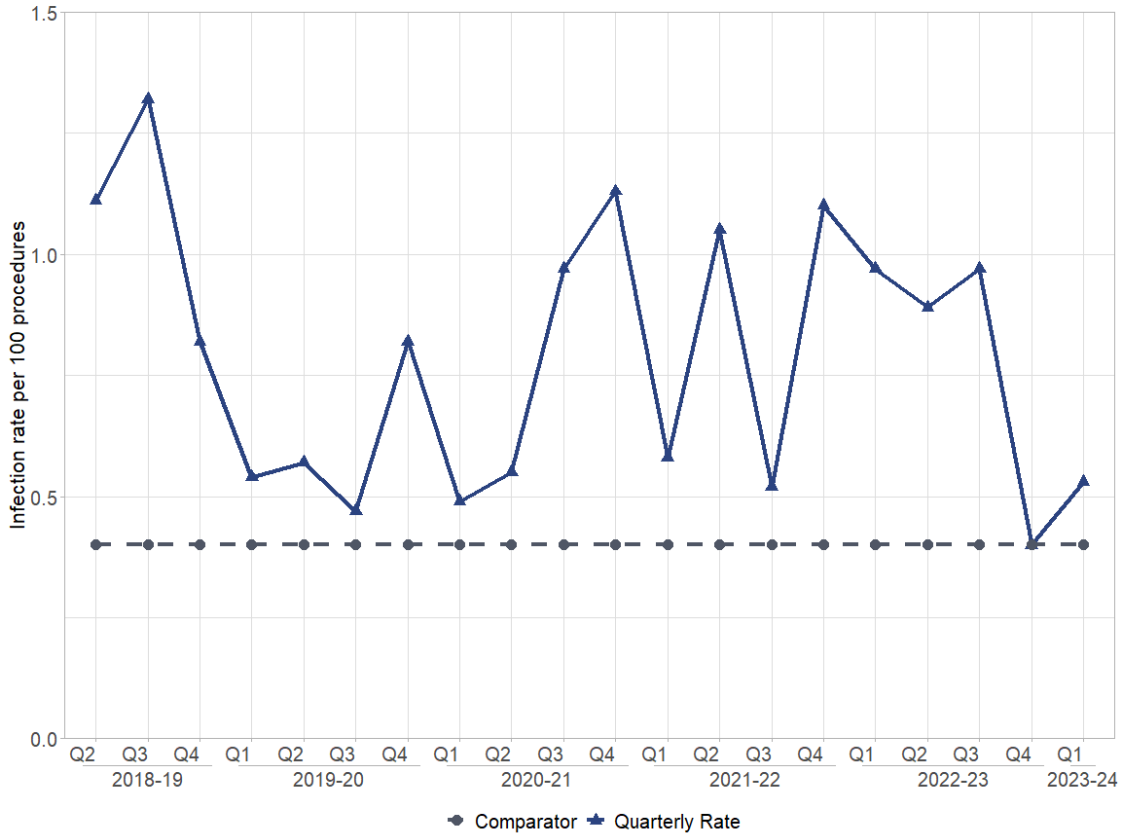
- There were 1,516 procedures reported (1,407 primary; 109 revision).
- A total of eight SSIs following hip arthroplasty were reported, six from primary procedures and two from revision procedures.
- Seven SSIs were deep or organ space infections.
- The total SSI rate following hip arthroplasty increased to 0.53 infections per 100 procedures from 0.40 reported in Qtr 4, 2022-23 (Figure 1).
- The deep SSI hip rate increased to 0.46 infections per 100 procedures from 0.34 reported for Qtr 4, 2022-23 (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	839	4	0.48 [0.01-0.95]	0 [0-0]
Risk index 1	23	624	4	0.64 [0.01-1.27]	1 [0.8-1.2]
Risk index 2	23	48	0	0 [0-0]	3 [2.04-3.96]
Risk index 3	23	5	0	0 [0-0]	15 [6.39-23.61]
Total hip arthroplasty	**23**	**1,516**	**8**	**0.53 [0.16-0.9]**	**0.78 [0.68-0.88]**

Refer to Appendix 1- SSI Data Notes

Figure 1 Hip arthroplasty SSI rate



Surgical site infection following knee arthroplasty

Key Points

- ☐ There were 2,078 procedures reported (1,957 primary; 121 revision).
- ☐ A total of five SSIs following knee arthroplasty were reported, four from primary procedures and one from revision procedures.
- ☐ Four SSIs were deep or organ space infections, all of which were identified on readmission to hospital.
- ☐ The total SSI rate following knee arthroplasty decreased to 0.24 infections per 100 procedures from 0.29 reported in Qtr 4, 2022-23 (Figure 2).
- ☐ The deep SSI knee rate decreased to 0.19 infections per 100 procedures from 0.24 reported for Qtr 4, 2022-23 (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	1,060	2	0.19 [0-0.45]	0 [0-0]
Risk index 1	23	871	2	0.23 [0-0.55]	0 [0-0]
Risk index 2	23	133	1	0.75 [0-2.22]	1 [0.59-1.41]
Risk index 3	23	14	0	0 [0-0]	2 [0-4.96]
Total knee arthroplasty	**23**	**2,078**	**5**	**0.24 [0.03-0.45]**	**0.33 [0.27-0.39]**

**Refer to Appendix 1- SSI Data Notes*

Figure 2 Knee arthroplasty SSI rate

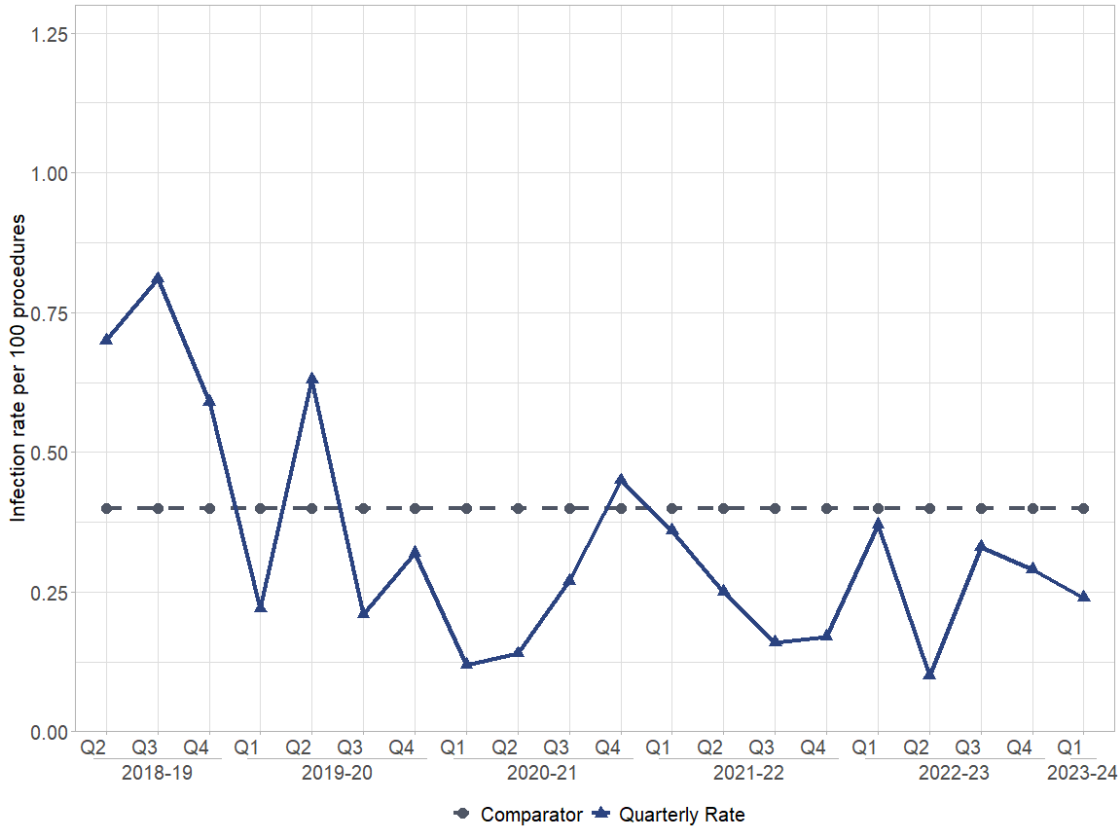


Table 3 SSI rates, by superficial and deep or organ/ space infections

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	1	7	8	1,516	0.07 [0-0.2]	0.46 [0.12-0.8]
Knee arthroplasty	1	4	5	2,078	0.05 [0-0.15]	0.19 [0-0.38]
Total	**2**	**11**	**13**	**3,594**	**0.0 [0.00-0.00]**	**0.0 [0.00-0.00]**

Figure 3 Hip arthroplasty SSI rate, by superficial and deep

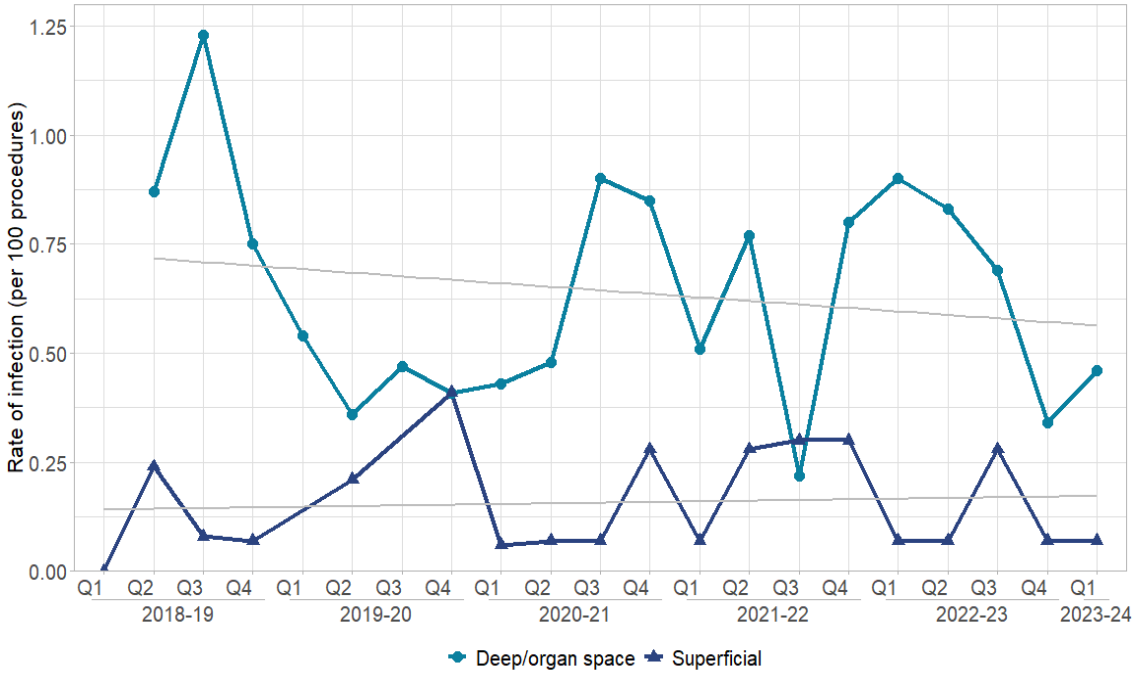
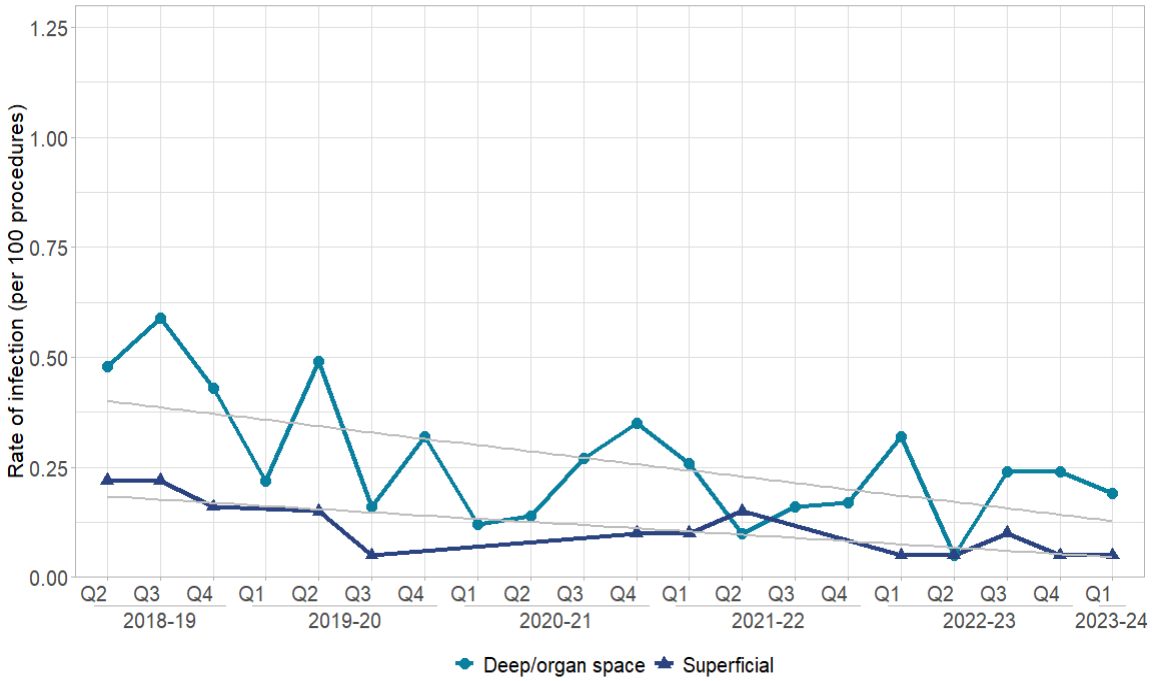


Figure 4 Knee arthroplasty SSI rate, by superficial and deep



Surgical site infection following caesarean section

Key Points

- 2,827 caesarean section procedures were reported, of which 1,521 (53.8%) were emergency and 1,306 (46.2%) were elective procedures.
- A total of 47 SSIs were reported, 18 of which were identified post discharge and are not included in further data analysis or in HISWA calculated rates*.
- Of the remaining 29 SSIs, 19 were classified as superficial and 10 as deep/organ space SSI.
- The majority (93.1%) of SSI were identified when the patient required readmission to hospital for care, with 2 superficial SSI identified on initial admission.
- Seventeen (58.6%) SSIs were following emergency procedures and included seven deep / organ space SSIs.
- The total inpatient SSI rate (includes readmissions and excludes post-discharge) increased to 1.03 infections per 100 procedures from 0.75 reported in Qtr 4, 2022-23, and the rates of superficial (from 0.49 to 0.67 infections per 100 procedures) increased, and deep / organ space (from 0.26 to 0.35 infections per 100 procedures) infections increased (Figure 5).
- The elective procedure inpatient SSI rate increased to 0.42 infections per 100 procedures from 0.19 reported in Qtr 4, 2022-23 (Figure 6).
- The emergency procedure inpatient SSI rate increased to 0.60 infections per 100 procedures from 0.56 reported in Qtr 4, 2022-23 (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	2	22	0	0	0	0 [0-0]	1.2 [0.49-1.91]
Risk index 0	26	1,281	4	3	7	0.55 [0.14-0.96]	0.44 [0.36-0.52]
Risk index 1	26	1,133	7	4	11	0.97 [0.4-1.54]	0.91 [0.77-1.05]
Risk index 2	26	359	7	2	9	2.51 [0.89-4.13]	2.04 [1.68-2.4]
Risk index 3	26	30	1	1	2	6.67 [0-15.6]	2.73 [1.32-4.14]
Post-discharge	8	NA	18	0	18	NA	NA
Total Inpatient	28	2,827	19	10	29	1.03 [0.66-1.4]	0.83 [0.75-0.91]
Total SSI*	**NA**	**2,827**	**37**	**10**	**47**	**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)

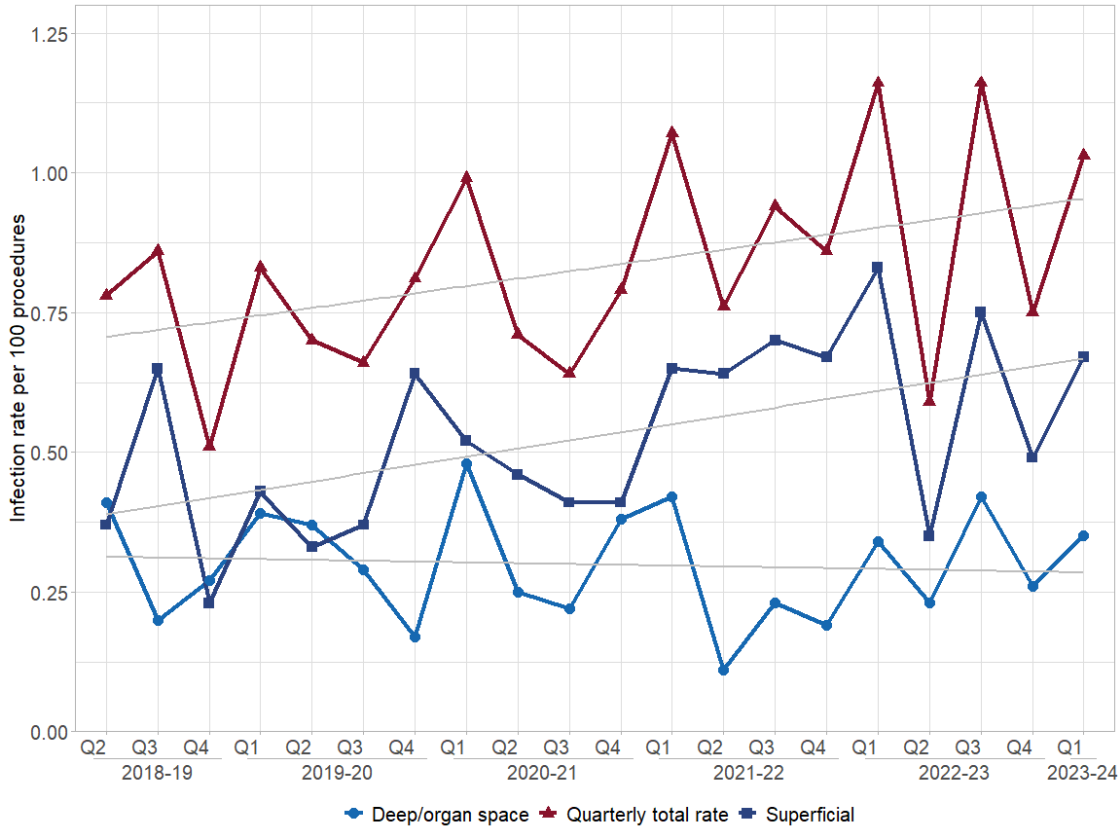
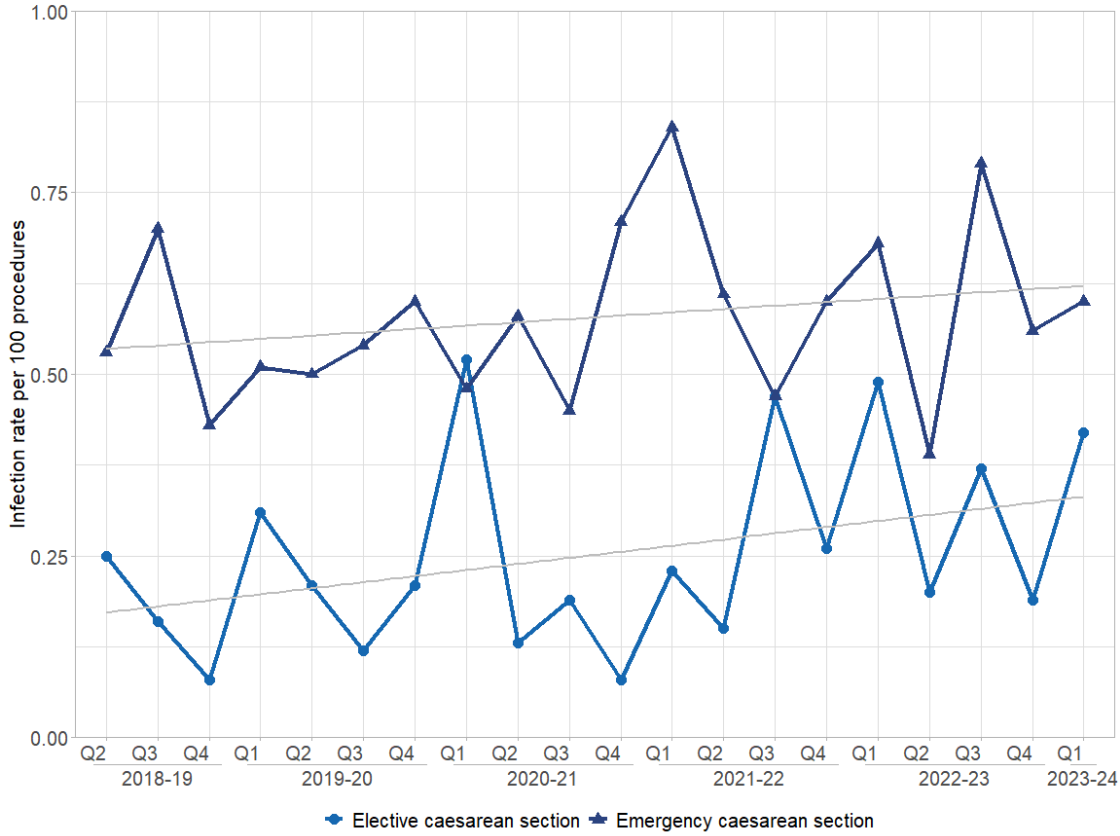


Figure 6 Caesarean section SSI rates by elective and emergency procedures (inpatient only)



Healthcare associated *Staphylococcus aureus* bloodstream infection

Key Points

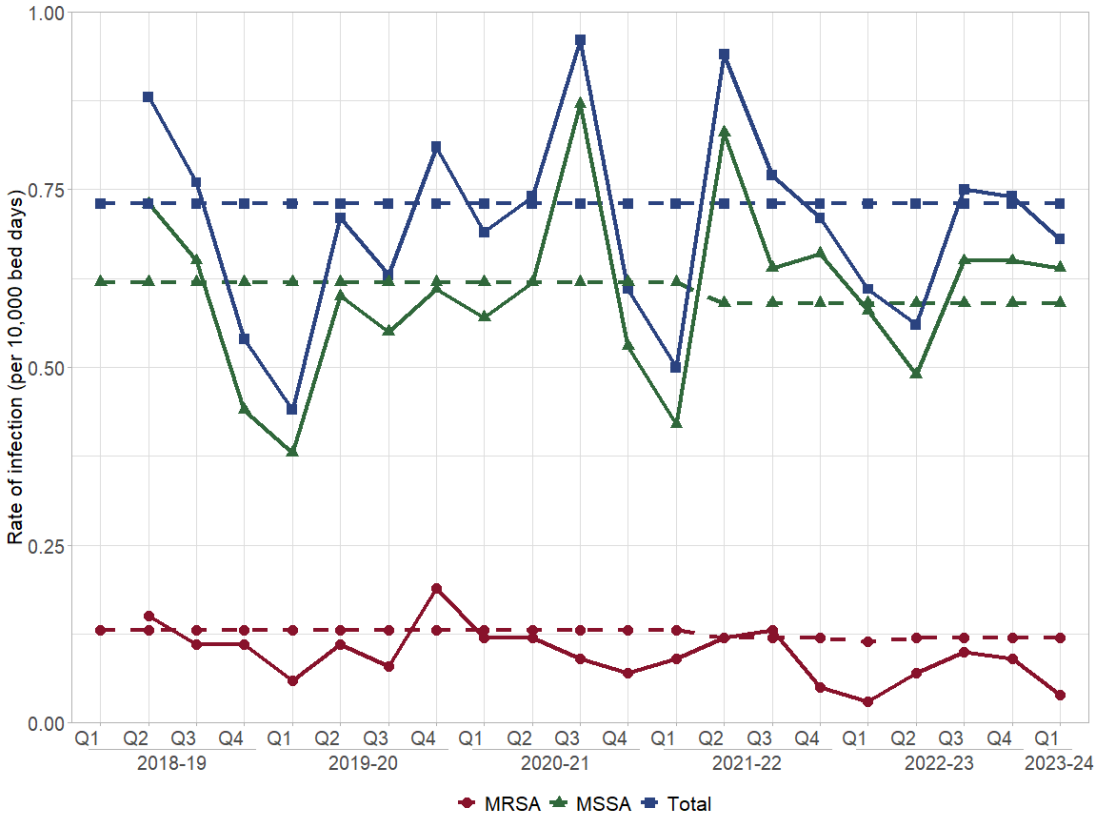
- There were 49 HA-SABSI (MSSA 46; MRSA 3) reported.
- The total HA-SABSI rate decreased to 0.68 infections per 10,000 bed-days from 0.74 reported in Q4, 2022-23. This remains below the national benchmark of 1.0 infection per 10,000 patient days, and below the national public hospital comparator rate of 0.73 (Figure 7).
- The MSSA HA-SABSI rate of 0.64 infections per 10,000 bed-days is comparable to the rate of 0.65 reported in Q4, 2022-23 and is above the comparator rate of 0.59 (Figure 7).
- The MRSA HA-SABSI rate decreased to 0.04 infections per 10,000 bed-days from 0.09 reported in Q4, 2022-23 and is below the comparator rate of 0.12 (Figure 7).
- Of the 49 HA-SABSI reported, 29 (59%) were attributable to IVDs. A further four (8%) were procedure related and ten (20%) had an organ site focus (Figure 8).
- Of the 29 IVD related HA-SABSI, 20 (74%) were attributed to PIVC, five (19%) were attributed to PICC lines (Figure 9). Time insitu for PIVC are described in Figure 9.
- The rate from metro tertiary, metro non-tertiary and private hospital groups remained stable or decreased but the WACHS rate increased (Figure 11).
- The IVD SABSI rate decreased to 0.40 infections per 10,000 bed-days from 0.44 reported in Q4, 2022-23 (Figure 12).
- Eighteen (62.1%) of the 29 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	719,628	46	0.64 [0.62-0.66]	0.19 [0.19-0.19]
Total methicillin- resistant *Staphylococcus aureus* (MRSA) bloodstream infection	48	719,628	3	0.04 [0.04-0.04]	0.03 [0.03-0.03]
Total *Staphylococcus aureus* bloodstream infection	**48**	**719,628**	**49**	**0.68 [0.66-0.7]**	**0.22 [0.22-0.22]**

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

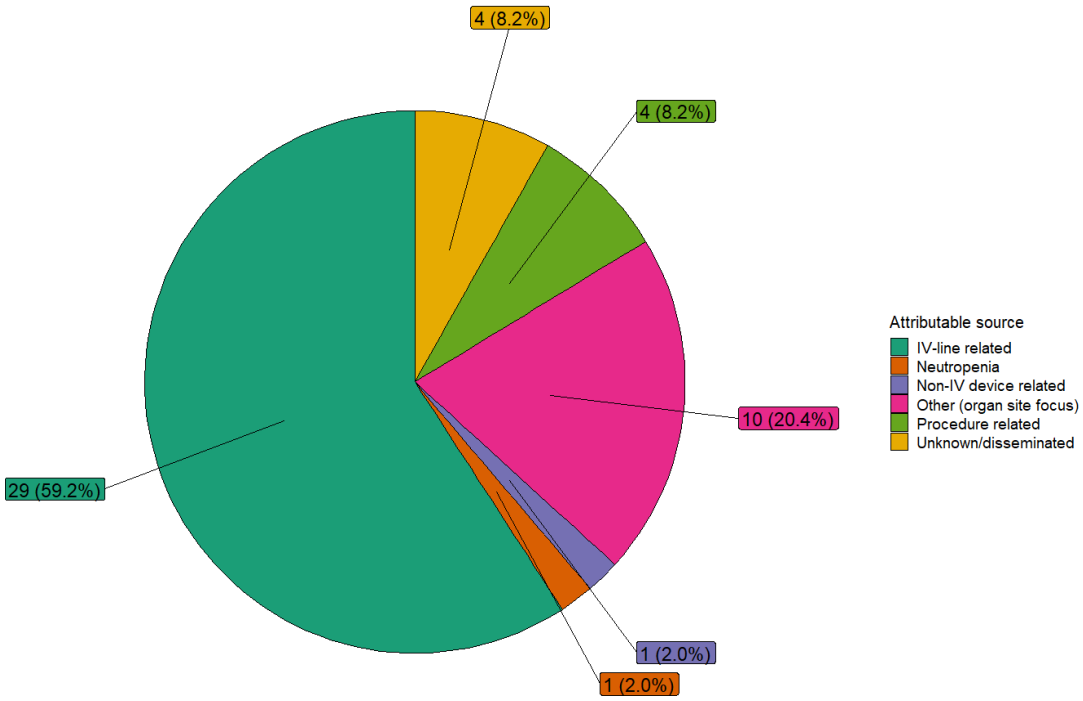


Figure 9 Number of HA-SABSI by intravascular device type

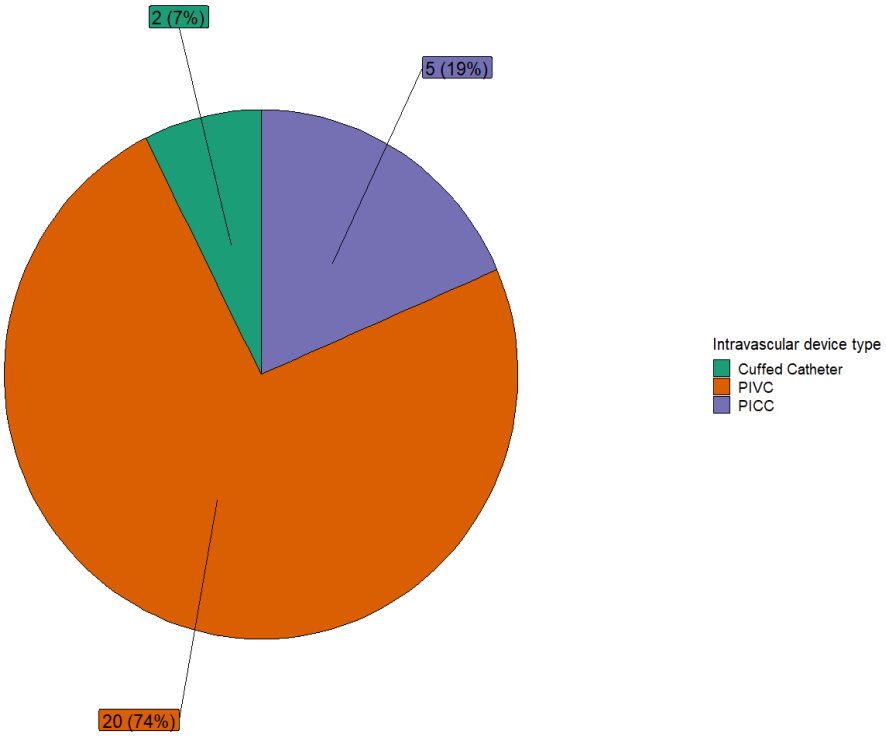


Figure 10 Time in situ (hours) for HA-SABSI attributed to PIVC

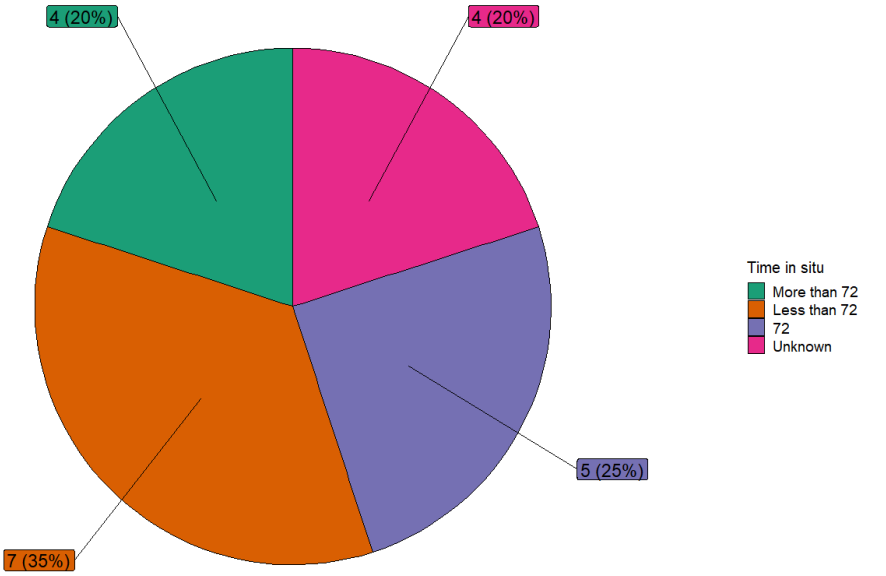


Figure 11 HA-SABSI intravascular device rates, by hospital group

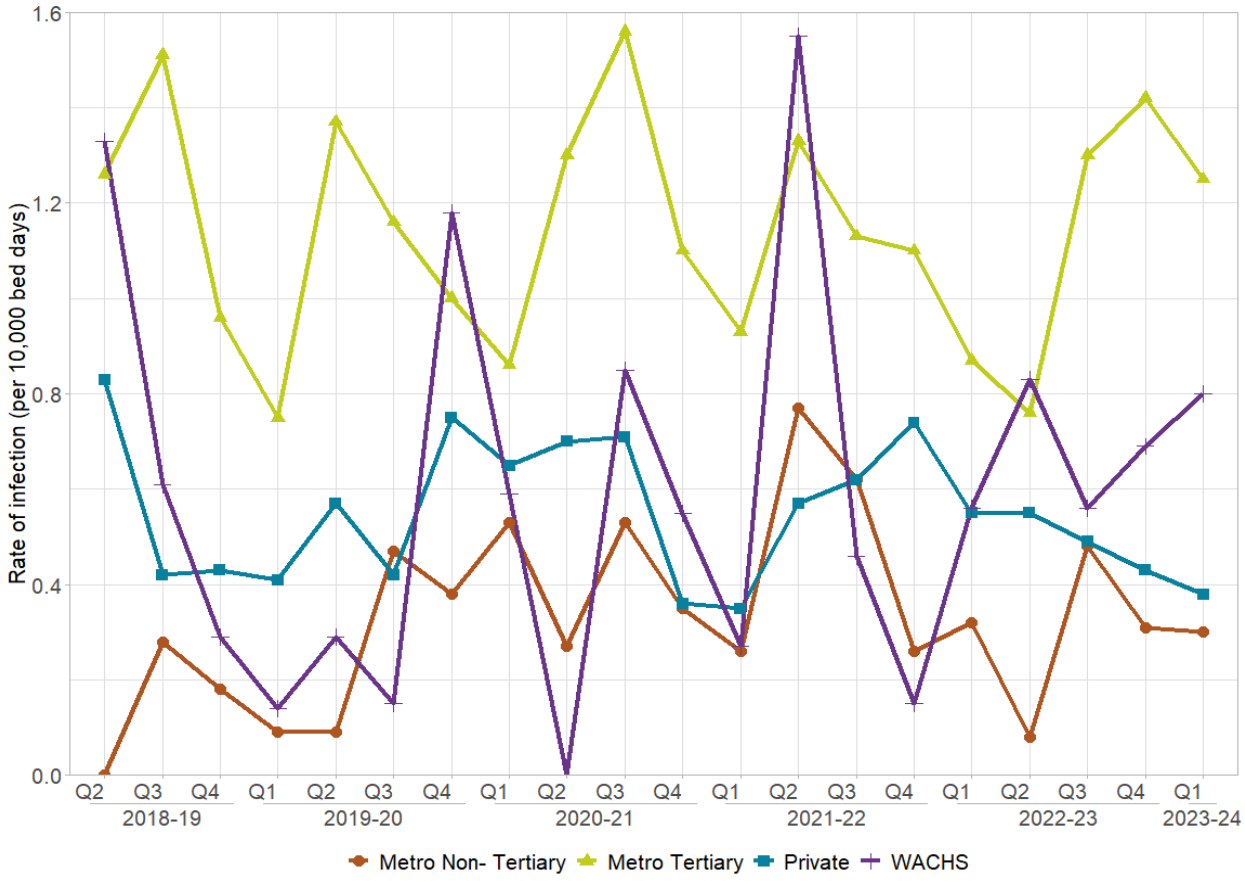


Figure 12 Rate and percentage of HA-SABSI attributed to intravascular devices by patient location

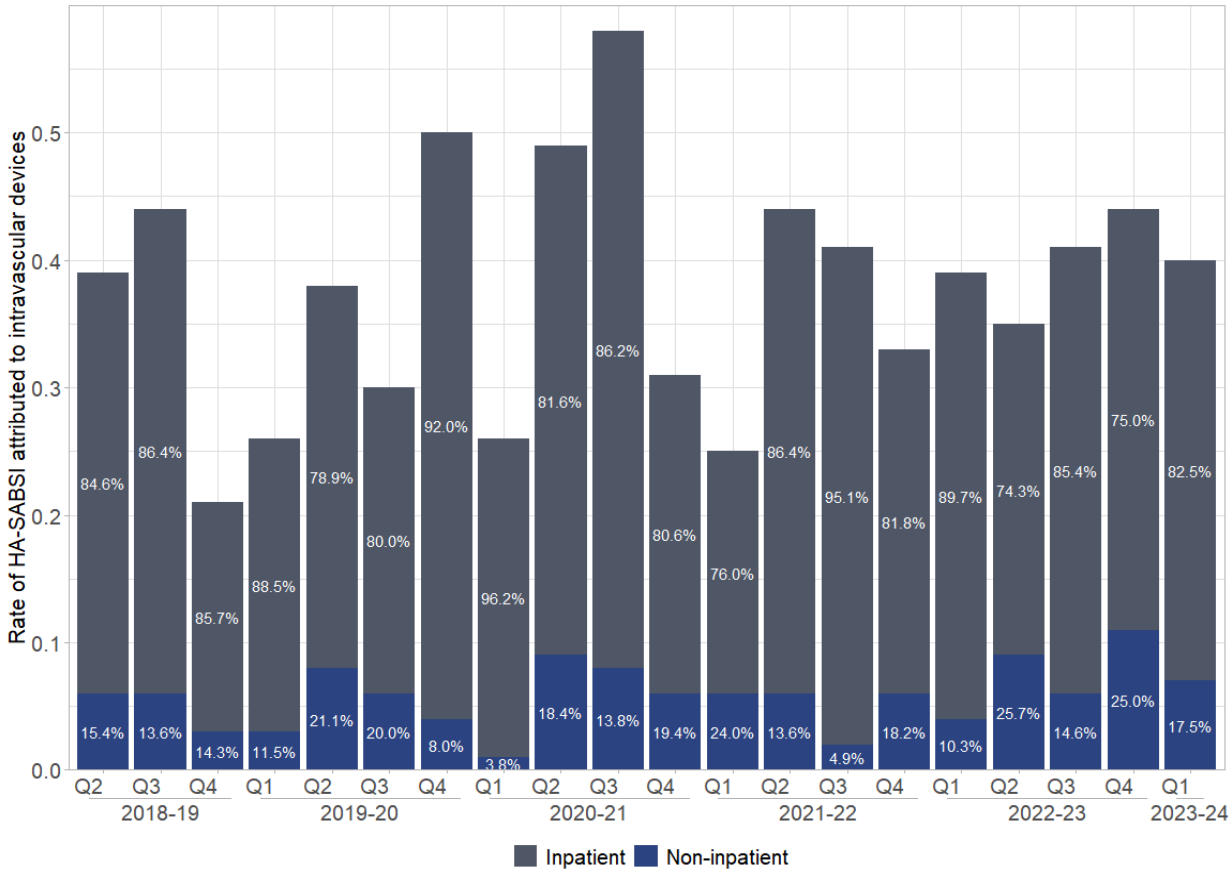
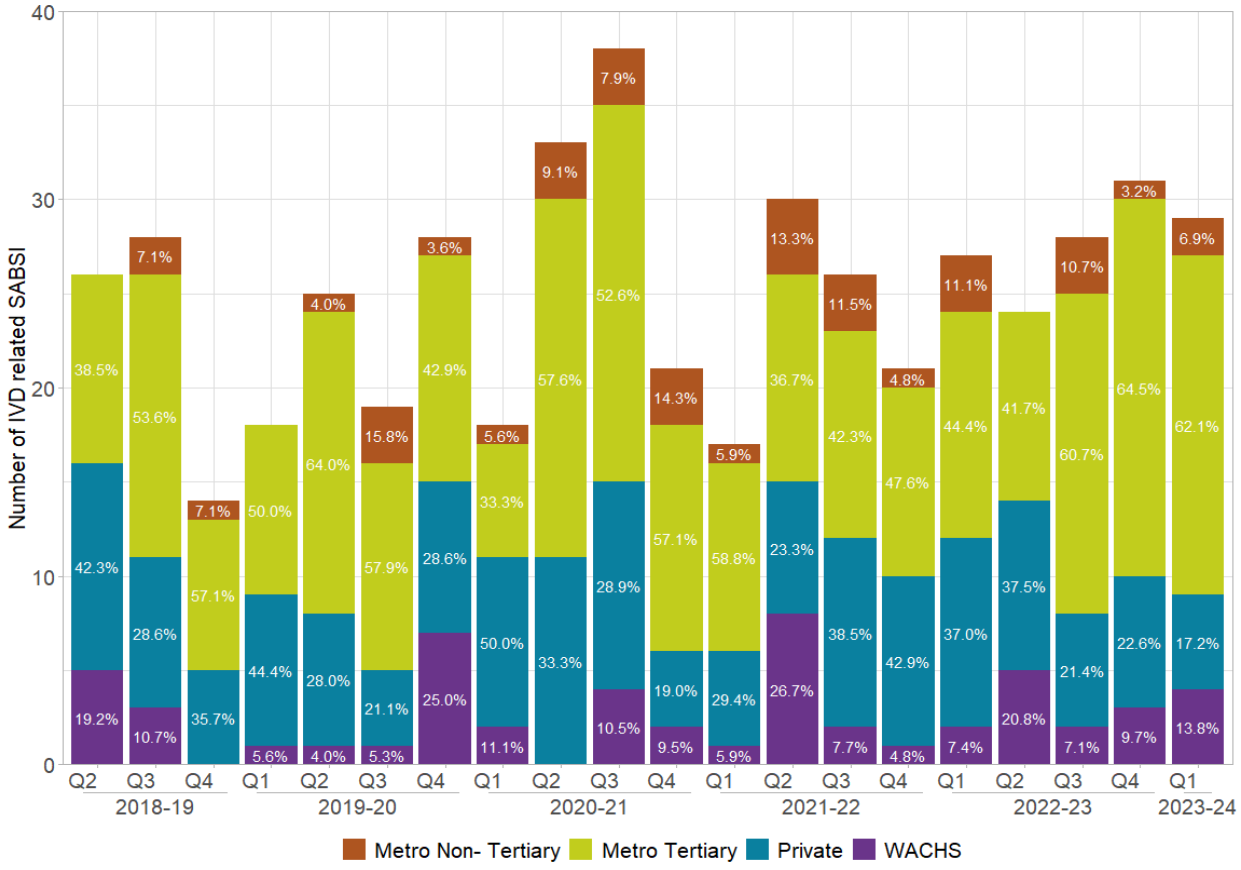


Figure 13 Number and percentage of HA-SABSI attributed to intravascular devices, by hospital group



Haemodialysis access-associated bloodstream infections

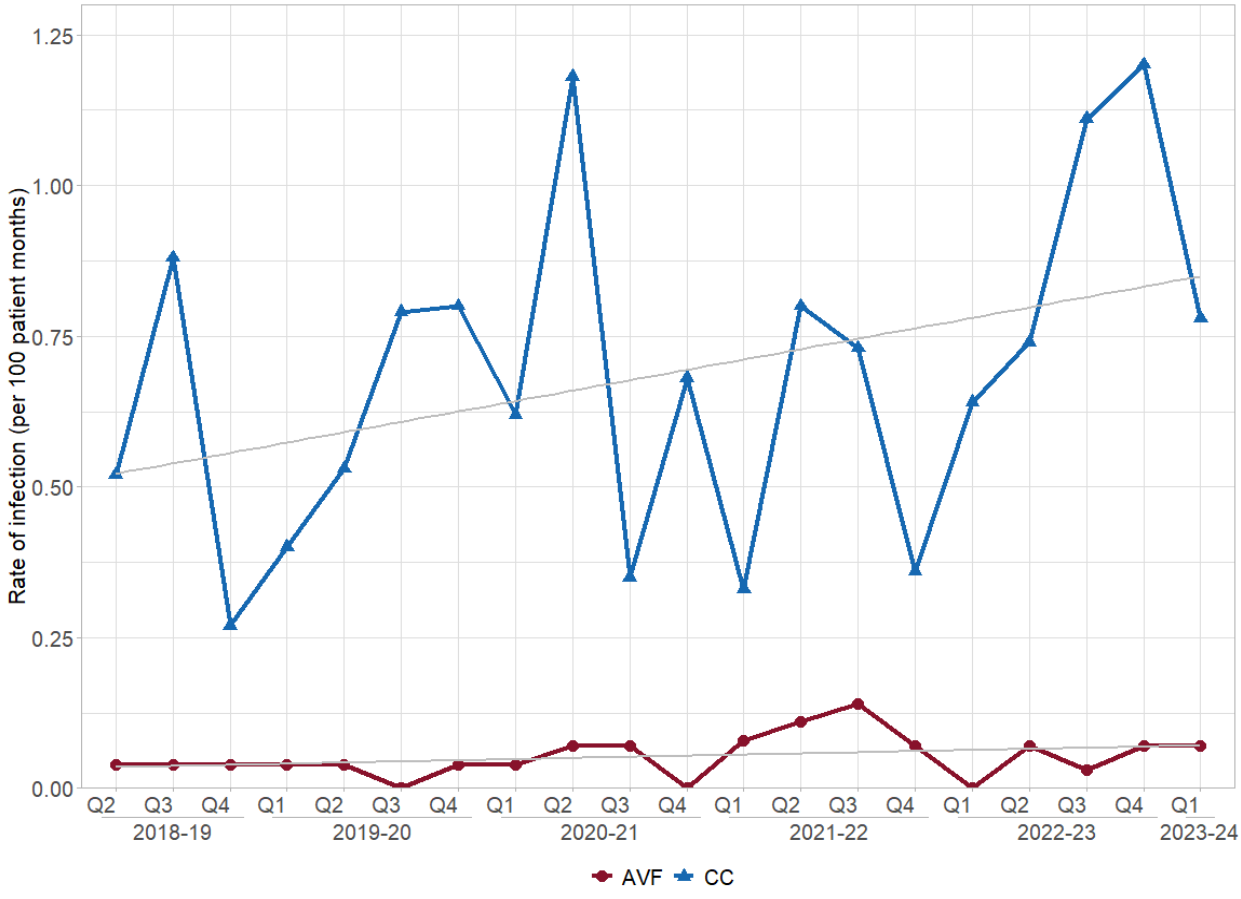
Key Points

- ☐ The majority (72.9%) of patients received haemodialysis via an AVF.
- ☐ Eight cuffed catheter (CC) access-associated BSI were reported.
- ☐ The CC BSI rate decreased for the first time since Qrt 4 2021-22, to 0.78 infections per 100 patient-months compared to 1.2 reported in Q4, 2022-23 (Figure 14).
- ☐ There were two AVF access-associated BSIs reported.
- ☐ The AVG BSI rate decreased to 0.00 infections per 100 patient-months from 1.72 reported in Q4, 2022-23.

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	24	72.92	2	2,938	0.07 [0-0.17]	0.05 [0.03-0.07]
AVG	24	1.27	0	51	0.00 [0.00-0.00]	0.35 [0.04-0.66]
Cuffed catheter (CC)	24	25.49	8	1,027	0.78 [0.24-1.32]	0.7 [0.58-0.82]
Non-cuffed catheter	3	0.32	0	13	0.00 [0.00-0.00]	1.45 [0.19-2.71]

Figure 14 AVF and cuffed catheter BSI rate



Central line-associated bloodstream infection

Key Points

- ☐ There were two adult ICU CLABSIs reported this Qtr.
- ☐ The total ICU CLABSI rate decreased to 0.25 infections per 1,000 line-days from 0.68 reported in Q4, 2022-23.
- ☐ The majority (77%) of central lines utilised in adult ICUs were centrally-inserted.
- ☐ Four haematology CLABSIs were reported and the rate decreased to 0.75 infections per 1,000 line days from 1.28 reported in Q4, 2022-23.
- ☐ One oncology CLABSIs was reported and the rate decreased to 0.01 infections per 1,000 line days from 0.03 reported in Q4, 2022-23.

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	13	1,871	0	0 [0-0]	0.26 [0.19-0.33]
Centrally inserted CLABSI	13	6,268	2	0.32 [0.18-0.46]	0.51 [0.46-0.56]
Total CLABSI	**13**	**8,139**	**2**	**0.25 [0.14-0.36]**	**0.45 0.41-0.49]**

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	13	1,871	14,012	22.99	13.35
Adult ICU centrally inserted CLUR	13	6,268	14,012	77.01	44.73

Table 9 Haematology Unit CLABSI

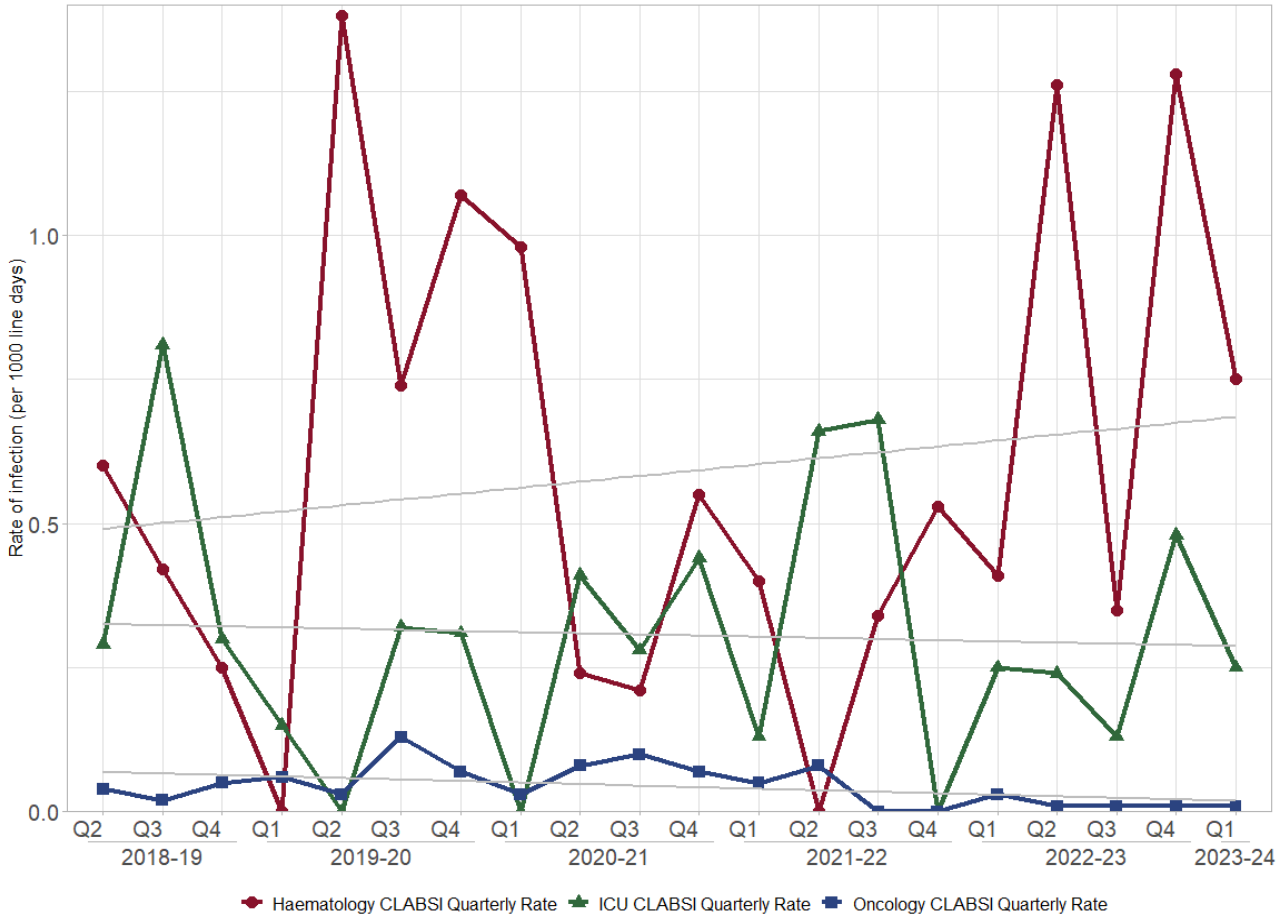
Central line type	Number of contributing hospitals	Number of line days	Number of CLABSI	Aggregate rate (95% CI)	Cumulative aggregate rate (95% CI)
Haematology peripherally inserted CLABSI	1	3,328	4	1.2 [0.83-1.57]	0.47 [0.42-0.52]
Haematology centrally inserted CLABSI	1	2,005	0	0 [0-0]	0.78 [0.69-0.87]
Total Haematology CLABSI	**1**	**5,333**	**4**	**0.75 [0.52-0.98]**	**0.59 [0.54-0.64]**

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	16,157	0	0 [0-0]	0.17 [0.15-0.19]
Oncology centrally inserted CLABSI	4	56,991	1	0.02 [0.01-0.03]	0.03 [0.03-0.03]
Total Oncology CLABSI	**4**	**73,148**	**1**	**0.01 [0-0.02]**	**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 41 MRSA HAIs reported.
- The total MRSA HAI rate of 0.64 infections per 10,000 bed-days was comparable to the rate of 0.65 reported in Q4, 2022-23, and remains below the comparator rate of 0.96 (Figure 16).
- Thirty-seven (90.2%) of the 41 MRSA HAIs reported were identified from the inpatient setting (2 ICU).
- Eighteen (44%) patients were known to be colonised prior to developing an infection.
- Twenty (49%) MRSA HAIs were related to surgical wounds with six of these patients known to be colonised prior to infection onset. A further seventeen (41%) were classified as 'wound-other'. There were three (7%) MRSA BSIs. The remaining MRSA were isolated from sputum, urine or pleural samples (Figure 17).
- The majority (54%) of MRSA HAIs were caused by micro B PVL negative strains (Figure 19).
- Twenty-six (63%) of all MRSA HAIs were reported from the tertiary hospitals, with 27% (n=11) 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	5	475,105	0.11 [0.1-0.12]	0.06 [0-0]
MRSA Non-ICU non-sterile site	48	30	475,105	0.63 [0.61-0.65]	0.17 [0-0]
MRSA ICU sterile site	48	0	20,982	0.00 [0.00-0.00]	0.11 [0-0]
MRSA ICU non-sterile site	48	2	20,982	0.95 [0.82-1.08]	0.63 [0-0]
Total inpatient MRSA HAI	48	37	496,087	0.75 [0.73-0.77]	0.25 [0-0]
MRSA HAI non-inpatient	48	4	NA		
Total MRSA healthcare associated infection	**48**	**41**	**644,197***	**0.64 [0.62-0.66]**	**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	2	1	2	0	5
Non-ICU non-sterile	15	8	7	0	30
ICU non-sterile	2	0	0	0	2
Proportion	51 %	24 %	24 %	0 %	37 %
Strain	Not characterised (22)	Qld Clone (5) / ST1153-MRSA-V (1) / WA121 (2) / WSSP (1)	UK 15 PVL POS (1) / UK15 (9)		
Total	**19**	**9**	**9**	**0**	**37**

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

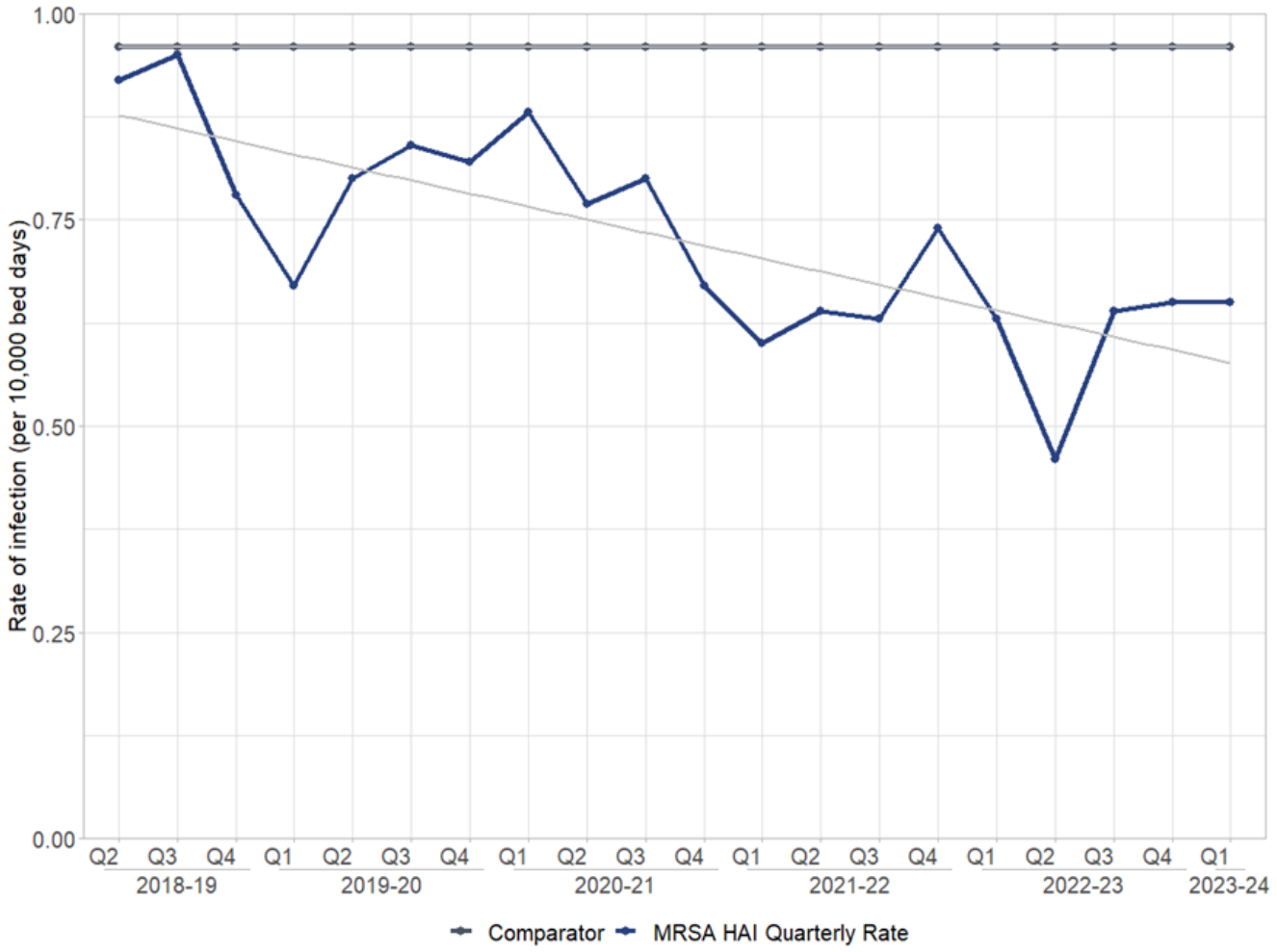


Figure 17 Percentage of MRSA HAIs by specimen site

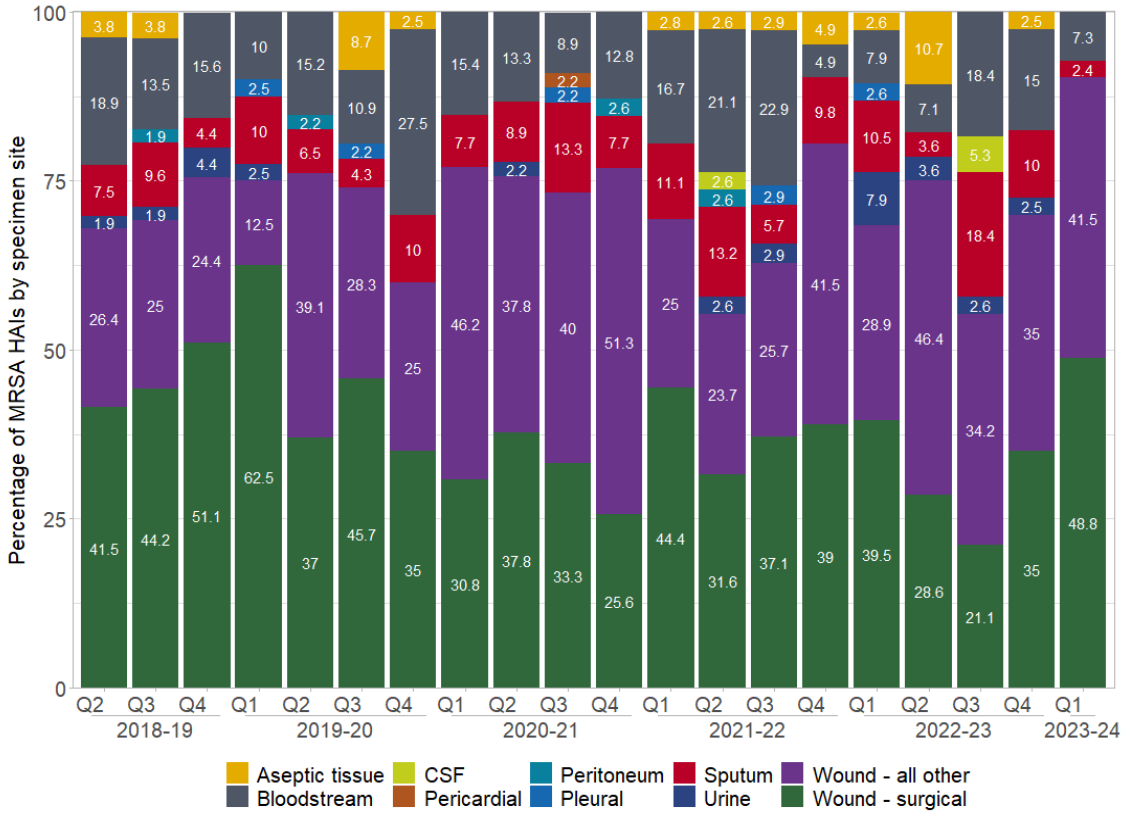


Figure 18 Rate of MRSA HAI, by strain group

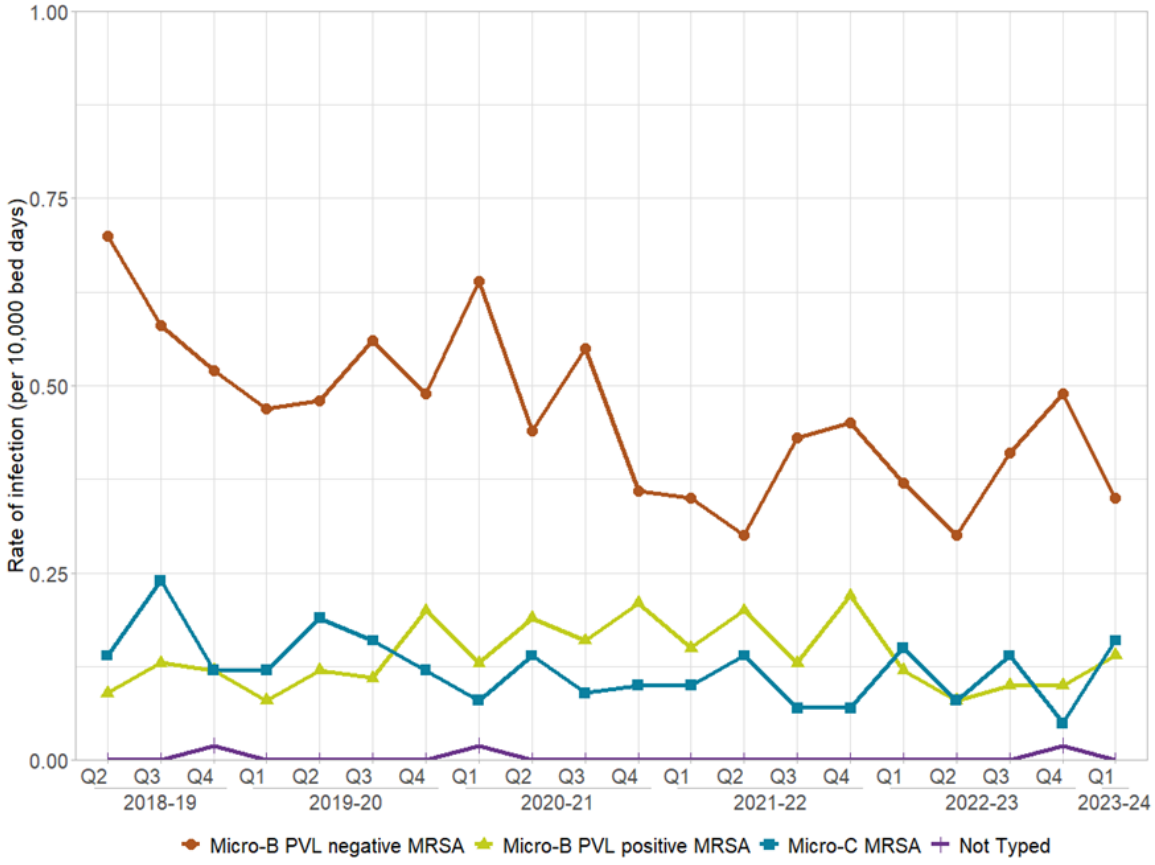


Figure 19 Proportion of MRSA HAI, by strain group

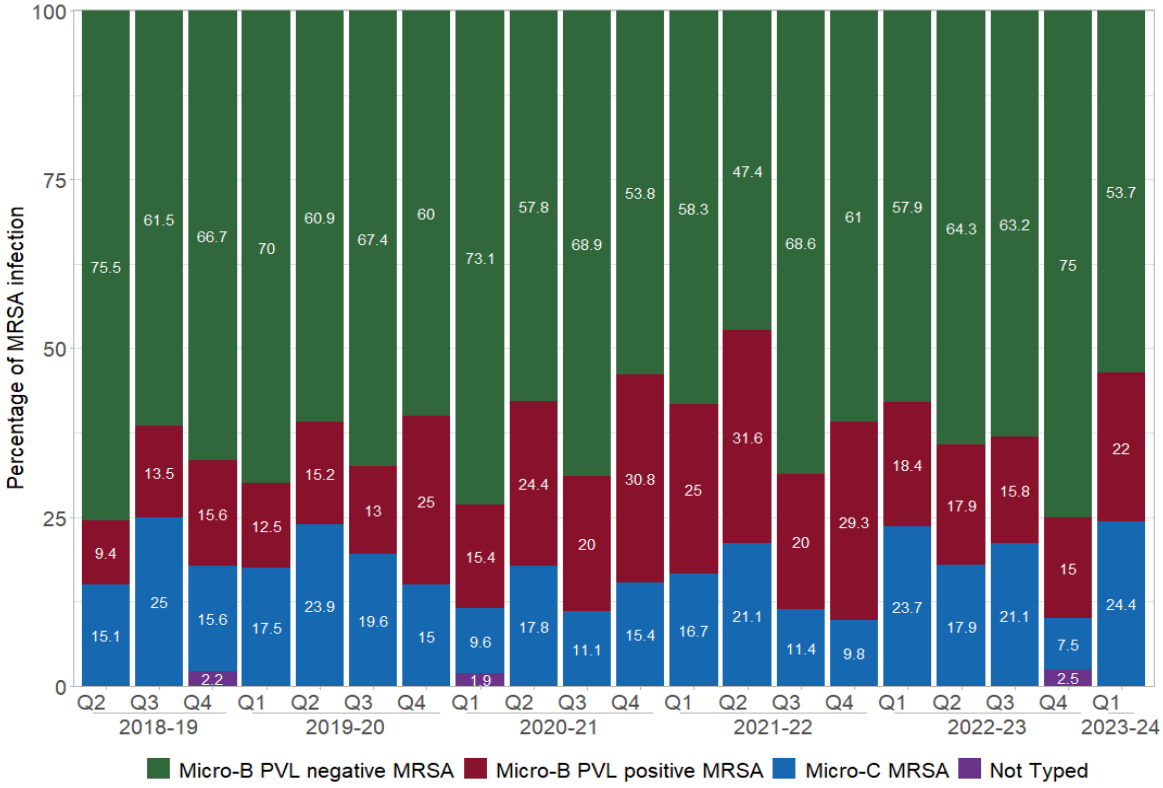
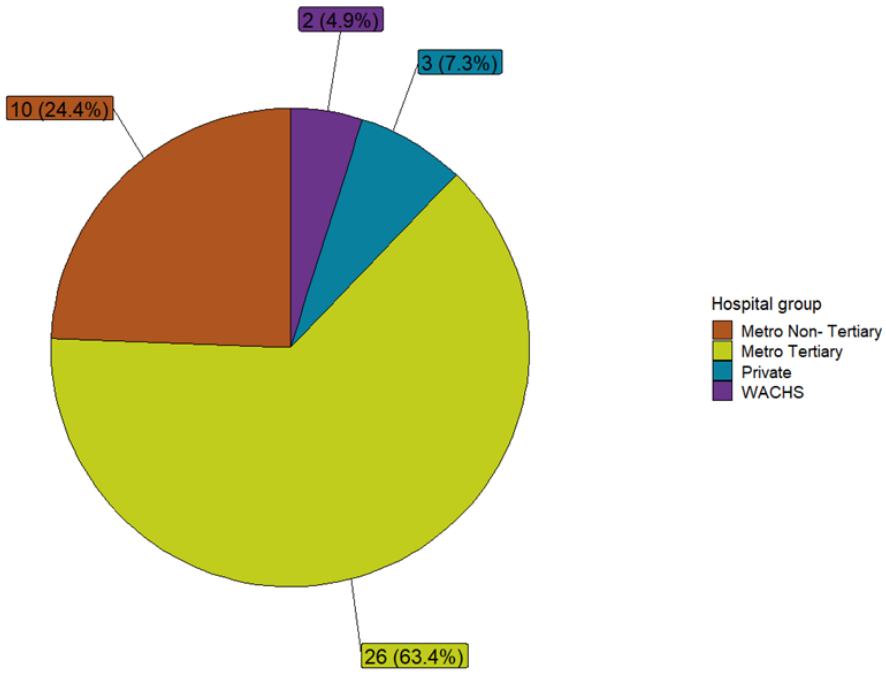


Figure 20 Proportion of MRSA HAI, by hospital group, Qtr 1 2023-24



Hospital-identified *Clostridioides difficile* infection

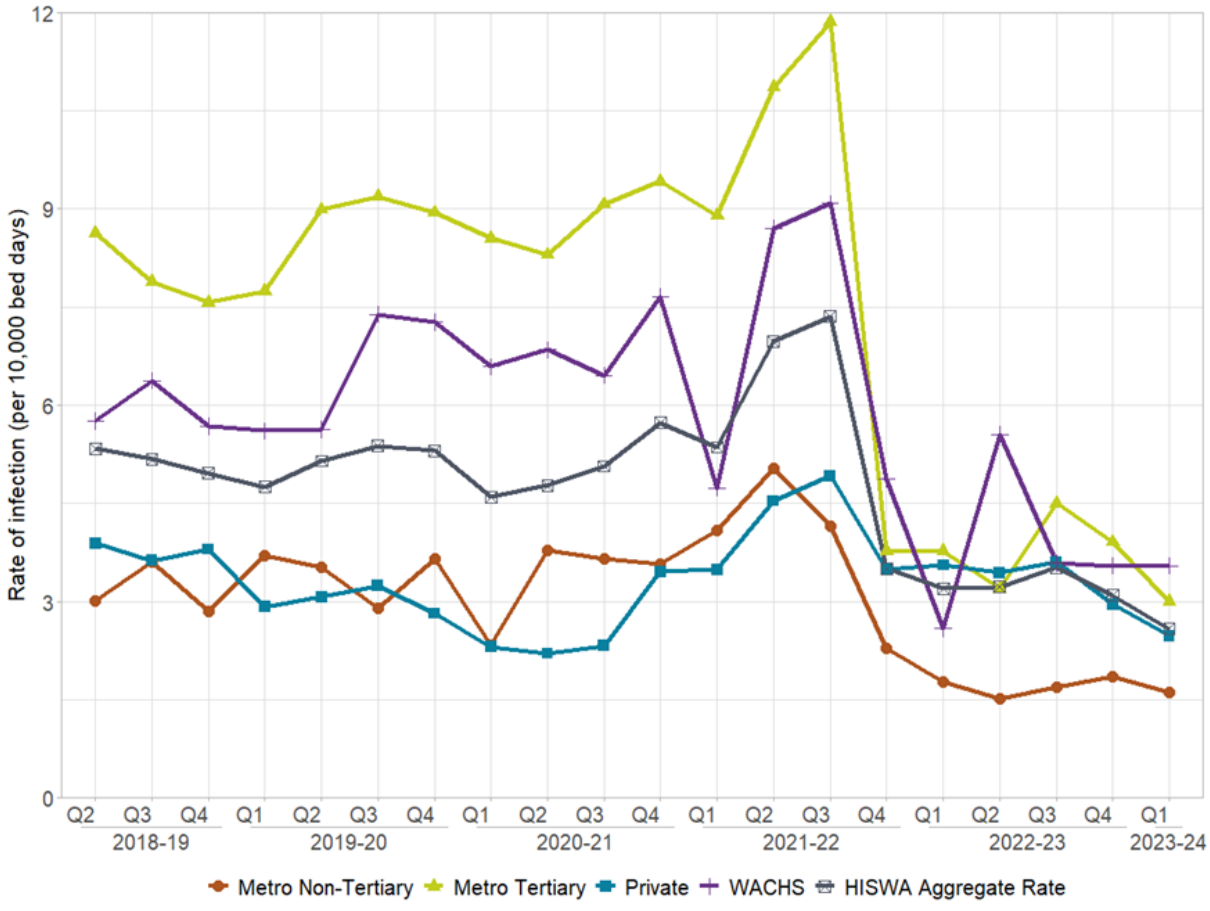
Key Points

- ☐ The HISWA aggregate HI-CDI rate decreased to 2.58 per 10,000 bed-days from 3.1 reported in Q4, 2022-23.
- ☐ Rates remained stable or decreased in all hospital groups.
- ☐ WACHS and metro tertiary hospital group rates remained above the HISWA aggregate rate (Figure 21).
- ☐ Sixty two (34.6%) of all HI-CDI were reported from the tertiary hospitals, and 70 (39.1%) were reported from private hospitals.

Table 13 HI-CDI rates, by hospital group

Hospital Group	Number of contributing hospitals	n	Number of bed-days	Aggregate rate (95% CI)	Cumulative aggregate (95% CI)
Tertiary	5	62	206,413	3 [2.93-3.07]	2.17 [2.16-2.18]
Metropolitan non-tertiary	8	21	130,335	1.61 [1.54-1.68]	0.83 [0.82-0.84]
WACHS	21	26	73,146	3.55 [3.42-3.68]	1.83 [1.82-1.84]
Private	14	70	282,825	2.48 [2.42-2.54]	1.06 [1.06-1.06]
Total	**48**	**179**	**692,719**	**2.58 [2.54-2.62]**	**1.44 [1.44-1.44]**

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 eight sterile site infections reported, from four separate facilities (Figure 22).
- Six infections were classified as healthcare associated.
- All infections were caused by *E. faecium van B* (Figure 23).
- Three of the eight patients (37.5%) were known to be colonised prior to the onset of their infection and one patient was identified from a residential care facility.
- Three patients had received vancomycin prior to identification of the VRE, nil of whom were known to be colonised.
- Seven (87.5%) VRE HAIs were isolated from blood cultures and one (12.5%) from 'other' sterile site (pleural fluid).

Figure 22 Number of VRE infections by sterile body sites

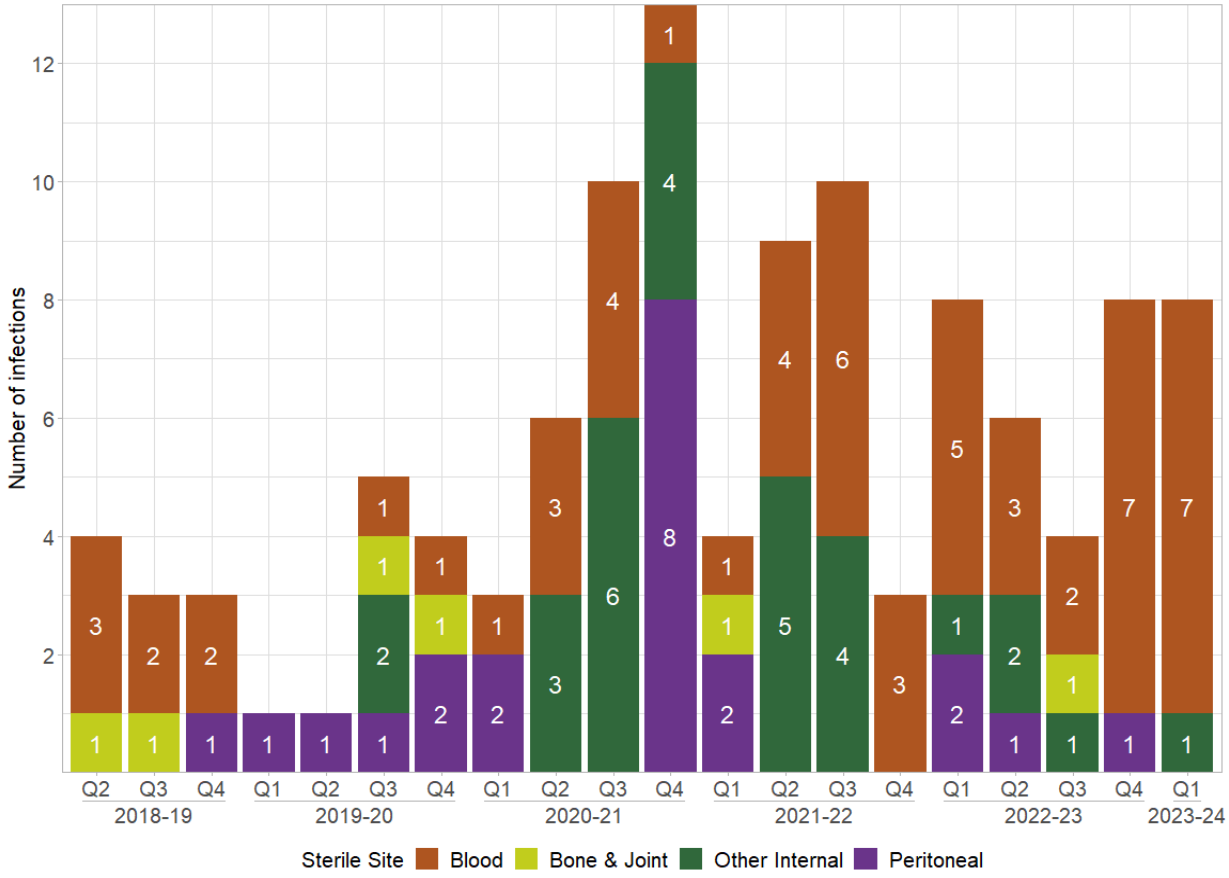
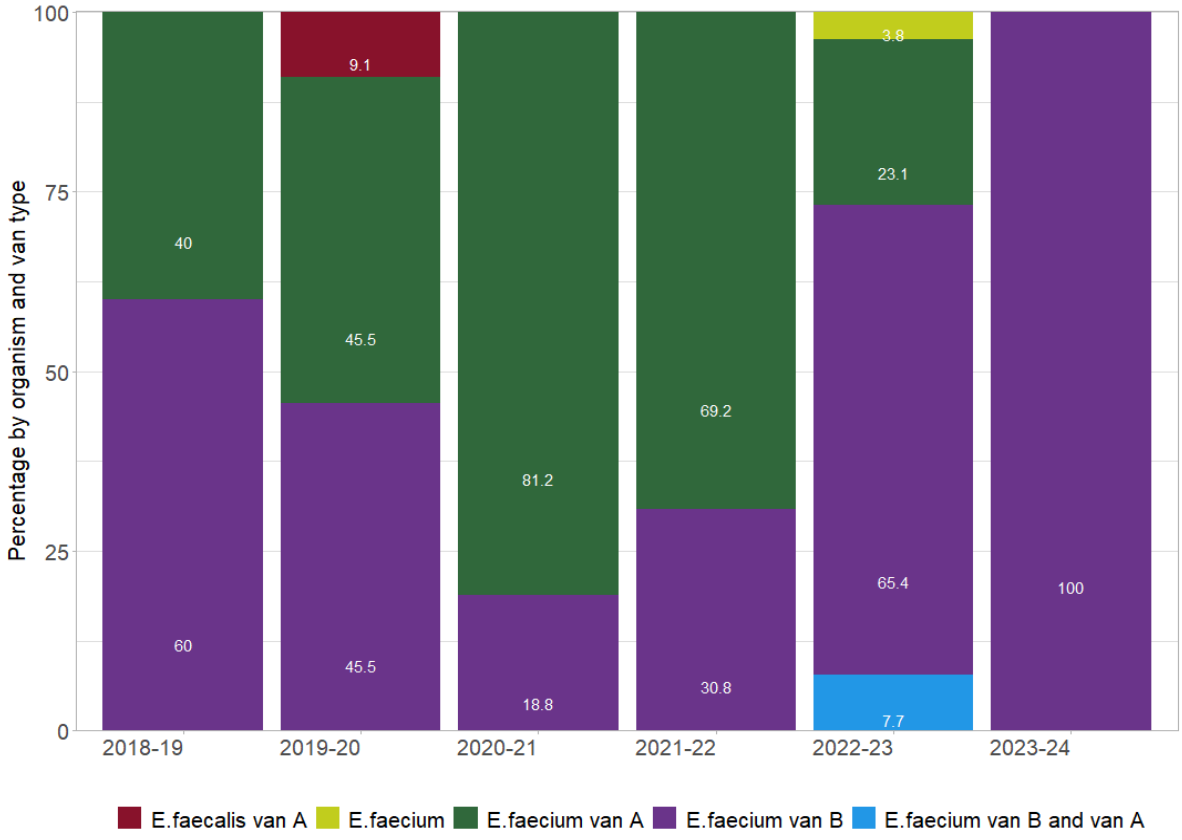


Figure 23 **Percentage of VRE HAI and CAI sterile site infections by organism and van type, 2018-19 to current financial year to date**



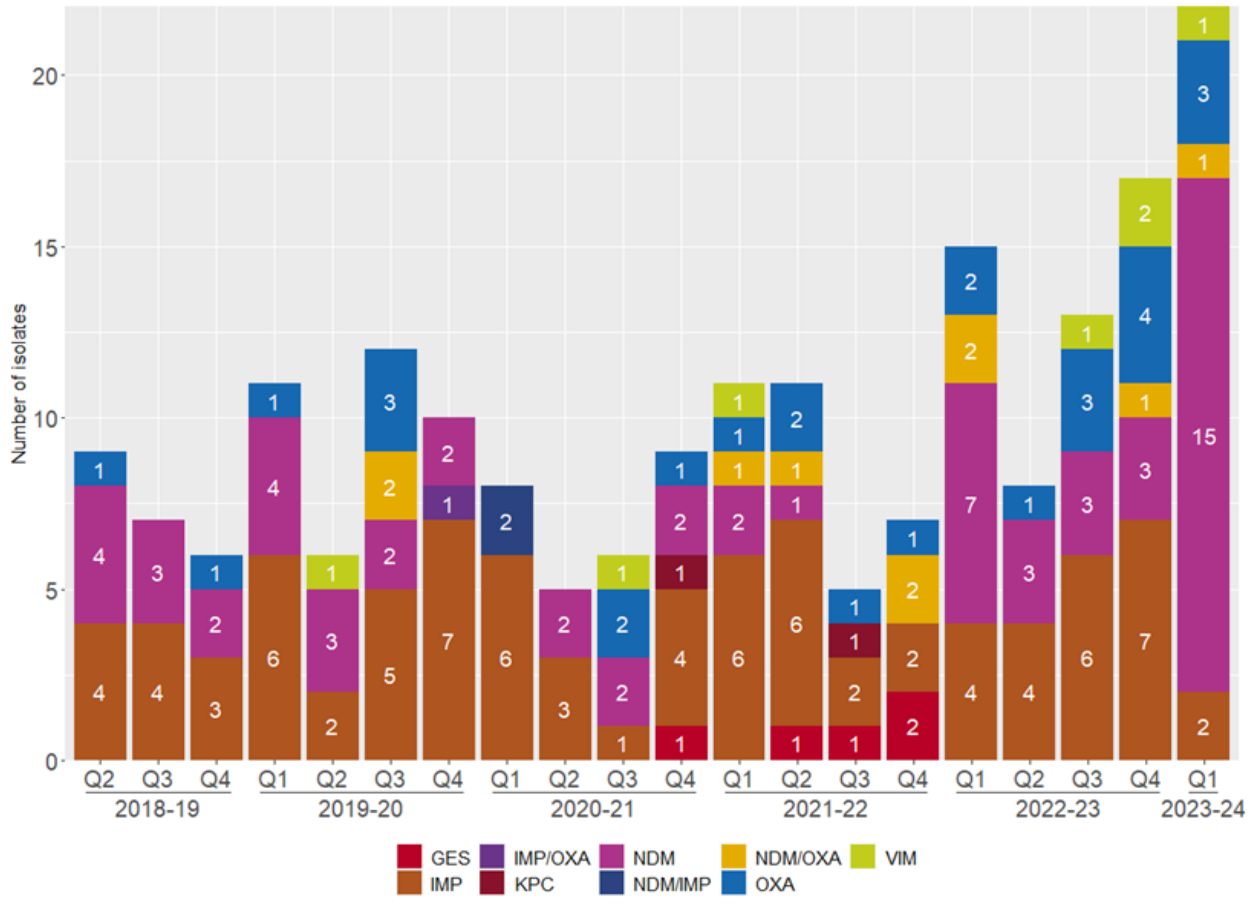
Carbapenemase-producing Organisms

Key Points

- ☐ Surveillance of carbapenemase-producing organism (CPO) 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 testing.
- ☐ A total of 64 isolates (51 uniques isolates*) were referred for confirmatory testing.
- ☐ Twenty-six (40.6%) of the 64 referred patient isolates were confirmed to be CPO (22 unique CPO isolates).
- ☐ Of the 22 confirmed unique CPO isolates, the specific enzymes isolated were
    - 15 NDM, three OXA, two IMP, one VIM and one isolate contained both a NDM and OXA-48 like carbapenemase (Figure 24).
- ☐ Of the 15 isolates with confirmed NDM carbapenamase, 11 patients had a history of overseas travel (+/-hospitalisation). Four patients had no history of overseas travel or hospitalisation.

** Unique isolate - if there were multiple isolations of the same isolate from the same specimen, only the first isolation was included in the study.*

Figure 24 Number of unique CPO isolates by type



Occupational exposures

Key Points

- ☐ A total of 342 occupational exposures were reported by healthcare workers this Qrt.
- ☐ There was an increase in the number of non-parenteral exposures reported this Qrt.
- ☐ The total occupational exposure rate decreased to 4.75 exposures per 10,000 bed-days, from 4.88 reported in Q4, 2022-23 (Figure 25).
- ☐ The parenteral occupational exposure rate decreased to 3.44 exposures per 10,000 bed-days from 3.95 reported in Q4, 2022-23 (Figure 25).
- ☐ The non-parenteral occupational exposure rate increased to 1.3 exposures per 10,000 bed-days from 0.94 reported in Q4, 2022-23 (Figure 25).
- ☐ The majority (40.7%; n=101) of parenteral exposures were reported by nurses (Figure 26).
- ☐ The majority (76.6%; n=72) of non-parenteral exposures were reported by nurses (Figure 27).
- ☐ 23 (9.27%) parenteral exposures were 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 this Quarter	Number of bed-days	Aggregate rate (95% CI)	Cumulative aggregate (95% CI)
Parenteral	49	248	720,605	3.44 [3.4-3.48]	1.17 [1.17-1.17]
Non-Parenteral	49	94	720,605	1.3 [1.27-1.33]	0.35 [0.35-0.35]
Total Exposures	**49**	**342**	**720,605**	**4.75 [4.7-4.8]**	**1.52 [1.52-1.52]**

Figure 25 Occupational exposure rate, by parenteral and non-parenteral

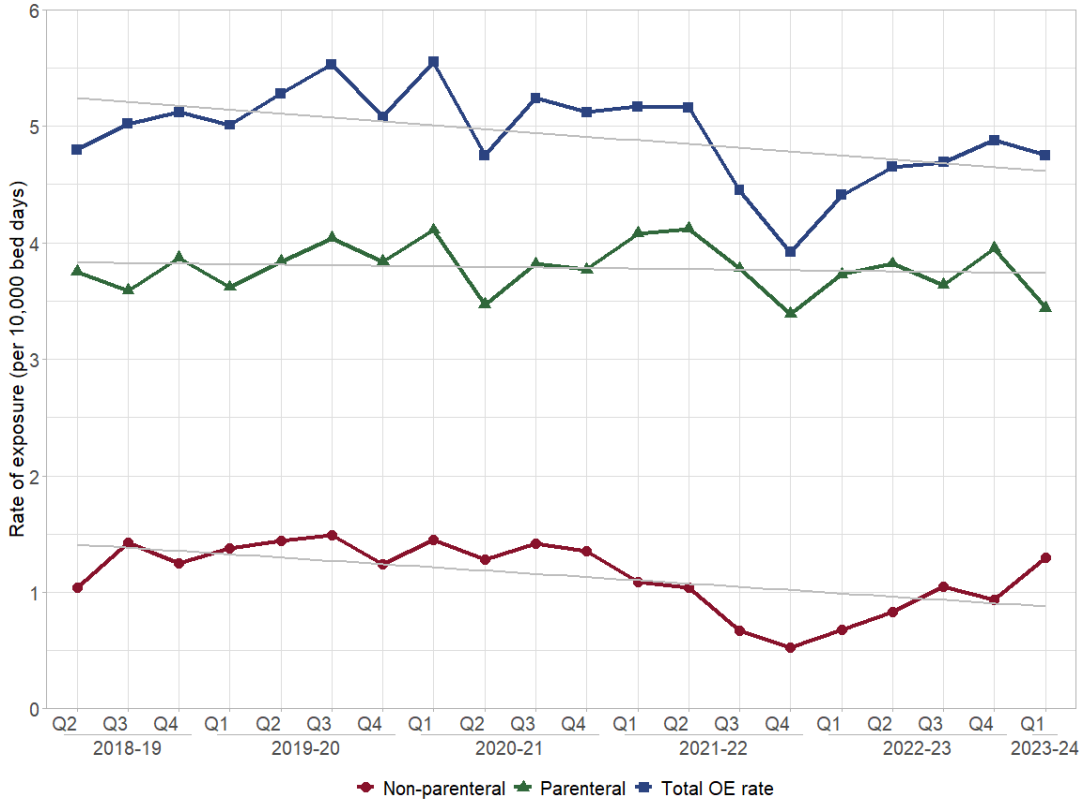


Figure 26 Parenteral occupational exposures, by HCW category

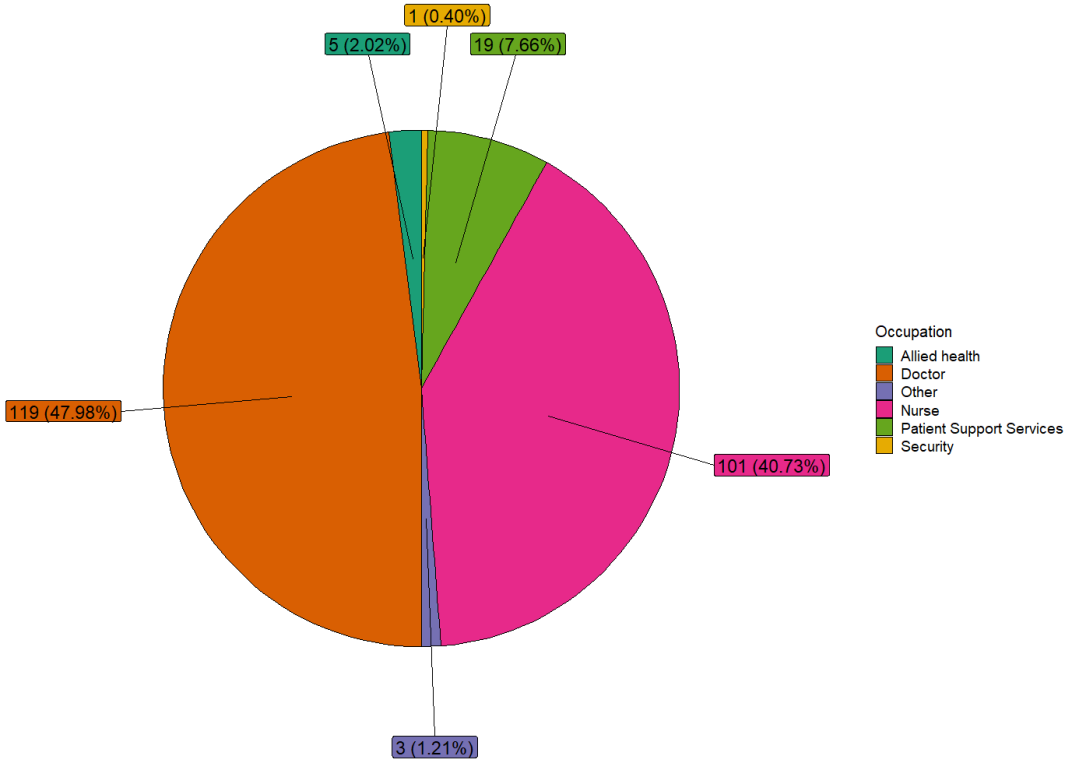
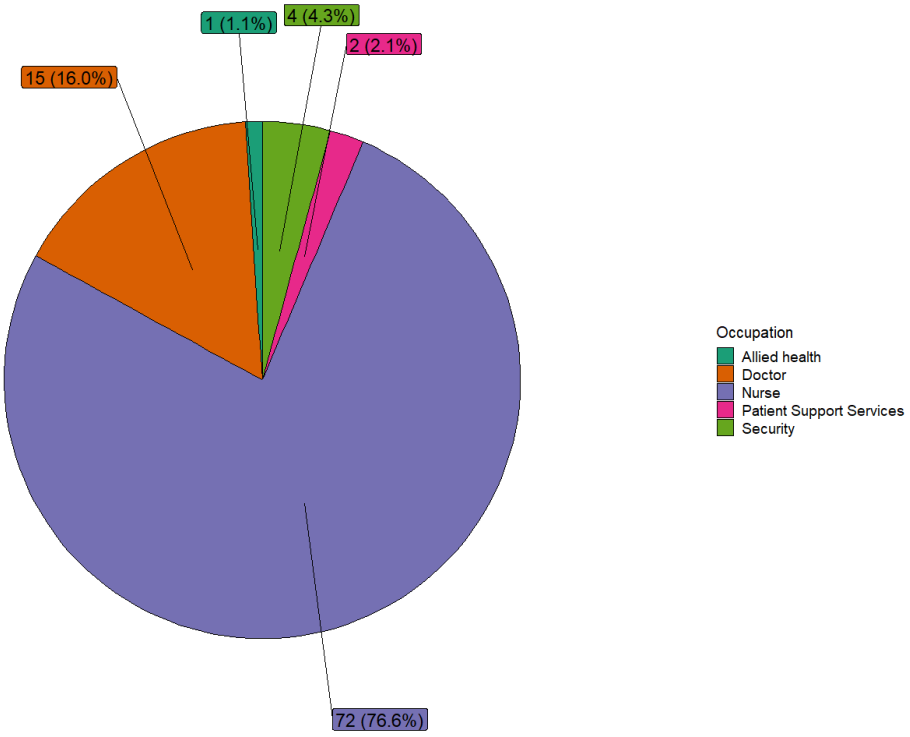


Figure 27 Non-parenteral occupational exposures, by HCW category



Data Notes

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, 2021-22 Report (Table 3).* (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1123846/SSI-annual-report-2021-to-2022.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 HAIU 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 (0.73 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*

- 24 haemodyalisis units (13 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 - 13 adult ICUs (4 private, 9 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)*

- ☐ 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)*

- ☐ 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.

Carbapenem-resistant *Enterobacteriaceae* (CRE)

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

Hospital-identified *Clostridioides difficile* Infection (HI-CDI) *

- ☐ 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.