



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

Healthcare Infection Surveillance Western Australia (HISWA)

Quarterly Report

Quarter 1 2019-20

Data for July to September 2019

Healthcare Associated Infection Unit
Communicable Disease Control Directorate
25 November 2019

Contents

| | |
|--|----|
| HAIU News | 2 |
| Surgical site infection following hip arthroplasty | 3 |
| Surgical site infection following knee arthroplasty | 4 |
| Surgical site infection following caesarean section | 6 |
| Healthcare associated <i>Staphylococcus aureus</i> bloodstream infection | 8 |
| Haemodialysis access-associated bloodstream infections | 11 |
| Central line-associated bloodstream infection | 12 |
| Methicillin-resistant <i>Staphylococcus aureus</i> healthcare associated infection | 14 |
| Hospital-identified <i>Clostridium difficile</i> infection | 17 |
| Vancomycin-resistant enterococci sterile-site infections | 18 |
| Carbapenemase-producing <i>Enterobacteriaceae</i> | 19 |
| Occupational exposures | 20 |
| Data Notes | 22 |

Data Quality Statement

Date Extracted: 22/11/2019

Publication Date: 25/11/2019

The following data was not received at time of data extraction for this report and may impact on aggregated rates:

2018-19

No CLAB denominators submitted for Mount Hospital April 2019.

2014-15 - 2017-18

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

All surveillance enquiries

✉ HISWA@health.wa.gov.au

☎ Mariyam +61 8 9222 2418

Michelle +61 8 9222 0231

Rebecca +61 8 9222 2043

Claire +61 8 9222 6455

HAIU News

IPACS

The IPACS Project had a successful pilot go live on 16 Sept 2019 at Royal Perth and Geraldton Hospitals. The project is in the pilot phase and the application configurations are being fine-tuned as the infection prevention & control nurses use ICNet and compare with their existing processes.

The project is on schedule and planning is underway for the state-wide roll out commencing in February 2020. The roll out planning includes training requirements and the introduction of user trainers at all sites. The training model for this project is 'train the trainer' approach. An Expression of Interest (EOI) for the 'super users' went out at end of October.

Additional interfaces for ICNet i.e. AIR, dialysis, Rostar and Stork, have been approved by the Project Board and the process of determining the requirements has commenced. Business requirements for the new Health Protect and Outbreak modules has commenced in preparation for User Accepting Testing.

HISWA Forum

The next forum is scheduled for 11 December 2019, 1500 – 1630 and will be held at 189 Royal St, East Perth, Theatrette. Afternoon tea and beverages will be available from 1430. Anyone wishing to participate via video-conference or if you have any issues you would like discussed, please email us at hiswa@health.wa.gov.au

Special thanks to the following people who will be making presentations at the next HISWA Forum: Brendan Heley, A/Nurse Coordinator, IPC at FSH; Libby Oakes, Manager, IPC at Bethesda Healthcare; Nicola Herbert, CNS, IPC at Rockingham Peel Group.

HAIU Team

We welcome Claire Parker, who has joined us as the Acting Program Officer – Data Analysis.

Reminders

- **Email communications**

Please can all email communications relating to HISWA be directed to hiswa@health.wa.gov.au This ensures one of us will always be available to respond to your query in a timely manner.

- **Data finalisation**

Please finalise your data asap to meet prescribed data submission deadlines. If a data deadline is on the horizon when you are going on leave, let us know and you can finalise data early.

Report Highlights

- The SSI rate following both hip and knee arthroplasty decreased this quarter and both are below the comparator.
- The SSI rate following emergency caesarean section decreased for the 2nd consecutive quarter.
- The HA-SAB rate decreased for the 3rd consecutive quarter and decreased across all public hospital groups.
- The adult ICU CLABSI rate is consistently below the national benchmark.

Report Concerns

- The elective caesarean section SSI rates, for both superficial and deep increased this quarter.
- The majority (62%) of HA-SAB were attributed to intravascular devices.

Surgical site infection following hip arthroplasty

Key Points

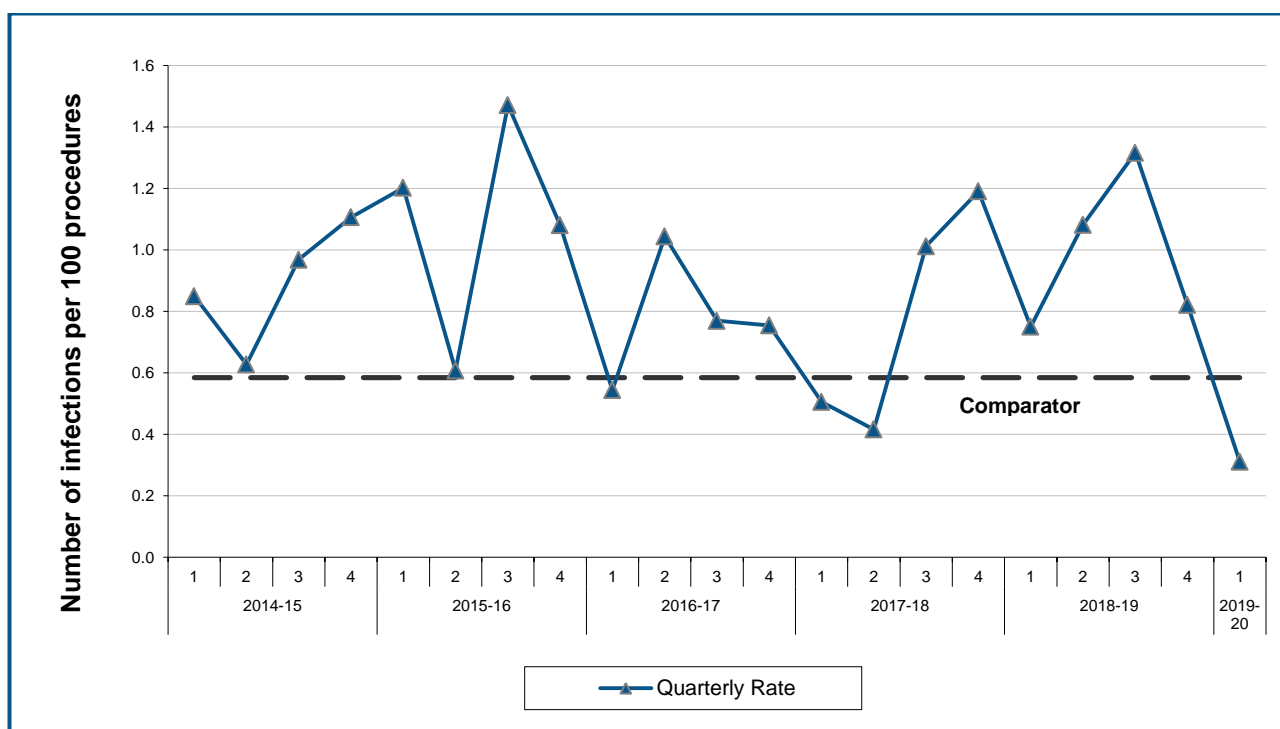
- ❑ There were 1,286, procedures reported (1,166 primary; 120 revision).
- ❑ A total of four SSI (three following primary arthroplasty) were reported and all were deep / organ space infections.
- ❑ All four SSI were detected on readmission to hospital.
- ❑ The total SSI rate following hip arthroplasty decreased to 0.31 infections per 100 procedures from 0.82 reported in Qtr 4 2018-19.
- ❑ The deep SSI hip rate decreased to 0.31 infections per 100 procedures from 0.75 reported in Qtr 4 2018-19 (Table 3 and 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 All * | 0 | 0 | 0 | 0.00 [0.00 – 0.00] | 0.84 [0.57 – 1.25] |
| Risk index 0 | 22 | 746 | 1 | 0.13 [0.00 – 0.85] | 0.72 [0.63 - 0.82] |
| Risk index 1 | 21 | 446 | 2 | 0.45 [0.02 – 1.76] | 1.73 [1.54 – 1.94] |
| Risk index 2 | 13 | 79 | 1 | 1.27 [0.00 – 7.63] | 3.63 [2.89 – 4.56] |
| Risk index 3 | 1 | 15 | 0 | 0.00 [0.00 – 24.33] | 5.15 [2.37 – 10.49] |
| Total hip arthroplasty | 22 | 1,286 | 4 | 0.31 [0.09 – 0.84] | 1.17 [1.08 – 1.27] |

*Refer to Appendix 1- SSI Data Notes

Figure 1 Hip arthroplasty SSI rate



Surgical site infection following knee arthroplasty

Key Points

- ❑ There were 1,774 procedures reported (1,638 primary; 136 revision).
- ❑ A total of four SSI (all following primary procedure) were reported and all were deep/ organ space infections.
- ❑ All four SSI were detected on readmission to hospital.
- ❑ The total SSI rate following knee arthroplasty decreased to 0.23 infections per 100 procedures from 0.59 reported in Qtr 4 2018-19.
- ❑ The deep SSI knee rate decreased to 0.23 per 100 procedures from 0.43 per 100 procedures reported in Qtr 4 2018-19 (Table 3 and 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 All * | 0 | 0 | 0 | 0.00 [0.00 – 0.00] | 1.42 [1.11 – 1.81] |
| Risk index 0 | 18 | 999 | 2 | 0.20 [0.01 – 0.79] | 0.66 [0.58 – 0.74] |
| Risk index 1 | 21 | 655 | 1 | 0.15 [0.00 – 0.97] | 1.08 [0.96 – 1.22] |
| Risk index 2 | 16 | 117 | 0 | 0.00 [0.00 – 3.92] | 2.74 [2.24 – 3.34] |
| Risk index 3 | 3 | 3 | 1 | 33.33 [6.20 – 79.52] | 8.33 [4.74 – 14.17] |
| Total knee arthroplasty | 22 | 1,774 | 4 | 0.23 [0.07 – 0.61] | 0.96 [0.89 – 1.04] |

*Refer to Appendix 1- SSI Data Notes

Figure 2 Knee arthroplasty SSI rate

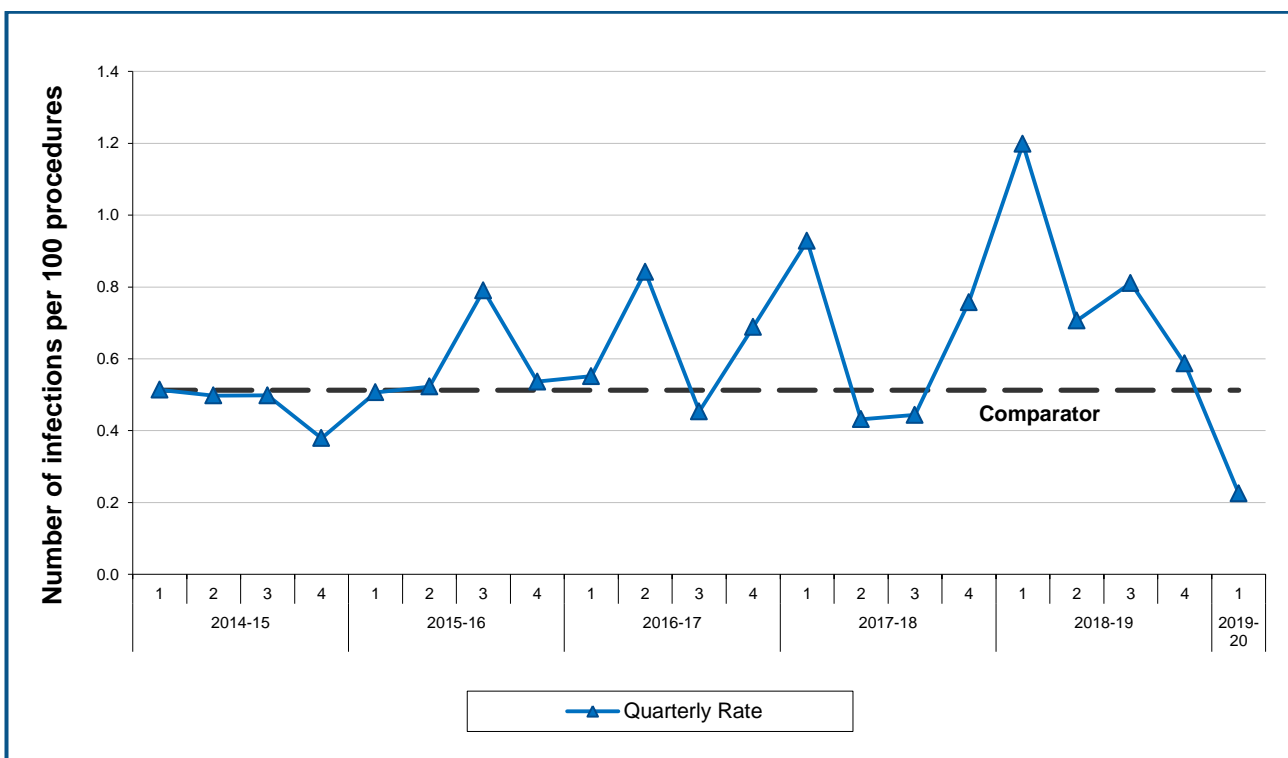


Table 3 SSI rates, by superficial and deep or organ/ space infections

| | 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) | Aggregate total SSI rate (95%CI) |
|---------------------------|---------------------------|--------------------|---------------------|----------------------|--|---------------------------------|----------------------------------|
| Hip arthroplasty | 0 | 4 | 4 | 1,286 | 0.00 [0.00 – 0.37] | 0.31 [0.09 – 0.84] | 0.31 [0.09 – 0.84] |
| Knee arthroplasty | 0 | 4 | 4 | 1,774 | 0.00 [0.00 – 0.27] | 0.23 [0.07 – 0.61] | 0.23 [0.07 – 0.61] |
| Total arthroplasty | 0 | 8 | 8 | 3,060 | NA | NA | NA |

Figure 3 Hip arthroplasty SSI rate, by superficial and deep

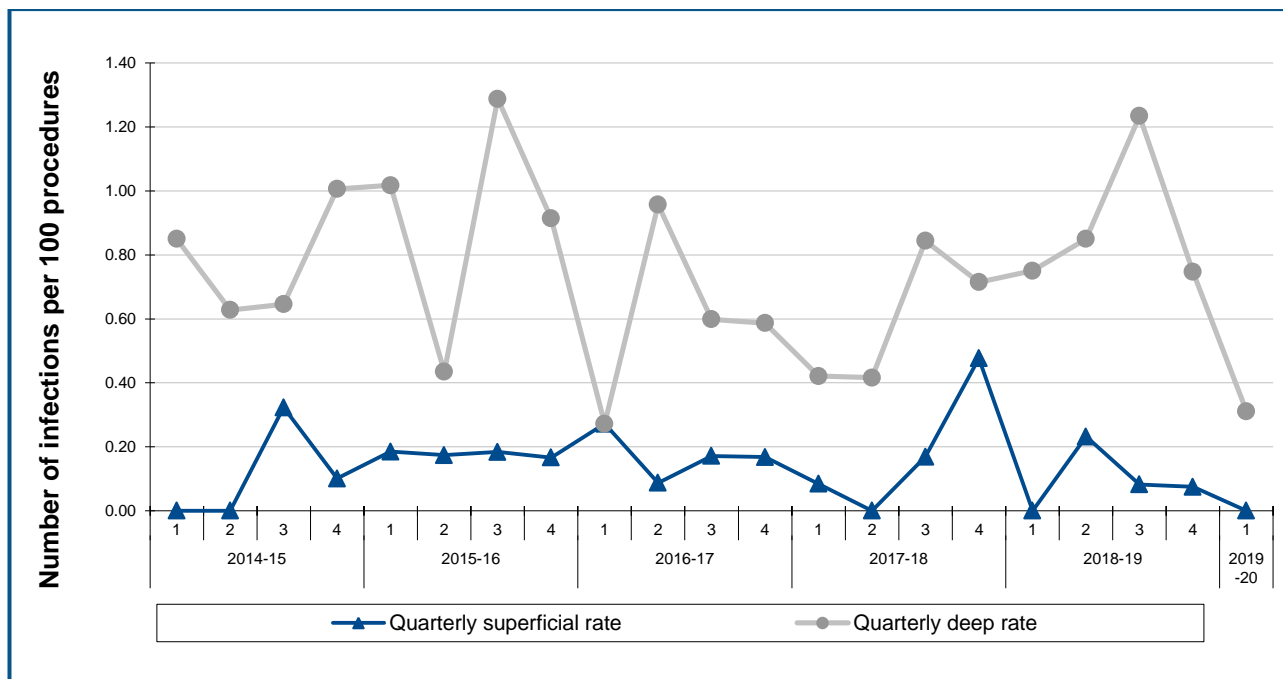
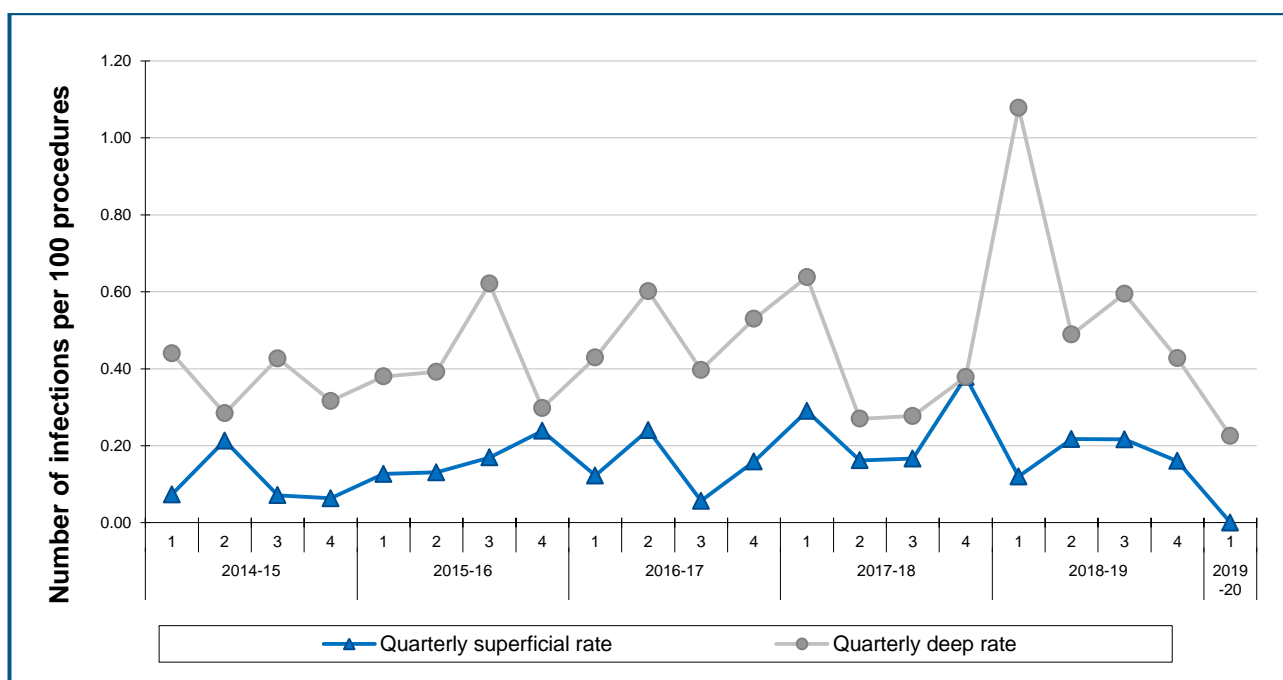


Figure 4 Knee arthroplasty SSI rate, by superficial and deep



Surgical site infection following caesarean section

Key Points

- 2,543 caesarean section procedures were reported, of which 1,337 (53%) were emergency and 1,206 (47%) were elective procedures.
- A total of 28 SSIs were reported, three identified during initial admission and 15 (54%) were detected on readmission to hospital. A further 10 SSI (9 superficial and 1 deep /organ space) were detected post-discharge and are not included in further data analysis or in HISWA calculated rates.
- Nine (50%) SSIs reported were deep /organ space infections.
- 10 (56%) SSIs reported were following emergency procedures and included six deep SSIs.
- The total inpatient SSI rate (includes readmissions and excludes post-discharge) increased to 0.71 infections per 100 procedures from 0.51 reported in Qtr 4 2018-19.
- The inpatient emergency procedure SSI rate decreased to 0.75 infections per 100 procedures from 0.83 reported in Qtr 4 2018-19.

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

| | Number of contributing hospitals | Number of procedure | Number of superficial SSI | Number of deep SSI | Total number of SSI | Total aggregate rate (95% CI) | Cumulative aggregate (95% CI) |
|------------------------|----------------------------------|---------------------|---------------------------|--------------------|---------------------|-------------------------------|-------------------------------|
| Risk All * | 6 | 56 | 0 | 0 | 0 | 0.00 [0.00 – 7.88] | 0.74 [0.60 – 0.92] |
| Risk index 0 | 17 | 1,337 | 5 | 5 | 10 | 0.75 [0.39 – 1.40] | 0.34 [0.28 – 0.41] |
| Risk index 1 | 18 | 875 | 3 | 3 | 6 | 0.69 [0.28 – 1.54] | 0.83 [0.71 – 0.97] |
| Risk index 2 | 7 | 259 | 1 | 1 | 2 | 0.77 [0.04 – 3.00] | 1.91 [1.54 – 2.37] |
| Risk index 3 | 1 | 16 | 0 | 0 | 0 | 0.00 [0.00 – 23.15] | 1.37 [0.42 – 3.63] |
| Total inpatient | 27 | 2,543 | 9 | 9 | 18 | 0.71 [0.44 – 1.13] | 0.64 [0.58 – 0.70] |
| Post-discharge | NA | NA | 9 | 1 | 10 | NA | NA |
| Total SSI* | NA | 2,543 | 18 | 10 | 28 | NA | NA |

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

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

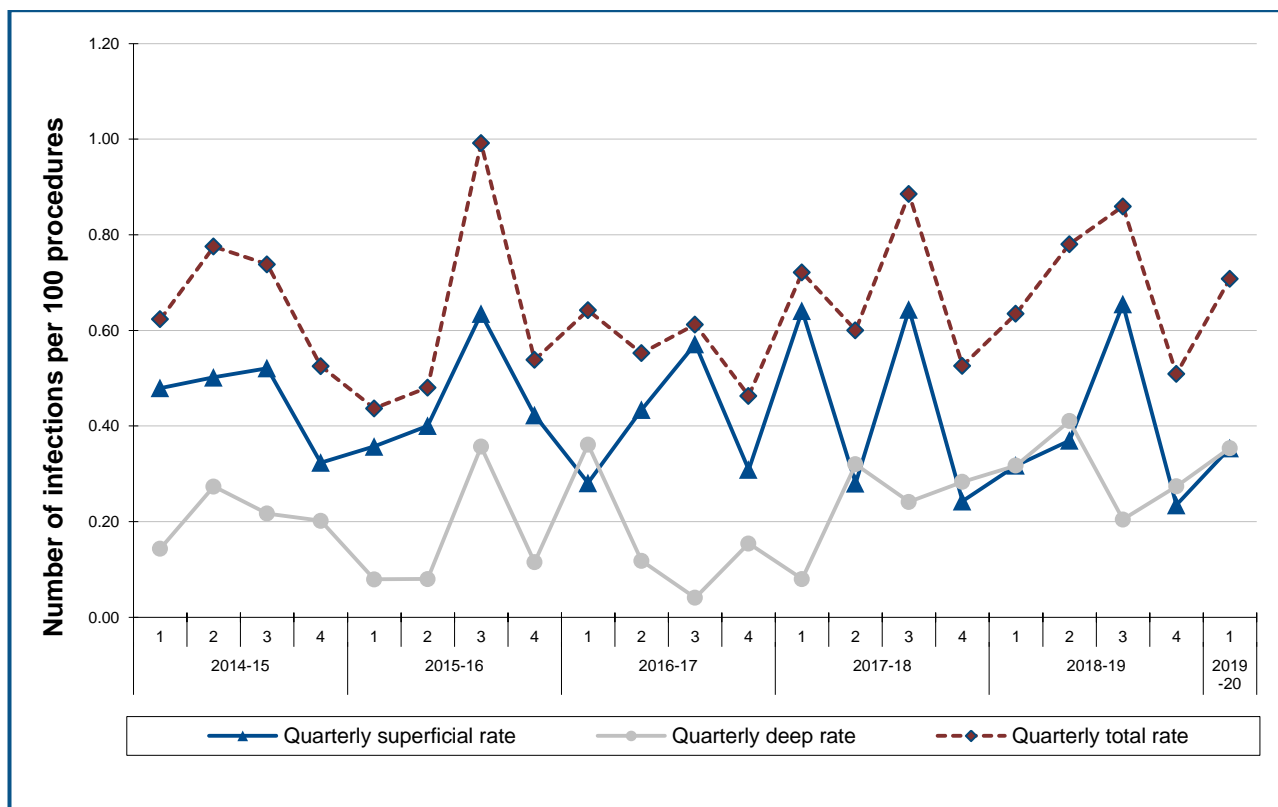
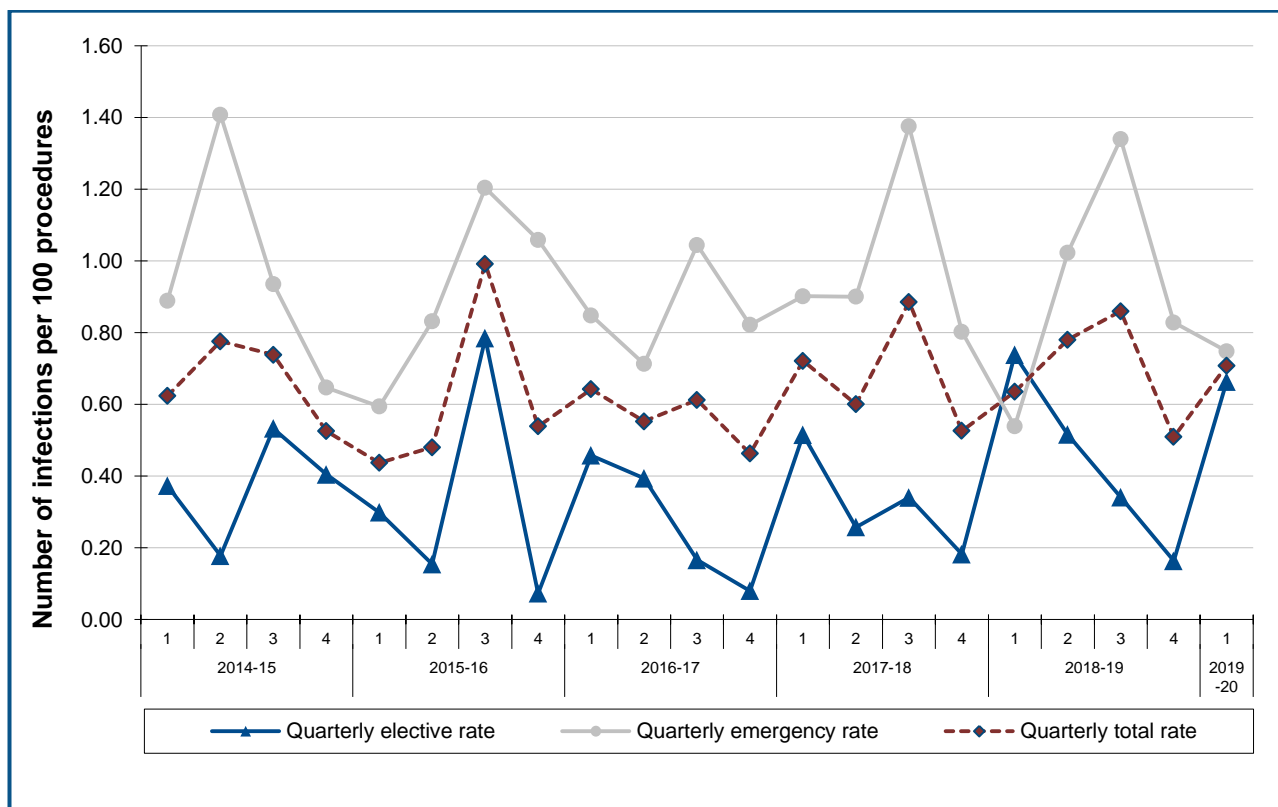


Figure 6 Caesarean section SSI rates by elective and emergency procedures (inpatient only)



Healthcare associated *Staphylococcus aureus* bloodstream infection

Key Points

- There were 29 HA-SABSI (MSSA 25; MRSA 4) reported
- The total HA-SABSI rate decreased to 0.43 infections per 10,000 bed-days from 0.54 reported in Qtr 4 2018-19, and is below the comparator rate of 0.73.
- The MSSA HA-SABSI rate decreased to 0.37 infections per 10,000 bed-days from 0.44 reported in Qtr 4 2018-19 and is below the comparator rate of 0.60.
- The MRSA HA-SABSI rate decreased to 0.06 infections per 10,000 bed-days from 0.11 reported in Qtr 4 2018-19 and is above the comparator rate of 0.03.
- Of the 29 HA-SABSI reported, 18 (62%) were attributable to IVDs. A further four (14%) had an organ site focus and three (10%) were related to procedures. Of the 18 IVD related HA-SABSI, 10 (56%) were associated with PIVC
- The IVD SABSI rate increased to 0.26 and was comparable to that of 0.21 infections per 10,000 bed-days reported in Qtr 4 2018-19 (Figure 10).

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

| | Number of contributing hospitals | Number of bed-days | Number of HA-SABSI | Aggregate rate (95% CI) | Cumulative aggregate (95% CI) |
|---|----------------------------------|--------------------|--------------------|-------------------------|-------------------------------|
| Total methicillin-sensitive <i>Staphylococcus aureus</i> (MSSA) bloodstream infection | 49 | 679,798 | 25 | 0.37 [0.25 – 0.55] | 0.56 [0.53 – 0.59] |
| Total methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) bloodstream infection | 49 | 679,798 | 4 | 0.06 [0.02 – 0.16] | 0.12 [0.10 – 0.13] |
| Total <i>Staphylococcus aureus</i> bloodstream infection | 49 | 679,798 | 29 | 0.43 [0.30- 0.62] | 0.68 [0.65 – 0.71] |

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

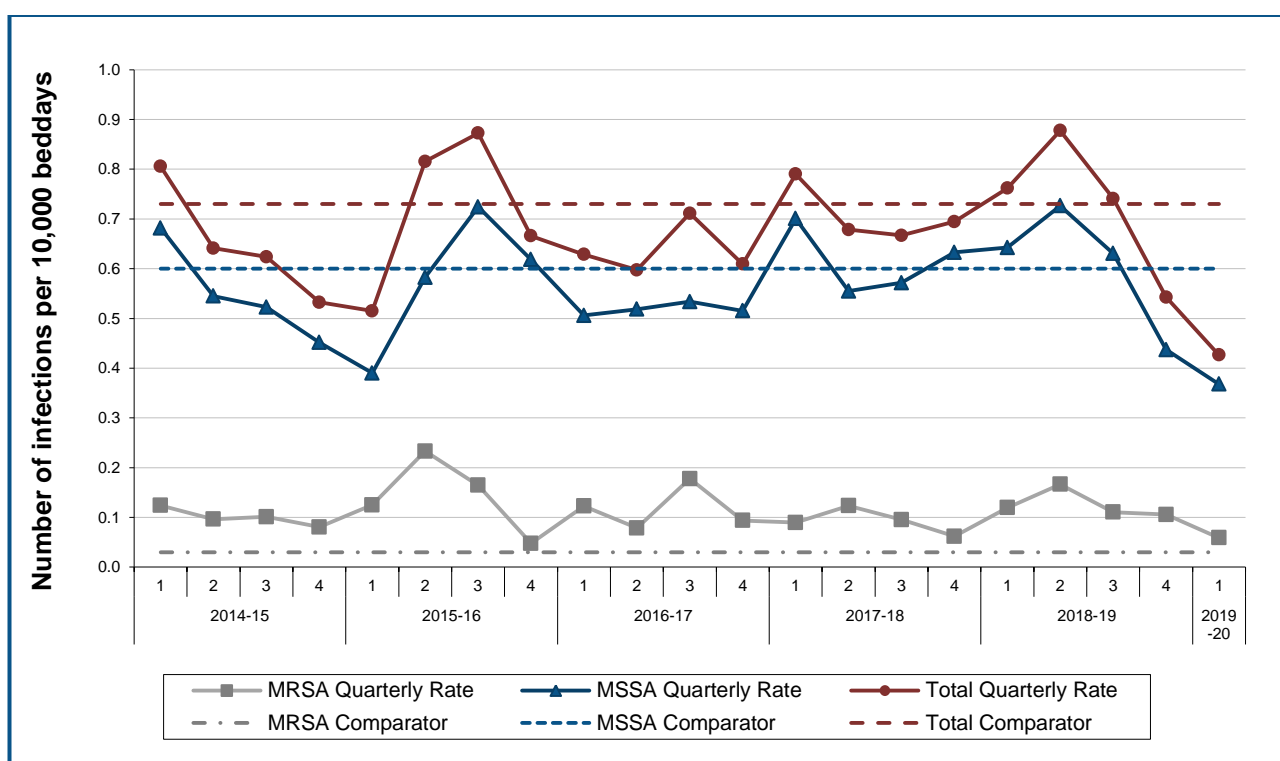


Figure 8 Number of HA-SABSI, by attributable source

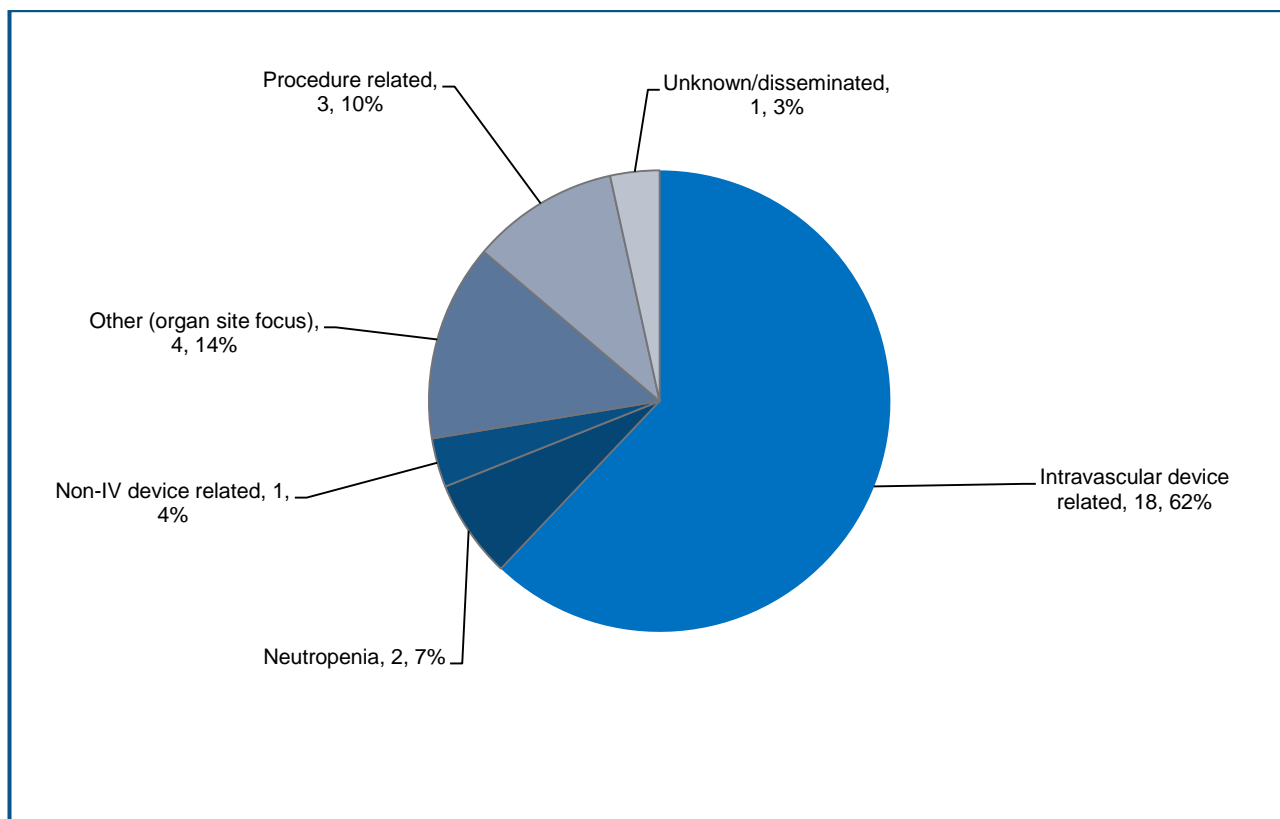


Figure 9 HA-SABSI rates, by hospital group

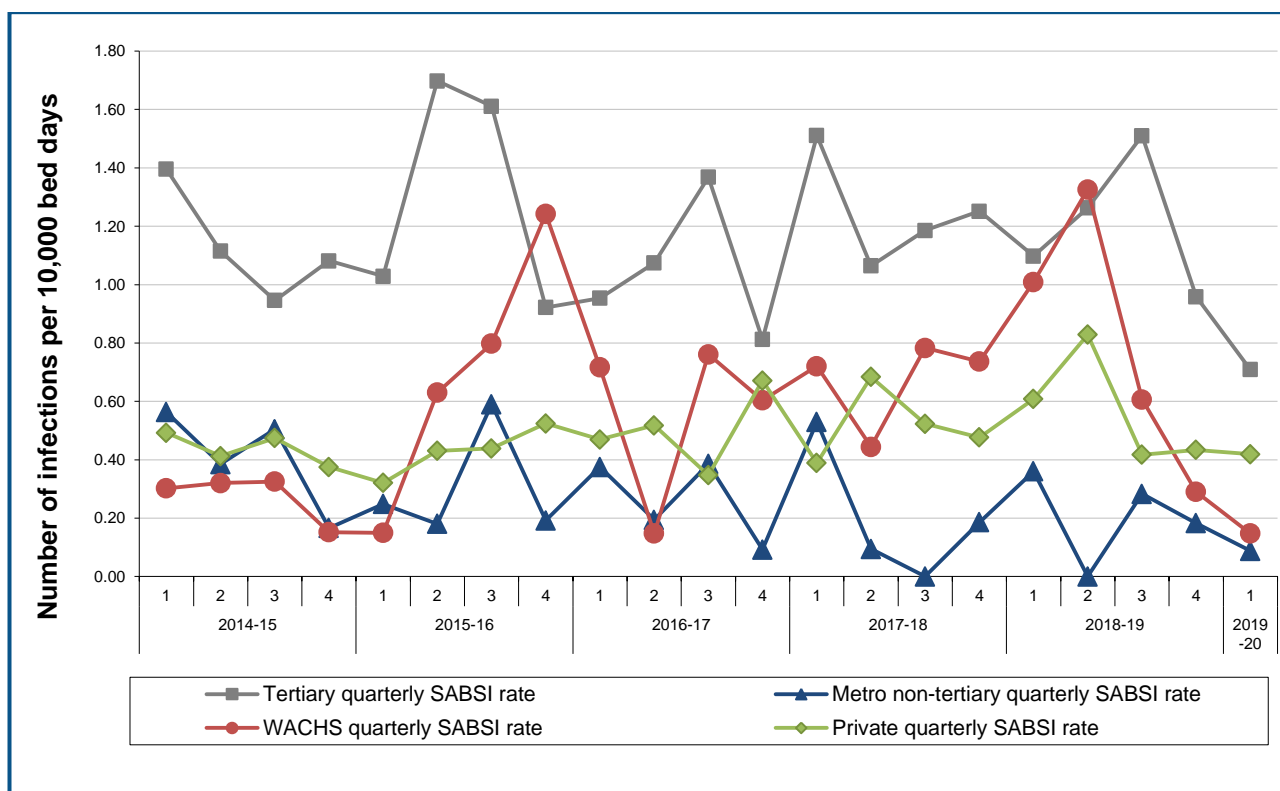


Figure 10 Proportion and rate of HA-SABSI attributed to intravascular devices

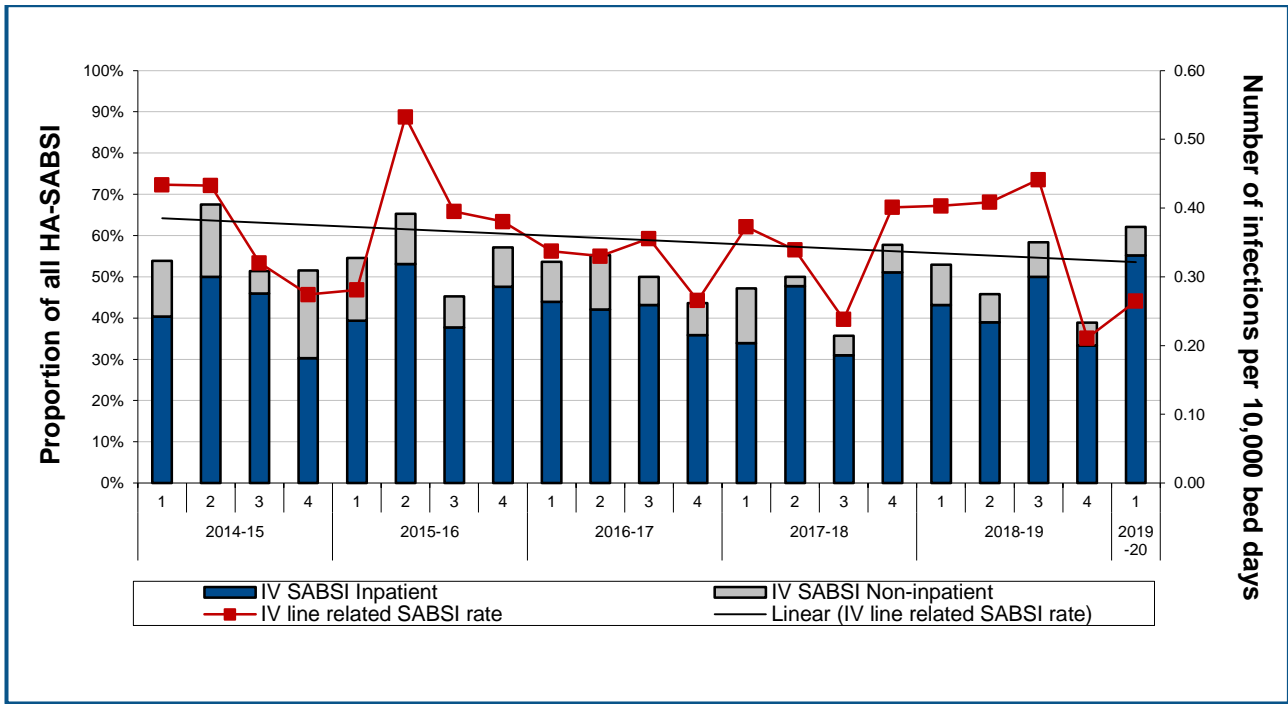
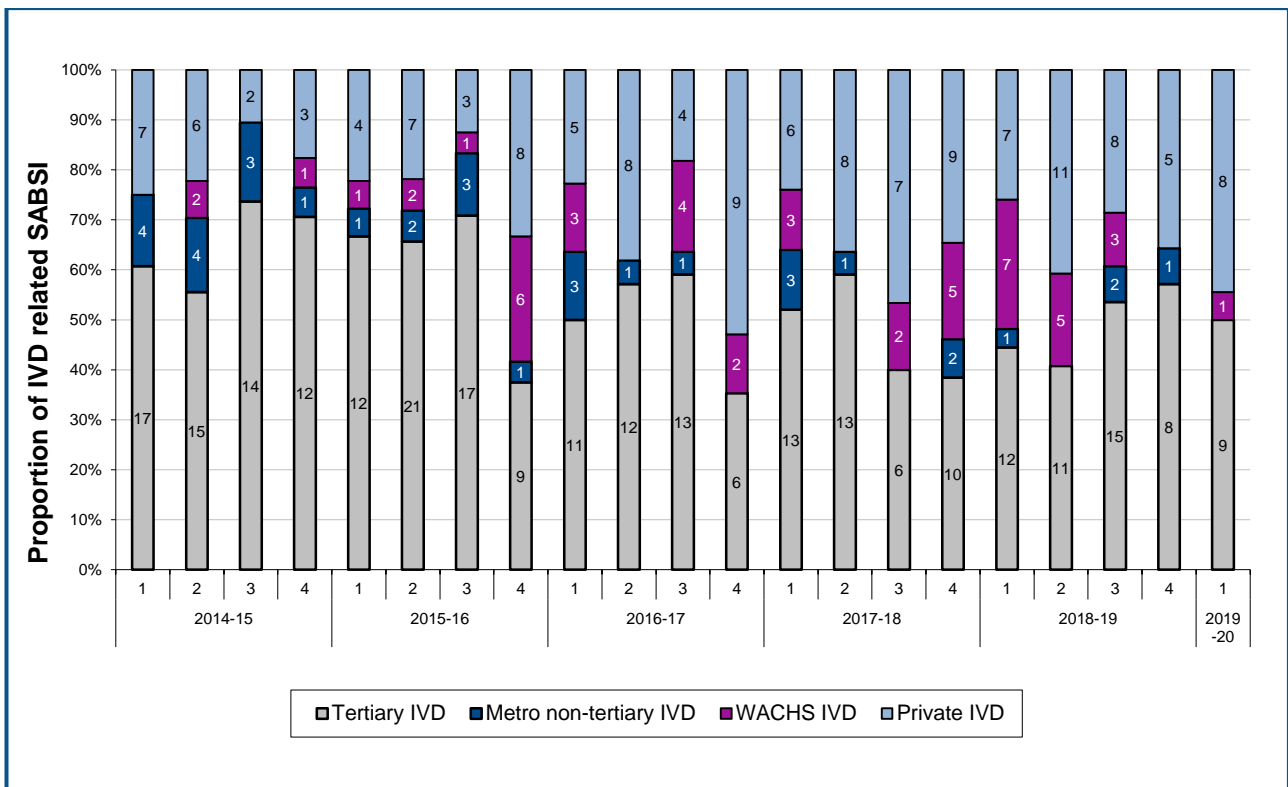


Figure 11 Proportion and number of HA-SABSI attributed to intravascular devices, by hospital group



Haemodialysis access-associated bloodstream infections

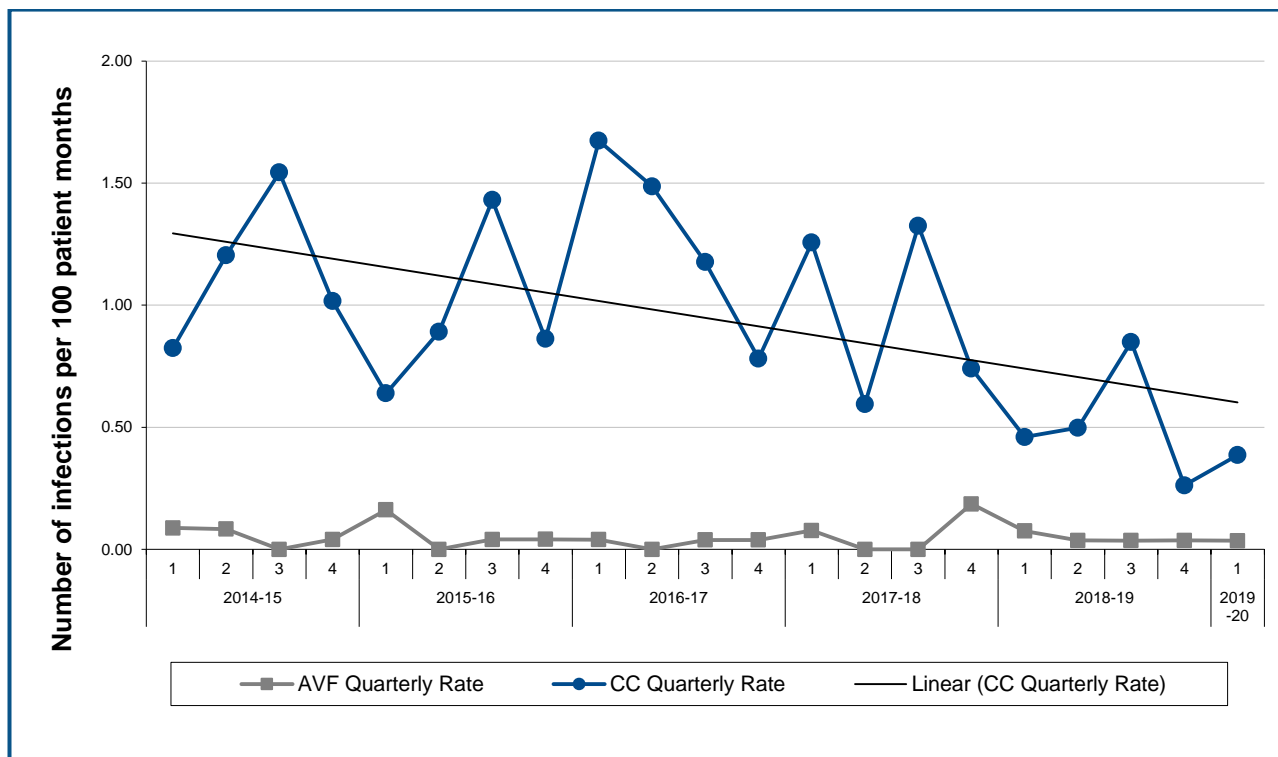
Key Points

- The majority (76%) of patients received haemodialysis via an AVF.
- There were three cuffed catheter and one AVF access-associated BSIs reported.
- The cuffed catheter BSI rate increased to 0.39 infections per 100 patient-months from 0.26 in Qtr 4, 2018-19.
- The AVF BSI rate of 0.04 per 100 patient-months remained unchanged from that reported in Qtr 4, 2018-19.

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 | 76.03 | 1 | 2,785 | 0.04 [0.00 – 0.23] | 0.07 [0.05 – 0.08] |
| AVG | 24 | 2.24 | 0 | 82 | 0.00 [0.00 – 5.51] | 0.48 [0.31 – 0.74] |
| Cuffed catheter (CC) | 24 | 21.21 | 3 | 777 | 0.39 [0.08 – 1.20] | 1.43 [1.30 – 1.56] |
| Non-cuffed catheter | 24 | <1 | 0 | 19 | 0.00 [0.00 – 20.21] | 0.96 [0.48 – 1.86] |

Figure 12 AVF and cuffed catheter BSI rate



Central line-associated bloodstream infection

Key Points

- Two adult ICU CLABSI were reported and the rate of 0.31 infections per 1,000 line days was comparable to 0.30 reported in Qtr 4, 2018-19.
- The majority (79%) of central lines utilised in adult ICUs were centrally-inserted.
- ZERO haematology CLABSI were reported this Qtr and the rate decreased to 0.00 infections per 1,000 line days from 0.25 reported in Qtr 4, 2018-19.
- Four oncology CLABSI were reported and the rate increased to 0.06 infections per 1,000 line days from 0.05 reported in Qtr 4, 2018-19.

Table 7 Adult ICU CLABSI

| | Number of contributing hospitals | Number of line days | Number of CLABSI | Aggregate rate (95% CI) | Cumulative aggregate (95% CI) |
|----------------------------------|----------------------------------|---------------------|------------------|---------------------------|-------------------------------|
| ICU peripherally inserted CLABSI | 12 | 1,331 | 1 | 0.75 [0.00 – 4.79] | 0.60 [0.35 – 1.03] |
| ICU centrally inserted CLABSI | 12 | 5,035 | 1 | 0.20 [0.00 – 1.27] | 0.59 [0.50 – 0.71] |
| Total ICU CLABSI | 12 | 6,366 | 2 | 0.31 [0.01 – 1.24] | 0.59 [0.51 – 0.70] |

Table 8 Adult ICU central line utilisation ratio (CLUR)

| | Number of contributing hospitals | Number of line days | Number of bed-days | Tertiary Aggregate CLUR (%) | Total Aggregate CLUR (%) |
|--------------------------------------|----------------------------------|---------------------|--------------------|-----------------------------|--------------------------|
| Adult ICU peripherally inserted CLUR | 12 | 1,331 | 12,496 | 18 | 10.65 |
| Adult ICU centrally inserted CLUR | 12 | 5,035 | 12,496 | 66 | 40.29 |

Table 9 Haematology Unit CLABSI

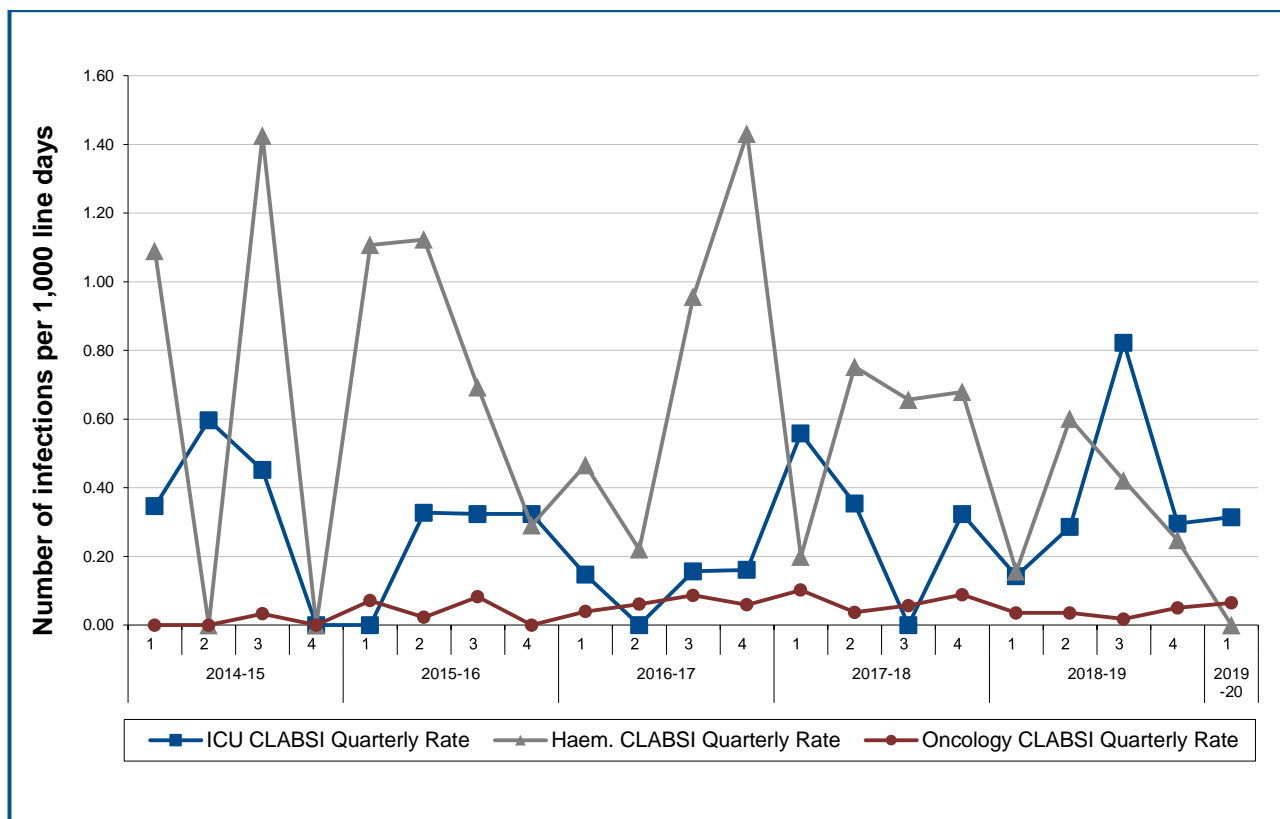
| | Number of contributing hospitals | Number of line days | Number of CLABSI | Aggregate rate (95% CI) | Cumulative aggregate (95% CI) |
|--|----------------------------------|---------------------|------------------|---------------------------|-------------------------------|
| Haematology peripherally inserted CLABSI | 3 | 2,733 | 0 | 0.00 [0.00 – 1.74] | 1.05 [0.89 – 1.48] |
| Haematology centrally inserted CLABSI | 3 | 1,662 | 0 | 0.00 [0.00 – 2.86] | 2.04 [1.72 – 2.42] |
| Total Haematology CLABSI | 3 | 4,395 | 0 | 0.00 [0.00 – 1.08] | 1.37 [1.22 – 1.55] |

Table 10 Oncology Unit CLABSI

| | Number of contributing hospitals | Number of line days | Number of CLABSI | Aggregate rate (95% CI) | Cumulative aggregate (95% CI) |
|---------------------------------------|----------------------------------|---------------------|------------------|---------------------------|-------------------------------|
| Oncology peripherally inserted CLABSI | 5 | 9,605 | 3 | 0.31 [0.06 – 0.98] | 0.12 [0.09 – 0.16] |
| Oncology centrally inserted CLABSI | 5 | 52,148 | 1 | 0.02 [0.00 – 0.12] | 0.02 [0.01 – 0.03] |
| Total Oncology CLABSI | 5 | 61,753 | 4 | 0.06 [0.02 – 0.17] | 0.05 [0.04 – 0.06] |

All rates per 1,000 central line days

Figure 13 ICU, haematology, and oncology unit CLABSI rates



Methicillin-resistant *Staphylococcus aureus* healthcare associated infection

Key Points

- There were 40 MRSA HAIs reported.
- The total MRSA HAI rate decreased to 0.66 infections per 10,000 bed-days from 0.76 reported in Qtr 4, 2018-19 and is below the comparator rate of 0.96.
- 39 of the 40 MRSA HAIs reported were identified from the inpatient setting (6 ICU and 33 non-ICU).
- 11 (28%) patients were known to have prior MRSA colonisation.
- Of the 40 MRSA HAIs, 25 (63%) were related to surgical wounds and four (10%) were BSIs.
- The majority (70%) of MRSA HAIs were caused by micro-B PVL negative strains.

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

| | 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 | 443,384 | 0.11 [0.04 – 0.27] | 0.24 [0.22 – 0.26] |
| MRSA Non-ICU non-sterile site | 48 | 28 | 443,384 | 0.63 [0.43 – 0.92] | 0.65 [0.62 – 0.68] |
| MRSA ICU sterile site | 12 | 1 | 21,950 | 0.46 [0.00 – 2.91] | 0.35 [0.25 – 0.49] |
| MRSA ICU non-sterile site | 12 | 5 | 21,950 | 2.28 [0.83 – 5.55] | 1.48 [1.26 – 1.74] |
| Total inpatient MRSA HAI | 48 | 39 | 465,334 | 0.84 [0.61 – 1.15] | 0.93 [0.89 – 0.96] |
| MRSA HAI non-inpatient | 48 | 1 | NA | NA | NA |
| Total MRSA healthcare associated infection | 48 | 40 | 608,269 | 0.66[†] [0.48 – 0.90] | 0.78[†] [0.78 – 0.84] |

[†] Rate per 10,000 multi and same-day bed-days

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

| | Micro-B PVL negative MRSA | Micro-B PVL positive MRSA | Micro-C MRSA | No typing available | Total |
|---------------------------|---------------------------|---|--------------|---------------------|-------------|
| Non ICU sterile | 3 | 1 | 1 | 0 | 5 |
| Non ICU non-sterile | 19 | 4 | 5 | 0 | 28 |
| ICU sterile | 1 | 0 | 0 | 0 | 1 |
| ICU non-sterile | 5 | 0 | 0 | 0 | 5 |
| Non-inpatient sterile | 0 | 0 | 1 | 0 | 1 |
| Non-inpatient non-sterile | 0 | 0 | 0 | 0 | 0 |
| Proportion | 70% | 13% | 18% | 0% | 100% |
| Strain | Not characterised | Qld clone (2) Taiwan (1) WA 121 (1) WSPP (1) | UK 15 (7) | NA | NA |
| TOTAL | 28 | 5 | 7 | 0 | 40 |

Figure 14 Total MRSA HAI rate per 10,000 multi and same day bed-days (inpatient and same-day patient)

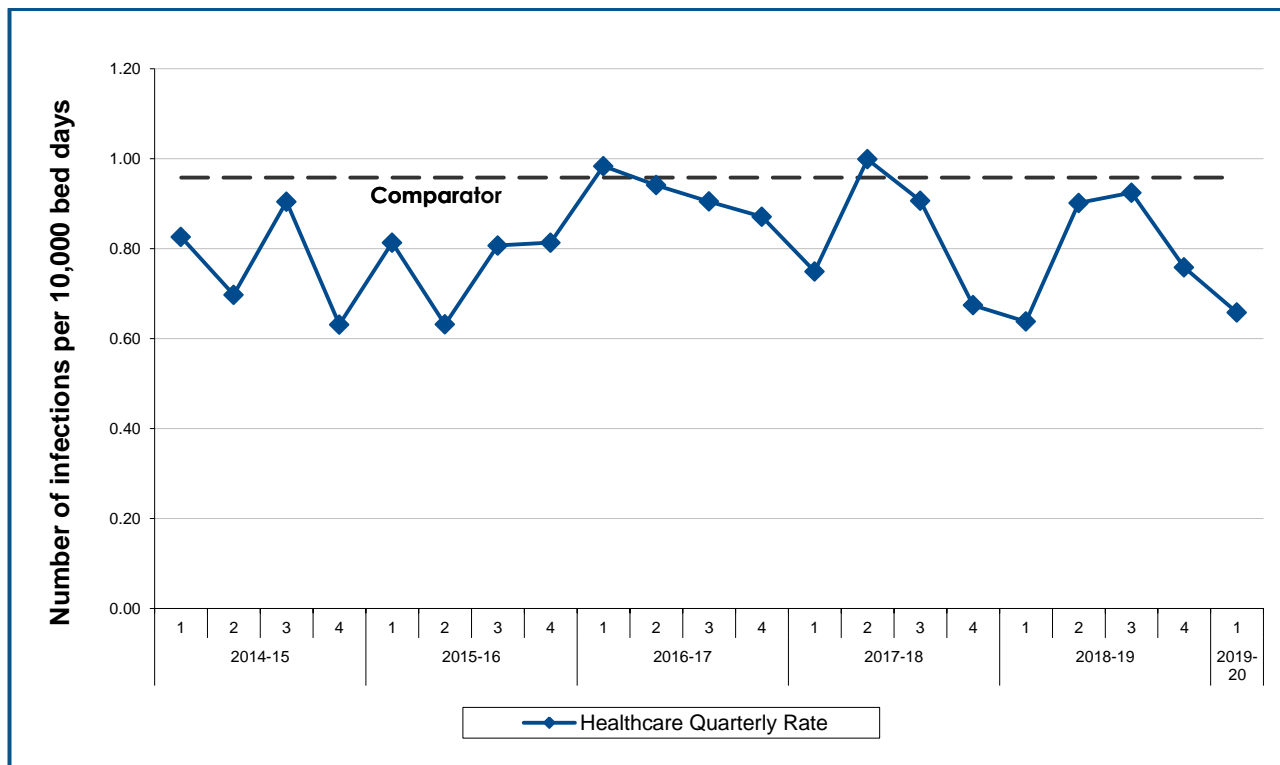


Figure 15 Proportion of MRSA HAIs, by specimen site

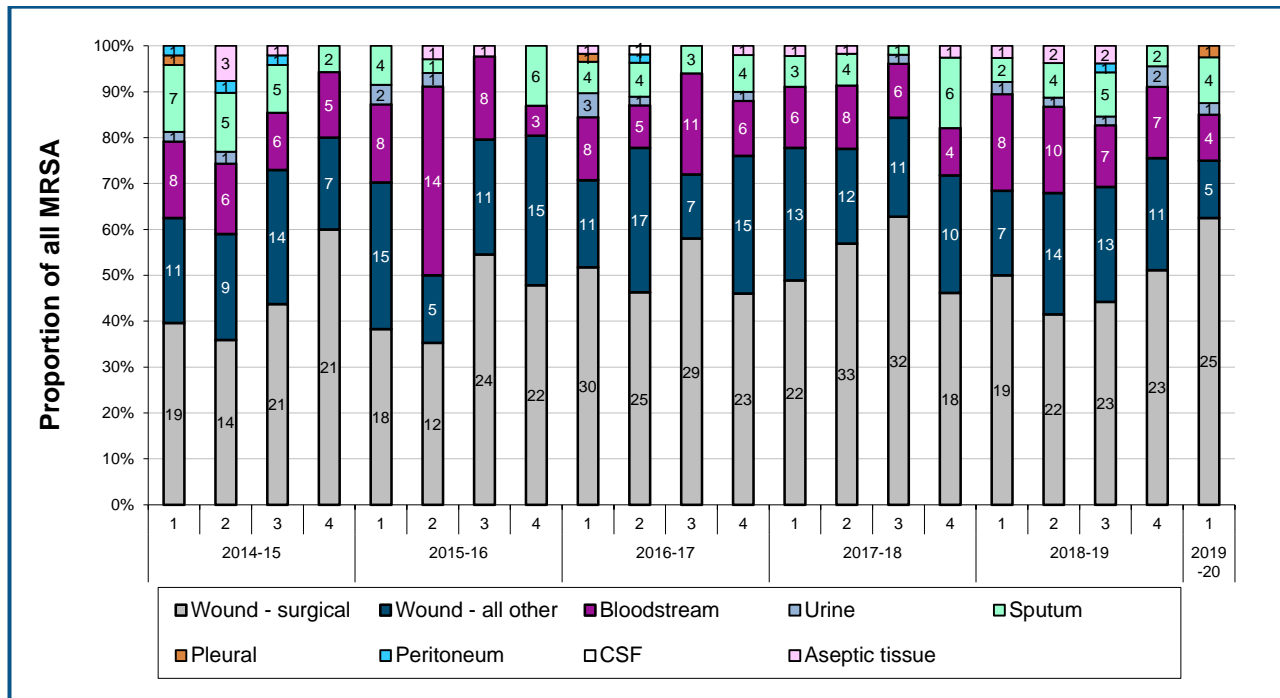


Figure 16 Rate of MRSA HAI, by strain group

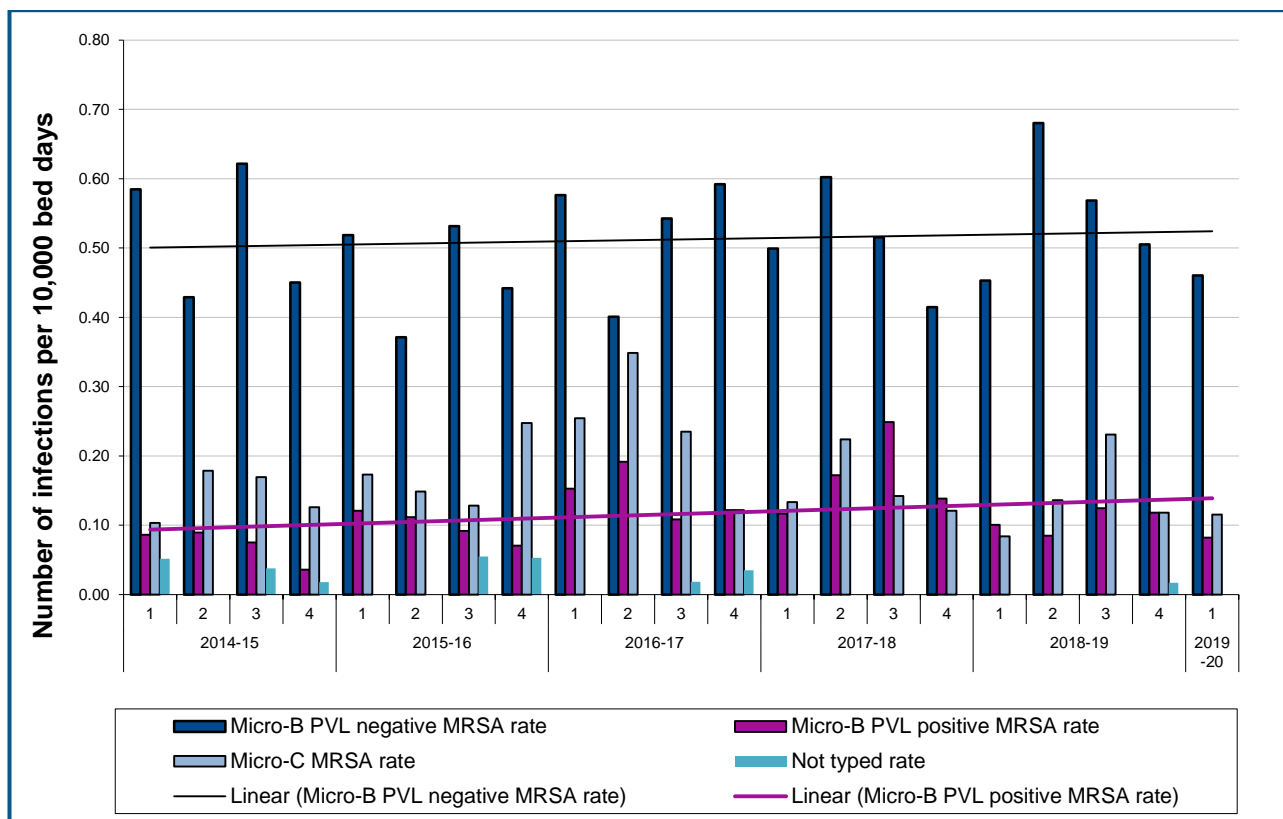
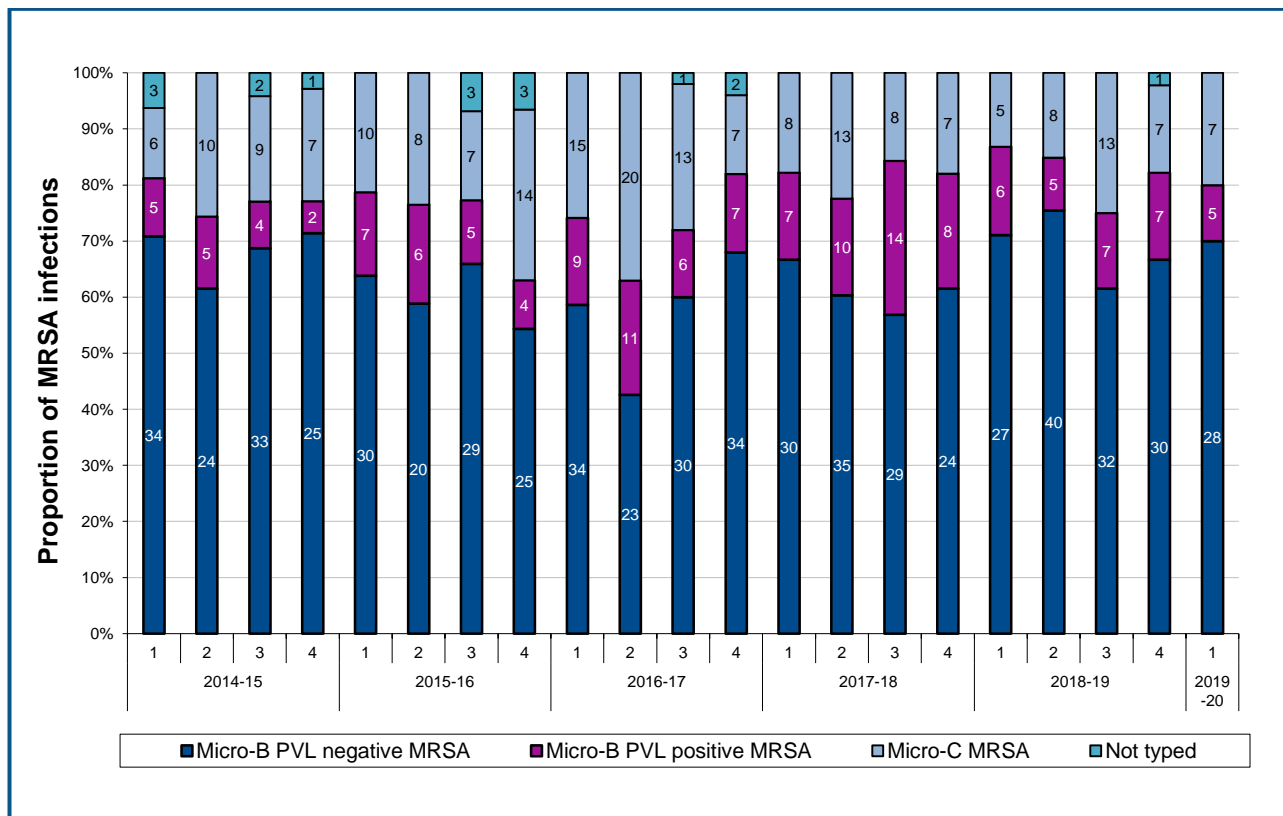


Figure 17 Proportion of MRSA HAI, by strain group



Hospital-identified *Clostridioides difficile* infection

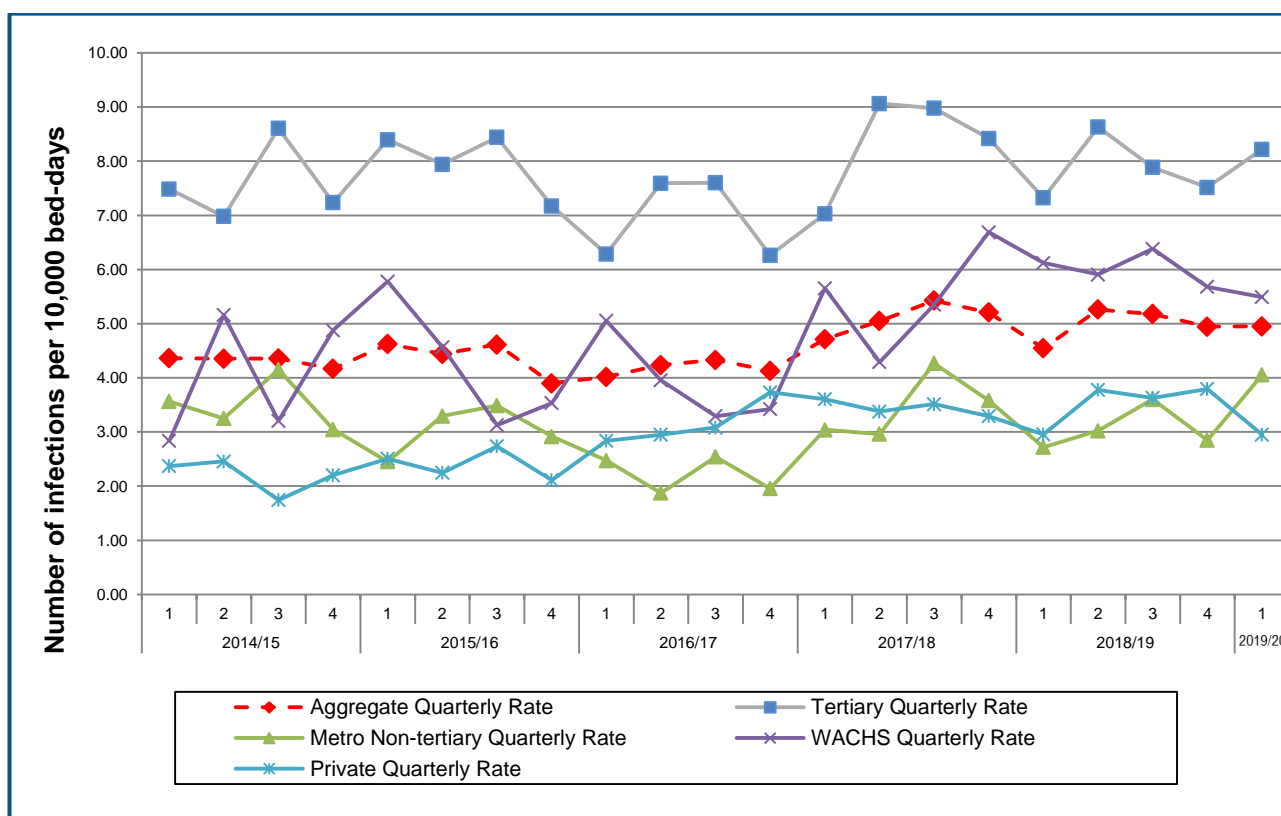
Key Points

- The HISWA aggregate HI-CDI rate of 4.95 per 10,000 bed-days was comparable to that of 4.94 reported in Qtr 4 2018-19.
- There was a slight increase in the rate reported from metro tertiary and metro non-tertiary hospital groups. The private hospital and the WACHS hospital groups reported decreases in HI-CDI rate.
- The majority (49%) of HI-CDI were reported from the tertiary hospitals.

Table 13 HI-CDI rates, by hospital group

| Hospital Group | Number of contributing hospitals | Number of HI-CDI | Number of bed-days | Aggregate rate (95% CI) | Cumulative aggregate (95% CI) |
|---------------------------|----------------------------------|------------------|--------------------|---------------------------|-------------------------------|
| Tertiary | 5 | 158 | 192,233 | 8.22 [7.03 – 9.61] | 6.44 [6.27 – 6.62] |
| Metropolitan non-tertiary | 8 | 46 | 113,411 | 4.06 [3.04 – 5.43] | 3.01 [2.84 – 3.19] |
| WACHS | 21 | 36 | 65,555 | 5.49 [3.95 – 7.64] | 3.60 [3.37 – 3.85] |
| Private | 15 | 83 | 281,347 | 2.95 [2.38 – 3.66] | 2.38 [2.28 – 2.49] |
| Total | 49 | 323 | 652,546 | 4.95 [4.44 – 5.52] | 4.03 [3.95 – 4.11] |

Figure 18 HI-CDI rates, by hospital group



Vancomycin-resistant *Enterococci* sterile-site infections

Key Points

- There was one sterile site infection reported from a tertiary hospital. The patient developed an *E.faecium* vanB peritoneal infection following complex bowel surgery. The patient had prior VRE colonisation.
- Refer to **Data Notes** for information on categorisation of sterile specimen sites.

Figure 19 Number of VRE, by sterile body sites

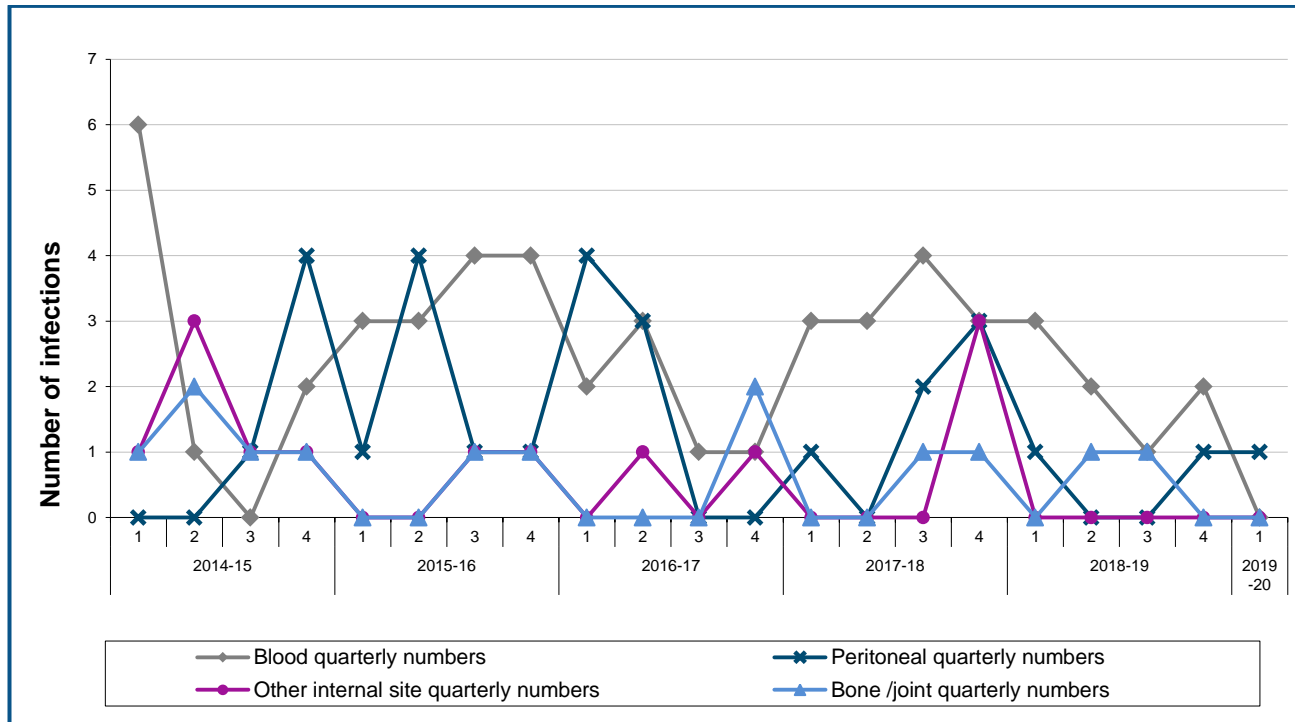
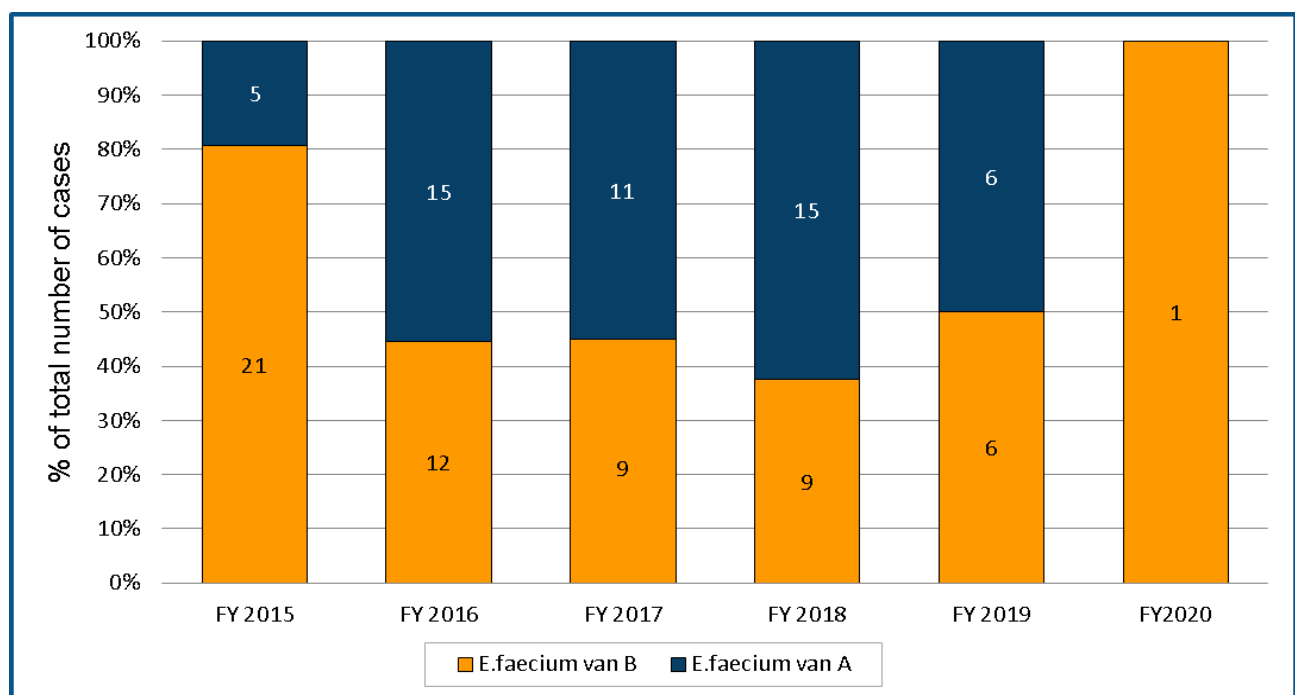


Figure 20: VRE HAI and CAI by organism and van type, 2014-15 to 30 Sep 2019

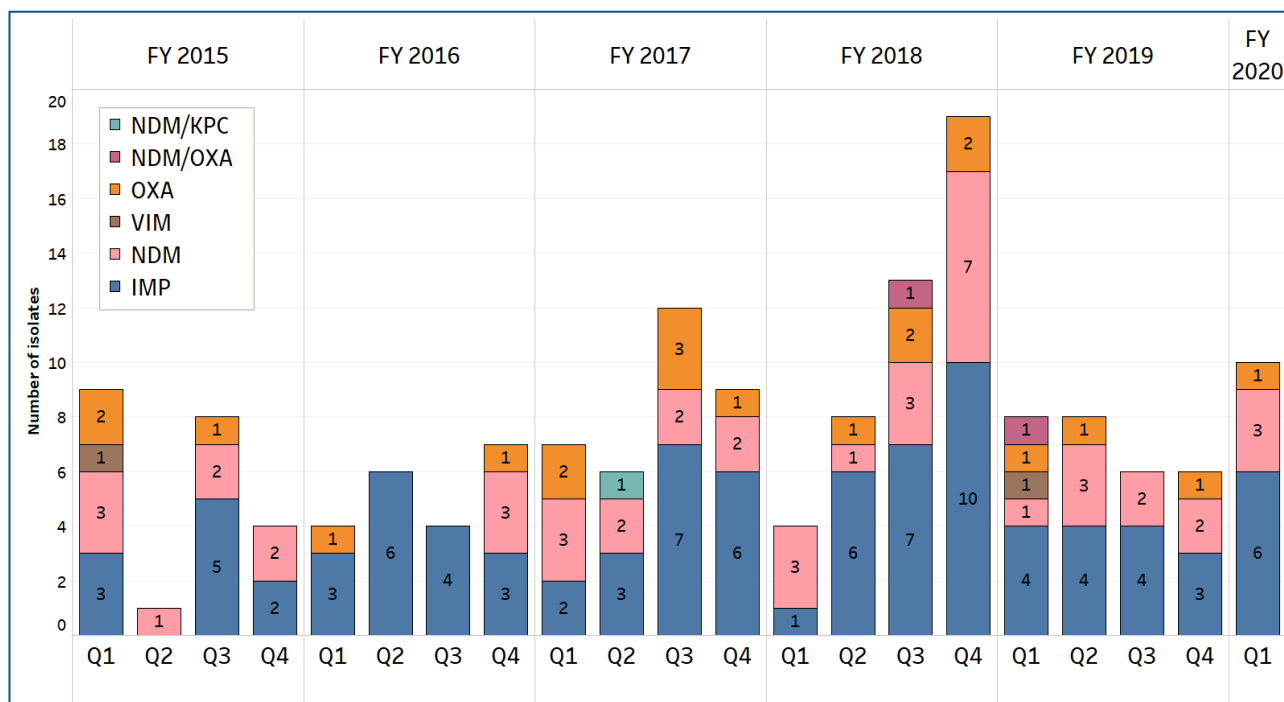


Carbapenemase-producing *Enterobacteriaceae*

Key Points

- Surveillance of CPE is performed by the HAIU in liaison with the PathWest Gram-negative Reference Laboratory located at the QE11 site.
- For this Qtr, 11 of the 29 referred patient isolates were confirmed CPE (two from the one patient).
- Six patients were confirmed with an IMP-4, three carried an NDM-1, and one carried both NDM-1 and OXA-48
- Of the patients identified with a non-IMP type CPE, all had a history of recent overseas travel or hospitalisation.

Figure 21 Number of unique CPE isolates by type, 2014-15 to September 30 2019



Occupational exposures

Key Points

- The total occupational exposure rate decreased to 5.04 exposures per 10,000 bed-days from 5.12 reported in Qtr 4, 2018-19.
- The parenteral rate decreased to 3.66 exposures per 10,000 bed-days from 3.87 in Qtr 4, 2018-19.
- The non-parenteral rate increased to 1.38 exposures per 10,000 bed-days from 1.25 in Qtr 4, 2018-19.
- The majority of both parenteral exposures (48%) and non-parenteral exposures (56%) were reported by nurses.
- 22 HCWs who are not primary users of sharps sustained a parenteral exposure.

Table 14 Occupational exposures, by parenteral and non-parenteral

| Exposure Type | Number of contributing hospitals | Number of Exposures this Qtr | Number of bed-days | Aggregate rate (95% CI) | Cumulative aggregate (95% CI) |
|------------------------|----------------------------------|------------------------------|--------------------|---------------------------|-------------------------------|
| Parenteral | 49 | 249 | 680,759 | 3.66 [3.23 – 4.14] | 4.15 [4.08 – 4.23] |
| Non-Parenteral | 49 | 94 | 680,759 | 1.38[1.13 – 1.69] | 1.45 [1.41 – 1.50] |
| Total Exposures | 49 | 343 | 680,759 | 5.04 [4.53 – 5.60] | 5.62 [5.53 – 5.70] |

Figure 22 Occupational exposure rate per 10,000 bed-days, by parenteral and non-parenteral

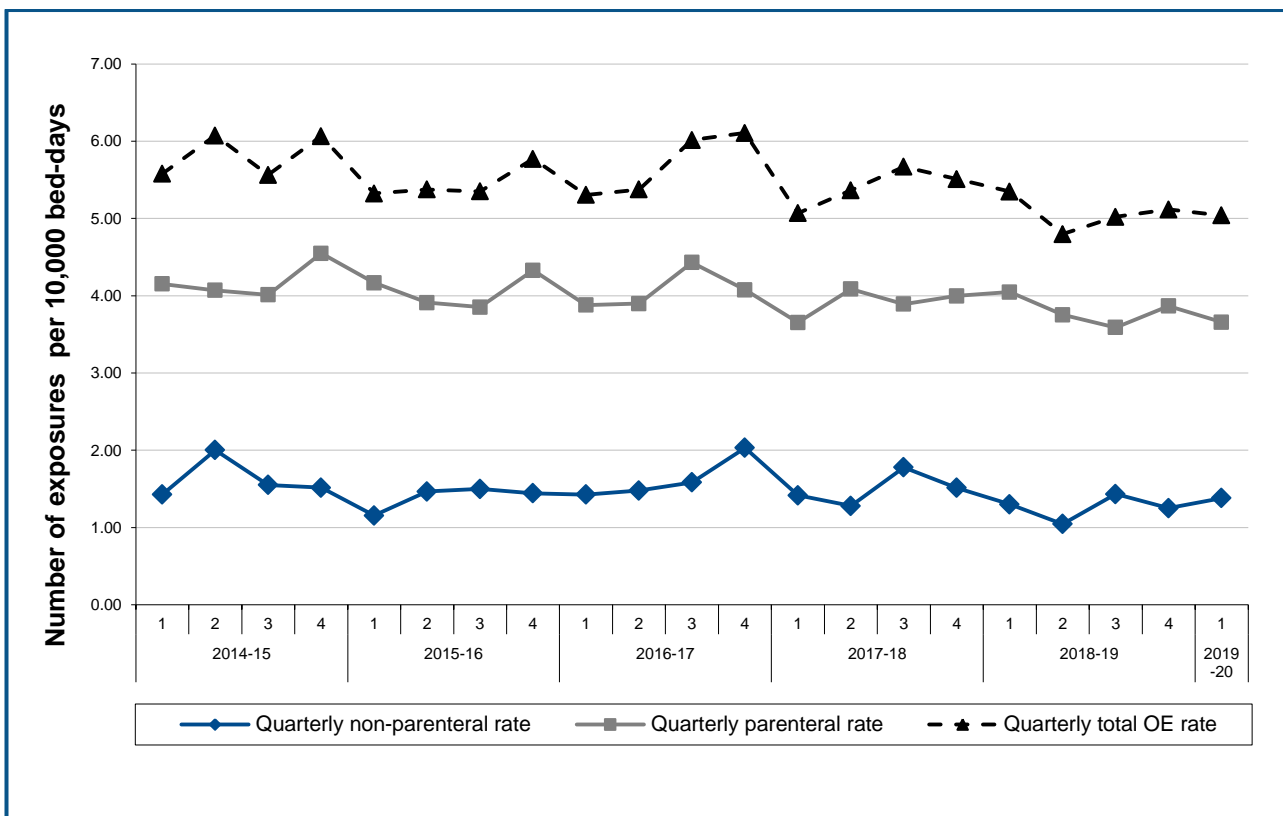


Figure 23 Parenteral occupational exposures, by HCW category

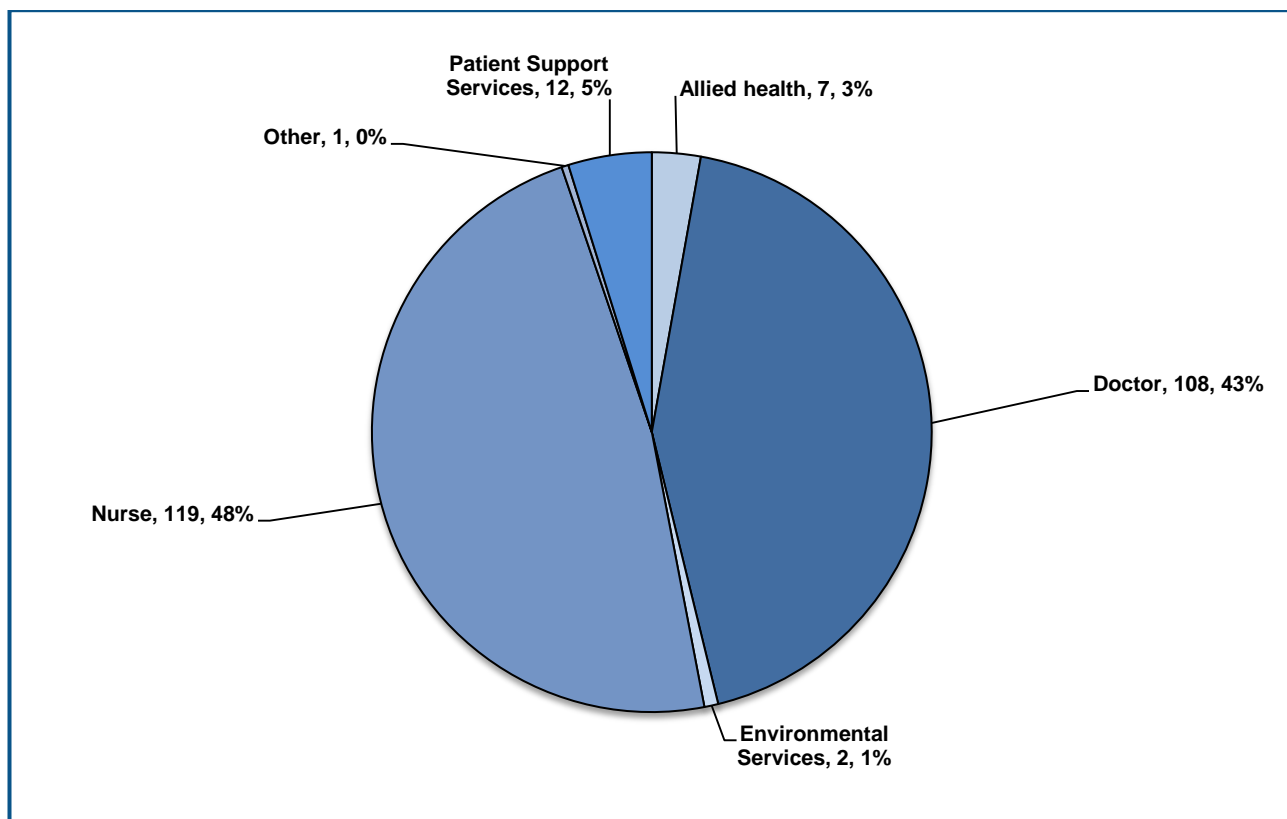
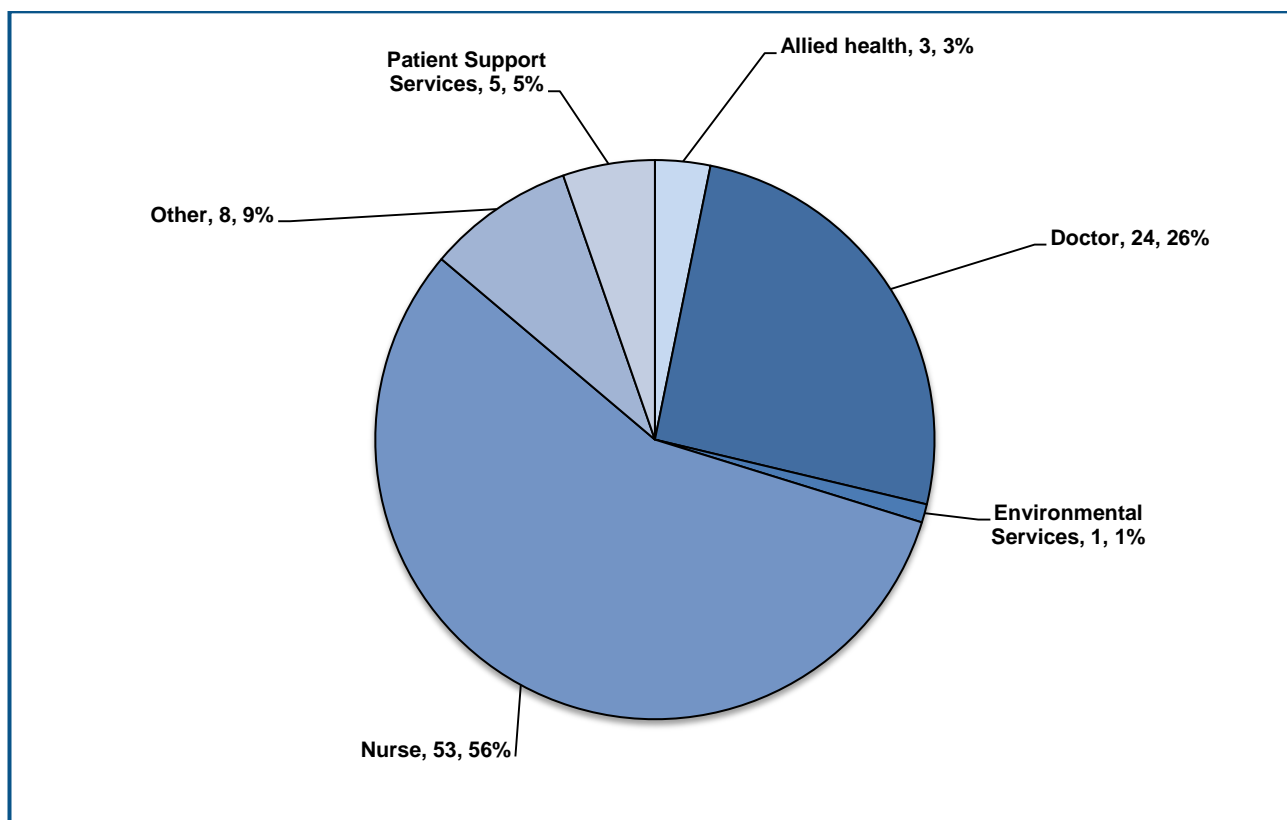


Figure 24 Non-parenteral occupational exposures, by HCW category



Data Notes

Data Refresh

All data changes requested by HISWA contributors or late submissions are refreshed each quarter when HISWA data is extracted for each reporting schedule 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.

HISWA Indicators

Surgical Site Infections

Arthroplasty*

- 22 hospitals (11 private; 11 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. NB one Regional Resource Centre is currently not performing procedures.
- The comparator is Public Health England, *Surveillance of Surgical Site Infections in NHS hospitals in England, 2017-18 Report (Table 3)*.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/765967/SSI_annual_report_NHS_hospitals_2017_18.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 less than 100 procedures annually and are not required to assign a risk index score
 - Procedure type: primary and revision
- The HAIU commenced data submission to the Performance Reporting Branch in February 2019 for SSIs following primary hip and knee arthroplasty for inclusion in the Health Service Performance Report (HSPR).

Caesarean section

- 27 hospitals (5 private and 22 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 less 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*

- 49 hospitals (14 private; 35 public) submit data to HISWA. Data is included from North Metropolitan Mental Health Service since 2014-15.
- HA-SABSI data has been included as an indicator in National Healthcare Agreements since 2009 and is reported on the MyHospitals website. The HAIU also submits HA-SABSI data to the Performance Reporting Branch on behalf of public hospitals as it is included in the HSPR.
- Data collection is in accordance with the Australian national definition.
- From 1 July 2017, unqualified newborn bed-day data was 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 is validated by the Healthcare Associated Infection Unit.
- The comparator is the Australian national public hospital aggregate 2017-18 rate. Refer to Australian Institute Health and Welfare: Bloodstream infections associated with hospital care 2017-18: Australian hospital statistics.

Haemodialysis*

- 23 haemodialysis units (15 private, 8 public) submit data to HISWA, including two home dialysis units.
- The rate per 100 pt-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 is risk adjusted to peripherally and centrally inserted central lines.
- Adult ICU CLABSI*
 - 12 adult ICUs (6 private, 6 public) submit data to HISWA
- Oncology CLABSI
 - Data from five oncology units (3 private, 2 public) submit data to HISWA
- Haematology CLABSI
 - Data from two haematology units (1 private, 1 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 (14 private, 34 public) submit data to HISWA
- Data is 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, 2017-18 (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 HAIU 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 HAIU 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.
- These data are not suitable for use as a performance measure or for benchmarking.
- 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 (14 private, 35 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 is 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.

© Department of Health 2019

Copyright to this material is vested in the State of Western Australia unless otherwise indicated. Apart from any fair dealing for the purposes of private study, research, criticism or review, as permitted under the provisions of the *Copyright Act 1968*, no part may be reproduced or re-used for any purposes whatsoever without written permission of the State of Western Australia.