Healthcare Infection Surveillance Western Australia (HISWA)

Quarterly Report

Quarter 4 2018-19

Data for April to June 2019

Healthcare Associated Infection Unit
Communicable Disease Control Directorate
27 August 2019
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Data Quality Statement
Date Extracted: 09/08/2019 Publication Date: 24/08/2019

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.

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

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HAIU News

IPACS
The IPACS project is tracking to schedule. The configuration workshops have been completed and were well attended by the IP&C staff from the IPACS Working Group. User Acceptance Testing (UAT) is continuing. The testing is twofold. First is testing the source data, by the source system experts from all the five interfaces to see if the ICNet data exactly matches the source data. Second is ICNet testing from a clinical perspective by the IP&C staff to see whether ICNet configuration rules are working to match their workflow. The HISWA team has been working with the project team to get the scenarios ready for testing by the pilot sites. The next exciting phase of the project, the pilot go live is only four weeks away. The user training for this event is being planned and schedule for middle of September.

HISWA Forum
The next forum is scheduled for 4 September 2019, 1500 – 1630 and will be held at 189 Royal St, East Perth, GB Function Room. 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.

Presentation: Dr Tom Gliddon, Infectious Disease Physician, (SCGH) will be presenting a complex case of S.aureus BSI associated with a PIVC.

HAIU Team
We welcome Claire Tinson, who has joined us for a 5 week period to cover Michelle while she is on holidays. Sadly for us, but exciting for her, Simone has accepted a six month secondment to work with the Data and Information Systems Unit, here at 189 Royal Street. This is a new role and a promotional position, so congratulations to Simone.

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. This enables us to meet our reporting requirements. If a data deadline is on the horizon when you are going to be on leave, let us know and you can finalise data early.

Report Highlights
- The SSI rate following both hip and knee arthroplasty decreased this Qtr.
- The SSI rate following elective caesarean section decreased for the 3rd consecutive Qtr, and the emergency rate also decreased following marked increases in previous 2 Qtrs.
- The HA-SAB rate decreased for the 2nd consecutive Qtr and decreased across all public hospital groups.
- The adult ICU CLABSI rate is consistently below the national benchmark.
- The MRSA HAI rate is consistently lower than our benchmark.

Report Concerns
- The majority (42%) of HA-SAB were attributed to intravascular devices.
Surgical site infection following hip arthroplasty

Key Points

- There were 1,339 procedures reported (1,222 primary; 117 revision).
- A total of nine SSI (four following revision procedure) were reported and all nine were deep / organ space infections. A further one SSI (superficial) following primary hip arthroplasty was identified by post-discharge surveillance and is not included in HISWA calculated rates.
- Eight SSI were detected on readmission to hospital and one during the initial admission.
- The total SSI rate following hip arthroplasty decreased to 0.67 infections per 100 procedures from 1.32 reported in Qtr 3 2018-19.
- The deep SSI hip rate decreased to 0.67 infections per 100 procedures from 1.23 reported in Qtr 3 2018-19 (table 3 and figure 3).

Table 1 Hip arthroplasty SSI rate, by risk index

<table>
<thead>
<tr>
<th>Risk Index</th>
<th>Number of contributing hospitals</th>
<th>Number of procedures</th>
<th>Number of SSI</th>
<th>Aggregate rate (95% CI)</th>
<th>Cumulative aggregate rate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk All *</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.00 [0.00 – 0.00]</td>
<td>0.84 [0.57 – 1.25]</td>
</tr>
<tr>
<td>Risk index 0</td>
<td>23</td>
<td>804</td>
<td>1</td>
<td>0.12 [0.00 – 0.79]</td>
<td>0.73 [0.64 - 0.84]</td>
</tr>
<tr>
<td>Risk index 1</td>
<td>22</td>
<td>471</td>
<td>7</td>
<td>1.49 [0.67 – 3.12]</td>
<td>1.76 [1.56 – 1.98]</td>
</tr>
<tr>
<td>Risk index 2</td>
<td>13</td>
<td>58</td>
<td>1</td>
<td>1.72 [0.00 – 10.18]</td>
<td>3.68 [2.91 – 4.64]</td>
</tr>
<tr>
<td>Risk index 3</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>0.00 [0.00 – 49.38]</td>
<td>5.79 [2.67 – 11.73]</td>
</tr>
<tr>
<td>Total hip arthroplasty</td>
<td>22</td>
<td>1,339(^3)</td>
<td>9</td>
<td>0.67 [0.34 – 1.30]</td>
<td>1.19 [1.10 – 1.30]</td>
</tr>
</tbody>
</table>

*Refer to Appendix 1- SSI Data Notes
\(^3\)Includes 1 procedure risk N/A

Figure 1 Hip arthroplasty SSI rate
Surgical site infection following knee arthroplasty

Key Points

- There were 1,873 procedures reported (1,720 primary; 153 revision).
- A total of nine SSI (four following revision procedure) were reported and seven were deep/organ space infections. A further one SSI (superficial) following primary hip arthroplasty was identified by post-discharge surveillance and is not included in HISWA calculated rates.
- All nine SSI were detected on readmission to hospital.
- The total SSI rate following knee arthroplasty decreased to 0.48 infections per 100 procedures from 0.81 reported in Qtr 3 2018-19.
- The deep SSI knee rate decreased to 0.37 per 100 procedures from 0.59 per 100 procedures reported in Qtr 3 2018-19 (table 3 and figure 4).

Table 2 Knee arthroplasty SSI rate, by risk index

<table>
<thead>
<tr>
<th>Risk Index</th>
<th>Number of contributing hospitals</th>
<th>Number of procedures</th>
<th>Number of SSI</th>
<th>Aggregate rate (95% CI)</th>
<th>Cumulative aggregate rate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk All *</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.00 [0.00 – 0.00]</td>
<td>1.42 [1.11 – 1.81]</td>
</tr>
<tr>
<td>Risk index 0</td>
<td>22</td>
<td>1,083</td>
<td>3</td>
<td>0.28 [0.06 – 0.86]</td>
<td>0.67 [0.59 – 0.75]</td>
</tr>
<tr>
<td>Risk index 1</td>
<td>21</td>
<td>650</td>
<td>4</td>
<td>0.62 [0.19 – 1.65]</td>
<td>1.11 [0.98 – 1.25]</td>
</tr>
<tr>
<td>Risk index 2</td>
<td>16</td>
<td>134</td>
<td>2</td>
<td>1.49 [0.10 – 5.70]</td>
<td>2.83 [2.32 – 3.46]</td>
</tr>
<tr>
<td>Risk index 3</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>0.00 [0.00 – 44.79]</td>
<td>7.80 [4.32 – 13.62]</td>
</tr>
<tr>
<td>Total knee arthroplasty</td>
<td>22</td>
<td>1,873</td>
<td>9</td>
<td>0.48 [0.24 – 0.93]</td>
<td>0.98 [0.91 – 1.05]</td>
</tr>
</tbody>
</table>

*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

<table>
<thead>
<tr>
<th></th>
<th>Number of superficial SSI</th>
<th>Number of deep SSI</th>
<th>Total number of SSI</th>
<th>Number of procedures</th>
<th>Aggregate superficial SSI rate (95%CI)</th>
<th>Aggregate deep SSI rate (95%CI)</th>
<th>Aggregate total SSI rate (95%CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip arthroplasty</td>
<td>0</td>
<td>9</td>
<td>9</td>
<td>1,339</td>
<td>0.00 [0.00 – 0.36]</td>
<td>0.67 [0.34 – 1.30]</td>
<td>0.67 [0.34 – 1.30]</td>
</tr>
<tr>
<td>Knee arthroplasty</td>
<td>2</td>
<td>7</td>
<td>9</td>
<td>1,873</td>
<td>0.11 [0.00 – 0.42]</td>
<td>0.37 [0.17 – 0.79]</td>
<td>0.48 [0.24 – 0.93]</td>
</tr>
<tr>
<td>Total arthroplasty</td>
<td>2</td>
<td>16</td>
<td>18</td>
<td>3,212</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

**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

- 2,554 caesarean section procedures were reported, of which 1,328 (52%) were emergency and 1,226 (48%) were elective procedures.
- A total of 18 SSIs were reported, two identified during initial admission and nine (50%) were detected on readmission to hospital. A further seven superficial SSI were detected post-discharge and are not included in HISWA calculated rates.
- 13 (72%) SSIs reported were superficial infections.
- 12 (67%) SSIs reported were following emergency procedures and included five deep SSIs.
- The inpatient SSI rate (includes readmissions and excludes post-discharge) decreased to 0.43 infections per 100 procedures from 0.86 reported in Qtr 3 2018-19.
- The inpatient emergency procedure SSI rate decreased to 0.64 infections per 100 procedures from 1.34 reported in Qtr 3 2018-19.

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

<table>
<thead>
<tr>
<th>Risk index</th>
<th>Number of contributing hospitals</th>
<th>Number of procedure</th>
<th>Number of superficial SSI</th>
<th>Number of deep SSI</th>
<th>Total number of SSI</th>
<th>Total aggregate rate (95% CI)</th>
<th>Cumulative aggregate rate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All *</td>
<td>6</td>
<td>61</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.00 [0.00 – 7.28]</td>
<td>0.74 [0.60 – 0.92]</td>
</tr>
<tr>
<td>0</td>
<td>19</td>
<td>1,350</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.07 [0.00 – 0.47]</td>
<td>0.32 [0.27 – 0.39]</td>
</tr>
<tr>
<td>1</td>
<td>17</td>
<td>839</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0.24 [0.01 – 0.94]</td>
<td>0.83 [0.71 – 0.97]</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>265</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>3.02 [1.46 – 5.98]</td>
<td>1.98 [1.59 – 2.47]</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>39</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.00 [0.00 – 10.95]</td>
<td>1.42 [0.44 – 3.76]</td>
</tr>
<tr>
<td>Inpatient</td>
<td>25</td>
<td>2,554</td>
<td>6</td>
<td>5</td>
<td>11</td>
<td>0.43 [0.23 – 0.78]</td>
<td>0.63 [0.57 – 0.69]</td>
</tr>
<tr>
<td>Post-</td>
<td>NA</td>
<td>2,554</td>
<td>7</td>
<td>0</td>
<td>7</td>
<td>0.27* [0.12 – 0.58]</td>
<td>0.28* [0.24 – 0.32]</td>
</tr>
<tr>
<td>Total SSI*</td>
<td>25</td>
<td>2,554</td>
<td>13</td>
<td>5</td>
<td>18</td>
<td>0.70* [0.44 – 1.12]</td>
<td>0.91* [0.84 – 0.99]</td>
</tr>
</tbody>
</table>

* These rates are not to be used for benchmarking purposes.
Figure 5 Caesarean section SSI rates by deep and superficial (inpatient only)

Figure 6 Caesarean section SSI rates (inpatient only) by elective and emergency procedures
Healthcare associated *Staphylococcus aureus* bloodstream infection

**Key Points**

- The total HA-SABSI rate decreased to 0.54 infections per 10,000 bed-days from 0.74 reported in Qtr 3 2018-19, and is below the comparator rate of 0.73.
- The MSSA HA-SABSI rate decreased to 0.44 infections per 10,000 bed-days from 0.63 reported in Qtr 3 2018-19 and is below the comparator rate of 0.60.
- The MRSA HA-SABSI rate of 0.11 infections per 10,000 bed-days is comparable to the rate reported in Qtr 3 2018-19 and is above the comparator rate of 0.03.
- Of the 36 HA-SABSI reported, 15 (42%) were attributable to IVDs. A further nine (25%) were related to procedures. The IVD SABSI rate decreased to 0.23 infections per 10,000 bed-days from 0.44 reported in Qtr 3 2018-19 (figure 10).
- HA-SABSI rates increased for the private hospital group this Qtr (figure 9).

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

<table>
<thead>
<tr>
<th></th>
<th>Number of contributing hospitals</th>
<th>Number of bed-days</th>
<th>Number of HA-SABSI</th>
<th>Aggregate rate (95% CI)</th>
<th>Cumulative aggregate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total methicillin-sensitive <em>Staphylococcus aureus</em> (MSSA) bloodstream infection</td>
<td>49</td>
<td>663,514</td>
<td>29</td>
<td>0.44 [0.30 – 0.63]</td>
<td>0.56 [0.54 – 0.59]</td>
</tr>
<tr>
<td>Total methicillin-resistant <em>Staphylococcus aureus</em> (MRSA) bloodstream infection</td>
<td>49</td>
<td>663,514</td>
<td>7</td>
<td>0.11 [0.05 – 0.22]</td>
<td>0.12 [0.11 – 0.13]</td>
</tr>
<tr>
<td>Total <em>Staphylococcus aureus</em> bloodstream infection</td>
<td>49</td>
<td>663,514</td>
<td>36</td>
<td>0.54 [0.39- 0.75]</td>
<td>0.68 [0.65 – 0.71]</td>
</tr>
</tbody>
</table>

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

![Graph showing HA-SABSI rates](image-url)
Figure 8 Number of HA-SABSI, by attributable source

- Unknown/disseminated, 4, 11%
- IV-line related, 15, 42%
- Procedure related, 9, 25%
- Non-IV device related, 2, 6%
- Other (organ site focus), 4, 11%
- Neutropenia, 2, 5%

Figure 9 HA-SABSI rates, by hospital group

[Graph showing the number of infections per 10,000 bed days from 2008-2019, categorized by hospital group and type of SABSI.]
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 two cuffed catheter and one AVF access-associated BSIs reported.
☐ The cuffed catheter (CC) BSI rate decreased to 0.26 infections per 100 patient-months from 0.85 in Qtr 3, 2018-19.
☐ The AVF BSI rate was comparable at 0.04 infections per 100 patient-months to Qtr 3, 2018-19.

Table 6 HD-BSI rate, by type of access updated

<table>
<thead>
<tr>
<th>Type of access</th>
<th>Number of contributing units</th>
<th>Aggregate utilisation ratio (%)</th>
<th>Number of BSI</th>
<th>Number of patient months</th>
<th>Aggregate rate. (95% CI)</th>
<th>Cumulative aggregate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVF</td>
<td>24</td>
<td>75.59</td>
<td>1</td>
<td>2,703</td>
<td>0.04 [0.00 – 0.24]</td>
<td>0.07 [0.05 – 0.08]</td>
</tr>
<tr>
<td>AVG</td>
<td>24</td>
<td>2.57</td>
<td>0</td>
<td>92</td>
<td>0.00 [0.00 – 4.94]</td>
<td>0.49 [0.32 – 0.75]</td>
</tr>
<tr>
<td>Cuffed catheter (CC)</td>
<td>24</td>
<td>21.34</td>
<td>2</td>
<td>763</td>
<td>0.26 [0.01 – 1.03]</td>
<td>1.45 [1.32 – 1.59]</td>
</tr>
<tr>
<td>Non-cuffed catheter</td>
<td>24</td>
<td>&lt;1</td>
<td>0</td>
<td>18</td>
<td>0.00 [0.00 – 21.10]</td>
<td>0.98 [0.49 – 1.90]</td>
</tr>
</tbody>
</table>

Figure 12  AVF and cuffed catheter BSI rate
Central line-associated bloodstream infection

Key Points

- Two adult ICU CLABSI were reported and the rate decreased to 0.30 infections per 1,000 line days from 0.82 reported in Qtr 3, 2018-19.
- The majority (80%) of central lines utilised in adult ICUs were centrally-inserted.
- Two haematology CLABSI were reported and the rate increased to 0.50 infections per 1,000 line days from 0.42 reported in Qtr 3, 2018-19.
- Three oncology CLABSI was reported and the rate increased to 0.05 infections per 1,000 line days from 0.02 reported in Qtr 3, 2018-19.

Table 7 Adult ICU CLABSI

<table>
<thead>
<tr>
<th></th>
<th>Number of contributing hospitals</th>
<th>Number of line days</th>
<th>Number of CLABSI</th>
<th>Aggregate rate (95% CI)</th>
<th>Cumulative aggregate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU peripherally inserted CLABSI</td>
<td>12</td>
<td>1,331</td>
<td>0</td>
<td>0.00 [0.00 – 3.57]</td>
<td>0.60 [0.34 – 1.04]</td>
</tr>
<tr>
<td>ICU centrally inserted CLABSI</td>
<td>12</td>
<td>5,255</td>
<td>2</td>
<td>0.38 [0.02 – 1.51]</td>
<td>0.60 [0.51 – 0.72]</td>
</tr>
<tr>
<td>Total ICU CLABSI</td>
<td>12</td>
<td>6,586</td>
<td>2</td>
<td>0.30 [0.01 – 1.20]</td>
<td>0.60 [0.51 – 0.71]</td>
</tr>
</tbody>
</table>

Table 8 Adult ICU central line utilisation ratio (CLUR)

<table>
<thead>
<tr>
<th></th>
<th>Number of contributing hospitals</th>
<th>Number of line days</th>
<th>Number of bed-days</th>
<th>Tertiary Aggregate CLUR (%)</th>
<th>Total Aggregate CLUR (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult ICU peripherally inserted CLUR</td>
<td>12</td>
<td>1,331</td>
<td>11,627</td>
<td>19</td>
<td>11.45</td>
</tr>
<tr>
<td>Adult ICU centrally inserted CLUR</td>
<td>12</td>
<td>5,255</td>
<td>11,627</td>
<td>71</td>
<td>45.20</td>
</tr>
</tbody>
</table>

Table 9 Haematology Unit CLABSI

<table>
<thead>
<tr>
<th></th>
<th>Number of contributing hospitals</th>
<th>Number of line days</th>
<th>Number of CLABSI</th>
<th>Aggregate rate (95% CI)</th>
<th>Cumulative aggregate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haematology peripherally inserted CLABSI</td>
<td>2</td>
<td>2,535</td>
<td>1</td>
<td>0.39 [0.00 – 2.52]</td>
<td>1.08 [0.92 – 1.28]</td>
</tr>
<tr>
<td>Haematology centrally inserted CLABSI</td>
<td>2</td>
<td>1,505</td>
<td>1</td>
<td>0.66 [0.00 – 4.24]</td>
<td>2.09 [1.76 – 2.49]</td>
</tr>
<tr>
<td>Total haematology CLABSI</td>
<td>2</td>
<td>4,040</td>
<td>2</td>
<td>0.50 [0.02 – 1.96]</td>
<td>1.41 [1.25 – 1.59]</td>
</tr>
</tbody>
</table>

Table 10 Oncology Unit CLABSI

<table>
<thead>
<tr>
<th></th>
<th>Number of contributing hospitals</th>
<th>Number of line days</th>
<th>Number of CLABSI</th>
<th>Aggregate rate (95% CI)</th>
<th>Cumulative aggregate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oncology peripherally inserted CLABSI</td>
<td>5</td>
<td>10,687</td>
<td>2</td>
<td>0.19 [0.01 – 0.74]</td>
<td>0.11 [0.08 – 0.15]</td>
</tr>
<tr>
<td>Oncology centrally inserted CLABSI</td>
<td>5</td>
<td>48,894</td>
<td>1</td>
<td>0.02 [0.00 – 0.13]</td>
<td>0.02 [0.01 – 0.04]</td>
</tr>
<tr>
<td>Total oncology CLABSI</td>
<td>5</td>
<td>59,581</td>
<td>3</td>
<td>0.05 [0.01 – 0.16]</td>
<td>0.05 [0.04 – 0.06]</td>
</tr>
</tbody>
</table>

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**

- The total MRSA HAI rate decreased to 0.76 infections per 10,000 bed-days from 0.92 reported in Qtr 3, 2018-19 and is below the comparator rate of 0.96.
- 43 of the 45 MRSA HAIs reported were identified from the inpatient setting (4 ICU and 39 non-ICU).
- 22 (49%) patients were known to have prior MRSA colonisation.
- Of the 45 MRSA HAIs, 23 (51%) were related to surgical wounds and a further 7 (16%) were BSIs.
- The majority (67%) 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)**

<table>
<thead>
<tr>
<th></th>
<th>Number of contributing hospitals</th>
<th>Number of MRSA HAI</th>
<th>Number of bed-days</th>
<th>Aggregate rate (95% CI)</th>
<th>Cumulative aggregate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRSA ICU sterile site</td>
<td>12</td>
<td>1</td>
<td>21,044</td>
<td>0.48 [0.00 – 3.04]</td>
<td>0.35 [0.25 – 0.49]</td>
</tr>
<tr>
<td>MRSA ICU non-sterile site</td>
<td>12</td>
<td>3</td>
<td>21,044</td>
<td>1.43 [0.29 – 4.46]</td>
<td>1.46 [1.24 – 1.73]</td>
</tr>
<tr>
<td>MRSA Non-ICU sterile site</td>
<td>48</td>
<td>12</td>
<td>433,193</td>
<td>0.28 [0.15 – 0.49]</td>
<td>0.24 [0.22 – 0.26]</td>
</tr>
<tr>
<td>MRSA Non-ICU non-sterile site</td>
<td>48</td>
<td>27</td>
<td>433,193</td>
<td>0.62 [0.43 – 0.91]</td>
<td>0.65 [0.62 – 0.68]</td>
</tr>
<tr>
<td>Total inpatient MRSA HAI</td>
<td>48</td>
<td>43</td>
<td>454,237</td>
<td>0.95 [0.70 – 1.28]</td>
<td>0.93 [0.89 – 0.97]</td>
</tr>
<tr>
<td>MRSA HAI non-inpatient</td>
<td>48</td>
<td>2</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Total MRSA healthcare associated infection</td>
<td>48</td>
<td>45</td>
<td>593,898</td>
<td>0.76† [0.57 – 1.02]</td>
<td>0.82 [0.78 – 0.85]</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th></th>
<th>Micro-B PVL negative MRSA</th>
<th>Micro-B PVL positive MRSA</th>
<th>Micro-C MRSA</th>
<th>No typing available</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU sterile</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>ICU non-sterile</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Non ICU Sterile</td>
<td>8</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Non ICU non-sterile</td>
<td>17</td>
<td>3</td>
<td>7</td>
<td>0</td>
<td>27</td>
</tr>
<tr>
<td>Non-inpatient sterile</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Non-inpatient non-sterile</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Proportion</td>
<td>67%</td>
<td>15.5%</td>
<td>15.5%</td>
<td>2%</td>
<td>100%</td>
</tr>
<tr>
<td>Strain</td>
<td>Not characterised</td>
<td>Old clone (6), WA 121 (1)</td>
<td>UK 15 (7)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30</td>
<td>7</td>
<td>7</td>
<td>1</td>
<td>45</td>
</tr>
</tbody>
</table>
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 *Clostridium difficile* infection

**Key Points**

- The HISWA aggregate HI-CDI rate decreased to 4.94 infections per 10,000 bed-days from 5.18 reported in Qtr 3 2018-19.
- There was a decrease in the rate reported from metro tertiary, metro non-tertiary and WACHS hospital groups. The private hospital group reported a rate increase.
- The majority (45%) of HI-CDI were reported from the tertiary hospitals.

**Table 13 HI-CDI rates, by hospital group**

<table>
<thead>
<tr>
<th>Hospital Group</th>
<th>Number of contributing hospitals</th>
<th>Number of HI-CDI</th>
<th>Number of bed-days</th>
<th>Aggregate rate (95% CI)</th>
<th>Cumulative aggregate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metropolitan non-tertiary</td>
<td>8</td>
<td>31</td>
<td>108,766</td>
<td>2.85 [2.00 – 4.07]</td>
<td>2.98 [2.80 – 3.16]</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>49</strong></td>
<td><strong>315</strong></td>
<td><strong>637,163</strong></td>
<td><strong>4.94 [4.43 – 5.52]</strong></td>
<td><strong>4.00 [3.92 – 4.09]</strong></td>
</tr>
</tbody>
</table>

**Figure 18 HI-CDI rates, by hospital group**
Vancomycin-resistant enterococci sterile-site infections

Key Points

☐ Three VRE sterile site infections were reported this quarter. Two of these were isolated from blood culture samples, and the other was a peritoneal infection. One bloodstream infection and the peritoneal infection were classified as CAI, and the other bloodstream infection was HAI.

☐ The HAI bloodstream infection and the CAI peritoneal infection were Enterococcus faecium Van A. The CAI bloodstream infection was Enterococcus faecium Van B.

☐ Both patients with Enterococcus faecium Van A had known VRE colonisation prior to onset of infection.

☐ Refer to Data Notes for information on categorisation of sterile specimen sites.

Figure 19 Number of VRE, by sterile body sites

Carbapenemase-producing Enterobacteriacea

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, six patients were confirmed with a CPE, of which three carried an IMP-4, two a NDM-1, and one an OXA-48.

☐ Of the patients identified with a non-IMP type CPE, two had recently returned from overseas and the other had contact with family members that had travelled overseas.
Occupational exposures

Key Points

☐ The total occupational exposure rate increased to 5.12 exposures per 10,000 bed-days from 5.02 reported in Qtr 3, 2018-19.
☐ The parenteral rate increased to 3.87 exposures per 10,000 bed-days from 3.59 in Qtr 3, 2018-19.
☐ The non-parenteral rate decreased to 1.25 exposures per 10,000 bed-days from 1.43 in Qtr 3, 2018-19.
☐ The majority of parenteral exposures were reported by doctors (47%) and the majority of non-parenteral exposures were reported by nurses (73%).

Table 14 Occupational exposures, by parenteral and non-parenteral

<table>
<thead>
<tr>
<th>Exposure Type</th>
<th>Number of contributing hospitals</th>
<th>Number of Exposures this Qtr</th>
<th>Number of bed-days</th>
<th>Aggregate rate (95% CI)</th>
<th>Cumulative aggregate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Parenteral</td>
<td>49</td>
<td>83</td>
<td>664,488</td>
<td>1.25 [1.01 – 1.55]</td>
<td>1.45 [1.41 – 1.50]</td>
</tr>
</tbody>
</table>

Figure 20 Occupational exposure rate per 10,000 bed-days, by parenteral and non-parenteral
Figure 21 Parenteral occupational exposures, by HCW category

- Doctor: 121, 47%
- Nurse: 115, 45%
- Other: 2, 1%
- Patient Support Services: 15, 6%
- Allied health: 3, 1%
- Environmental Services: 1, 0%

Figure 22 Non-parenteral occupational exposures, by HCW category

- Doctor: 15, 18%
- Nurse: 60, 73%
- Other: 5, 6%
- Patient Support Services: 1, 1%
- Allied health: 1, 1%
- Environmental Services: 1, 1%
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).*
- 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 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.

**Haemodialysis**

- 23 haemodyalisis 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 HAI

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 Clostridium 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.