Healthcare Infection Surveillance Western Australia (HISWA)

Quarterly Report

Quarter 3 2018-19
Data for January to March 2019

Healthcare Associated Infection Unit
Communicable Disease Control Directorate
24 May 2019
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Data Quality Statement

Date Extracted: 16/05/2019 Publication Date: 24/05/2019

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

2018-19
No data issues.

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

All surveillance enquiries

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HAIU News

IPACS
The IPACS project is tracking to schedule with a revised plan of three weeks delay of pilot go live with an overall on track project schedule. Work on the technical aspects of the system is continuing with input from IP&C staff from the IPACS Working Group. The next exciting phase of the project is the configuration and testing of ICNet in the development environment. These workshops are scheduled for July and August 2019. The pilot sites; Royal Perth Hospital and Bunbury Hospital have commenced their preparation for the pilot go live in Sept 2019. The second phase of the project - deployment of ICNet to the Metro sites will start in March and continue till May 2020. The regional ICNet deployment will commence in June 2020.

HISWA Forum
The next forum is scheduled for 5th June, 1500 – 1630 and will be at our new venue at 189 Royal St, East Perth, 3C 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.

Presentations: Tara McRaith (JHC) implementation of PIVC policy and engagement with Anaesthetic Department. Ann Whitfield (FSH) Highlights from the AVAS Conference.

HISWA Education Workshop
Two full day HISWA Education Workshops were held on 30th April and 20th May. Both days were extremely well attended and it was great to meet many new faces and renew acquaintances from as far north as the Kimberley and as far south as Albany and all points in between. It was a great opportunity for networking and brushing up on surveillance skills. Definitely a success and will become a regular fixture on the HISWA calendar.

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.

Report Highlights
□ The SSI rate following knee arthroplasty decreased for the 2nd consecutive Qtr.
□ There were only two VRE sterile-site infections reported and only one was a HAI.
□ A downward trend over time is demonstrated for occupational exposures and is evident for both parenteral and non-parenteral exposures.

Report Concerns
□ SSI rates following hip arthroplasty increased for the 2nd consecutive Qtr. There were 14 SSI reported, and the majority (13) were deep / organ space infections. Eight SSI were following revision procedures and seven of these SSI were deep/organ space infections.
□ SSI rates following caesarean section increased for the 3rd consecutive Qtr and this was again driven by superficial SSIs following emergency procedures.
□ The IVD attributable HA-SABSI rate increased for the 2nd consecutive Qtr and they represent 61% of all HA-SABSI reported this Qtr.
Surgical site infection following hip arthroplasty

Key Points

- There were 1,214 procedures reported (1,110 primary; 104 revision).
- A total of 14 SSI (eight following revision procedure) were reported and 13 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.
- 13 SSI were detected on readmission to hospital and one during the initial admission.
- The total SSI rate following hip arthroplasty increased to 1.15 infections per 100 procedures from 1.08 reported in Qtr 2 2018-19.
- The deep SSI hip rate increased to 1.07 infections per 100 procedures from 0.85 reported in Qtr 2 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>686</td>
<td>3</td>
<td>0.44 [0.09 – 1.36]</td>
<td>0.75 [0.65 - 0.86]</td>
</tr>
<tr>
<td>Risk index 1</td>
<td>22</td>
<td>460</td>
<td>7</td>
<td>1.52 [0.68 – 3.19]</td>
<td>1.76 [1.56 – 1.99]</td>
</tr>
<tr>
<td>Risk index 3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0.00 [0.00 – 82.94]</td>
<td>6.03 [2.79 – 12.21]</td>
</tr>
<tr>
<td>Total hip arthroplasty</td>
<td>22</td>
<td>1,214</td>
<td>14</td>
<td>1.15 [0.67 – 1.95]</td>
<td>1.20 [1.11 – 1.31]</td>
</tr>
</tbody>
</table>

*Refer to Appendix 1- SSI Data Notes

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

Key Points

- There were 1,849 procedures reported (1,681 primary; 168 revision).
- A total of 12 SSI (10 following primary arthroplasty) were reported and eight were deep/organ space infections.
- All 12 SSI were detected on readmission to hospital.
- The total SSI rate following knee arthroplasty decreased to 0.65 infections per 100 procedures from 0.71 reported in Qtr 2 2018-19.
- The deep SSI knee rate increased to 0.43 per 100 procedures from 0.38 per 100 procedures (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>1,031</td>
<td>7</td>
<td>0.68 [0.30 – 1.44]</td>
<td>0.68 [0.60 – 0.76]</td>
</tr>
<tr>
<td>Risk index 1</td>
<td>21</td>
<td>693</td>
<td>3</td>
<td>0.43 [0.09 – 1.34]</td>
<td>1.12 [0.99 – 1.26]</td>
</tr>
<tr>
<td>Risk index 2</td>
<td>16</td>
<td>123</td>
<td>2</td>
<td>1.63 [0.11 – 6.19]</td>
<td>2.86 [2.33 – 3.50]</td>
</tr>
<tr>
<td>Risk index 3</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0.00 [0.00 – 71.05]</td>
<td>8.51 [4.51 – 14.19]</td>
</tr>
<tr>
<td>Total knee arthroplasty</td>
<td>22</td>
<td>1,849</td>
<td>12</td>
<td>0.65 [0.36 – 1.15]</td>
<td>0.99 [0.92 – 1.06]</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>1</td>
<td>13</td>
<td>14</td>
<td>1,214</td>
<td>0.08 [0.00 – 0.52]</td>
<td>1.07 [0.61 – 1.85]</td>
<td>1.15 [0.67 – 1.95]</td>
</tr>
<tr>
<td>Knee arthroplasty</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>1,849</td>
<td>0.22 [0.07 – 0.58]</td>
<td>0.43 [0.21 – 0.87]</td>
<td>0.65 [0.36 – 1.15]</td>
</tr>
<tr>
<td>Total arthroplasty</td>
<td>5</td>
<td>21</td>
<td>26</td>
<td>3,063</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

- 2,443 caesarean section procedures were reported, of which 1,269 (52%) were emergency and 1,174 (48%) were elective procedures.
- A total of 20 SSIs were reported, two identified during initial admission and 18 (90%) were detected on readmission to hospital. A further five superficial SSI were detected post-discharge and are not included in HISWA calculated rates.
- 16 (80%) SSIs reported were superficial infections.
- 16 (80%) SSIs reported were following emergency procedures and included three deep SSIs.
- The inpatient SSI rate (includes readmissions and excludes post-discharge) increased to 0.82 infections per 100 procedures from 0.78 reported in Qtr 2 2018-19.
- The emergency procedure SSI rate increased to 1.26 infections per 100 procedures from 1.02 reported in Qtr 2 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>59</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1.69 [0.00 – 10.02]</td>
<td>0.74 [0.60 – 0.92]</td>
</tr>
<tr>
<td>Risk Index 0</td>
<td>19</td>
<td>1,327</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0.23 [0.05 – 0.70]</td>
<td>0.33 [0.27 – 0.40]</td>
</tr>
<tr>
<td>Risk Index 1</td>
<td>17</td>
<td>823</td>
<td>5</td>
<td>4</td>
<td>9</td>
<td>1.09 [0.55 – 2.11]</td>
<td>0.85 [0.73 – 1.00]</td>
</tr>
<tr>
<td>Risk Index 2</td>
<td>13</td>
<td>221</td>
<td>7</td>
<td>0</td>
<td>7</td>
<td>3.17 [1.44 – 6.56]</td>
<td>1.91 [1.52 – 2.41]</td>
</tr>
<tr>
<td>Risk Index 3</td>
<td>3</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.00 [0.00 – 27.08]</td>
<td>1.65 [0.51 – 4.35]</td>
</tr>
<tr>
<td>Inpatient Total</td>
<td>25</td>
<td>2,443</td>
<td>16</td>
<td>4</td>
<td>20</td>
<td>0.82 [0.53 – 1.27]</td>
<td>0.64 [0.58 – 0.70]</td>
</tr>
<tr>
<td>Post-discharge</td>
<td>NA</td>
<td>2,443</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>0.20* [0.07 – 0.50]</td>
<td>0.28* [0.24 - 0.32]</td>
</tr>
<tr>
<td>Total SSI*</td>
<td>25</td>
<td>2,443</td>
<td>17</td>
<td>8</td>
<td>25</td>
<td>1.02* [0.69 – 1.52]</td>
<td>0.92* [0.85 – 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 0.76 infections per 10,000 bed-days from 0.89 reported in Qtr 2 2018-19, and is above the comparator rate of 0.73.
- The MSSA HA-SABSI rate decreased to 0.65 infections per 10,000 bed-days from 0.73 reported in Qtr 2 2018-19 and is above the comparator rate of 0.60.
- The MRSA HA-SABSI rate decreased to 0.11 infections per 10,000 bed-days from 0.18 reported in Qtr 2 2018-19 and is above the comparator rate of 0.03.
- Of the 48 HA-SABSI reported, 29 (61%) were attributable to IVDs. A further 9 (19%) were related to procedures. The IVD SABSI rate increased to 0.46 infections per 10,000 bed-days from 0.41 reported in Qtr 2 2018-19 (figure 10).
- HA-SABSI rates increased for tertiary and metro non-tertiary hospital groups 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>634,293</td>
<td>41</td>
<td>0.65 [0.48 – 0.88]</td>
<td>0.57 [0.54 – 0.59]</td>
</tr>
<tr>
<td>Total methicillin-resistant <em>Staphylococcus aureus</em> (MRSA) bloodstream infection</td>
<td>49</td>
<td>634,293</td>
<td>7</td>
<td>0.11 [0.05 – 0.23]</td>
<td>0.12 [0.11 – 0.13]</td>
</tr>
<tr>
<td>Total <em>Staphylococcus aureus</em> bloodstream infection</td>
<td>49</td>
<td>634,293</td>
<td>48</td>
<td>0.76 [0.57- 1.01]</td>
<td>0.69 [0.66 – 0.72]</td>
</tr>
</tbody>
</table>

### 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 (74%) of patients received haemodialysis via an AVF.
- There were six cuffed catheter and one AVF access-associated BSIs reported.
- The cuffed catheter (CC) BSI rate increased to 0.73 infections per 100 patient-months from 0.50 in Qtr 2, 2018-19.
- The AVF BSI rate was comparable at 0.04 infections per 100 patient-months to Qtr 2, 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>73.63</td>
<td>1</td>
<td>2,778</td>
<td>0.04 [0.00 – 0.23]</td>
<td>0.07 [0.05 – 0.09]</td>
</tr>
<tr>
<td>AVG</td>
<td>24</td>
<td>4.11</td>
<td>0</td>
<td>155</td>
<td>0.00 [0.00 – 2.99]</td>
<td>0.49 [0.32 – 0.76]</td>
</tr>
<tr>
<td>Cuffed catheter (CC)</td>
<td>24</td>
<td>21.84</td>
<td>6</td>
<td>824</td>
<td>0.73 [0.30 – 1.63]</td>
<td>1.48 [1.35 – 1.62]</td>
</tr>
<tr>
<td>Non-cuffed catheter</td>
<td>24</td>
<td>&lt;1</td>
<td>0</td>
<td>16</td>
<td>0.00 [0.00 – 23.15]</td>
<td>1.01 [0.51 – 1.94]</td>
</tr>
</tbody>
</table>

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

Key Points
☐ Five adult ICU CLABSI were reported and the rate increased to 0.82 infections per 1,000 line days from 0.29 reported in Qtr 2, 2018-19.
☐ The majority (78%) of central lines utilised in adult ICUs were centrally-inserted.
☐ Two haematology CLABSI were reported and the rate decreased to 0.42 infections per 1,000 line days from 0.60 reported in Qtr 2, 2018-19.
☐ One oncology CLABSI was reported and the rate decreased to 0.02 infections per 1,000 line days from 0.04 reported in Qtr 2, 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>1,359</td>
<td>2</td>
<td>1.47 [0.06 – 5.81]</td>
<td>0.63 [0.36 – 1.10]</td>
</tr>
<tr>
<td>ICU centrally inserted CLABSI</td>
<td>12</td>
<td>4,719</td>
<td>3</td>
<td>0.64 [0.13 – 1.99]</td>
<td>0.61 [0.51 – 0.72]</td>
</tr>
<tr>
<td>Total ICU CLABSI</td>
<td>12</td>
<td>6,078</td>
<td>5</td>
<td>0.82 [0.30 – 2.00]</td>
<td>0.61 [0.52 – 0.72]</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>1,359</td>
<td>10,959</td>
<td>21</td>
<td>12.40</td>
</tr>
<tr>
<td>Adult ICU centrally inserted CLUR</td>
<td>12</td>
<td>4,719</td>
<td>10,959</td>
<td>67</td>
<td>43.06</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>3,089</td>
<td>0</td>
<td>0.00 [0.00 – 1.54]</td>
<td>1.13 [0.96 – 1.34]</td>
</tr>
<tr>
<td>Haematology centrally inserted CLABSI</td>
<td>2</td>
<td>1,658</td>
<td>2</td>
<td>0.21 [0.05 – 4.76]</td>
<td>2.13 [1.79 – 2.53]</td>
</tr>
<tr>
<td>Total haematology CLABSI</td>
<td>2</td>
<td>4,747</td>
<td>2</td>
<td>0.42 [0.02 – 1.67]</td>
<td>1.43 [1.27 – 1.61]</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>10,004</td>
<td>1</td>
<td>0.10 [0.00 – 0.64]</td>
<td>0.11 [0.08 – 0.15]</td>
</tr>
<tr>
<td>Oncology centrally inserted CLABSI</td>
<td>5</td>
<td>45,903</td>
<td>0</td>
<td>0.00 [0.00 – 0.10]</td>
<td>0.02 [0.01 – 0.04]</td>
</tr>
<tr>
<td>Total oncology CLABSI</td>
<td>5</td>
<td>55,907</td>
<td>1</td>
<td>0.02 [0.00 – 0.11]</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 \textit{Staphylococcus aureus} healthcare associated infection

Key Points

- The total MRSA HAI rate increased to 0.92 infections per 10,000 bed-days from 0.90 reported in Qtr 2, 2018-19 and is above the comparator rate of 0.88.
- 50 of the 52 MRSA HAIs reported were identified from the inpatient setting (6 ICU and 44 non-ICU).
- 22 (42\%) patients were known to have prior MRSA colonisation.
- Of the 52 MRSA HAIs, 23 (44\%) were related to surgical wounds and a further 7 (13\%) were BSIs.
- The majority (62\%) 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>0</td>
<td>19,832</td>
<td>0.00 [0.00 – 2.41]</td>
<td>0.35 [0.24 – 0.49]</td>
</tr>
<tr>
<td>MRSA ICU non-sterile site</td>
<td>12</td>
<td>6</td>
<td>19,832</td>
<td>3.03 [1.24 – 6.83]</td>
<td>1.46 [1.24 – 1.73]</td>
</tr>
<tr>
<td>MRSA Non-ICU sterile site</td>
<td>48</td>
<td>17</td>
<td>409,273</td>
<td>0.42 [0.26 – 0.67]</td>
<td>0.24 [0.22 – 0.26]</td>
</tr>
<tr>
<td>MRSA Non-ICU non-sterile</td>
<td>48</td>
<td>27</td>
<td>409,273</td>
<td>0.66 [0.45 – 0.97]</td>
<td>0.65 [0.62 – 0.68]</td>
</tr>
<tr>
<td>Total inpatient MRSA HAI</td>
<td>48</td>
<td>50</td>
<td>429,105</td>
<td>1.17 [0.88 – 1.54]</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>52</td>
<td>562,804</td>
<td>0.92[^2] [0.70 – 1.22]</td>
<td>0.82 [0.78 – 0.85]</td>
</tr>
</tbody>
</table>

\[^2\] 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>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU sterile</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ICU non-sterile</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Non ICU Sterile</td>
<td>10</td>
<td>1</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Non ICU non-sterile</td>
<td>14</td>
<td>6</td>
<td>7</td>
<td>27</td>
</tr>
<tr>
<td>Non-inpatient sterile</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Non-inpatient non-sterile</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Proportion</td>
<td>62%</td>
<td>13%</td>
<td>25%</td>
<td>100%</td>
</tr>
<tr>
<td>Strain</td>
<td>Not characterised</td>
<td>Qld clone (5), WSPP (2)</td>
<td>UK 15 (12), Bengal Bay (1)</td>
<td>NA</td>
</tr>
<tr>
<td>TOTAL</td>
<td>32</td>
<td>7</td>
<td>13</td>
<td>52</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 5.16 infections per 10,000 bed-days from 5.36 reported in Qtr 2 2018-19.
- There was an increase in the rate reported from metro non-tertiary and WACHS hospital groups. Metro tertiary and private hospital group reported a rate decrease.
- 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>38</td>
<td>105,490</td>
<td>3.60 [2.62 – 4.97]</td>
<td>2.98 [2.81 – 3.17]</td>
</tr>
<tr>
<td>Private</td>
<td>15</td>
<td>93</td>
<td>259,031</td>
<td>3.59 [2.93 – 4.40]</td>
<td>2.31 [2.21 – 2.42]</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>315</td>
<td>610,093</td>
<td>5.16 [4.62 – 5.77]</td>
<td>4.00 [3.92 – 4.09]</td>
</tr>
</tbody>
</table>

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

Key Points

☐ Two VRE sterile site infections were reported this quarter. One of these was isolated from a blood culture sample, and the other was a bone/joint infection. The bloodstream infection was classified as CAI, and the other was HAI.
☐ Both isolates were Enterococcus faecium Van B.
☐ Both patients 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 four carried an IMP-4, and two carried a NDM-1.
☐ Of the patients identified with an NDM, one patient had recently returned from Myanmar with a diarrhoeal illness, and one patient had presented to his GP for a routine medical.
**Occupational exposures**

**Key Points**

- The total occupational exposure rate increased to 5.02 exposures per 10,000 bed-days from 4.80 reported in Qtr 2, 2018-19.
- The parenteral rate decreased to 3.59 exposures per 10,000 bed-days from 3.75 in Qtr 2, 2018-19.
- The non-parenteral rate increased to 1.43 exposures per 10,000 bed-days from 1.04 in Qtr 2, 2018-19.
- The majority of parenteral exposures were reported by doctors (49%) and the majority of non-parenteral exposures were reported by nurses (74%).

**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>91</td>
<td>635,237</td>
<td>1.43 [1.17 – 1.76]</td>
<td>1.46 [1.41 – 1.50]</td>
</tr>
<tr>
<td>Total Exposures</td>
<td>49</td>
<td>319</td>
<td>635,237</td>
<td>5.02 [4.50 – 5.61]</td>
<td>5.63 [5.54 – 5.72]</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, 112, 49%
- Environmental Services, 5, 2%
- Nurse, 90, 40%
- Other, 1, 0%
- Patient Support Services, 10, 8%
- Allied health, 1, 1%

Figure 22 Non-parenteral occupational exposures, by HCW category

- Doctor, 11, 12%
- Nurse, 67, 74%
- Other, 7, 8%
- Patient Support Services, 5, 5%
- Allied health, 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.
  https://www.nationalarchives.gov.uk/doc/open-government-licence/version/2/)
- 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*
  o 12 adult ICUs (6 private, 6 public) submit data to HISWA
☐ Oncology CLABSI
  o Data from five oncology units (3 private, 2 public) submit data to HISWA
☐ Haematology CLABSI
  o 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, 2016-17 (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.