Quarterly Report

Healthcare Infection Surveillance Western Australia (HISWA)

Quarter 3, January to March, 2017-18
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Data Quality Statement

Date Extracted: 10/05/2018  Publication Date:  30/05/2018
The following data was not received at time of data extraction for this report and may impact on aggregated rates:

2017-18
NB: One HA-SABSI (MSSA) was added to HISWA after HSPR Report finalised.
Bentley: Feb 2018 and March 2018 Non-ICU and Psych bed days under review
Joondalup: Feb 2018 ICU bed days under review
RGH: March 2018 ICU, non-ICU, and psych bed days under review
Newman: No data submitted (December 2017) denominator data entered by HAIU
Kununurra: No data submitted (December 2017) denominator data entered by HAIU
Merriden: No data submitted (September 2017) denominator data entered by HAIU
Moora: No data submitted (August 2017) denominator data entered by HAIU

2016-17
Moora: No data submitted (March 2017) denominator data entered by HAIU
Margaret River: No data submitted (December 2016) denominator data entered by HAIU
Derby: No data submitted (November and December 2016) denominator data entered by HAIU
Merredin: No data submitted (September 2016; Qrt 4 2016-17) denominator data entered by HAIU

2015-16
Moora: No data submitted (June 2016) denominator data entered by HAIU
Moora: No data submitted (November 2015) denominator data entered by HAIU
Merredin: No data submitted (December 2015) denominator data entered by HAIU
Merredin: No data submitted (September 2015) denominator data entered by HAIU.

2014-15:
Rockingham: data not received for unqualified newborns and patients < 2 years of age.
Moora: No data submitted Qtr 4, 2014-15, denominator data entered by HAIU.

All surveillance enquiries
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HAIU News

HISWA Forum
The next forum is scheduled for 6 June 2018, 1500 – 1630. If you have any issues you would like discussed please email us at hiswa@health.wa.gov.au. Afternoon tea and beverages will be available from 1430. Contributors wishing to participate via video-conference, please contact Simone Tempone.

Presentations
- **Outcomes** of the REACH Trial: Allison Farrington, Research Project Manager, will be providing an update on the outcomes and preliminary findings of the Researching Effective Approaches to Cleaning in Hospitals (REACH) – FSH was a trial site.
- **FSH IP&C** will present on various innovations in practice at FSH.

Reminders
- **Raw data report**
  All Contributors should ensure they use the ‘raw data’ report as part of data finalisation process to check their data for accuracy. This report is useful for picking up on data entry errors, duplicate entries or use of incorrect drop downs such as entering ‘Place of Acquisition’ for CDI as one of the many options instead of ‘CDI Hospital’!
- **MRSA HAIs**
  A reminder to make sure the HAI definition is applied when you identify MRSA in a clinical specimen. For non-sterile site specimen, you need to ensure MRSA-specific antibiotic therapy was administered. Also remember that MRSA infections that relate to surgery but fall outside of the specified days for the SSI definition are included as MRSA HAIs.

Report Highlights
- There were ZERO Adult ICU central line BSIs recorded in Western Australia.
- The total HA-SABSI rate remained comparable to that reported in the previous Qtr.
- There were ZERO AVF access-associated BSIs reported for the 2\textsuperscript{nd} consecutive Qtr.

Report Concerns
- The majority of C-section SSI are following emergency procedures, and included five deep / organ space infections this Qtr.
- 43 HA-SABSI were reported, of which, 40 (70\%) were attributable to preventable sources (16 from IVDs; 14 procedure related).
- 51 MRSA HAI were reported, of which, 32 (63\%) were related to surgical procedures.
- 29\% (15) of the patients acquiring an MRSA HAI were known to be colonised with MRSA prior to onset of their infection.
- The HI-CDI rate increased for the 3\textsuperscript{rd} consecutive Qtr and is the highest rate reported since Qtr 3 2011-12.
- 244 higher-risk parenteral exposures were reported (doctors:123; nurses:98) A further 19 parenteral exposures were reported from HCW categories who are not usually original users of sharps.
Surgical site infection following hip arthroplasty

Key Points

- One superficial and eight deep or organ space SSI following hip arthroplasty reported.
- The total SSI rate following hip arthroplasty increased to 0.76 infections per 100 procedures from 0.42 reported in Qtr 2 2017-18.
- The deep SSI hip rate increased to 0.68 infections per 100 procedures from 0.33 reported in Qtr 2 2017-18.
- The 2017-18 year-to-date total SSI rate for hip arthroplasty of 0.62 is above the comparator rate of 0.58 and below the HISWA 2016-17 total SSI rate of 0.78 infections per 100 procedures.

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>5</td>
<td>83</td>
<td>0</td>
<td>0.00 [0.00 – 5.45]</td>
<td>0.84 [0.56 – 1.26]</td>
</tr>
<tr>
<td>Risk index 0</td>
<td>17</td>
<td>670</td>
<td>4</td>
<td>0.60 [0.18 – 01.60]</td>
<td>0.75 [0.65 - 0.87]</td>
</tr>
<tr>
<td>Risk index 1</td>
<td>17</td>
<td>391</td>
<td>4</td>
<td>1.02 [0.31 – 2.73]</td>
<td>1.85 [1.63 – 2.10]</td>
</tr>
<tr>
<td>Risk index 2</td>
<td>17</td>
<td>38</td>
<td>1</td>
<td>2.63 [0.00 – 14.93]</td>
<td>3.59 [2.77 – 4.64]</td>
</tr>
<tr>
<td>Risk index 3</td>
<td>17</td>
<td>1</td>
<td>0</td>
<td>0.00 [0.00 – 82.94]</td>
<td>5.83 [2.49 – 12.46]</td>
</tr>
<tr>
<td>Total hip arthroplasty</td>
<td>22</td>
<td>1,185*</td>
<td>9</td>
<td>0.76 [0.38 – 1.47]</td>
<td>1.22 [1.12 – 1.33]</td>
</tr>
</tbody>
</table>

*Refer to Appendix 1 for Data Notes on Risk All.  
* 2 procedures classed as NA included in total-waiting confirmation of risk index

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

Key Points

- Three superficial and five deep or organ space SSI following knee arthroplasty reported.
- The total SSI rate following knee arthroplasty of 0.44 infections per 100 procedures remained comparable to the rate of 0.43 reported in Qtr 2 2017-18.
- The deep SSI knee rate increased to 0.28 per 100 procedures from 0.27 infections.
- The 2017-18 year-to-date total SSI rate for knee arthroplasty of 0.59 is above the comparator rate of 0.51 and below the HISWA 2016-17 knee SSI rate of 0.69 infections per 100 procedures.

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>5</td>
<td>81</td>
<td>0</td>
<td>0.00 [0.00 – 5.58]</td>
<td>1.44 [1.12 – 1.84]</td>
</tr>
<tr>
<td>Risk index 0</td>
<td>17</td>
<td>957</td>
<td>4</td>
<td>0.42 [0.13 – 1.12]</td>
<td>0.69 [0.60 – 0.78]</td>
</tr>
<tr>
<td>Risk index 1</td>
<td>17</td>
<td>658</td>
<td>2</td>
<td>0.30 [0.01 – 1.19]</td>
<td>1.18 [1.04 – 1.34]</td>
</tr>
<tr>
<td>Risk index 2</td>
<td>17</td>
<td>104</td>
<td>1</td>
<td>0.96 [0.00 – 5.88]</td>
<td>2.89 [2.32 – 3.60]</td>
</tr>
<tr>
<td>Risk index 3</td>
<td>17</td>
<td>3</td>
<td>1</td>
<td>33.33 [6.20-79.52]</td>
<td>8.06 [4.33-14.42]</td>
</tr>
<tr>
<td>Total knee arthroplasty</td>
<td>22</td>
<td>1,803</td>
<td>8</td>
<td>0.44 [0.21 – 0.90]</td>
<td>1.01 [0.94 – 1.10]</td>
</tr>
</tbody>
</table>

*Refer to Appendix 1, Data Notes for information on Risk All and comparator information

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>8</td>
<td>9</td>
<td>1,185</td>
<td>0.08 [0.00 – 0.54]</td>
<td>0.68 [0.32 – 1.36]</td>
<td>0.76 [0.38 – 1.47]</td>
</tr>
<tr>
<td>Knee arthroplasty</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>1,803</td>
<td>0.17 [0.03 – 0.52]</td>
<td>0.28 [0.10 – 0.67]</td>
<td>0.44 [0.21 – 0.90]</td>
</tr>
<tr>
<td>Total arthroplasty</td>
<td>4</td>
<td>13</td>
<td>17</td>
<td>2,988</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

- 2,484 caesarean section procedures were reported, of which 1,176 (47%) were elective and 1,308 (53%) were emergency procedures.
- A total of 31 SSIs were reported, 19 (61%) were detected on readmission to hospital, two (6%) during the initial admission and 10 (33%) were detected post-discharge.
- 25 (80%) of all SSI reported were superficial infections.
- 23 (74%) of all SSI were following emergency procedures and includes 5 deep SSIs.
- The inpatient SSI rate (includes readmissions and excludes post-discharge) increased to 0.85 infections per 100 procedures from 0.60 reported in Qrt 2 2016-17.
- The 2017-18 year-to-date inpatient SSI rate of 0.72 infections per 100 procedures is above the HISWA 2016-17 rate of 0.57.

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>13</td>
<td>361</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0.83 [0.18 – 2.56]</td>
<td>0.70 [0.56 – 0.88]</td>
</tr>
<tr>
<td>0</td>
<td>14</td>
<td>1,192</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>0.42 [0.15 – 1.02]</td>
<td>0.31 [0.25 – 0.39]</td>
</tr>
<tr>
<td>1</td>
<td>14</td>
<td>750</td>
<td>5</td>
<td>1</td>
<td>6</td>
<td>0.80 [0.33 – 1.79]</td>
<td>0.88 [0.75 – 1.05]</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>169</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>3.56 [1.49 – 7.75]</td>
<td>2.01 [1.55 – 2.60]</td>
</tr>
<tr>
<td>3</td>
<td>14</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>8.33 [0.00 – 37.88]</td>
<td>1.75 [0.39 – 5.33]</td>
</tr>
<tr>
<td>Inpatient total</td>
<td>27</td>
<td>2,484</td>
<td>15</td>
<td>6</td>
<td>21</td>
<td>0.85 [0.55 – 1.30]</td>
<td>0.63 [0.57 – 0.70]</td>
</tr>
<tr>
<td>Post-discharge</td>
<td>NA</td>
<td>2,484</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>0.40* [0.21 – 0.75]</td>
<td>0.29* [0.25 – 0.34]</td>
</tr>
<tr>
<td>Total SSI</td>
<td>27</td>
<td>2,484</td>
<td>25</td>
<td>6</td>
<td>31</td>
<td>1.25* [0.88 – 1.78]</td>
<td>0.92* [0.84 – 1.00]</td>
</tr>
</tbody>
</table>

* These rates are not to be used for benchmarking purposes.

Figure 5 Caesarean section SSI rates (inpatient only)
Healthcare associated *Staphylococcus aureus* bloodstream infection

**Key Points**

- The total HA-SABSI rate of 0.68 infections per 10,000 bed-days remains unchanged to that reported in Qtr 2, 2017-18 and is below the comparator rate of 0.76.
- The MSSA HA-SABSI rate of 0.59 infections per 10,000 bed-days is comparable to 0.56 reported in Qtr 2, 2017-18 and is below the comparator rate of 0.61.
- The MRSA HA-SABSI rate of 0.10 infections per 10,000 bed-days is comparable to the rate of 0.12 reported in Qtr 2, 2017-18 and is below the comparator rate of 0.15.
- Of the 43 HA-SABSI reported, 16 (37%) were attributable to IVDs. A further 14 (34%) were related to procedures. The IVD SABSI rate decreased to 0.25 infections per 10,000 bed-days from 0.34 reported in Qtr 2 2017-18.
- The 2017-18 year-to-date total HA-SABSI rate of 0.72 is above the HISWA 2016-17 rate of 0.63 infections per 10,000 procedures.

**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>629,218</td>
<td>37</td>
<td>0.59 [0.43 – 0.81]</td>
<td>0.56 [0.53 – 0.59]</td>
</tr>
<tr>
<td>Total methicillin-resistant <em>Staphylococcus aureus</em> (MRSA) bloodstream infection</td>
<td>49</td>
<td>629,218</td>
<td>6</td>
<td>0.10 [0.04 – 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>629,218</td>
<td>43</td>
<td>0.68 [0.51- 0.92]</td>
<td>0.68 [0.65 – 0.71]</td>
</tr>
</tbody>
</table>

**Figure 6 HA-SABSI rates, by MRSA, MSSA and total**

![Graph showing annual and quarterly rates for MRSA, MSSA, and total SABSI](image-url)
Figure 7 Number of HA-SABSI, by source of infection

NB: This Qtr ‘Organ site’ includes HA-SABSI associated with neutropenic sepsis

Figure 8 HA-SABSI rates, by hospital group
Figure 9 Proportion and rate of HA-SABSI attributed to intravascular devices

Figure 10 Proportion and number of HA-SABSI attributed to intravascular devices, by hospital group
Haemodialysis access-associated bloodstream infections

Key Points already updated

- The majority (74%) of patients received haemodialysis via an AVF.
- There were 11 cuffed catheter and zero AVF access-associated BSIs reported.
- The cuffed catheter (CC) BSI rate increased to 1.35 infections per 100 patient-months from 0.60 in Qtr 2, 2017-18.
- The AVF BSI rate remained at 0.00 infections per 100 patient-months for the 2\textsuperscript{nd} consecutive Qtr.
- The 2017-18 year-to-date CC BSI rate of 1.06 is below the HISWA 2016-17 rate of 1.25 infections per 100 patient months.
- The 2017-18 year-to-date AVF BSI rate is equal to the HISWA 2016-17 rate of 0.03 infections per 100 patient months.

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>73.87</td>
<td>0</td>
<td>2,643</td>
<td>0.00 [0.00 – 0.18]</td>
<td>0.06 [0.05 – 0.08]</td>
</tr>
<tr>
<td>AVG</td>
<td>24</td>
<td>2.63</td>
<td>1</td>
<td>94</td>
<td>1.06 [0.00 – 6.47]</td>
<td>0.55 [0.35 – 0.84]</td>
</tr>
<tr>
<td>Cuffed catheter (CC)</td>
<td>24</td>
<td>22.75</td>
<td>11</td>
<td>814</td>
<td>1.35 [0.73 – 2.45]</td>
<td>1.59 [1.44 – 1.75]</td>
</tr>
<tr>
<td>Non-cuffed catheter</td>
<td>24</td>
<td>&lt;1</td>
<td>0</td>
<td>27</td>
<td>0.00 [0.00 – 15.10]</td>
<td>1.10 [0.55 – 2.12]</td>
</tr>
</tbody>
</table>

Figure 11  AVF and cuffed catheter BSI rate
Central line-associated bloodstream infection

Key Points

- There were ZERO adult ICU CLABSI reported this Qtr
- The majority (81%) of central lines utilised in adult ICUs were centrally-inserted.
- Four haematology CLABSI were reported and the rate decreased to 0.66 infections per 1,000 line days from 0.75 reported in Qtr 2, 2017-18.
- Three oncology CLABSI were reported and the rate increased to 0.06 infections per 1,000 line days from 0.04 reported in Qtr 2, 2017-18.

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>1,030</td>
<td>0</td>
<td>0.00 [0.00 – 4.61]</td>
<td>0.67 [0.35 – 1.26]</td>
</tr>
<tr>
<td>ICU centrally inserted CLABSI</td>
<td>12</td>
<td>4,546</td>
<td>0</td>
<td>0.00 [0.00 – 1.05]</td>
<td>0.64 [0.53 – 0.76]</td>
</tr>
<tr>
<td>Total ICU CLABSI</td>
<td>12</td>
<td>5,576</td>
<td>0</td>
<td>0.00 [0.00 – 0.86]</td>
<td>0.64 [0.54 – 0.76]</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>1,030</td>
<td>10,744</td>
<td>15</td>
<td>9.59</td>
</tr>
<tr>
<td>Adult ICU centrally inserted CLUR</td>
<td>12</td>
<td>4,546</td>
<td>10,744</td>
<td>64</td>
<td>42.31</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>4,756</td>
<td>4</td>
<td>0.84 [0.25 – 2.27]</td>
<td>1.22 [1.03 – 1.45]</td>
</tr>
<tr>
<td>Haematology centrally inserted CLABSI</td>
<td>2</td>
<td>1,339</td>
<td>0</td>
<td>0.00 [0.00 – 3.55]</td>
<td>2.33 [1.95 – 2.78]</td>
</tr>
<tr>
<td>Total haematology CLABSI</td>
<td>2</td>
<td>6,095</td>
<td>4</td>
<td>0.66 [0.20 – 1.77]</td>
<td>1.58 [1.40 – 1.78]</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>9,606</td>
<td>2</td>
<td>0.21 [0.01 – 0.82]</td>
<td>0.11 [0.07 – 0.15]</td>
</tr>
<tr>
<td>Oncology centrally inserted CLABSI</td>
<td>5</td>
<td>43,263</td>
<td>1</td>
<td>0.02 [0.00 – 0.15]</td>
<td>0.02 [0.01 – 0.04]</td>
</tr>
<tr>
<td>Total oncology CLABSI</td>
<td>5</td>
<td>52,869</td>
<td>3</td>
<td>0.06 [0.00 – 0.18]</td>
<td>0.05 [0.04 – 0.07]</td>
</tr>
</tbody>
</table>

All rates per 1,000 central line days
Figure 12 ICU, haematology, and oncology unit CLABSI rates
Methicillin-resistant *Staphylococcus aureus* healthcare associated infection

**Key Points**

- The total MRSA HAI rate of 0.90 infections per 10,000 bed-days was comparable to 0.93 reported in Qtr 2, 2017-18 and is below the comparator rate of 1.01.
- 51 MRSA HAIs were reported, all were identified from the inpatient setting (48 non-ICU, 3 ICU) and 15 (29%) were known to have prior MRSA colonisation.
- Of the 51 MRSA HAIs, six (12%) were BSIs and 32 (63%) were related to surgical wounds. Three ICU MRSA HAIs were reported.
- The majority (57%) of MRSA HAIs were caused by micro-B PVL negative strains.
- The 2017-18 year-to-date total MRSA HAI rate of 0.88 is below the HISWA 2016-17 rate of 0.92 infections per 10,000 procedures.

**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>19,711</td>
<td>0.00 [0.00 – 2.42]</td>
<td>0.38 [0.27 – 0.54]</td>
</tr>
<tr>
<td>MRSA ICU non-sterile site</td>
<td>12</td>
<td>3</td>
<td>19,711</td>
<td>1.52 [0.31 – 4.76]</td>
<td>1.46 [1.23 – 1.75]</td>
</tr>
<tr>
<td>MRSA Non-ICU sterile site</td>
<td>48</td>
<td>11</td>
<td>416,610</td>
<td>0.26 [0.14 – 0.48]</td>
<td>0.23 [0.21 – 0.25]</td>
</tr>
<tr>
<td>MRSA Non-ICU non-sterile site</td>
<td>48</td>
<td>37</td>
<td>416,610</td>
<td>0.89 [0.64 – 1.23]</td>
<td>0.65 [0.62 – 0.69]</td>
</tr>
<tr>
<td>Total inpatient MRSA HAI</td>
<td>48</td>
<td>51</td>
<td>436,321</td>
<td>1.17 [0.89 – 1.54]</td>
<td>0.92 [0.88 – 0.96]</td>
</tr>
<tr>
<td>MRSA HAI non-inpatient</td>
<td>48</td>
<td>0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Total MRSA healthcare associated infection</td>
<td>48</td>
<td>51</td>
<td>567,244</td>
<td>0.90† [0.68 – 1.19]</td>
<td>0.82 [0.79 – 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>Not typed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU sterile</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ICU non-sterile</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Non ICU Sterile</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Non ICU non-sterile</td>
<td>23</td>
<td>8</td>
<td>6</td>
<td>0</td>
<td>37</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>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Proportion</td>
<td>57%</td>
<td>27%</td>
<td>16%</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Strain</td>
<td>Not characterised</td>
<td>Qld clone (10), WA121 (4)</td>
<td>UK 15 (8)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>TOTAL</td>
<td>29</td>
<td>14</td>
<td>8</td>
<td>0</td>
<td>51</td>
</tr>
</tbody>
</table>
Figure 13 Total MRSA HAI rate per 10,000 multi and same day bed-days (inpatient and same-day patient)

Figure 14 Proportion of MRSA HAIs, by specimen site
Figure 15 Rate of MRSA HAI, by strain group

Figure 16 Proportion of MRSA HAI, by strain group
Hospital-identified *Clostridium difficile* infection

**Key Points**

- The HISWA aggregate HI-CDI rate increased to 5.45 infections per 10,000 bed-days from 5.10 reported in Qtr 2 2017-18.
- There was a marked increase in rate reported from the metropolitan non-tertiary hospital group. An increase in rate was also evident in the WACHS and private hospital groups. The rate for the tertiary hospital group was comparable to previous Qtr.
- The majority (48%) of HI-CDI were reported from the tertiary hospitals.
- The 2017-18 year-to-date total HI-CDI rate of 5.10 is above the HISWA 2016-17 rate of 4.20 infections per 10,000 procedures.

**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>44</td>
<td>102,634</td>
<td>4.29 [3.19 – 5.78]</td>
<td>3.00 [2.81 – 3.20]</td>
</tr>
<tr>
<td>Private</td>
<td>15</td>
<td>93</td>
<td>261,842</td>
<td>3.55 [2.90 – 4.36]</td>
<td>2.15 [2.05 – 2.26]</td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>328</td>
<td>602,332</td>
<td>5.45 [4.89 – 6.07]</td>
<td>3.65 [3.57 – 3.73]</td>
</tr>
</tbody>
</table>

**Figure 17 HI-CDI rates, by hospital group**

![Figure 17 HI-CDI rates, by hospital group](image-url)
Vancomycin-resistant enterococci sterile-site infections

Key Points

- Four VRE sterile site infections were reported this quarter and all were isolated from blood culture samples. All were HAI BSIs.
- All isolates were *Enterococcus faecium Van A*.
- No patient had known VRE colonisation prior to onset of infection.
- Refer to *Data Notes* for information on categorisation of sterile specimen sites.

Figure 18 Number of VRE HAIs, by sterile body sites
Occupational exposures

Key Points

- The total occupational exposure rate increased to 5.64 exposures per 10,000 bed-days from 5.28 reported in Qtr 2, 2017-18.
- The parenteral rate decreased to 3.88 exposures per 10,000 bed-days from 4.03 in Qtr 2, 2017-18.
- The non-parenteral rate increased to 1.76 exposures per 10,000 bed-days from 1.25 in Qtr 2, 2017-18.
- The majority of parenteral exposures were reported by doctors (50%) and the majority of non-parenteral exposures were reported by nurses (64%).
- The 2017-18 year-to-date total occupational exposure of 5.36 is below the HISWA 2016-17 rate of 5.70 exposures per 10,000 procedures.

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>111</td>
<td>629,218</td>
<td>1.76 [1.46 – 2.13]</td>
<td>1.47 [1.43 – 1.52]</td>
</tr>
<tr>
<td>Total Exposures</td>
<td>49</td>
<td>355</td>
<td>629,218</td>
<td>5.64 [5.09 – 6.26]</td>
<td>5.68 [5.58 – 5.77]</td>
</tr>
</tbody>
</table>

Figure 19 Occupational exposure rate per 10,000 bed-days, by parenteral and non-parenteral
Figure 20 Parenteral occupational exposures, by HCW category

Figure 21 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 in the HISWA reporting schedules 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 health service providers who provide contracted services to public patients in 2007. Mandatory Indicators are those marked with an asterisk.

HISWA Indicators

Surgical Site Infections

Arthroplasty*

☐ All private (11) and public (11) hospitals in WA that perform hip and knee arthroplasty procedures submit data to HISWA. NB one Regional Resource Centre is currently not performing procedures.


☐ 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.

Caesarean section

☐ 27 (5 private and 22 public) hospitals in WA that perform caesarean section procedures 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*
- The HA-SABSI rate has been included as an indicator in National Healthcare Agreements since 2009 and reported on the MyHospitals website.
- Data collection is in accordance with the Australian national definition
- Data is included from North Metropolitan Mental Health Service since 2014-15.
- 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 data is validated by the Healthcare Associated Infection Unit.
- The comparator is the Australian national public hospital aggregate 2016-17 rate. Refer Australian Institute Health and Welfare 2017- Staphylococcus aureus bacteraemia in Australian hospitals 2016-17.

Haemodialysis*
- All 24 units that provide haemodialysis services in WA 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.

CLABSI
- Adult ICU CLABSI*
  - Data from all 12 adult ICUs in WA are submitted to HISWA.
- Oncology and haematology
  - Data from five oncology and two haematology units are submitted to HISWA.
  - CLABSI definitions changed in July 2014. The new definitions identify BSI that are likely related to mucosal barrier injury as a result of neutropenia or graft versus host disease and exclude them from CLABSI data.

Multi-resistant Organism HAI

NB: Currently Carbapenem-resistant Enterobacteriacea (CRE) HAI are collected separately to the HISWA data collection.

Methicillin-resistant Staphylococcus aureus (MRSA)*
- 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, 2015-16 (personal communication).
Vancomycin-resistant enterococci (VRE)*

- VRE clinical isolate data is notified to the Healthcare Associated Infection Unit (HAIU) and a review is undertaken to determine HAI or CAI status. Data is obtained from the following sources:
  - HISWA Surveillance – VRE sterile site infections
  - Notification of VRE clinical isolates referred to the PathWest Gram-Positive Typing Laboratory and laboratory downloads from PathWest.

- Categories for sterile site specimens:
  - Blood
  - Peritoneal = fluid and tissue from peritoneal space / peritoneum (includes abdominal fluid and ascites)
  - Other sterile sites = specimens from body sites that are normally sterile where a specimen has been obtained surgically or by aspirate – e.g. sterile tissue, bone and joint fluid, specimens from liver, pancreas, kidney, spleen, vascular tissue, heart, brain, lymph node, ovary, pleural.

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.
- Metropolitan non-tertiary group includes Graylands Hospital data since July 2014 and Fremantle Hospital since January 2015.

Healthcare Worker Exposures

Occupational Exposures*

- 49 WA hospitals 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.