Commentary on annual data on MRSA, MSSA, *Escherichia coli* bacteraemia and *Clostridium difficile* infection from Independent Sector Healthcare organisations in England:

April 2016 to September 2016

Experimental Statistics

April 2017
Commentary on annual data on MRSA, MSSA and *E. coli* bacteraemia and *Clostridium difficile* infection from Independent Sector Healthcare Organisations in England: April to September 2016

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Summary

This is the 14th publication of healthcare associated infection (HCAI) surveillance data on meticillin-resistant *Staphylococcus aureus* (MRSA) bacteraemia and *Clostridium difficile* infection (CDI) from Independent Sector (IS) healthcare organisations. This also includes the eleventh publication of data on meticillin-sensitive *Staphylococcus aureus* (MSSA) bacteraemia and the tenth publication of data on *Escherichia coli* bacteraemia.

A total of one MRSA bacteraemia case, 15 cases of MSSA bacteraemia, 57 cases of *E. coli* bacteraemia and 23 cases of CDI were reported for April to September 2016. These figures include all cases reported by the IS and do not take into account whether or not the infection was thought to be associated with the IS organisation or not. This document summarises the data and discusses key caveats. In addition the summary of key differences between the NHS and IS should be considered (Table 1).

<table>
<thead>
<tr>
<th>Table 1. Summary of key differences between the NHS and IS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Sector Organisations</strong></td>
</tr>
<tr>
<td>Data is not “apportioned” into cases thought to have been associated with the particular IS hospital admission.</td>
</tr>
<tr>
<td>Primarily elective patient-mix</td>
</tr>
<tr>
<td>Constantly changing facility list</td>
</tr>
<tr>
<td>Large number of specialist facilities</td>
</tr>
<tr>
<td>Organisations may comprise geographically diverse hospitals</td>
</tr>
<tr>
<td>Rates calculated using bed-days plus discharges due to the high proportion of day cases compared to the NHS</td>
</tr>
</tbody>
</table>

Commentary on annual data on MRSA, MSSA and *E. coli* bacteraemia and *Clostridium difficile* infection from Independent Sector Healthcare Organisations in England: April to September 2016

**Introduction**

Today sees the latest in a series of publications of HCAI surveillance data on MRSA, MSSA and *E. coli* bacteraemia and CDI reported by IS healthcare organisations to Public Health England. IS healthcare organisations providing regulated activities undertake surveillance on HCAIs and report to Public Health England (PHE) as specified in the Code of Practice.

Patient-level data is provided to PHE via the secure Data Capture System (DCS). Data for this publication was extracted on 28 February 2017.

**Presentation of data**

- counts of MRSA, MSSA, and *E. coli* bacteraemia and CDI are presented by IS organisation for the six-month period April to September 2016
- the modified IS denominator (bed-days plus discharges) is provided for the most recent financial year available (April 2015 to March 2016) as an indication of the size of each facility
- denominator data should not be used to calculate rates as cases (numerator) may not always be complete and lead to imprecise estimates
- the hospital type (large hospital, small hospital, NHS treatment centre, diagnostic centre seeing mainly day case patients and women’s health) is listed for the hospital(s) within a group - this indicates the type of service(s) provided. This is correct as at 31 August 2016 as supplied to PHE
- the number of hospitals within an organisation is provided. This is correct as at 31 August 2016 and as supplied to PHE

The data tables only include data from those IS organisations which have reported at least once (either submitted a case(s) or have signed off their data as correct for the reporting period (April to September 2016). Not all IS organisations included in the data tables may have been reporting for the entire period and data is provided for hospitals which may have opened or closed since the last report.

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4 An IS organisation can comprise a group of hospitals owned by one company or a single hospital. It is possible to identify a group versus a hospital using the “number of hospitals in organisation” field.

5 Large hospital: ≥50 beds, small hospital: <50 beds

6 Where a group comprises more than one hospital type, all types are listed
closed during the reporting period (Appendix 1). The publication is therefore not a
comprehensive list of IS organisations. Cases amongst renal patients have been excluded
pending a separate publication.

Duplicate reporting between the IS and NHS

Data entered onto the DCS by the NHS and IS are collected in two parallel systems.
Please contact PHE for information on the de-duplication process.

Interpreting the data

What the data shows

- Table 1. Counts of MRSA bacteraemia by Independent Sector Healthcare
  Organisation; April to September 2016
- Table 2. Counts of *Clostridium difficile* infection by Independent Sector Healthcare
  Organisation; April to September 2016
- Table 3. Counts of MSSA bacteraemia by Independent Sector Healthcare
  Organisation; April to September 2016
- Table 4. Counts of *E. coli* bacteraemia by Independent Sector Healthcare
  Organisation; April to September 2016

What the data does not provide

- the data does not provide a basis for comparisons between different IS
  organisations due to their variable size and range of patients seen
- the data do not provide a basis for reliable comparison of data on MRSA, MSSA
  or *E. coli* bacteraemia and CDI between the IS and NHS

A full discussion of these issues is presented elsewhere\(^7\).

\(^7\) The reasons behind this are discussed in *Commentary on Reporting of C. difficile infections and MRSA bacteraemia from the Independent Sector*, published 2009.
Specific data caveats

Below is a list of specific caveats to be considered in relation to the published data:

Data quality
Not all IS organisations have signed off their data or submitted data for the reporting period therefore we cannot be certain that data presented for these organisations is accurate. IS organisations that have incomplete data for the time period are indicated in the data tables with a blue highlight.

Duplicate entries
Data have only been de-duplicated against the NHS dataset for cases reported via the DCS. It is possible that cases reported via report forms also represent duplicate reports with the NHS. Additionally, NHS number, which is one of the variables used to de-duplicate records, is not always known for patients treated in the IS so potential duplicate records entered onto the DCS may not be identified.

Organisational changes
Some IS organisations included in the data tables may have not been open for the entire reporting period, whilst others may have closed over this time. This may reduce the count of MRSA, MSSA and *E. coli* bacteraemia and CDI in such IS organisations compared to those which have been open for the whole period. Such organisations are listed in Appendix 1.
Summary of the data

- Data were extracted on 28 February 2017.
- 24 organisations have reported at least once for the time period, 11 of which are groups of more than one hospital and the remaining 13 single hospitals.

**MRSA bacteraemia (Table 1)**

- A total of 1 MRSA bacteraemia cases was reported from April to September 2016 by Glenside Hospital for Neuro Rehabilitation.

**CDI (Table 2)**

- A total of 23 CDI cases were reported from April to September 2016 by the following organisations: HCA International [12 cases]; The Hospital of St John & St Elizabeth [4 cases]; BUPA Cromwell Hospital Nuffield Health and Spire Healthcare [2 cases each]; King Edward VII Sister Agnes [1 case].

**MSSA bacteraemia (Table 3)**

- A total of 15 MSSA bacteraemia cases were reported from April to September 2016 by the following organisations: HCA International [10 cases], Spire Healthcare and King Edward VII Sister Agnes [2 cases each]; The Kent Institute of Medicine & Surgery (KIMS) [1 case].

**E. coli bacteraemia (Table 4)**

- A total of 57 E. coli bacteraemia cases were reported from April to September 2016 by the following organisations: HCA International [30 cases], BUPA Cromwell Hospital [16 cases]; Nuffield Health and Ramsay Health Care UK [3 cases each]; The Hospital of St John & St Elizabeth [2 cases], King Edward VII Sister Agnes, Spire Healthcare and The Horder Centre [1 case each].
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Appendix 1:

List of IS hospitals which opened, closed, changed ownership or ceased reporting during the reporting period (April to September 2016)\(^8\)

- no organisational change occurred within this period

\(^8\) Correct as at 31 August 2016 and as supplied to PHE