

Borders NHS Board



Meeting Date: 17 January 2019

Approved by:	Nicky Berry, Director of Nursing, Midwifery and Acute Services
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HEALTHCARE ASSOCIATED INFECTION PREVENTION AND CONTROL REPORT	
Purpose of Report:	
The purpose of this paper is to update Board members on the current status of Healthcare Associated Infections (HAI) and infection control measures in NHS Borders.	
Recommendations:	
The Board is asked to note this report.	
Approval Pathways:	
This report has been reviewed by the Board Executive Team.	
Executive Summary:	
This report provides an overview for Borders NHS Board of infection prevention and control with particular reference to the incidence of Healthcare Associated Infections (HAI) against Scottish Government HEAT targets, together with results from cleanliness monitoring and hand hygiene audit results.	
Impact of item/issues on:	
Strategic Context	This report is in line with the NHS Scotland HAI Action Plan.
Patient Safety/Clinical Impact	Infection prevention and control is central to patient safety
Staffing/Workforce	This assessment has not identified any staffing implications.
Finance/Resources	This assessment has not identified any resource implications.
Risk Implications	All risks are highlighted within the paper.
Equality and Diversity	This is an update paper so a full impact assessment is not required.
Consultation	This is a regular bi-monthly update as required by SGHD. As with all Board papers, this update will be shared with the Area Clinical Forum for information.
Glossary	See Appendix A.

Healthcare Associated Infection Reporting Template (HAIRT)

Section 1– Board Wide Issues

This section of the HAIRT covers Board wide infection prevention and control activity and actions. For reports on individual hospitals, please refer to the 'Healthcare Associated Infection Report Cards' in Section 2.

A report card summarising Board wide statistics can be found at the end of section 1

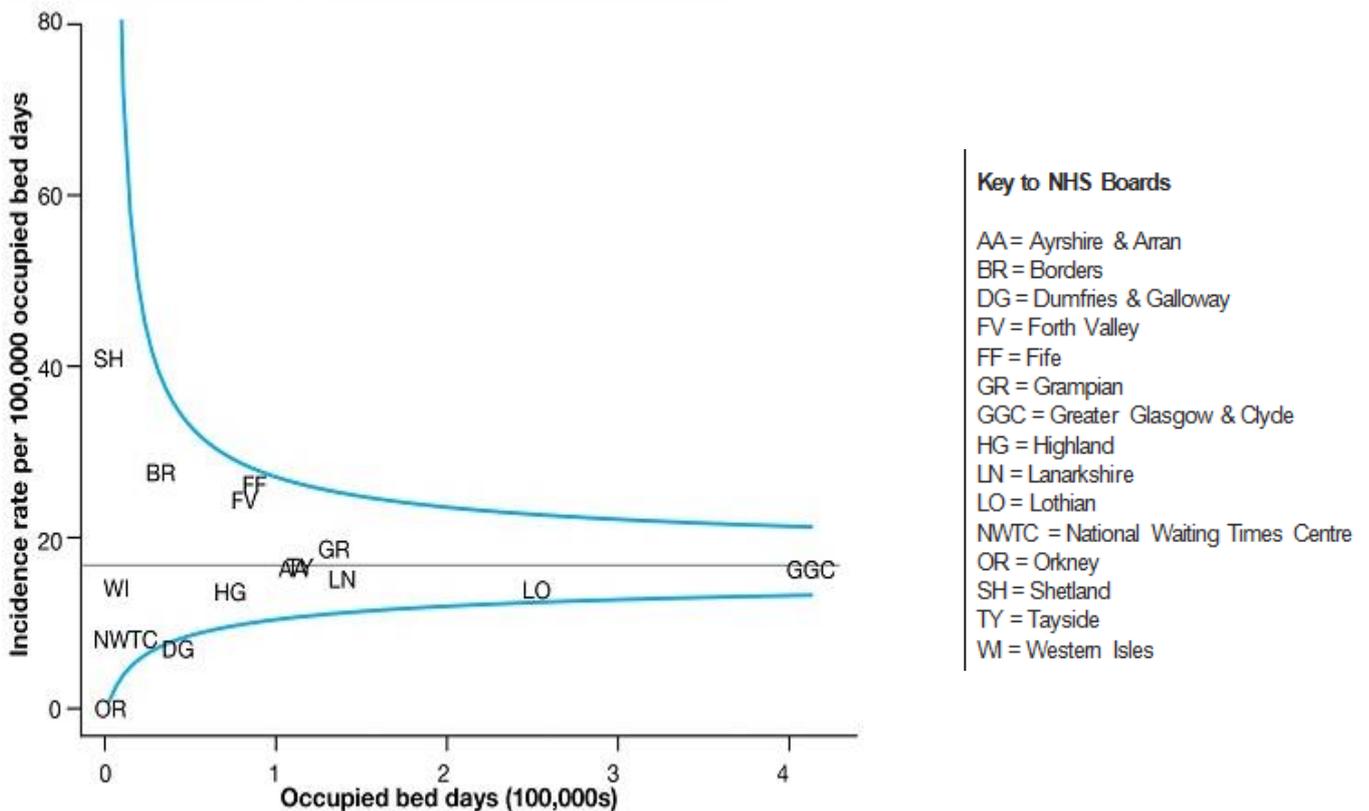
Key Healthcare Associated Infection Headlines for August 2018

- NHS Borders had 27 *Staphylococcus aureus* Bacteraemia (SAB) cases between April and November 2018. To achieve the HEAT target rate of 24.0 cases or less per 100,000 acute occupied bed days (AOBD) by March 2019, NHS Borders should have no more than 19 cases per year. NHS Borders has breached this target.
- NHS Borders had 11 *Clostridium difficile* infection (CDI) cases between April and November 2018. To achieve the CDI HEAT target rate of 32.0 cases or less per 100,000 total occupied bed days (TOBD) for patients aged 15 and over, by March 2019, NHS Borders should have no more than 33 cases per year. At present, NHS Borders is on target to achieve this.

Staphylococcus aureus Bacteraemia (SAB)

See Appendix A for definition.

Health Protection Scotland produces quarterly reports showing infection rates for all Scottish Boards. Figure 1 shows the most recently published data as a funnel plot of healthcare associated SAB cases as rates per 100,000 Total Occupied Bed Days (TOBDs) for all NHS boards in Scotland in Quarter 3 (Jul to Sep 2018). During this period NHS Borders (BR) had a rate of 27.6 which was above the Scottish average rate of 16.8.

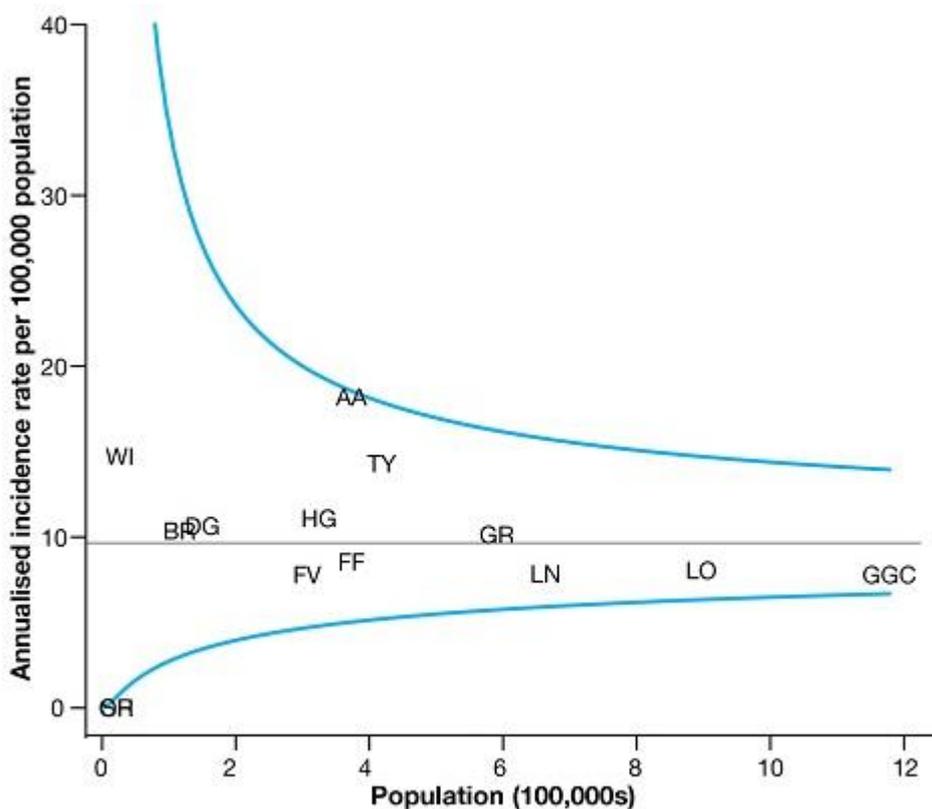


1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Information Services Division ISD(S)1.
NHS Ayrshire & Arran and NHS Tayside overlap.

Figure 1: Funnel plot of SAB incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS Boards in Scotland in Q3 2018

A funnel plot chart is designed to distinguish natural variation from statistically significant outliers. The funnel narrows on the right of the graph as the larger health Boards will have less fluctuation in their rates due to greater Total Occupied Bed Days. Figure 1 shows that NHS Borders was within the blue funnel, which means that it is not a statistical outlier.

Figure 2 shows a funnel plot of community associated SAB cases as rates per 100,000 population for all NHS boards in Scotland in Quarter 3 (Jul to Sep 2018). During this period NHS Borders (BR) had a rate of 10.3 which was slightly above the Scottish average rate of 9.7 although not statistically significant.



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & NRS mid-year population estimates.
1. NHS Orkney and NHS Shetland overlap as do NHS Borders and NHS Dumfries & Galloway.

Figure 2: Funnel plot of SAB incidence rates (per 100,000 population) in community associated infection cases for all NHS Boards in Scotland in Q3 2018

Figure 3 shows that Hospital acquired infection accounted for 37% of SAB cases between April and November 2018. The definition of Hospital acquired infection is where a positive blood culture sample is obtained from a patient who has been in hospital more than 48 hours or where the organism is considered to be a contaminant when the sample was taken in hospital.

Contaminated samples accounted for the majority of hospital acquired SAB cases where the cause was known. Feedback to individual clinicians on blood culture contamination rates is continuing.

There were 25 cases of Meticillin-sensitive *Staphylococcus aureus* (MSSA) and 2 cases of Meticillin-resistant *Staphylococcus aureus* (MRSA).

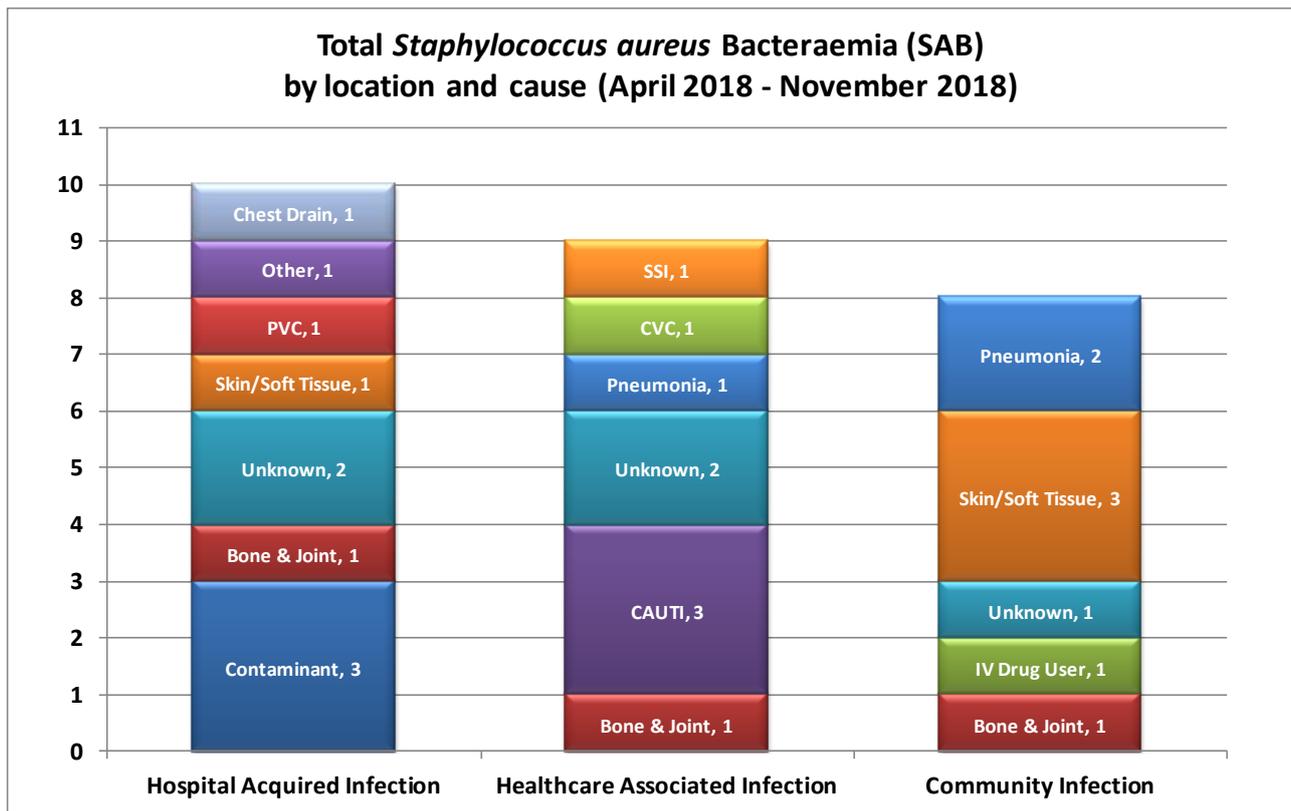


Figure 3: SAB cases by location and cause (April 2018 – November 2018)

Figure 4 shows a Statistical Process Control (SPC) chart showing the number of days between each SAB case. The reason for displaying the data in this type of chart is due to SAB cases being rare events with low numbers each month.

Traditional charts which show the number of cases per month can make it more difficult to spot either improvement or deterioration. These charts highlight any statistically significant events which are not part of the natural variation within our health system.

Figure 2 shows that there has not been a statistically significant increase in our SAB numbers since the last Board update.

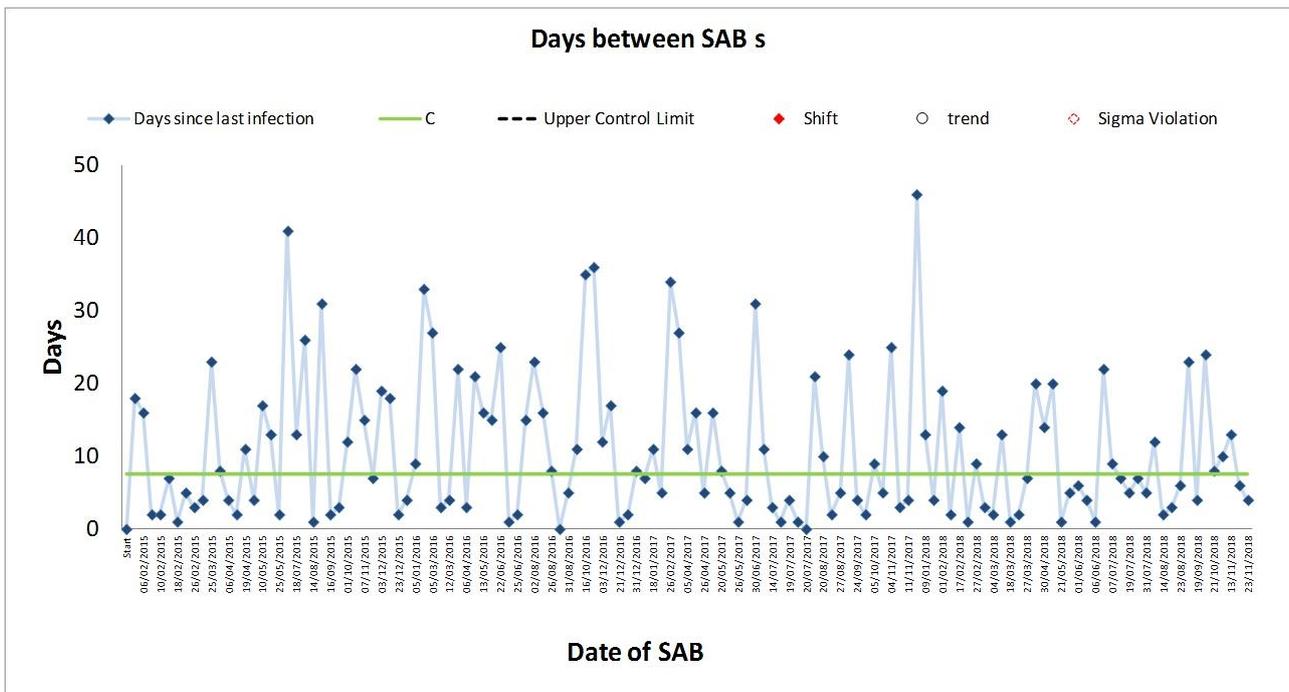


Figure 4: NHS Borders days between SAB cases (January 2015 – November 2018)

In interpreting Figure 4, it is important to remember that as this graph plots the number of days between infections, we are trying to achieve performance above the green average line.

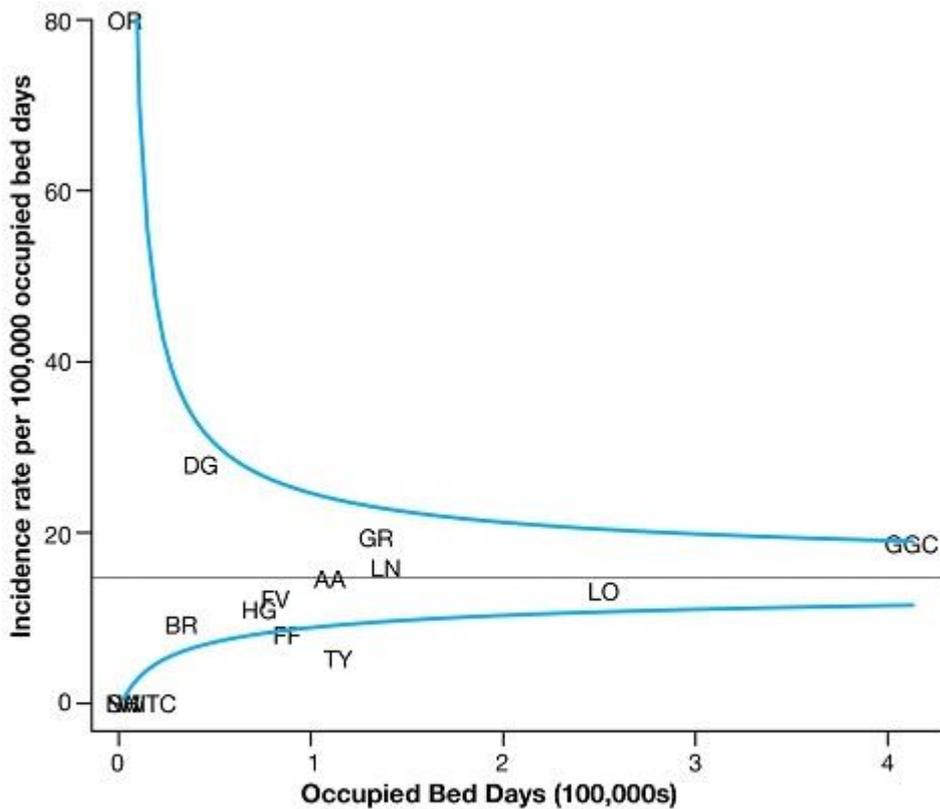
Every SAB case is subject to a rigorous review which includes a feedback process to the clinicians caring for the patient. Any learning is translated into specific actions which are added to the Infection Control Work Plan with progress critically reviewed by the Infection Control Committee.

Clostridium difficile infections (CDI)

See Appendix A for definition.

Health Protection Scotland produces quarterly reports showing infection rates for all Scottish Boards. Figure 5 shows a funnel plot of CDI incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS Boards in Scotland in Q3 2018.

The graph shows that NHS Borders (BR) had a rate of 9.2 which is below the Scottish average rate of 14.8.



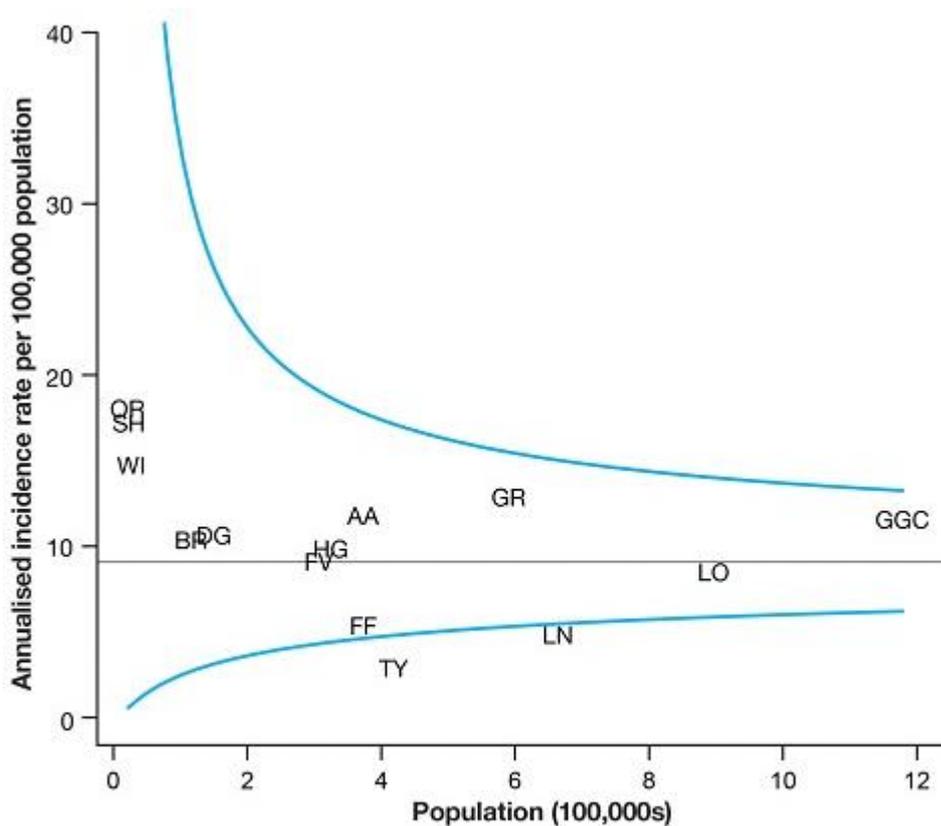
1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Information Services Division ISD(S)1.

NHS National Waiting Times Centre, NHS Shetlands and NHS Western Isles overlap.

Figure 5: Funnel plot of CDI incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS Boards in Scotland in Q3 2018.

Figure 6 shows a funnel plot of CDI incidence rates (per 100,000 population) in community associated infection cases for all NHS Boards in Scotland in Q3 2018.

The graph shows that NHS Borders (BR) had a rate of 10.3 which is above the Scottish average rate of 9.1.



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & NRS mid-year population estimates.

Figure 6: Funnel plot of CDI incidence rates (per 100,000 population) in community associated infection cases for all NHS Boards in Scotland in Q3 2018

Figure 7 shows a Statistical Process Control (SPC) chart showing the number of days between each CDI case. As with SAB cases, the reason for displaying the data in this type of chart are due to CDI cases being rare events with low numbers each month.

The graph shows that there have been no statistically significant events since the last Board update.

As with SAB cases, every *Clostridium difficile* infection (CDI) case is subject to a rigorous review which includes a feedback process to the clinicians caring for the patient. Any learning is translated into specific actions which are added to the Infection Control Work Plan.

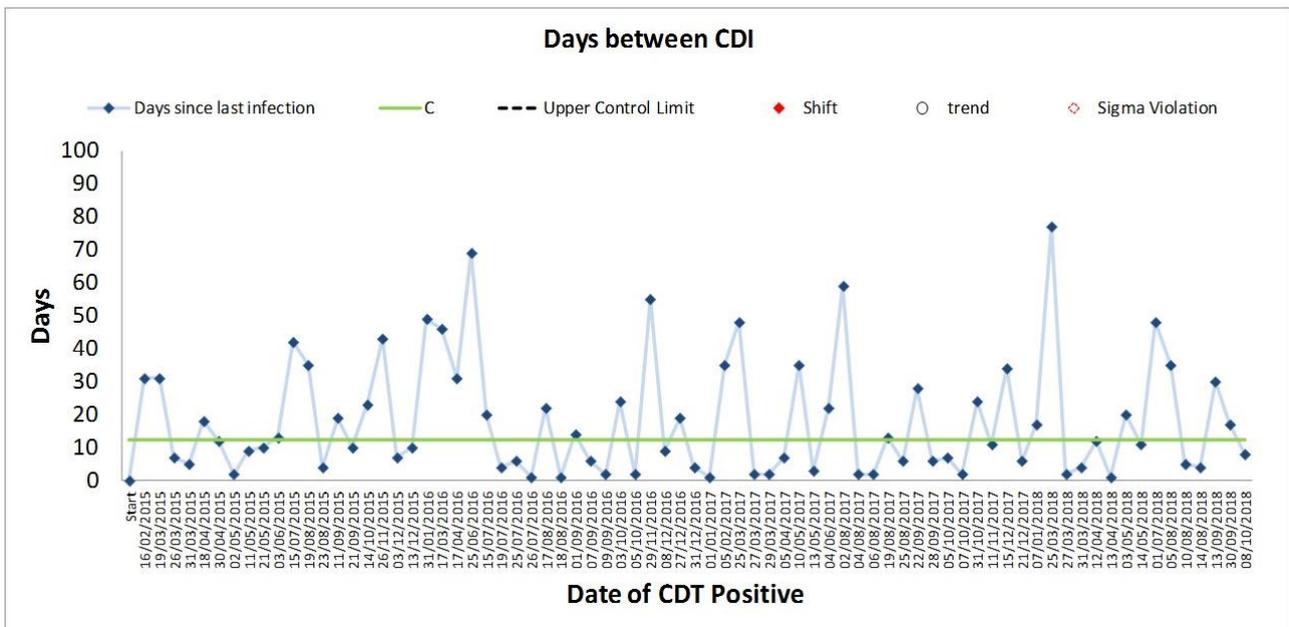


Figure 7: NHS Borders days between CDI cases (January 2015 – November 2018)

Hand Hygiene

For supplementary information see Appendix A

The hand hygiene data tables contained within the NHS Borders Report Card (Section 2 p.12) are generated from wards conducting self-audits.

Hand hygiene continues to be monitored by each clinical area. The Infection Prevention and Control Team follow up with any area which either fail to submit audit results or which fall below 90% for two consecutive months. This information is reported in the Infection Control monthly report which is distributed to management, governance groups, Senior Charge Nurses and Clinical Directors.

Cleaning and the Healthcare Environment

For supplementary information see Appendix A

The data presented within the NHS Borders Report Card (Section 2 p.12) is an average figure across the sites using the national cleaning and estates monitoring tool that was implemented in April 2012.

2018/19 Infection Control Workplan

As at 31st December 2019, 71% of actions due for completion were completed with 4 actions overdue. The overdue actions reflect an ongoing staffing shortage in the infection control team. Recruitment processes are underway to address this.

Outbreaks

There have been outbreaks of diarrhoea and vomiting in the following areas since the last board update:

September 2018

- Ward 4- 1 bay closed (confirmed norovirus)

October 2018

- Haylodge- ward closed (confirmed norovirus)

November 2018

- Hawick – 1 bay closed
- DME12- 1 bay closed

December 2018

- Ward 4- 1 bay closed
- DME14- 1 bay closed
- Ward 4- 1 bay closed (confirmed norovirus)

There have been no outbreaks of influenza.

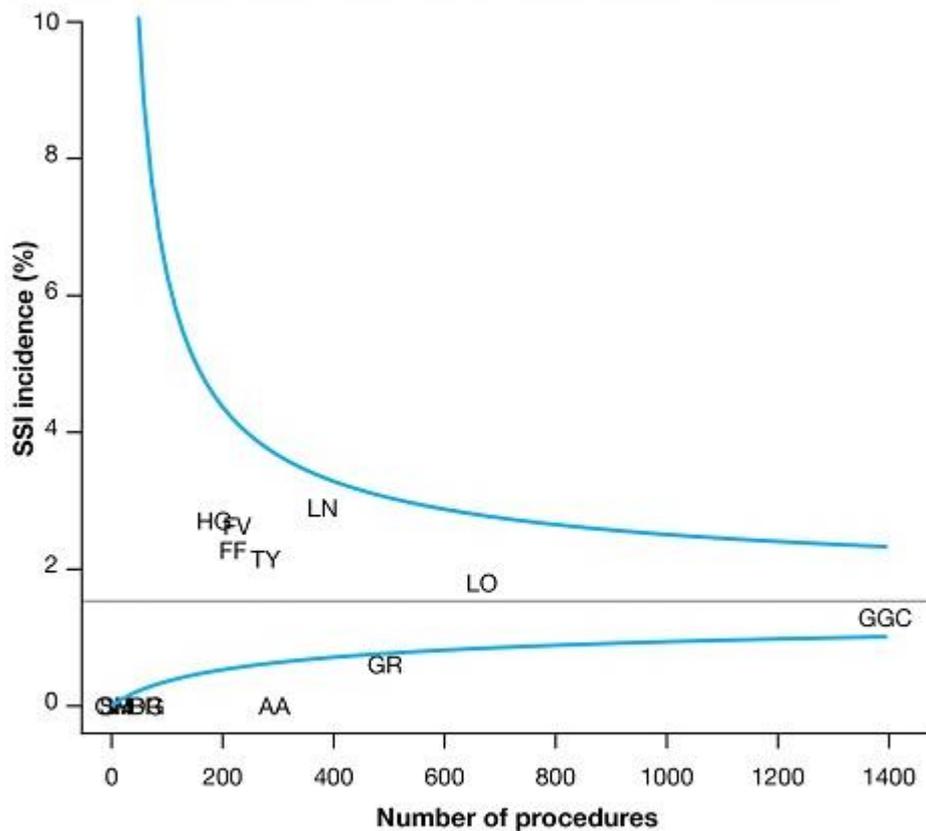
NHS Borders Surgical Site Infection (SSI) Surveillance

NHS Borders participates in a national infection surveillance programme relating to specific surgical procedures. This is coordinated by Health Protection Scotland (HPS) and uses national definitions and methodology which enable comparison with overall NHS Scotland infection rates.

In the period January to November 2018, there have been two SSIs following hip arthroplasty, two SSIs following knee arthroplasty, two SSIs following breast surgery and one colorectal SSI case. In the same period there were no SSI cases following C-Section.

Health Protection Scotland produces quarterly reports showing infection rates for all Scottish Boards. Figure 8 shows a funnel plot of caesarean section SSI incidence per 100 procedures in Quarter 3 (Jul to Sep 2018).

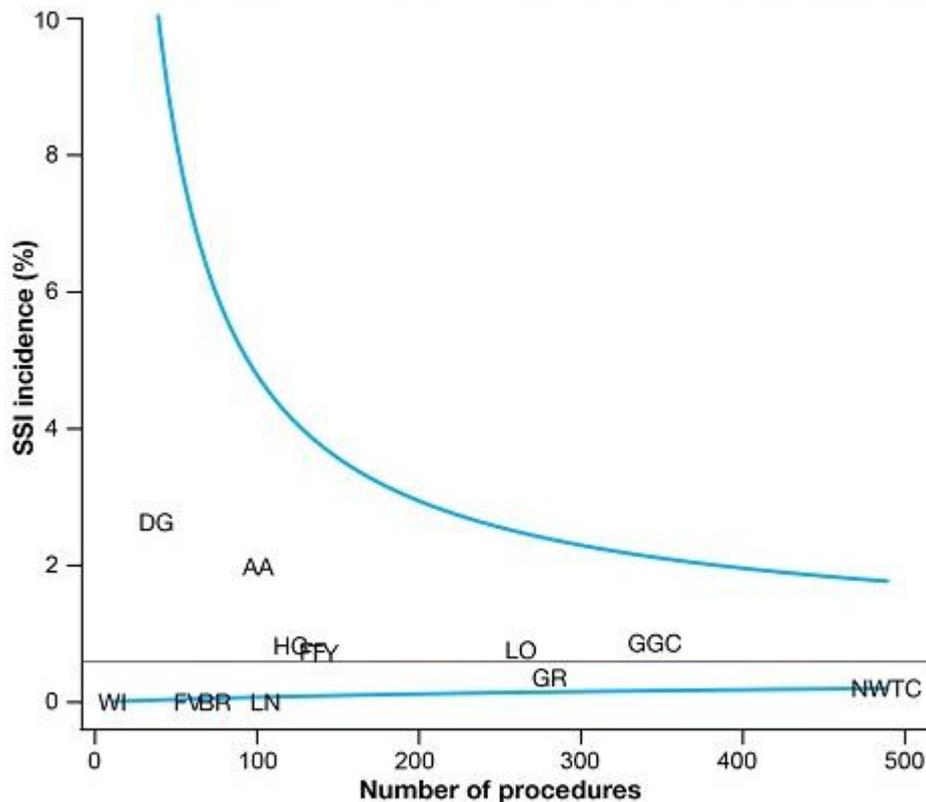
The graph shows that NHS Borders (BR) had a rate of zero which is below the Scottish average rate of 1.5.



1. Source of data is Surgical Site Infection Reporting System (SSIRS).
 NHS Borders and NHS Dumfries & Galloway overlap as do NHS Orkney, NHS Shetland
 and NHS Western Isles.

Figure 8: Funnel plot of caesarean section SSI incidence (per 100 procedures) in inpatients and Post Discharge Surveillance (PDS) to day 10 for all NHS Boards in Scotland in Q2 2018

Figure 9 shows a funnel plot of hip arthroplasty SSI incidence per 100 procedures in Quarter 3 (Jul to Sep 2018). The graph shows that NHS Borders (BR) had a rate of zero which is below the Scottish average rate of 0.6.



1. Source of data is Surgical Site Infection Reporting System (SSIRS).
1. NHS Fife and NHS Tayside overlap.

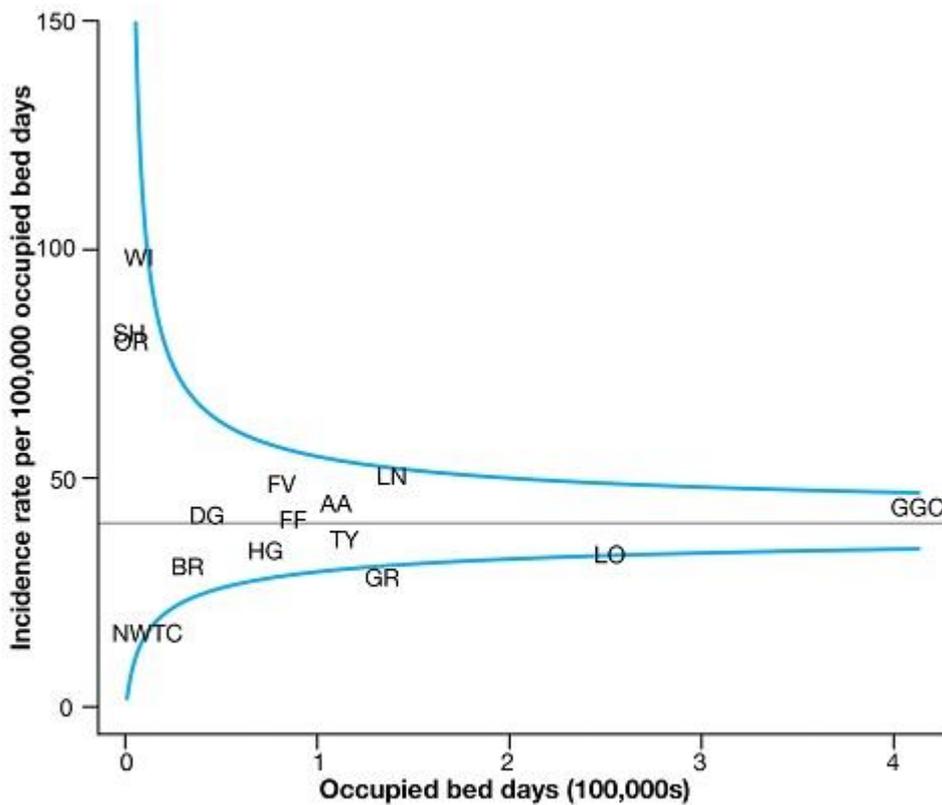
Figure 9: Funnel plot of hip arthroplasty SSI incidence (per 100 procedures) in inpatients and on readmission to day 30 for all NHS Boards in Scotland in Q3 2018

As previously reported, NHS Borders SSI rate is not, and has never been, a statistical outlier from the rest of Scotland.

Escherichia coli bacteraemia (ECB)

Health Protection Scotland produces quarterly reports showing infection rates for all Scottish Boards. Figure 10 shows a funnel plot of ECB incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS Boards in Scotland in Q3 2018.

The graph shows that NHS Borders (BR) had a rate of 30.6 which is below the Scottish average rate of 40.2.

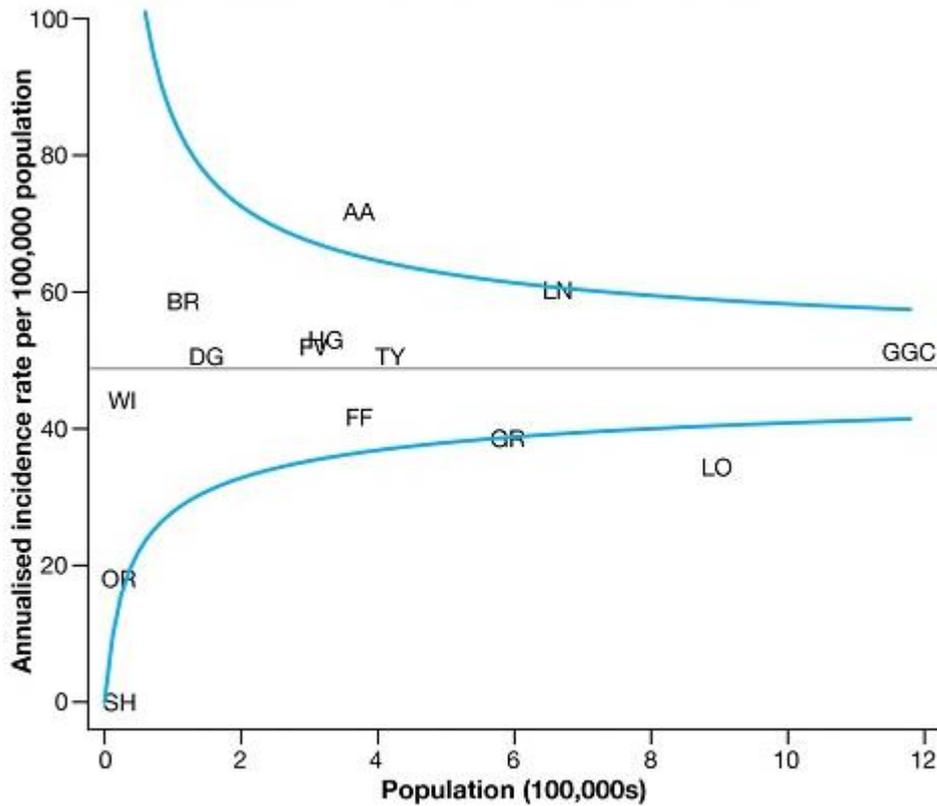


1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Information Services Division ISD(S)1.
1. NHS Orkney and NHS Shetland overlap.

Figure 10: Funnel plot of ECB incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS Boards in Scotland in Q3 2018

Figure 11 shows a funnel plot of ECB incidence rates (per 100,000 population) in community associated infection cases for all NHS Boards in Scotland in Q3 2018.

The graph shows that NHS Borders (BR) had a rate of 58.6 which is above the Scottish average rate of 48.8.



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & NRS mid-year population estimates.
1. NHS Forth Valley and NHS Highland overlap.

Figure 11: Funnel plot of ECB incidence rates (per 100,000 population) in community associated infection cases for all NHS Boards in Scotland in Q3 2018

NHS Borders is not a statistical outlier from the rest of Scotland.

Healthcare Associated Infection Reporting Template (HAIRT)

Section 2 – Healthcare Associated Infection Report Cards

The following section is a series of 'Report Cards' that provide information, for each acute hospital and key community hospitals in the Board, on the number of cases of *Staphylococcus aureus* blood stream infections (also broken down into MSSA and MRSA) and *Clostridium difficile* infections, as well as hand hygiene and cleaning compliance. In addition, there is a single report card which covers all community hospitals [which do not have individual cards], and a report which covers infections identified as having been contracted from out with hospital. The information in the report cards is provisional local data, and may differ from the national surveillance reports carried out by Health Protection Scotland and Health Facilities Scotland. The national reports are official statistics which undergo rigorous validation, which means final national figures may differ from those reported here. However, these reports aim to provide more detailed and up to date information on HAI activities at local level than is possible to provide through the national statistics.

Understanding the Report Cards – Infection Case Numbers

Clostridium difficile infections (CDI) and *Staphylococcus aureus* bacteraemia (SAB) cases are presented for each hospital, broken down by month. *Staphylococcus aureus* bacteraemia (SAB) cases are further broken down into Meticillin Sensitive *Staphylococcus aureus* (MSSA) and Meticillin Resistant *Staphylococcus aureus* (MRSA). More information on these organisms can be found on the NHS24 website:

Clostridium difficile :http://www.nhs24.com/content/default.asp?page=s5_4&articleID=2139§ionID=1

Staphylococcus aureus :http://www.nhs24.com/content/default.asp?page=s5_4&articleID=346

MRSA:http://www.nhs24.com/content/default.asp?page=s5_4&articleID=252§ionID=1

For each hospital the total number of cases for each month are those which have been reported as positive from a laboratory report on samples taken more than 48 hours after admission. For the purposes of these reports, positive samples taken from patients within 48 hours of admission will be considered to be confirmation that the infection was contracted prior to hospital admission and will be shown in the "out of hospital" report card.

Targets

There are national targets associated with reductions in C.diff and SABs. More information on these can be found on the Scotland Performs website:

<http://www.scotland.gov.uk/About/Performance/scotPerforms/partnerstories/NHSScotlandperformance>

Understanding the Report Cards – Hand Hygiene Compliance

Hospitals carry out regular audits of how well their staff are complying with hand hygiene. Each hospital report card presents the combined percentage of hand hygiene compliance with both opportunity taken and technique used broken down by staff group.

Understanding the Report Cards – Cleaning Compliance

Hospitals strive to keep the care environment as clean as possible. This is monitored through cleaning and estates compliance audits. More information on how hospitals carry out these audits can be found on the Health Facilities Scotland website:

<http://www.hfs.scot.nhs.uk/online-services/publications/hai/>

Understanding the Report Cards – 'Out of Hospital Infections'

Clostridium difficile infections and *Staphylococcus aureus* (including MRSA) bacteraemia cases are all associated with being treated in hospitals. However, this is not the only place a patient may contract an infection. This total will also include infection from community sources such as GP surgeries and care homes and. The final Report Card report in this section covers 'Out of Hospital Infections' and reports on SAB and CDI cases reported to a Health Board which are not attributable to a hospital.

NHS BORDERS BOARD REPORT CARD

Staphylococcus aureus bacteraemia monthly case numbers

	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
MRSA	0	0	0	1	0	0	0	1	1	0	0	0
MSSA	1	2	6	6	1	3	4	4	4	2	3	3
Total SABS	1	2	6	7	1	3	4	5	5	2	3	3

Clostridium difficile infection monthly case numbers

	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
Ages 15-64	1	0	0	1	1	1	0	0	0	2	0	0
Ages 65 plus	1	1	0	2	1	1	0	1	3	0	1	0
Ages 15 plus	2	1	0	3	2	2	0	1	3	2	1	0

Hand Hygiene Monitoring Compliance (%)

	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
AHP	98	98	100	96	98	100	100	99	98	98	100	98
Ancillary	95	98	100	97	97	95	98	99	99	98	95	100
Medical	99	98	99	96	100	99	98	99	98	97	99	99
Nurse	100	100	99	99	99	99	99	99	98	98	99	99
Board Total	99	99	100	97	99	98	99	99	98	98	98	99

Cleaning Compliance (%)

	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
Board Total	96.5	96.0	96.3	95.7	96.4	96.1	95.6	95.5	96.5	96.7	95.9	96.9

Estates Monitoring Compliance (%)

	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
Board Total	99.3	99.6	99.8	99.1	99.4	99.4	98.6	98.8	98.9	98.8	100	99.5

BORDERS GENERAL HOSPITAL REPORT CARD

Staphylococcus aureus bacteraemia monthly case numbers

	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
MRSA	0	0	0	1	0	0	0	0	1	0	0	0
MSSA	0	1	2	3	0	1	2	0	1	1	0	1
Total SABS	0	1	2	4	0	1	2	0	2	1	0	1

Clostridium difficile infection monthly case numbers

	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
Ages 15-64	0	0	0	0	0	0	0	0	0	1	0	0
Ages 65 plus	0	0	0	1	1	1	0	0	2	0	0	0
Ages 15 plus	0	0	0	1	1	1	0	0	2	1	0	0

Cleaning Compliance (%)

	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
Board Total	95.9	95.9	96.1	95.9	96.1	96.6	96.0	96.9	96.1	96.1	96.3	96.7

Estates Monitoring Compliance (%)

	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
Board Total	99.7	99.6	99.8	99.7	99.8	99.7	99.9	99.7	99.9	99.7	99.9	99.6

NHS COMMUNITY HOSPITALS REPORT CARD

The community hospitals covered in this report card include:

- Haylodge Community Hospital
- Hawick Community Hospital
- Kelso Community Hospital
- Knoll Community Hospital
- Melburn Lodge

Staphylococcus aureus bacteraemia monthly case numbers

	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
MRSA	0	0	0	0	0	0	0	0	0	0	0	0
MSSA	0	0	0	0	0	0	0	1	0	0	0	0
Total SABS	0	0	0	0	0	0	0	1	0	0	0	0

Clostridium difficile infection monthly case numbers

	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
Ages 15-64	0	0	0	0	0	0	0	0	0	0	0	0
Ages 65 plus	1	0	0	0	0	0	0	1	0	0	1	0
Ages 15 plus	1	0	0	0	0	0	0	1	0	0	1	0

NHS OUT OF HOSPITAL REPORT CARD

Staphylococcus aureus bacteraemia monthly case numbers

	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
MRSA	0	0	0	0	0	0	0	1	0	0	0	0
MSSA	1	1	4	3	1	2	2	3	3	1	3	2
Total SABS	1	1	4	3	1	2	2	4	3	1	3	2

Clostridium difficile infection monthly case numbers

	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018	Sep 2018	Oct 2018	Nov 2018
Ages 15-64	1	0	0	1	1	1	0	0	0	1	0	0
Ages 65 plus	0	1	0	1	0	0	0	0	1	0	0	0
Ages 15 plus	1	1	0	2	1	0	0	0	1	1	0	0

Appendix A

Definitions and Supplementary Information

Staphylococcus aureus Bacteraemia (SAB)

Staphylococcus aureus is an organism which is responsible for a large number of healthcare associated infections, although it can also cause infections in people who have not had any recent contact with the healthcare system. The most common form of this is Meticillin Sensitive *Staphylococcus Aureus* (MSSA), but the more well known is MRSA (Meticillin Resistant *Staphylococcus Aureus*), which is a specific type of the organism which is resistant to certain antibiotics and is therefore more difficult to treat. More information on these organisms can be found at:

Staphylococcus aureus : http://www.nhs24.com/content/default.asp?page=s5_4&articleID=346

MRSA: http://www.nhs24.com/content/default.asp?page=s5_4&articleID=252

NHS Boards carry out surveillance of *Staphylococcus aureus* blood stream infections, known as bacteraemia. These are a serious form of infection and there is a national target to reduce them. The number of patients with MSSA and MRSA bacteraemia for the Board can be found at the end of section 1 and for each hospital in section 2. Information on the national surveillance programme for *Staphylococcus aureus* bacteraemia can be found at:

<http://www.hps.scot.nhs.uk/haic/sshaip/publicationsdetail.aspx?id=30248>

Clostridium difficile infection (CDI)

Clostridium difficile is an organism which is responsible for a large number of healthcare associated infections, although it can also cause infections in people who have not had any recent contact with the healthcare system. More information can be found at:

<http://www.nhs.uk/conditions/Clostridium-difficile/Pages/Introduction.aspx>

NHS Boards carry out surveillance of *Clostridium difficile* infections (CDI), and there is a national target to reduce these. The number of patients with CDI for the Board can be found at the end of section 1 and for each hospital in section 2. Information on the national surveillance programme for *Clostridium difficile* infections can be found at:

<http://www.hps.scot.nhs.uk/haic/sshaip/ssdetail.aspx?id=277>

Hand Hygiene

Information on national hand hygiene monitoring can be found at:

<http://www.hps.scot.nhs.uk/haic/ic/nationalhandhygienecampaign.aspx>

Good hand hygiene by staff, patients and visitors is a key way to prevent the spread of infections. More information on the importance of good hand hygiene can be found at:

<http://www.washyourhandsofthem.com/>

Cleaning and the Healthcare Environment

Keeping the healthcare environment clean is essential to prevent the spread of infections. NHS Boards monitor the cleanliness of hospitals and there is a national target to maintain compliance with standards above 90%. The cleaning compliance score for the Board can be found at the end of section 1 and for each hospital in section 2. Information on national cleanliness compliance monitoring can be found at:

<http://www.hfs.scot.nhs.uk/online-services/publications/hai/>

Healthcare environment standards are also independently inspected by the Healthcare Environment Inspectorate. More details can be found at:

<http://www.nhshealthquality.org/nhsqis/6710.140.1366.html>