

Borders NHS Board



HEALTHCARE ASSOCIATED INFECTION PREVENTION AND CONTROL REPORT
August 2018

Aim

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.

Background

The NHS Scotland HAI Action Plan 2008 requires an HAI report to be presented to the Board on a two monthly basis.

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.

Recommendation

The Board is asked to **note** this report.

Policy/Strategy Implications	This report is in line with the NHS Scotland HAI Action Plan.
Consultation	There is no requirement to consult as this is a bi-monthly update report as required by SGHD.
Consultation with Professional Committees	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.
Risk Assessment	All risks are highlighted within the paper.
Compliance with Board Policy requirements on Equality and Diversity	This is an update paper so a full impact assessment is not required.
Resource/Staffing Implications	This assessment has not identified any resource/staffing implications.

Approved by

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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 19 *Staphylococcus aureus* Bacteraemia (SAB) cases between April and August 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. At present, NHS Borders is not likely to meet this target.
- NHS Borders had 8 *Clostridium difficile* infection (CDI) cases between April and August 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 2 (Apr to Jun 2018). During this period NHS Borders (BR) had a rate of 19.0 which was slightly above the Scottish average rate of 17.3.

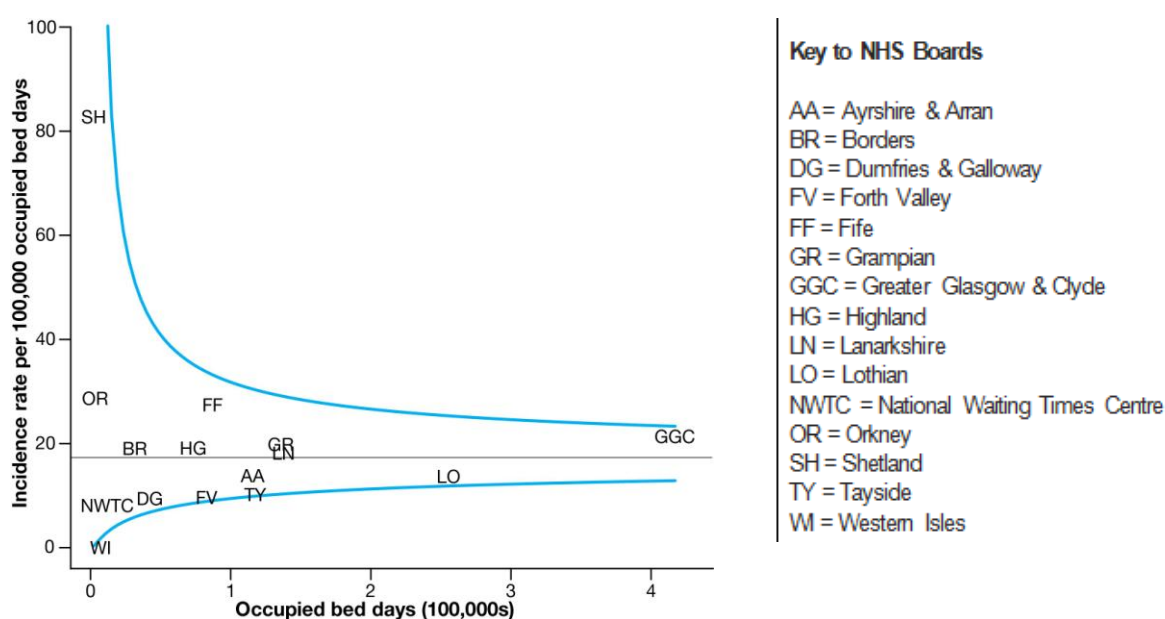


Figure 1: Funnel plot of SAB incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS Boards in Scotland in Q2 2018 (NHS Grampian and NHS Lanarkshire overlap).

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 2 (Apr to Jun 2018). During this period NHS Borders (BR) had a rate of 10.5 which was slightly above the Scottish average rate of 9.1 although not statistically significant.

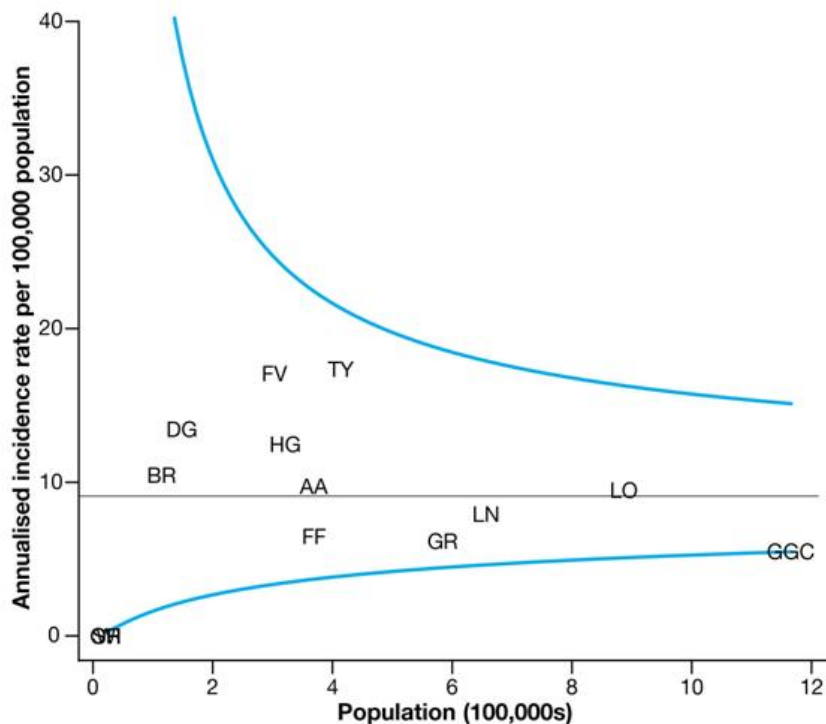


Figure 2: Funnel plot of SAB incidence rates (per 100,000 population) in community associated infection cases for all NHS Boards in Scotland in Q2 2018 (NHS Orkney, NHS Shetland and NHS Western Isles overlap).

Figure 3 shows that Hospital acquired infection accounted for 42% of SAB cases between April and August 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 17 cases of Meticillin-sensitive *Staphylococcus aureus* (MSSA) and 2 cases of Meticillin-resistant *Staphylococcus aureus* (MRSA).

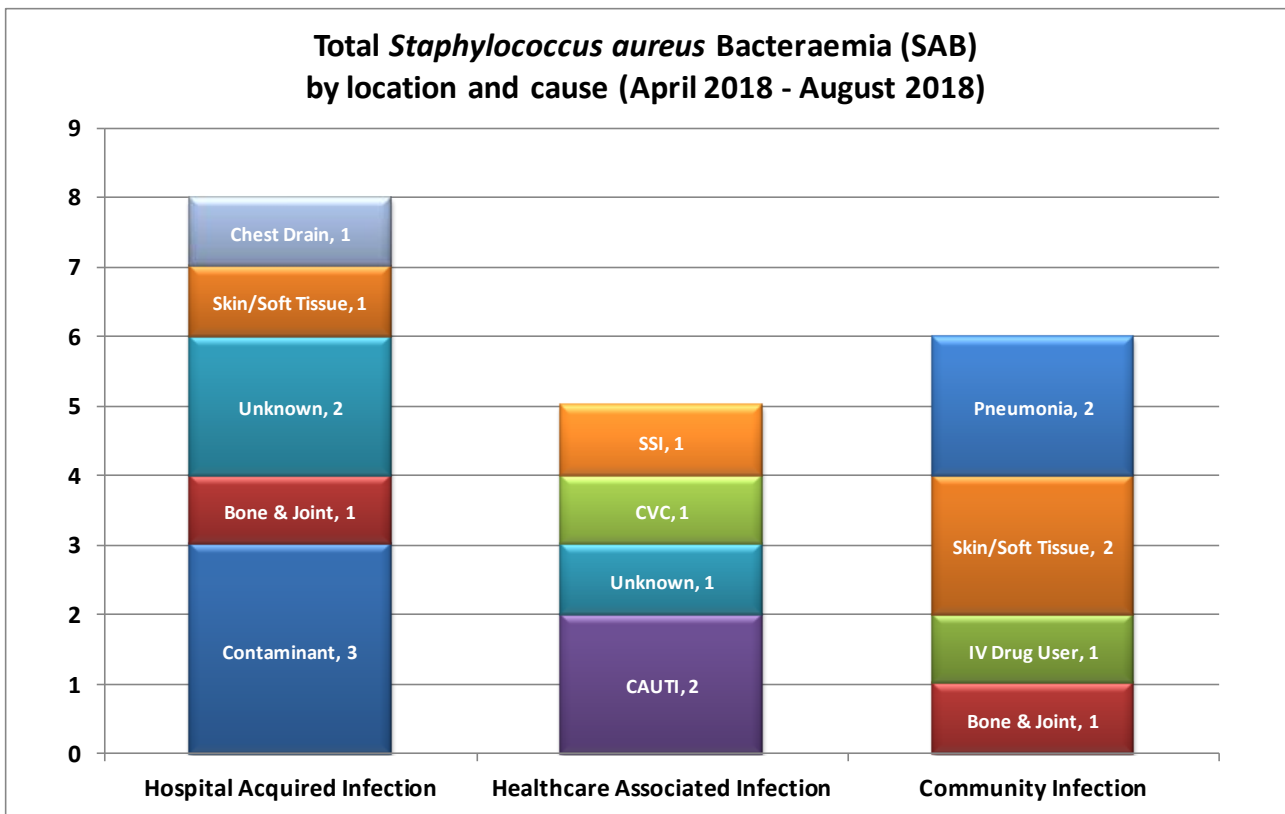


Figure 3: SAB cases by location and cause (April 2018 - August 2018)

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

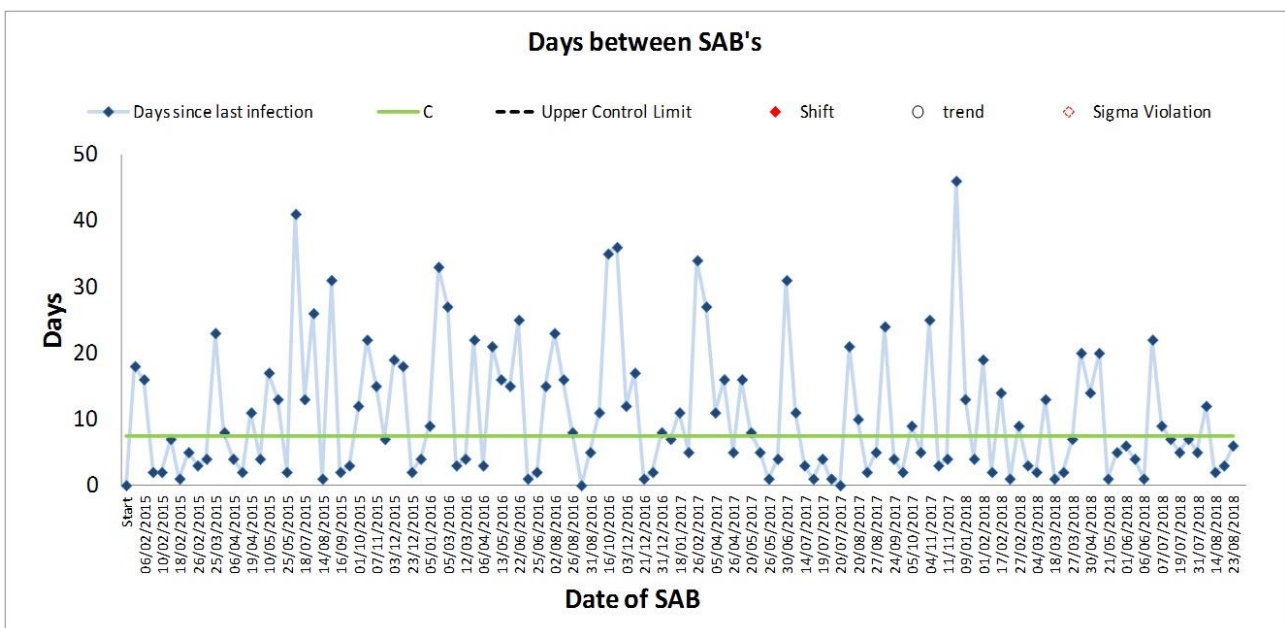


Figure 4: NHS Borders days between SAB cases (January 2015 – August 2018)

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 Q2 2018.

The graph shows that NHS Borders (BR) had a rate of 12.7 which is below the Scottish average rate of 15.7.

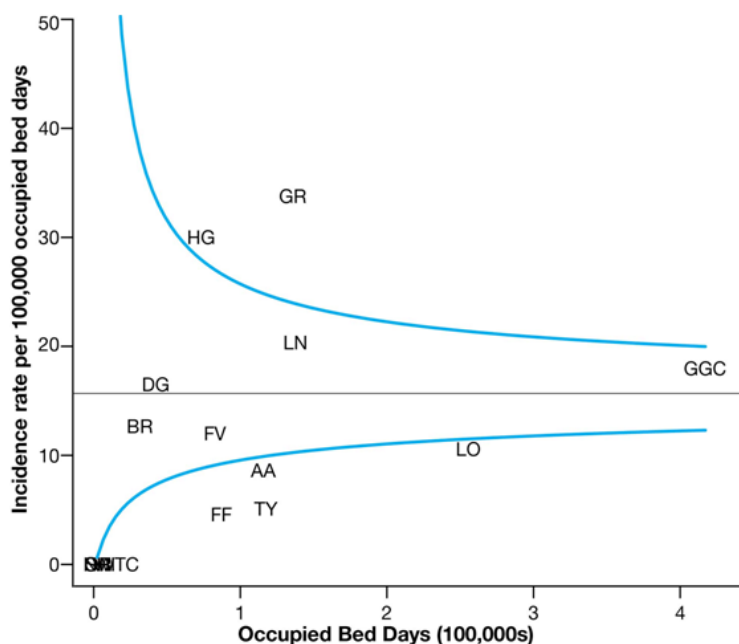


Figure 5: Funnel plot of CDI incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS Boards in Scotland in Q2 2018 (NHS Orkney, NHS National Waiting Times Centre, NHS Shetland and NHS Western Isles overlap).

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 Q2 2018.

The graph shows that NHS Borders (BR) had a rate of 0 which is below the Scottish average rate of 7.9.

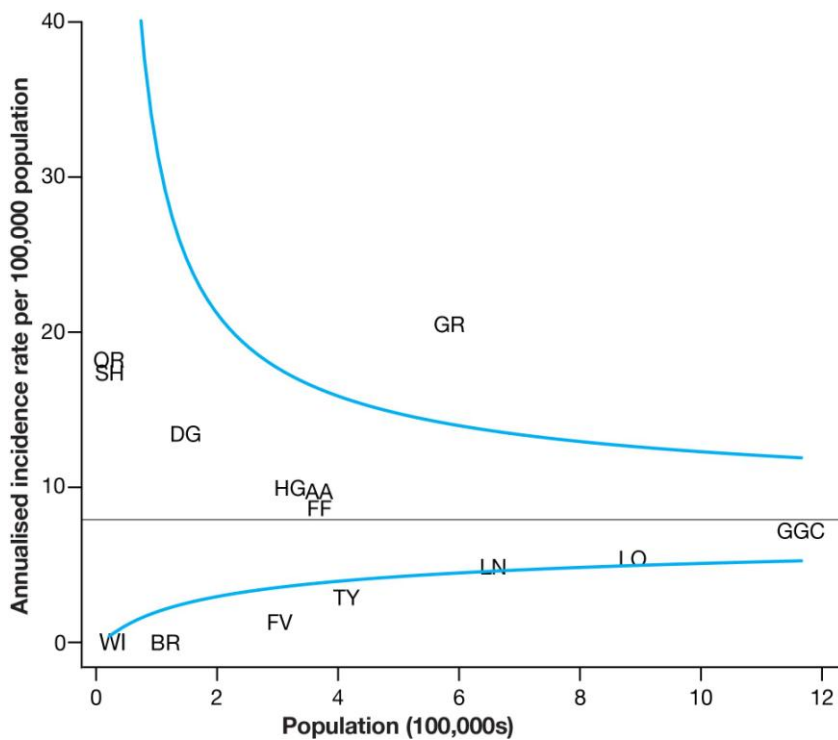


Figure 6: Funnel plot of CDI incidence rates (per 100,000 population) in community associated infection cases for all NHS Boards in Scotland in Q2 2018

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 has 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.

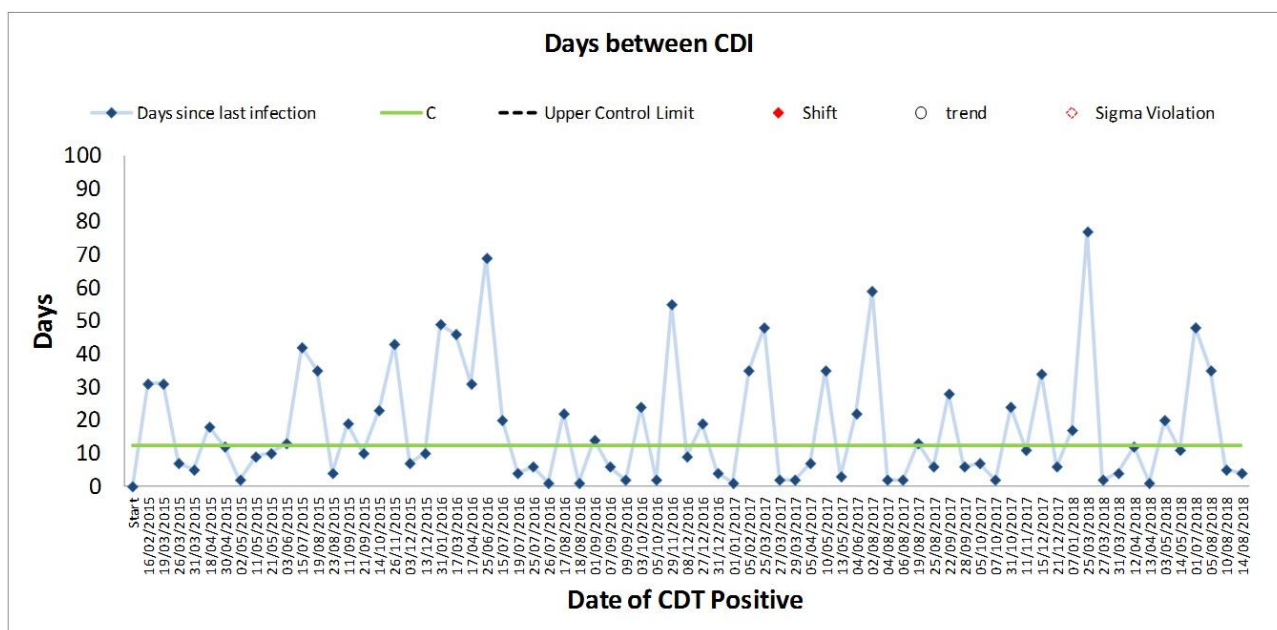


Figure 7: NHS Borders days between CDI cases (January 2015 – August 2018)

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

A new workplan for 2018/19 has been approved by the Infection Control Committee. To date, no actions are overdue for completion.

Outbreaks

There have been no outbreaks since the last update provided to the Board.

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.

To date, in 2018, there has been one SSI following hip arthroplasty, one SSI following knee arthroplasty, one SSI following breast surgery and one colorectal SSI case. There have been no SSI cases following C-Section in 2018.

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 2 (Apr to Jun 2018). The graph shows that NHS Borders (BR) had a rate of zero which is below the Scottish average rate of 1.5.

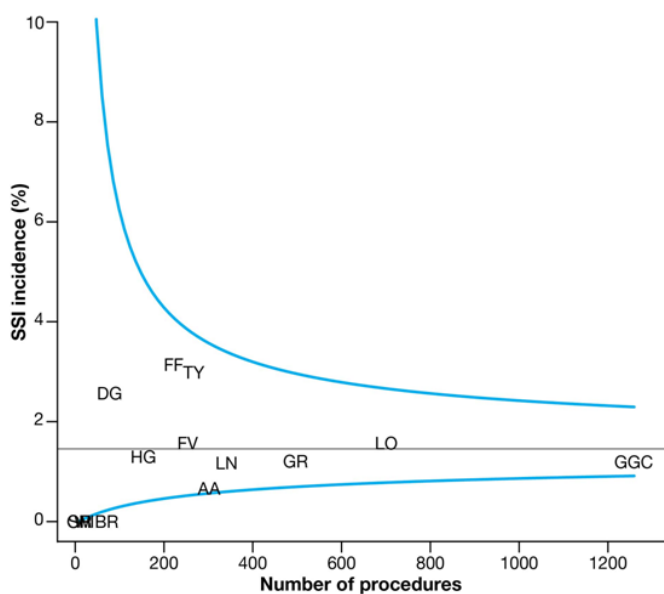


Figure 8: Funnel plot of caesarean section SSI incidence (per 100 procedures) in inpatients and Post Discharge Surveillance (PDS) to day 10 for all NHS Boards in Scotland in Q2 2018 (NHS Orkney, NHS Shetland and NHS Western Isles overlap).

Figure 9 shows a funnel plot of hip arthroplasty SSI incidence per 100 procedures in Quarter 2 (Apr to Jun 2018). The graph shows that NHS Borders (BR) had a rate of zero which is below the Scottish average rate of 0.8.

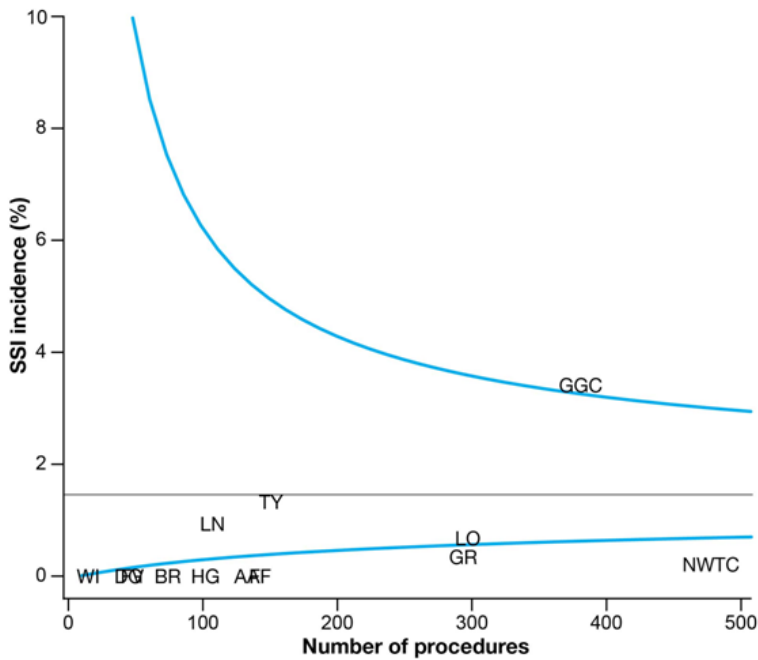


Figure 9: Funnel plot of hip arthroplasty SSI incidence (per 100 procedures) in inpatients and on readmission to day 30 for all NHS Boards in Scotland in Q2 2018 (NHS Forth Valley, NHS Dumfries and Galloway overlap and NHS Ayrshire & Arran and NHS Fife overlap).

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 Q2 2018.

The graph shows that NHS Borders (BR) had a rate of 38.1 which is slightly above the Scottish average rate of 38.0.

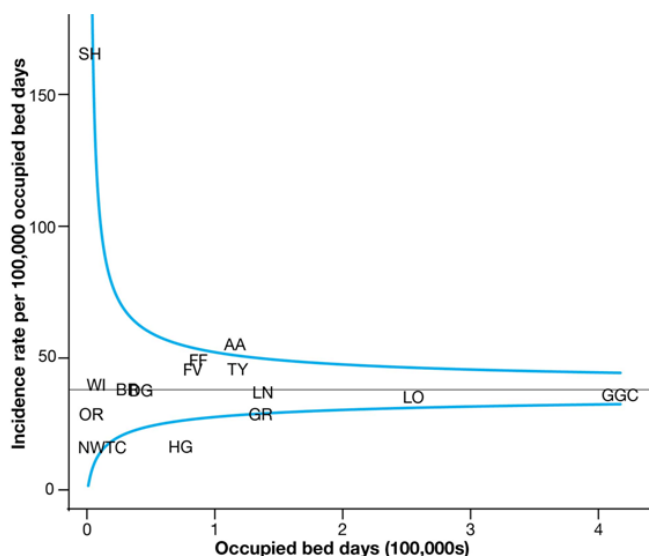


Figure 10: Funnel plot of ECB incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS Boards in Scotland in Q2 2018 (NHS Borders and NHS Dumfries & Galloway overlap).

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 Q2 2018.

The graph shows that NHS Borders (BR) had a rate of 83.7 which is above the Scottish average rate of 44.1. During this period, NHS Borders and NHS Forth Valley were above the 95% confidence interval upper limit for community associated ECB in the funnel plot analysis.

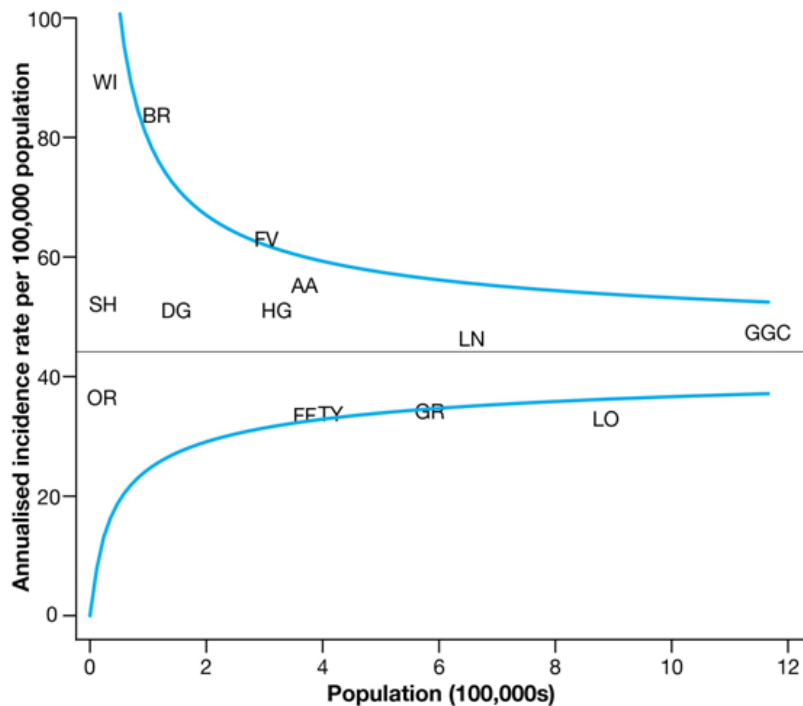


Figure 11: Funnel plot of ECB incidence rates (per 100,000 population) in community associated infection cases for all NHS Boards in Scotland in Q2 2018

The reason for NHS Borders statistically significant variance from the Scottish average is not known. As previously described, community infections are defined as a positive blood culture obtained from a patient within 48 hours of admission who does not fulfil any of the criteria for healthcare associated infection.

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

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

Clostridium difficile infection monthly case numbers

	Sep 2017	Oct 2017	Nov 2017	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018
Ages 15-64	0	0	0	1	0	0	1	1	1	0	0	0
Ages 65 plus	2	4	1	1	1	0	2	1	1	0	1	3
Ages 15 plus	2	4	1	2	1	0	3	2	2	0	1	3

Hand Hygiene Monitoring Compliance (%)

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

Cleaning Compliance (%)

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

Estates Monitoring Compliance (%)

	Sep 2017	Oct 2017	Nov 2017	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018
Board Total	99.2	99.8	99.4	99.3	99.6	99.8	99.1	99.4	99.4	98.6	98.8	98.9

BORDERS GENERAL HOSPITAL REPORT CARD***Staphylococcus aureus* bacteraemia monthly case numbers**

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

***Clostridium difficile* infection monthly case numbers**

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

Cleaning Compliance (%)

	Sep 2017	Oct 2017	Nov 2017	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018
Board Total	96.6	97.0	96.8	95.9	95.9	96.1	95.9	96.1	96.6	96.0	96.9	96.1

Estates Monitoring Compliance (%)

	Sep 2017	Oct 2017	Nov 2017	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	June 2018	July 2018	Aug 2018
Board Total	98.2	99.8	99.8	99.7	99.6	99.8	99.7	99.8	99.7	99.9	99.7	99.9

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

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

Clostridium difficile infection monthly case numbers

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

NHS OUT OF HOSPITAL REPORT CARD

Staphylococcus aureus bacteraemia monthly case numbers

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

Clostridium difficile infection monthly case numbers

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

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/haic/>

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>