Borders NHS Board

HEALTHCARE ASSOCIATED INFECTION PREVENTION AND CONTROL REPORT AUGUST 2017

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

Name	Designation	Name	Designation
Claire Pearce	Director of Nursing, Midwifery and Acute Services		

Author(s)

Name	Designation	Name	Designation
Sam Whiting	Infection Control Manager	Caroline Young	Infection Control Administrator

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 2017

- NHS Borders had 19 *Staphylococcus aureus* Bacteraemia (SAB) cases between April and August 2017 and is not on trajectory to achieve the SAB HEAT rate of 24.0 cases or less per 100,000 acute occupied bed days (AOBD) by March 2018. To achieve the HEAT target NHS Borders should have no more than 19 cases per year.

- NHS Borders had 10 *Clostridium difficile* infection (CDI) cases between April and August 2017 and is on trajectory 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 2018. To achieve the HEAT target, NHS Borders should have no more than 33 cases per year.

Staphylococcus aureus Bacteraemia (SAB)

See Appendix A for definition.

Health Protection Scotland (HPS) produces quarterly reports showing infection rates for all Scottish Boards. Figure 1 shows the most recently published data as a funnel plot of SAB rates per 100,000 Total Occupied Bed Days (TOBDs) for healthcare associated infection cases for all NHS boards in Scotland in Quarter 2 (April to June 2017). During this period NHS Borders (BR) had a rate of 18.5 which was slightly above the Scottish average rate of 16.0 although not statistically significant.

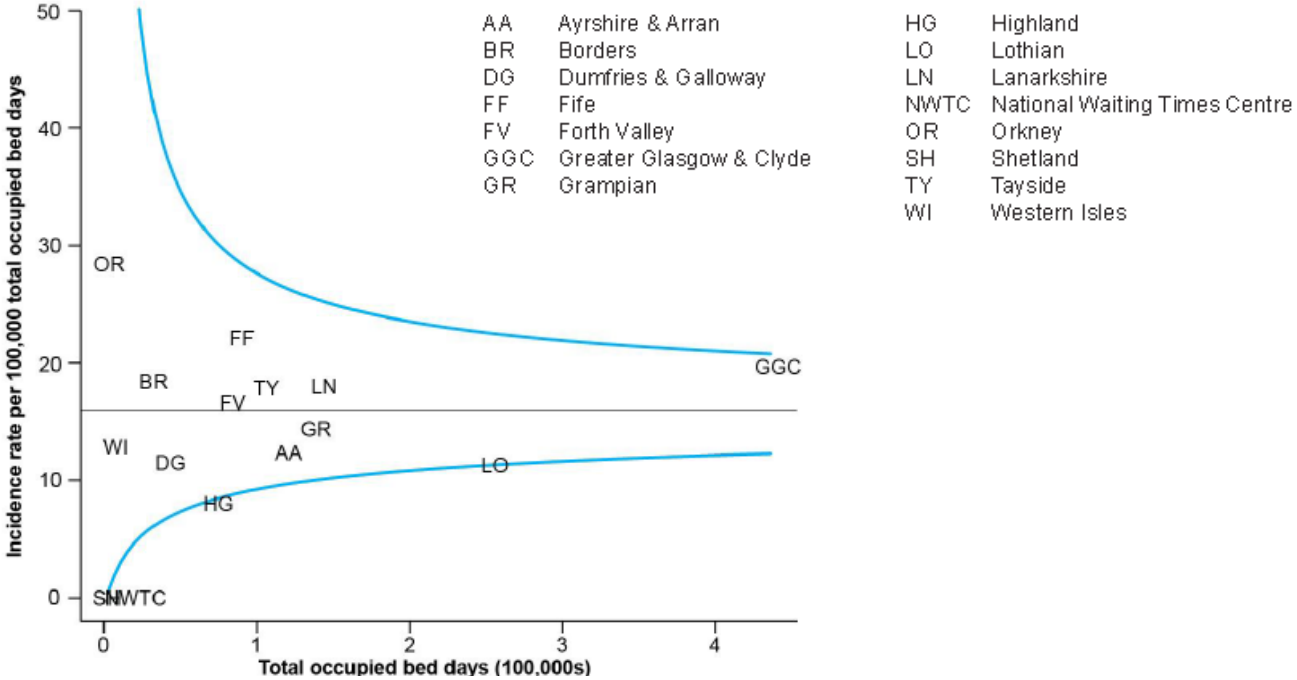

Figure 1: Funnel plot of SAB incidence rates (per 100,000 TOBDs) in healthcare associated infection cases for all NHS boards in Scotland in Q2 2017)

Figure 2 shows the most recently published data as a funnel plot of SAB rates per 100,000 population in community associated infection cases for all NHS boards in Scotland in Quarter 2 (April to June 2017). During this period NHS Borders (BR) had a rate of 10.5 which was slightly above the Scottish average rate of 9.4 although not statistically significant.

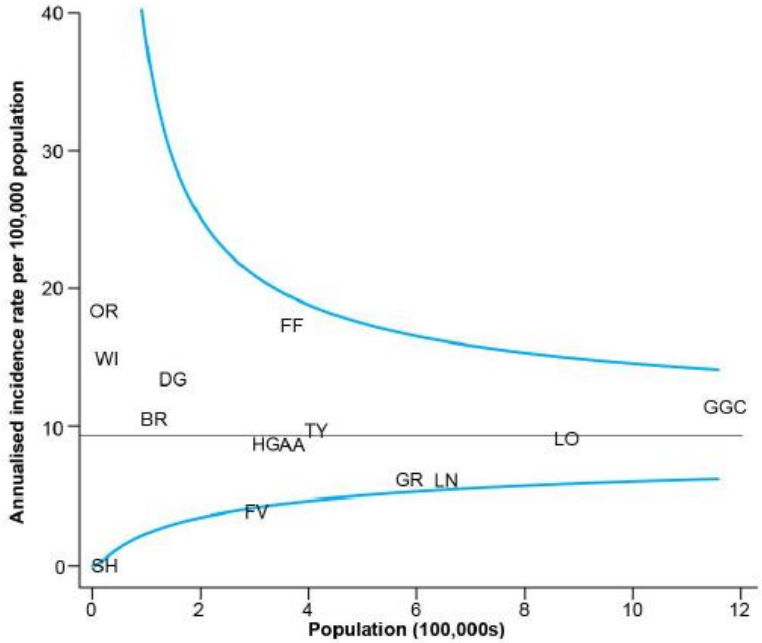

Figure 2: Funnel plot of SAB incidence rates (per 100,000 population) in community associated infection cases for all NHS boards in Scotland in Q2 2017)

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 having a higher denominator (Occupied Bed Days or Population). All funnel charts within this report show that NHS Borders rate was within the blue funnel, which means that it is not a statistical outlier.

Figure 3 shows NHS Borders SABs by location and cause. Three of the five SAB cases that were hospital acquired were associated with peripheral venous catheter (PVC). For two of these cases staff complied with the national standards to reduce the infection risks associated with these invasive devices. The third case highlighted how it is not always possible for staff to be fully compliant with the invasive devices standard due to the limited options currently available for IV access. This will be discussed with the Associate Director of Nursing with a view to establishing an IV Therapy Group to consider alternatives to PVCs.

Eighteen of the cases between April and August 2017 were Meticillin-sensitive *Staphylococcus aureus* (MSSA) with one case of Meticillin-resistant *Staphylococcus aureus* (MRSA).

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. There have been no statistically significant events since the last Board update.

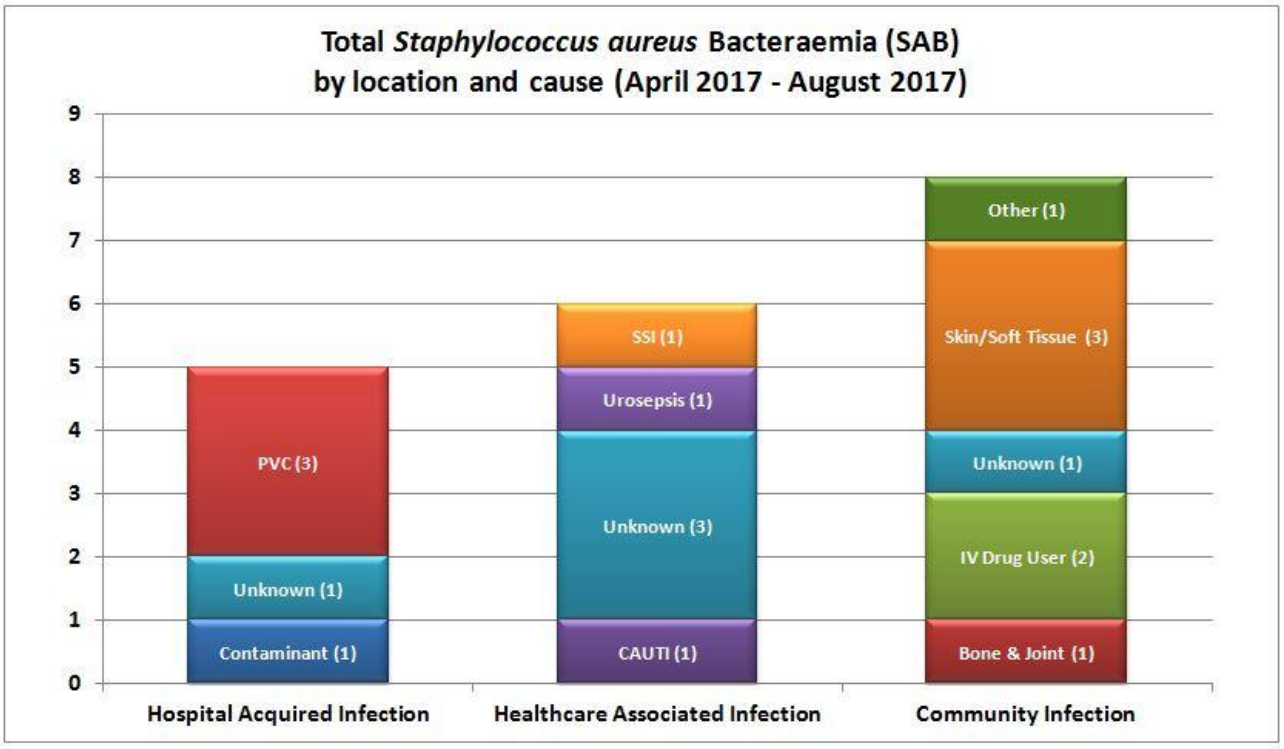

Figure 3: SAB cases by location and cause April - August 2017

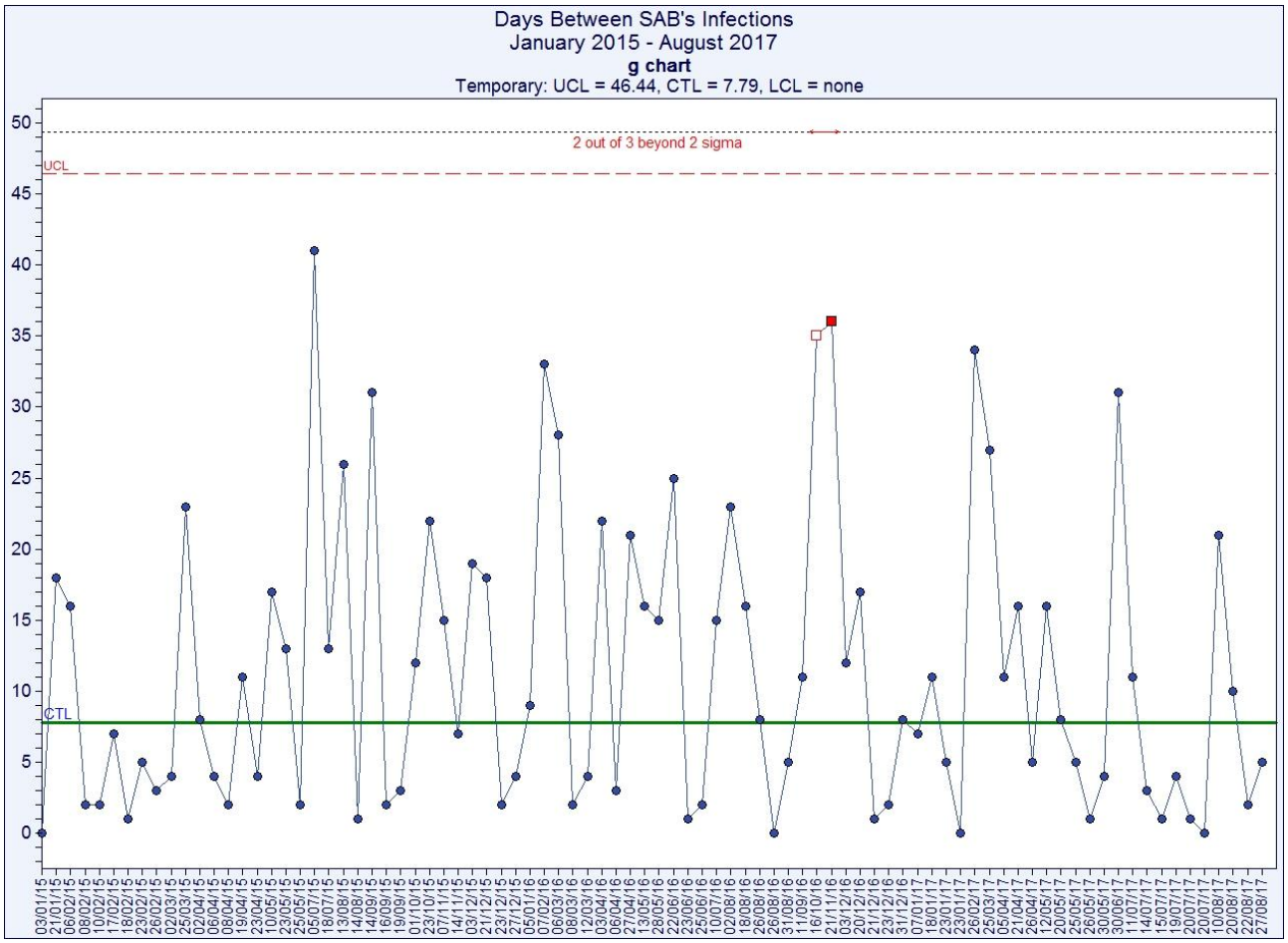

Figure 4: NHS Borders days between SAB cases (January 2015 – August 2017)

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.

Figure 5 shows a funnel plot of CDI incidence rates per 100,000 Total Occupied Bed Days (TOBDs) in healthcare associated infection cases for all NHS boards in Scotland in Quarter 2 (April to June 2017). The graph shows that NHS Borders (BR) had a rate of 9.2 which is below the Scottish average rate of 14.7.

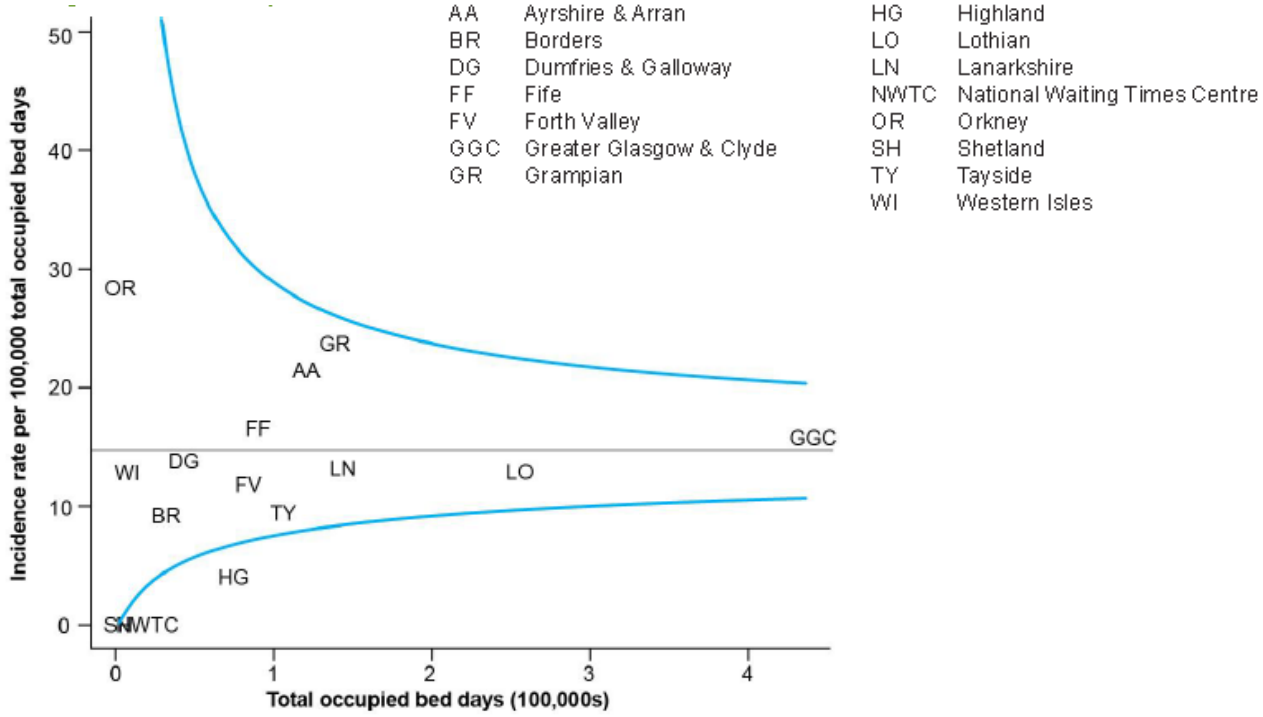

Figure 5: Funnel plot of CDI incidence rates (per 100 000 TOBDs) in healthcare associated infection cases for all NHS boards in Scotland in Q2 2017.

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 Quarter 2 (April to June 2017). The graph shows that NHS Borders (BR) had a rate of 7.0 which is below the Scottish average rate of 8.3.

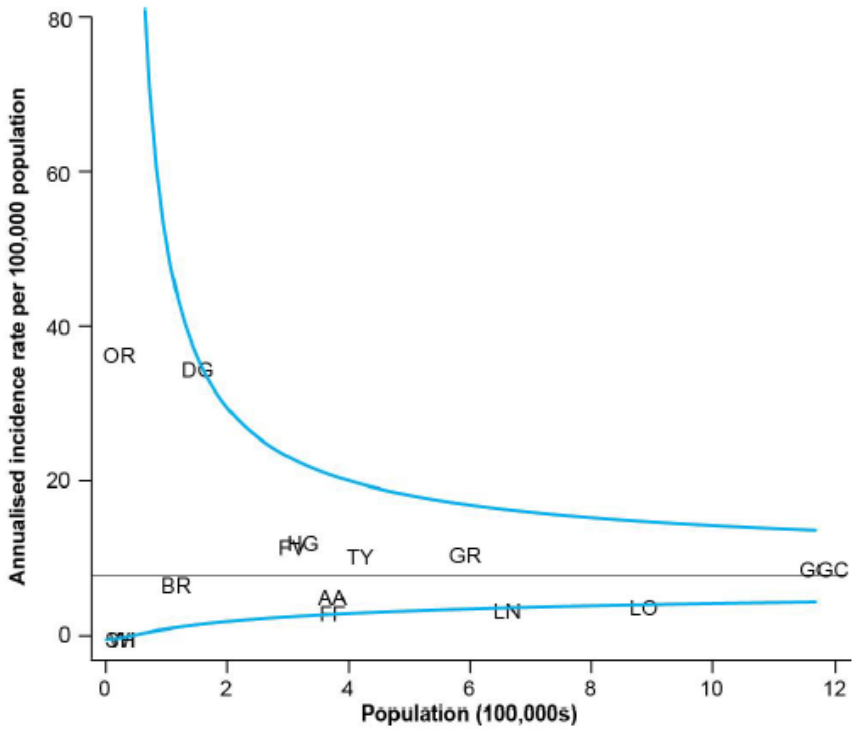

Figure 6: Funnel plot of CDI incidence rates (per 100 000 population) in community associated infection cases for all NHS boards in Scotland in Q2 2017.

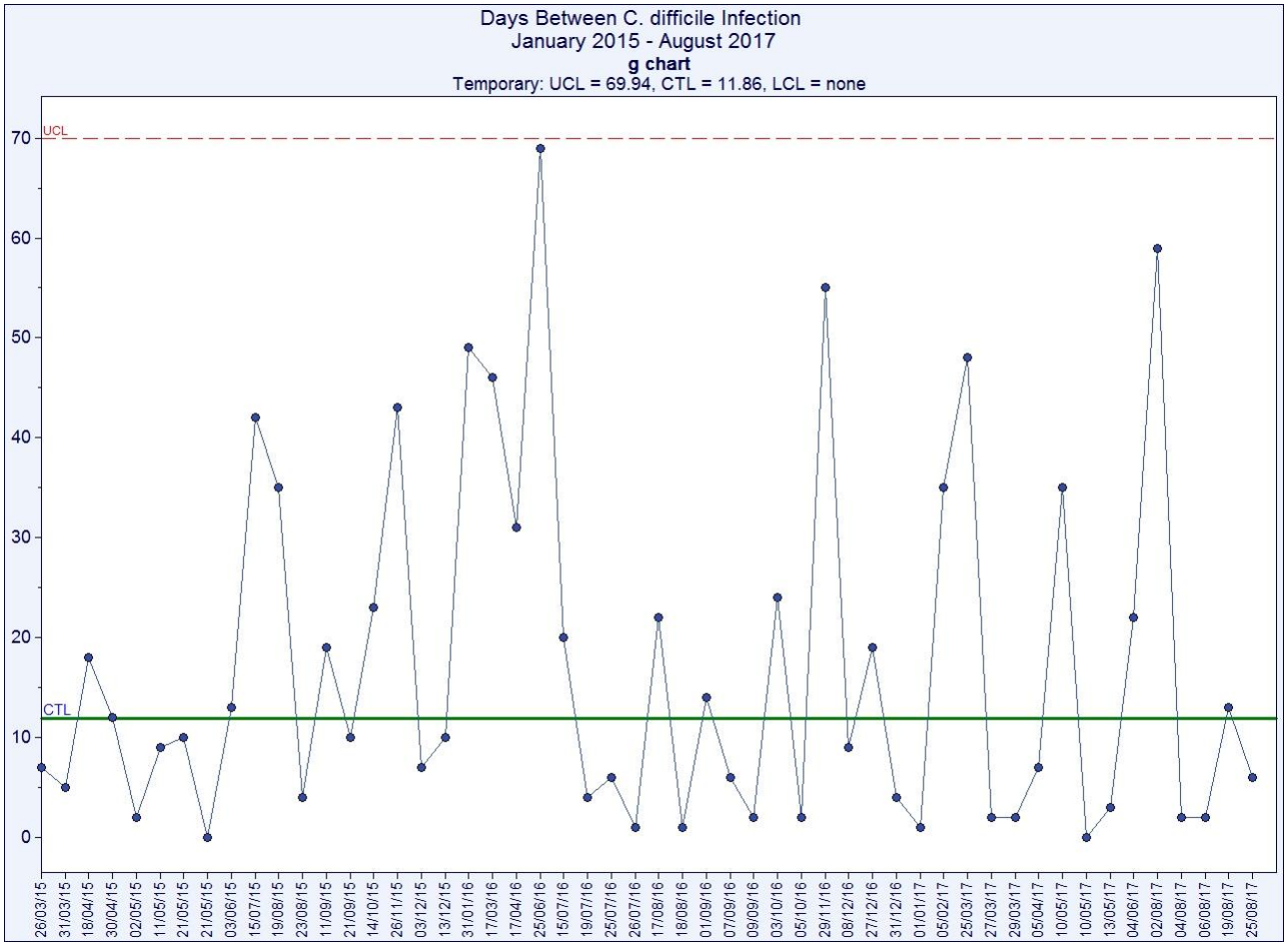

Figure 7: NHS Borders, days between CDI cases against indicative HEAT target (January 2015 – August 2017)

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.

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.

2016/17 Infection Control Workplan

As at the 30th September 2017, 88% of the actions due for completion in the 2017/18 Infection Control Work Plan are complete.

Outbreaks

Since the last Board update paper there have been no outbreaks.

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.

Since January 2017, there has been one Hip, one knee and six Colorectal SSI cases. The last SSI case following caesarean section was in June 2015.

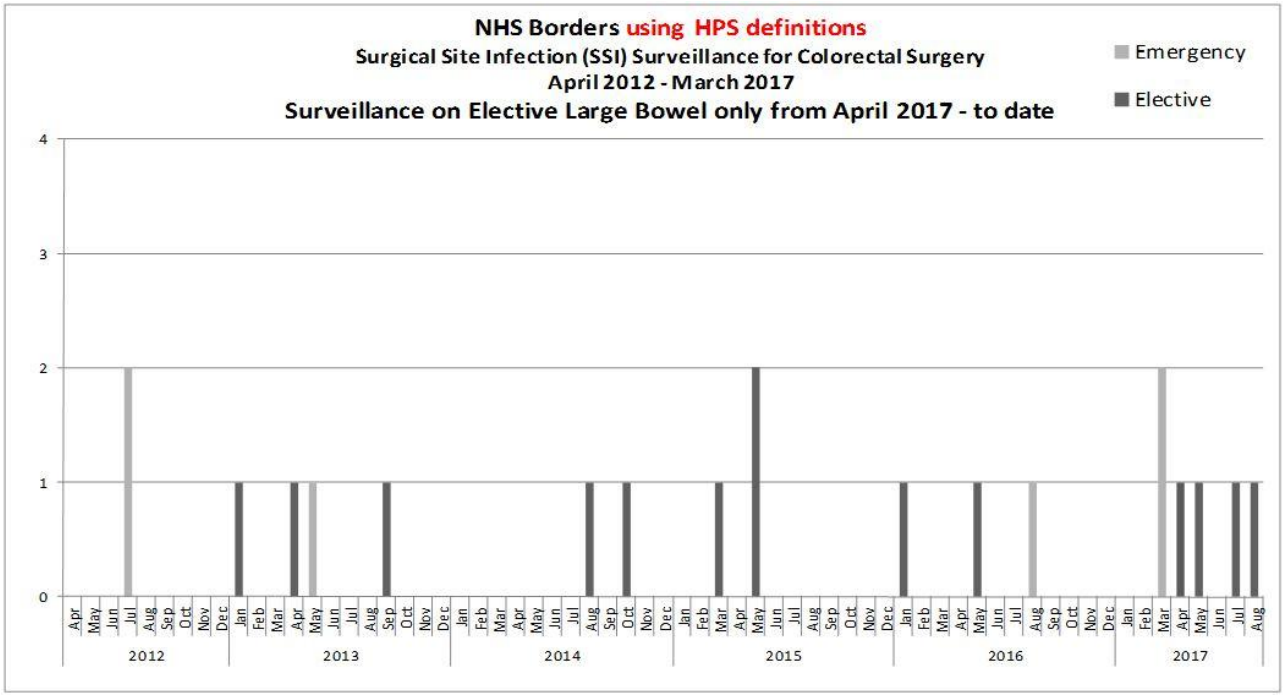

Figure 8: SSI for Colorectal Surgery April 2012 – August 2017

Figure 9 shows a funnel plot of caesarean section SSI incidence per 100 procedures in Quarter 2 (April to June 2017). The graph shows that NHS Borders (BR) had a rate of 0 which is below the Scottish average rate of 1.2.

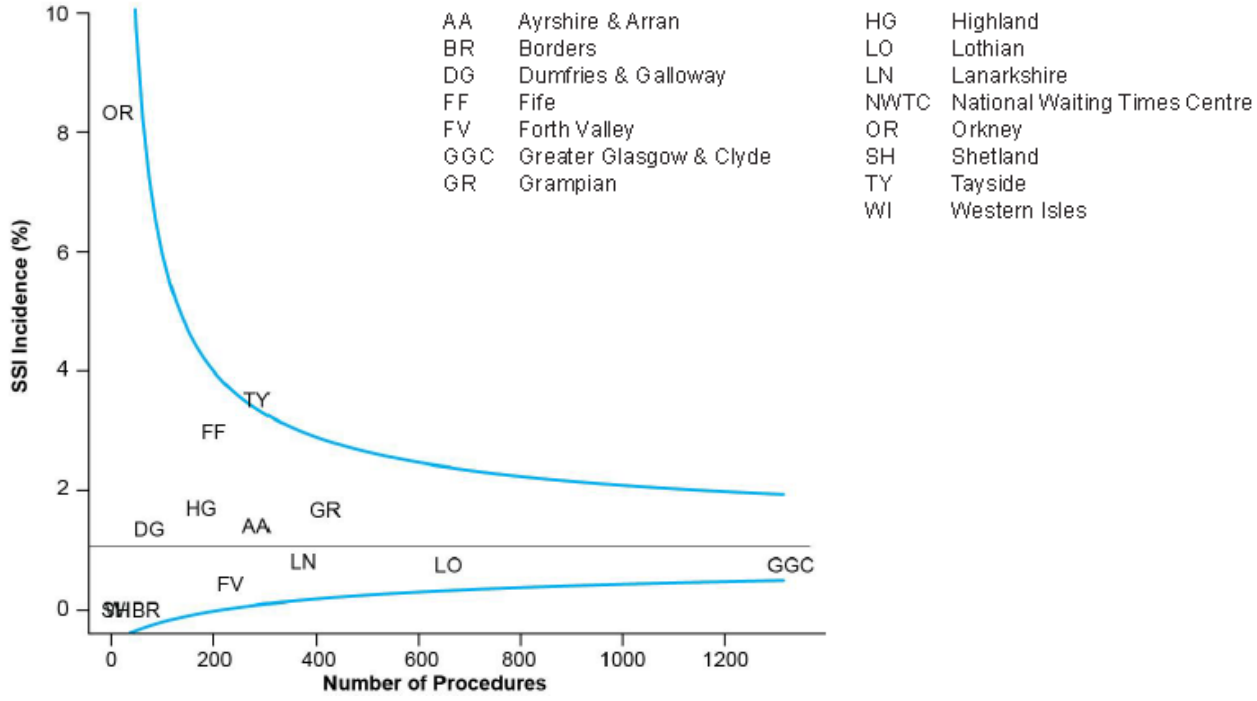

Figure 9: Funnel plot of caesarean section SSI incidence (per 100 procedures) in inpatients and PDS to day 10 for all NHS Boards in Scotland in Q2 2017.

Figure 10 shows a funnel plot of hip arthroplasty SSI incidence per 100 procedures for inpatients and on readmission to day 30 in Quarter 2 (April to June 2017). The graph shows that NHS Borders (BR) had a rate of 0 which is below the Scottish average rate of 0.7 although not statistically significant.

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

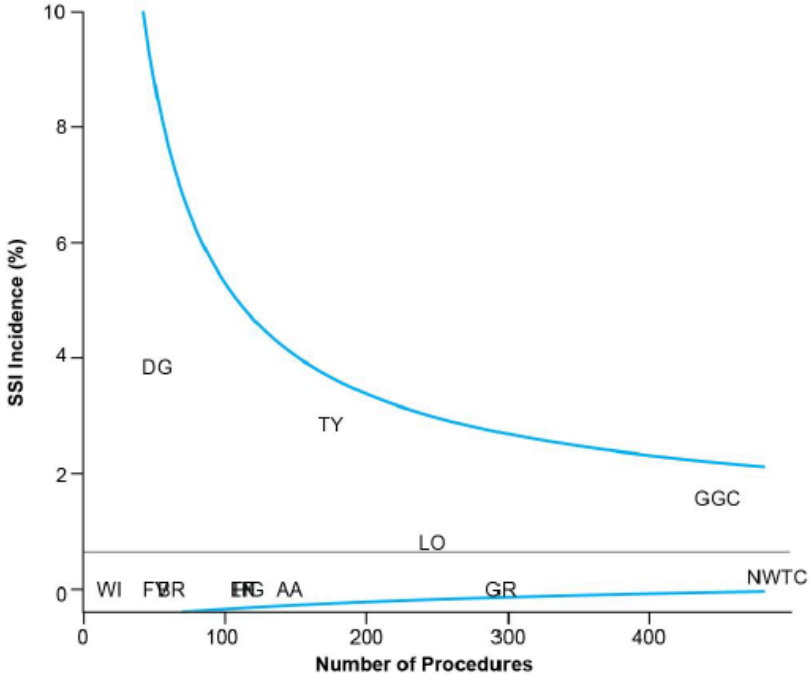

Figure 10: Funnel plot of hip arthroplasty SSI incidence (per 100 procedures) in inpatients and on readmission to day 30 for all NHS boards in Scotland in Q2 2017. NHS Borders and NHS Forth Valley / NHS Fife, NHS Highland and NHS Lanarkshire overlap.

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&sectionID=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&sectionID=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

	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017
MRSA	0	0	0	0	1	0	0	0	1	0	0	0
MSSA	1	1	1	5	3	1	1	3	4	1	6	4
Total SABS	1	1	1	5	4	1	1	3	5	1	6	4

Clostridium difficile infection monthly case numbers

	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017
Ages 15-64	1	0	0	1	0	0	0	0	2	1	0	0
Ages 65 plus	2	2	1	2	1	1	3	1	1	0	0	5
Ages 15 plus	3	2	1	3	1	1	3	1	3	1	0	5

Hand Hygiene Monitoring Compliance (%)

	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017
AHP	98	89	100	100	95	100	100	100	100	100	98	98
Ancillary	100	87	97	99	94	100	97	100	100	96	99	100
Medical	97	96	98	97	97	98	98	98	99	97	97	98
Nurse	99	98	99	99	99	99	99	99	100	98	100	100
Board Total	**99**	**96**	**99**	**99**	**96**	**99**	**99**	**99**	**100**	**98**	**99**	**99**

Cleaning Compliance (%)

	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017
Board Total	95.1	92.3	95.5	97.3	95.4	95.0	96.0	96.0	96.5	96.6	97.0	96.8

Estates Monitoring Compliance (%)

	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017
Board Total	97.7	97.7	97.5	98.4	96.2	96.3	98.6	99.5	99.5	99.1	99.8	99.7

BORDERS GENERAL HOSPITAL REPORT CARD

Staphylococcus aureus bacteraemia monthly case numbers

	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017
MRSA	0	0	0	0	0	0	0	0	0	0	0	0
MSSA	0	0	1	1	1	0	1	0	1	1	1	1
Total SABS	0	0	1	1	1	0	1	0	1	1	1	1

Clostridium difficile infection monthly case numbers

	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017
Ages 15-64	1	0	0	0	0	0	0	0	0	0	0	0
Ages 65 plus	2	1	0	1	1	0	1	1	0	0	0	3
Ages 15 plus	3	1	0	1	1	0	1	1	0	0	0	3

Cleaning Compliance (%)

	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017
Board Total	95.8	96.3	96.7	95.9	96.1	95.3	95.5	96.0	96.7	96.8	97.0	96.7

Estates Monitoring Compliance (%)

	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017
Board Total	99.9	99.9	99.7	100	99.5	99.6	99.8	99.5	99.7	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**

	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017
MRSA	0	0	0	0	0	0	0	0	0	0	0	0
MSSA	0	1	0	0	0	0	0	0	0	0	0	0
Total SABS	0	1	0	0	0	0	0	0	0	0	0	0

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

	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017
Ages 15-64	0	0	0	0	0	0	0	0	0	0	0	0
Ages 65 plus	0	0	1	0	0	0	1	0	1	0	0	0
Ages 15 plus	0	0	1	0	0	0	1	0	1	0	0	0

NHS OUT OF HOSPITAL REPORT CARD

***Staphylococcus aureus* bacteraemia monthly case numbers**

	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017
MRSA	0	0	0	0	1	0	0	0	1	0	0	0
MSSA	1	0	0	4	2	1	0	3	3	0	5	3
Total SABS	1	0	0	4	3	1	0	3	4	0	5	3

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

	Sept 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017
Ages 15-64	0	0	0	1	0	0	0	0	2	1	0	0
Ages 65 plus	0	1	0	1	0	1	1	0	0	0	0	2
Ages 15 plus	0	1	0	2	0	1	1	0	2	1	0	2

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/haiic/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/haiic/sshaip/ssdetail.aspx?id=277

Hand Hygiene

Information on national hand hygiene monitoring can be found at:

http://www.hps.scot.nhs.uk/haiic/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