Borders NHS Board



HEALTHCARE ASSOCIATED INFECTION PREVENTION AND CONTROL REPORT JANUARY 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 March 2018

- NHS Borders had 30 Staphylococcus aureus Bacteraemia (SAB) cases between April 2017 and January 2018. To achieve the HEAT target rate of 24.0 cases or less per 100,000 acute occupied bed days (AOBD) by March 2018, NHS Borders should have no more than 19 cases per year.
- NHS Borders had 20 Clostridium difficile infection (CDI) cases between April 2017 and January 2018 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.
- During the month December 2017, there were an unprecedented number of patients with laboratory confirmed Influenza.

Staphylococcus aureus Bacteraemia (SAB)

See Appendix A for definition.

Figure 1 shows that Community Infections accounted for 40% of SAB cases between April 2017 and January 2018. The definition of Community cases is where a positive blood sample is taken within 48 hours of hospital admission with no healthcare contact in the previous 30 days.

During the same period, there was only one case of Meticillin-resistant Staphylococcus aureus (MRSA).

Since April 2017, there have been 3 SAB cases associated with Peripheral Venous Cannula (PVC). It is important that staff follow best practice for insertion and maintenance of invasive devices such as PVCs to reduce the infection risk to patients. The Infection Prevention and Control Team are reviewing completion of the PVC documentation in wards and are also using the hospital Safety Brief to remind staff of the importance of these measures for patient safety.

Figure 2 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.

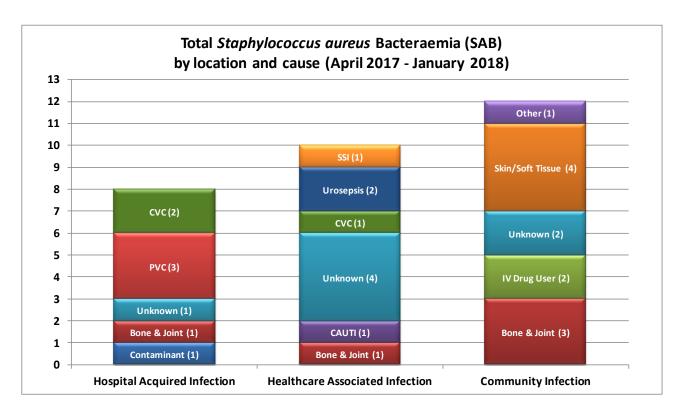


Figure 1: SAB cases by location and cause April 2017 – January 2018

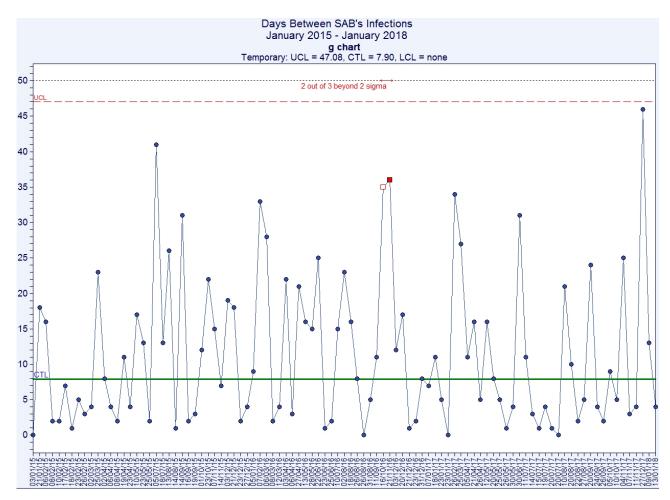


Figure 2: NHS Borders days between SAB cases January 2015 – January 2018

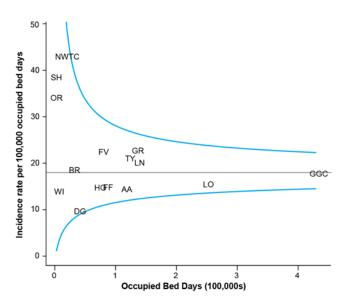
In interpreting Figure 2, it is important to remember that as this graph plots the number of days between infections, we are trying to achieve performance above the green average line.

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.

Health Protection Scotland produces quarterly reports showing infection rates for all Scottish Boards. Figures 3 and 4 show the most recently published data as funnel plots of healthcare associated SABs and community associated SABs for Quarter 3 2017 (July to September).

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 having a higher denominator.

In Quarter 3 2017, there were six healthcare associated SAB cases, and seven community associated SAB cases. Although figure 4 shows NHS Borders to have the highest Community SAB rate in Scotland in Quarter 3, figures 3 and 4 shows NHS Borders rates are within the blue funnel and is not a statistical outlier.



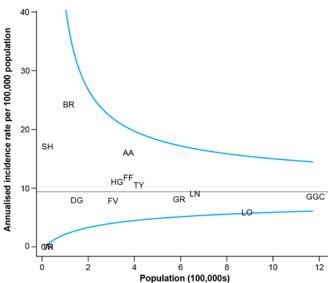


Figure 3: Funnel plot of SAB rates (per 100 000 TOBDs) in healthcare associated infection cases for all NHS boards in Scotland in Q3 2017.

Figure 4: Funnel plot of SAB rates (per 100 000 population) in community associated infection cases for all NHS boards in Scotland in Q3 2017.

NHS Board Abbreviations

AA	Ayrshire & Arran	OR	Orkney
HG	Highland	SH	Shetland
LO	Lothian	GR	Grampian
DG	Dumfries & Galloway	TY	Tayside
LN	Lanarkshire	WI	Western Isles
FF	Fife	WI	Western Isles
FV	Forth Valley	GGC	Greater Glasgow & Clyde
NWTC	National Waiting Times Centre		

Clostridium difficile infections (CDI)

See Appendix A for definition.

Figure 5 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.

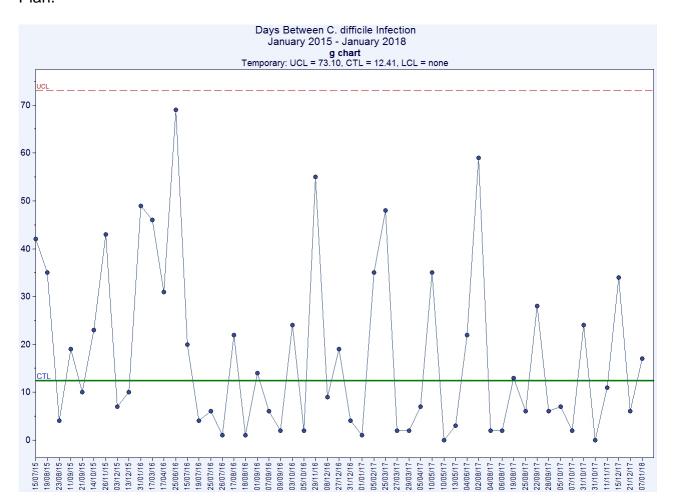
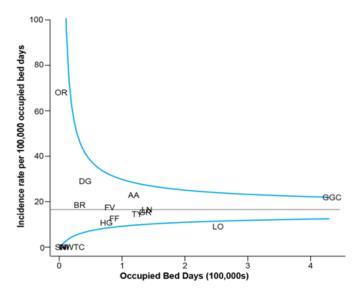


Figure 5: NHS Borders days between CDI cases January 2015 – January 2017

Figures 6 and 7 show funnel plots of CDI rates for all NHS Boards in Scotland for the period July to September 2017. Figure 6 shows the CDI rate in healthcare associated cases and Figure 7 shows the CDI rate in community associated infection cases. Figures 6 and 7 shows NHS Borders rates are within the blue funnel and is not a statistical outlier.



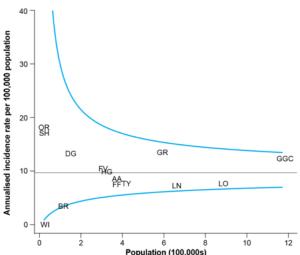


Figure 6: Funnel plot of CDI incidence rates (per 100 000 TOBDs) in <u>healthcare associated</u> infection cases for all NHS boards in Scotland in Q3 2017.

Figure 7: Funnel plot of CDI incidence rates (per 100 000 population) in <u>community associated</u> infection cases for all NHS boards in Scotland in Q3 2017.

NHS Waiting Time Centre, NHS Shetland and NHS Western Isles overlap as do NHS Grampian, NHS Lanarkshire and NHS Tayside.

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.

2017/18 Infection Control Workplan

As at the end of January 2018, 76% of the actions due for completion in the 2017/18 Infection Control Work Plan are complete. Although this is an improvement since the last board update, there continues to be a temporary reduction in team capacity which coincides with increased clinical workload. To help reduce the associated risk, day-to-day work is prioritised and additional temporary staffing has been sought to support the infection control team.

Outbreaks

In December 2017, there was one outbreak of suspected Norovirus resulting in the temporary closure of one individual bay in DME ward in BGH and three outbreaks of Influenza, each resulting in the temporary closure of one individual bay in wards in BGH.

In January there were five outbreaks of suspected Norovirus resulting in the temporary closure of individual bays in BGH.

The outbreaks were managed by the Infection Prevention & Control Team (IPCT) with support from frontline colleagues. Daily Outbreak Control Meetings were convened and enhanced cleaning was implemented.

As Figure 8 shows, in December 2017, there were an unprecedented number of patients with laboratory confirmed influenza.

The biggest impact of influenza was experienced in the 17 days between 17th December 2017 and 2nd January 2018, during which time there were 100 influenza positive laboratory specimens taken (Figure 9).

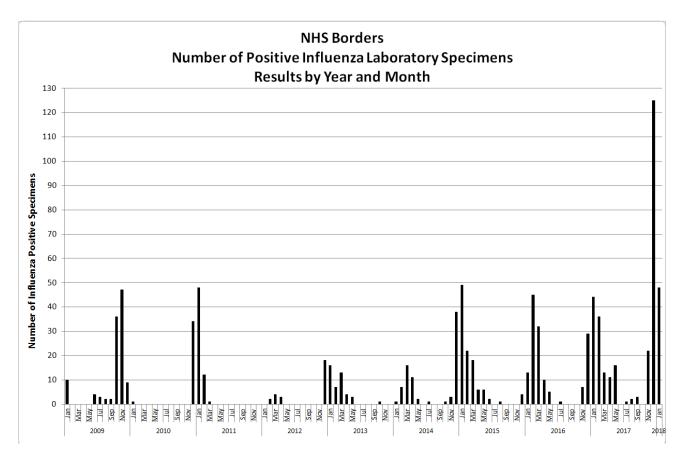


Figure 8: NHS Borders number of Influenza positive specimens by month – January 2009 – January 2018

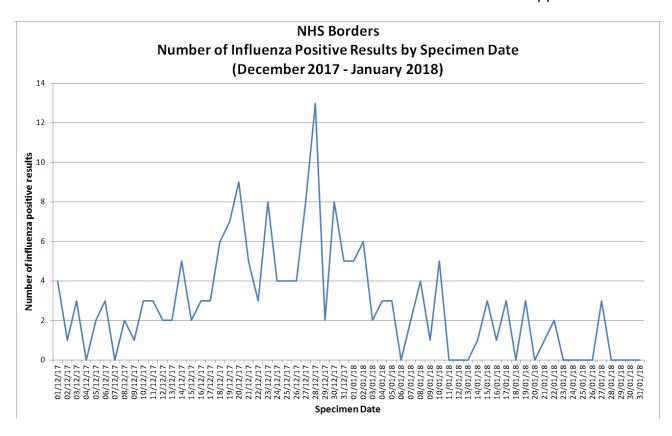


Figure 9: NHS Borders number of Influenza positive specimens by day December 2017 – January 2018

The data in Figures 8 and 9 covers all specimens handled by the laboratory in Borders General Hospital so will include both acute and community patients.

In addition to influenza, during the same period, there was also a general increase in other respiratory infections.

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.

Between April and January 2018, there have been one c-section, two knee and six colorectal SSI cases (see Figure 10 and Figure 11).

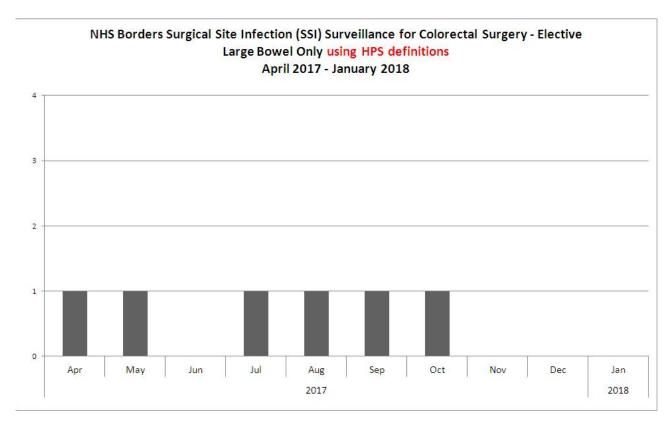


Figure 10: SSI for Colorectal Surgery April 2017 – January 2018

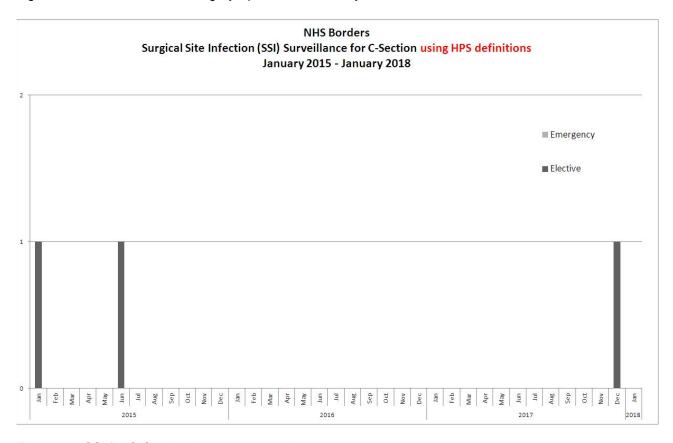


Figure 11: SSI for C-Section January 2015 – January 2018

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

Figure 12 shows a 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 Q3 2017. During this period, NHS Borders SSI rate was zero and overlaps with NHS Dumfries and Galloway.

Figure 13 shows a 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 2017. During this period, NHS Borders SSI rate was zero.

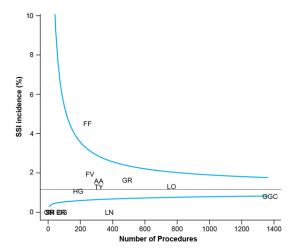


Figure 12: Funnel plot of caesarean section SSI incidence (per 100 procedures) in inpatients and PDS to day 10 for all NHS boards in Scotland in Q3 2017. 1,2

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

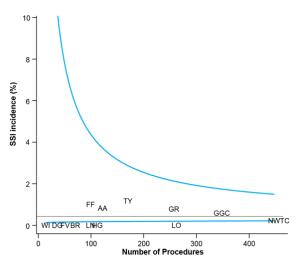


Figure 13: Funnel plot of hip arthroplasty SSI incidence (per 100 procedures) in inpatients and on readmission to day 30 for all NHS boards in Scotland in Q3 2017. 1,2

- Source of data is Surgical Site Infection Reporting System (SSIRS). NHS Dumfries & Galloway and NHS Forth Valley overlap as do NHS Highland and NHS Lanarkshire.

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 <u>each hospital</u> the total number of cases for each month are those which have been reported as positive from a laboratory report on samples taken <u>more than</u> 48 hours after admission. For the purposes of these reports, positive samples taken from patients <u>within</u> 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

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

Clostridium difficile infection monthly case numbers

	Feb 2017	Mar 2017	Apr 2017	May 2017	June 2017	July 2017	Aug 2017	Sep 2017	Oct 2017	Nov 2017	Dec 2017	Jan 2018
Ages 15-64	0	0	0	2	1	0	0	0	0	0	1	0
Ages 65 plus	1	3	1	1	0	0	5	2	4	1	1	1
Ages 15 plus	1	3	1	3	1	0	5	2	4	1	2	1

Hand Hygiene Monitoring Compliance (%)

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

Cleaning Compliance (%)

	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan
	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2018
Board Total	95.0	96.0	96.0	96.5	96.6	97.0	96.8	96.4	96.7	96.7	96.5	96.3

Estates Monitoring Compliance (%)

		Feb 2017		-	_	June 2017	-	_	-				
В	oard Total	96.3	98.6	99.5	99.5	99.1	99.8	99.7	99.2	99.8	99.4	99.3	99.8

BORDERS GENERAL HOSPITAL REPORT CARD

Staphylococcus aureus bacteraemia monthly case numbers

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

Clostridium difficile infection monthly case numbers

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

Cleaning Compliance (%)

	Feb 2017		-	-	June 2017	-	_	-				
Board Total	95.3	95.5	96.0	96.7	96.8	97.0	96.7	96.6	97.0	96.8	95.9	96.1

Estates Monitoring Compliance (%)

	Feb 2017	Mar 2017	-	-	June 2017	-	_	-				
Board Total	99.6	99.8	99.5	99.7	99.7	99.9	99.6	98.2	99.8	99.8	99.7	99.8

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

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

Clostridium difficile infection monthly case numbers

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

NHS OUT OF HOSPITAL REPORT CARD

Staphylococcus aureus bacteraemia monthly case numbers

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

Clostridium difficile infection monthly case numbers

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