

NHS Ayrshire & Arran



Meeting:	Ayrshire and Arran NHS Board
Meeting date:	Monday 14 August 2023
Title:	Healthcare Associated Infection Report
Responsible Director:	Jennifer Wilson, Nurse Director
Report Author:	Claire Pugh, Senior Infection Prevention and Control Nurse Alison Chandler, Business Manager, Infection Prevention and Control Team

1. Purpose

This is presented to the Board for:

- Discussion

This paper relates to:

- Annual Operational Plan

This aligns to the following NHSScotland quality ambition(s):

- Safe

2. Report summary

2.1 Situation

This paper provides Board members with the current position against the National Healthcare Associated Infection (HCAI) Standards and reflects national HAI performance data for Quarter 4 2022-2023 for discussion and assurance.

2.2 Background

On 28 February 2023, the DL (2023) 06 *Further Update on Standards on HCA Infections and Indicators on Antibiotic Use and Changes to Hospital Onset COVID-19 Reporting*, was released. This further extended the previous targets by another year. It also established that the previous 50% reduction of ECBs was unrealistic and adopted a 25% reduction target based on an assessment of what can reasonable be achieved.

Targets for 2023-24:

- *Clostridioides difficile* infection (CDI) - a reduction of 10% in the national rate of HCA CDI for the year ending March 2024, with 2018-19 used as the baseline.
- *Staphylococcus aureus* bacteraemias (SAB) - a reduction of 10% in the national rate of HCA CDI for the year ending March 2024, with 2018-19 used as the baseline.
- *Escherichia coli* bacteraemias (ECB) - a reduction of 25% in the national rate of HCA ECBs for the year ending March 2024, with 2018-19 used as the baseline.

The Healthcare Associated Infection Reporting Template (HAIRT) is a mandatory reporting tool for the Board to have oversight of the Healthcare Associated targets, this is in addition to information on incidents and outbreaks and other Healthcare Associated Infections' (HCAI) activity across NHS Ayrshire & Arran (NHSAA). The following quarterly data covers the time-period January to March 2023. The annual data for 2022-23 is also presented.

2.3 Assessment

The Board's current verified position against each HCAI standard for the year ending March 2023 is:

Infection	NHS A&A Annual Rate Year Ending March 2023 (number of cases per 100,000 Total Occupied Bed Days (TOBDs))	NHS A&A Quarter Rate January – March 2023 (number of cases per 100,000 Total Occupied Bed Days (TOBDs))	2022-23 Target (cases per 100,000 TOBDs)
<i>Clostridioides difficile</i> Infection	17.1	12.7	13.0
<i>Staphylococcus aureus</i> Bacteraemia	18.6	19.4	12.4
<i>Escherichia coli</i> Bacteraemia	32.7*	26.2*	34.3

Figure 1 – NHS Ayrshire & Arran's verified position

*ECB data should be interpreted with caution. More detail is provided in the ECB section later in the report.

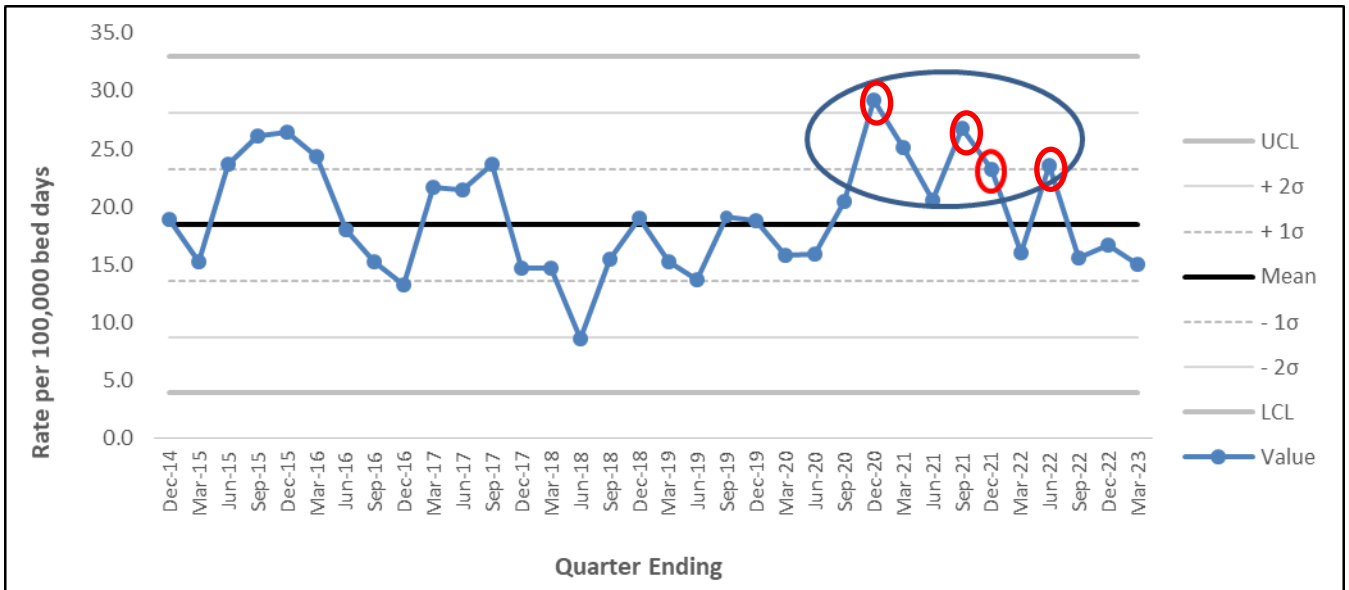
CDI Standard

The CDI target is a reduction of 10% in the national rate of HCA CDI for the year ending March 2024, with 2018-19 used as the baseline.

NHSAA's HCA rate for 2018-19 was 14.5 cases per 100,000 TOBDs therefore in order to deliver our contribution to the national standard we must achieve a rate of no more than 13.0 by March 2024.

Quarter 4 2022-23

The Board's verified HCA CDI rate for January – March 2023 is 12.7 (15 cases) (**Figure 2**). This is a decrease from 16.7 (20 cases) the previous quarter.



○ Exception reports

Figure 2 – Quarterly HCA CDI Rate (ARHAI data)

Figure 3 provides the Board's position in comparison to the rest of Scotland. NHSAA's rate of 12.7 is well within the 95% confidence interval upper limit, and below the Scottish rate 13.4.

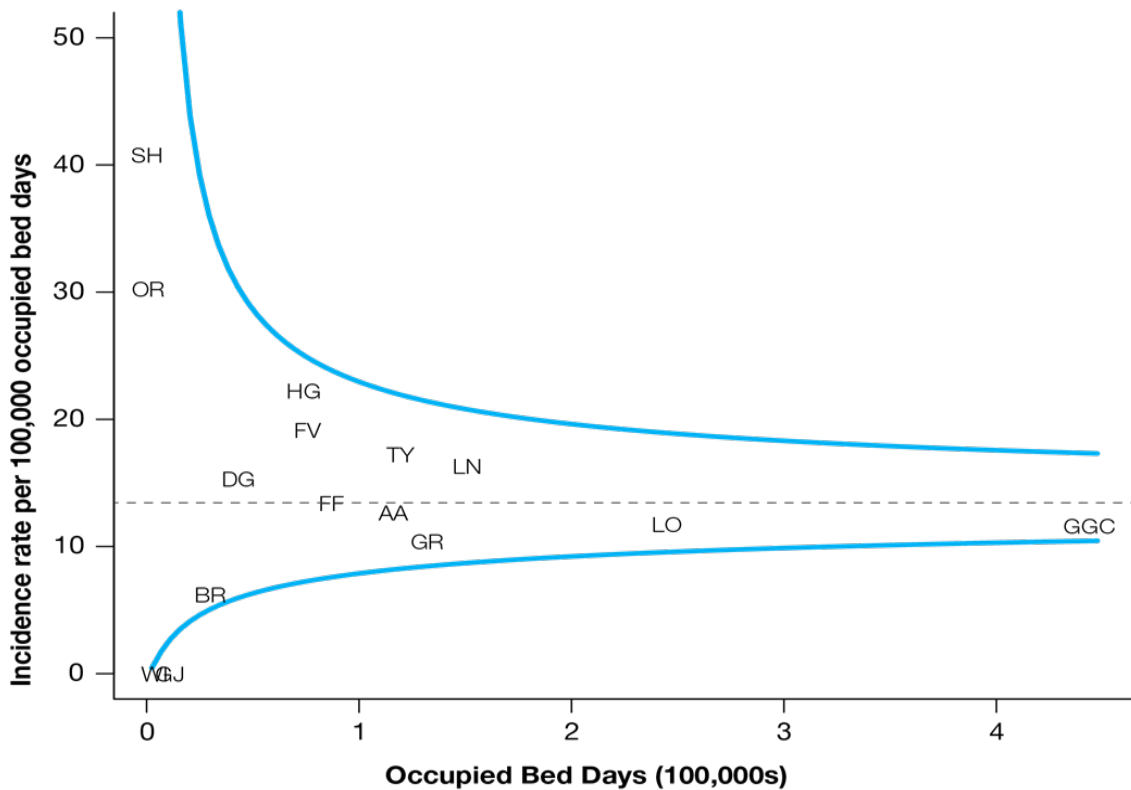


Figure 3 – Funnel plot of CDI incidence rates (per 100,000 TOCB) in healthcare associated infection cases for all NHS boards in Scotland January – March 2023

Of the 15 HCA cases identified locally, during the January – March 2023 quarter:

- 12 (80%) had their first positive specimen taken on or after day 3 of a hospital inpatient stay and were classed as Hospital Acquired (HAI) - 8 from University Hospital Crosshouse (UHC), 3 from University Hospital Ayr (UHA) and 1 from Ayrshire Central Hospital (ACH).
- 2 (13%) were not HAI but had been discharged from a healthcare facility within the previous 4 weeks. These cases are counted as Healthcare Associated (HCAI).
- 1 (7%) had their first positive specimen taken within 2 or less days of hospital admission and had been discharged from a hospital between 4 and 12 weeks before the positive specimen. These cases are counted as Unknown, which is included under the wider definition of healthcare associated CDI.

The 12 hospital acquired episodes were across 10 wards. There were no outbreaks identified during this quarter. There were three cases associated with ward 2A all were different types 002, 015 and 078, indicating no cross-infection.

Probable Ward of Acquisition	Number of HAI Episodes
WARD 2A, UHC	3
ICU 2, UHC	1
REDBURN WARD, (ACH)	1
STATION 10, UHA	1
STATION 3, UHA	1
STATION 6, UHA	1
WARD 1B, UHC	1
WARD 3E, UHC	1
WARD 4B, UHC	1
WARD 4E, UHC	1
Total	12

Figure 4 – HAI CDI Episodes by Ward January – March 2023.

The verified rolling annual rate for year ending March 2023 was 17.1. This compares with a year ending rate of 21.6 for March 2022 (**Figure 5**).

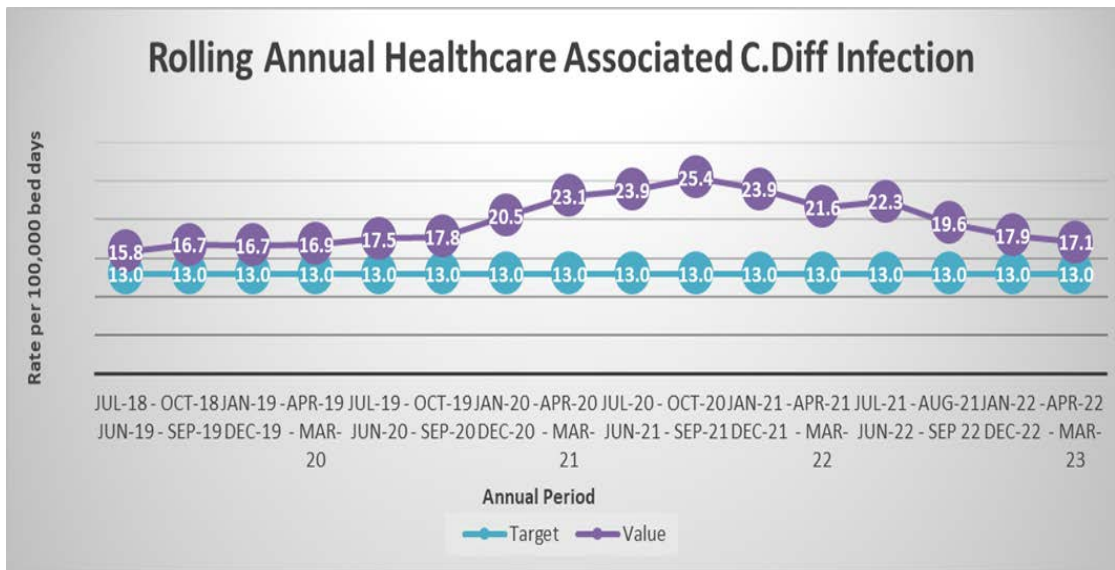


Figure 5 – Rolling Annual HCA Rate vs National Standard

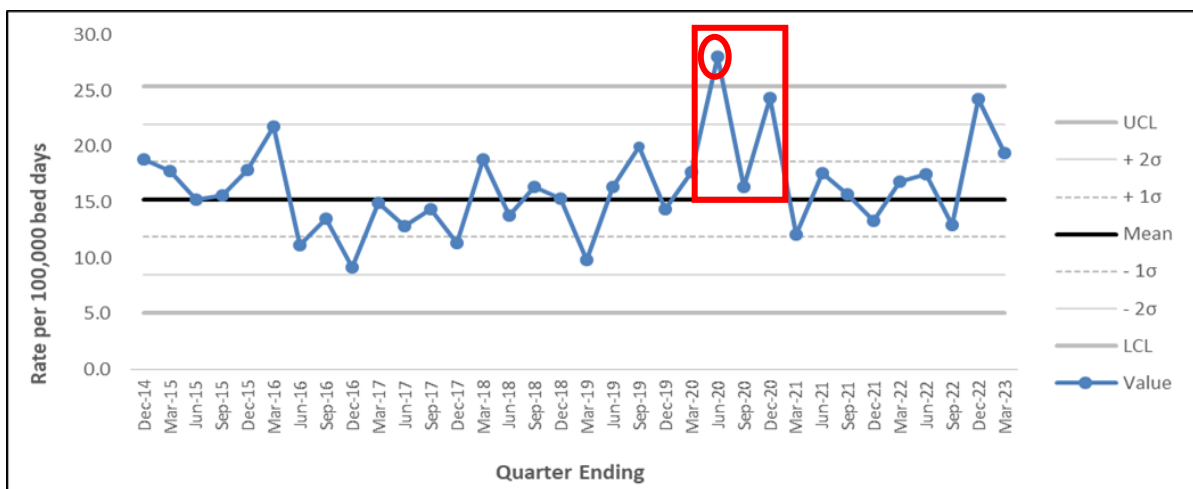
SAB Standard

The SAB standard is a reduction of 10% in the national rate of HCA SABs by year end March 2024, with 2018-19 used as the baseline.

NHSAA’s HCA rate for 2018-19 was 13.8 cases per 100,000 TOBDs therefore in order to deliver our contribution to the national standard we must have achieve a rate of no more than 12.4 by March 2024.

Quarter 4 2022-23

The Board’s verified rate for the January – March 2023 quarter was 19.4, this was a reduction from 24.3 the previous quarter (**Figure 6**). The number of individual cases decreased from 29 to 23 (18 Hospital acquired and 5 healthcare associated).



○ Exception report

Figure 6 – SABs Quarterly HCA Rate

Figure 7 provides the Board's position in comparison to the rest of Scotland. NHSAA's rate of 19.4 is within the 95% confidence interval upper limit, however, is above the Scottish rate 19.1.

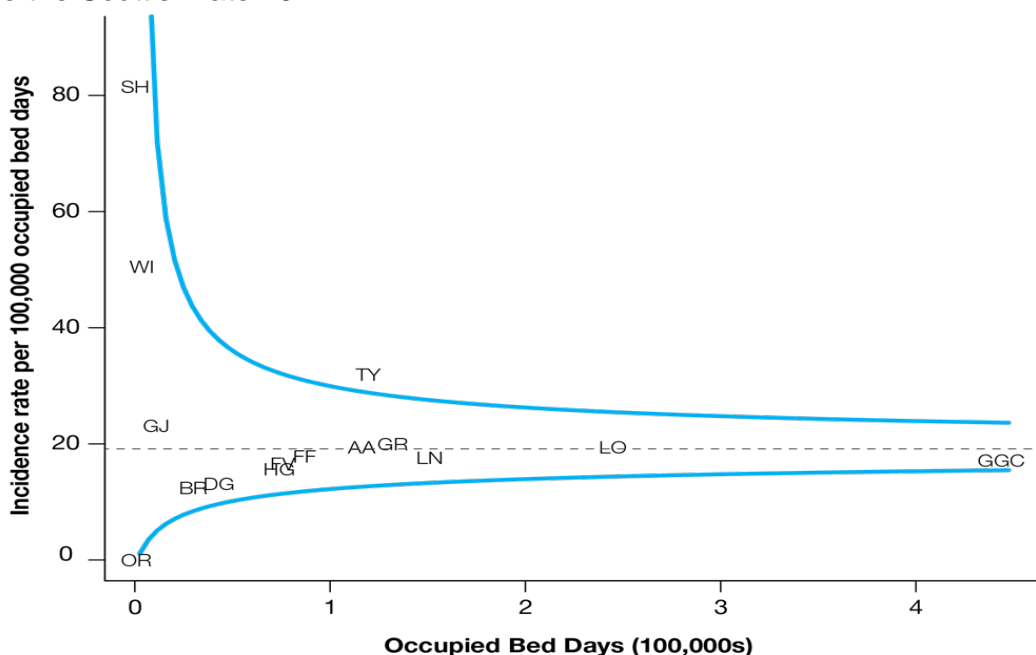


Figure 7 – Funnel plot of SAB incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS boards in Scotland in January – March 2023

The Board's verified rolling annual rate was 18.6 for year ending March 2023. This compares to a year ending rate of 15.9 March 2022 (**Figure 8**).



Figure 8 - Rolling Annual HCA SAB rate vs National Standard

There are 23 HCA SAB cases this quarter. Of the 23 HCA cases, 18 (78%) were Hospital Acquired 5 (22%) were Healthcare Associated.

Identification of the probable source can support the IPCT identify areas of intervention in particular those associated with invasive devices (**Figure 9**). A DATIX is completed by the IPCT for all those associated with an invasive device.

Point of Entry	July – September 2022	October – December 2022	January – March 2023
Contaminant	0	3	2
CVC tunnelled	1	1	0
CVC non-tunnelled	0	1	0
Device Other	1	1	2
Eczema	1	0	0
ENT	0	1	0
Fistula	1	1	0
Not known	4	4	5
Other	0	0	0
PVC	1	5	5
Respiratory tract	0	3	0
Skin break	1	0	0
SSI	0	1	0
Ulcer	0	0	2
Urinary catheter	1	0	1
UTI	1	0	1
Grand Total	12	21	18

Figure 9 - Hospital Acquired SABs Point of Entry July 2022 - March 2023

Point of Entry	January – March 2023
Contaminant	1
PICC/midline	2
PVC	2
Other – Device	1
Surgical drain	0
Not known	6
Pressure Ulcer	1
Urinary Tract Infection	3
Nephrostomy	1
Remains under investigation	7
Grand Total	24

Figure 10 – SABs point of Entry

The Infection Prevention and Control Team (IPCT) will continue to carry out enhanced surveillance as per the national enhanced surveillance protocol. Twice monthly meetings are scheduled for the IPCT to discuss findings with a microbiology consultant.

ECB Standard

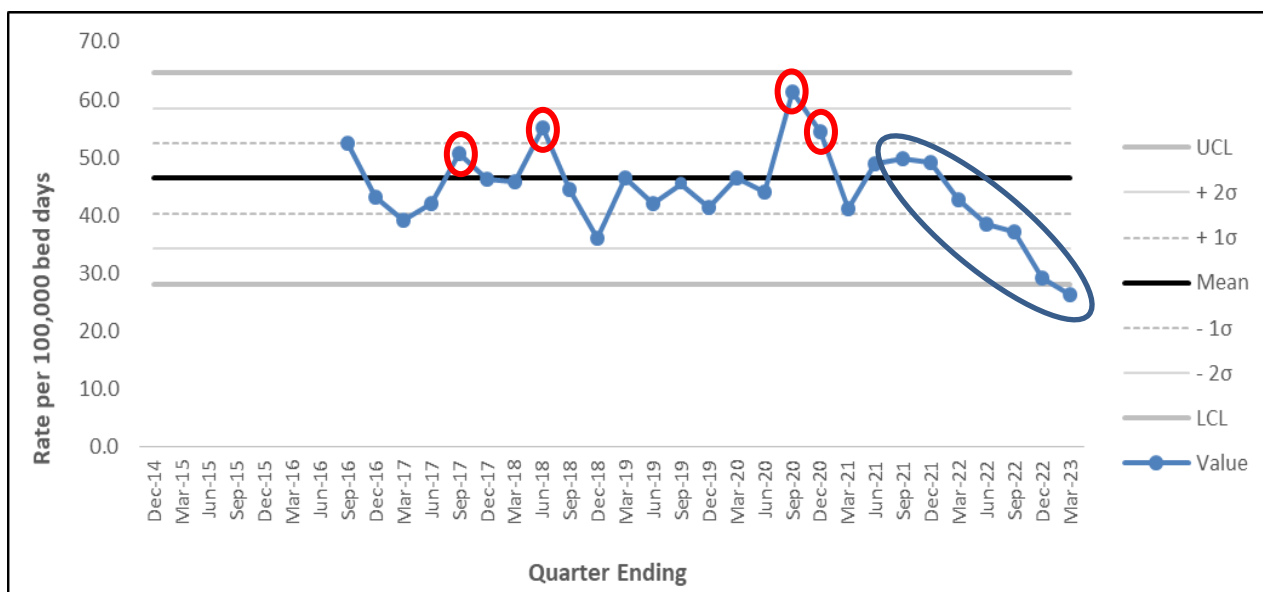
The ECB standard is a reduction of 25% in the national rate of HCA ECBs by year end March 2024, with 2018-19 used as the baseline.

NHSAA’s HCA rate for 2018-19 was 45.7 cases per 100,000 TOBDs therefore in order to deliver our contribution to the national standard we must have achieve a rate of no more than 34.3 by March 2024.

Quarter 4 2022-23

The Board’s verified quarterly rate for the January – March 2023 quarter was 26.2 (31 Cases) down from 29.3 (35 Cases). Since September 2021 there has been a downward trend, it is unknown what has contributed to the decline in number of cases. NHSAA are below the lower control limit for quarter 4 (January to March 2023) (**Figure 11**).

As highlighted at the PCOIC in May 2023 some HCAI and community data was incorrectly assigned. This will have had an impact on the ECB data and rates for quarter 4 22-23 and possibly quarter 1 23-24. Therefore, the data in this section of the report should be viewed with caution at present. The reason for this has been identified and corrective action taken to prevent a recurrence. Work is underway to correct this data in collaboration with the national team, and the information for quarter 2 23-24 is accurate.



● Exception report

Figure 11 – Quarterly Healthcare Associated ECB Rate

Figure 12 provides the Board's position in comparison to the rest of Scotland.

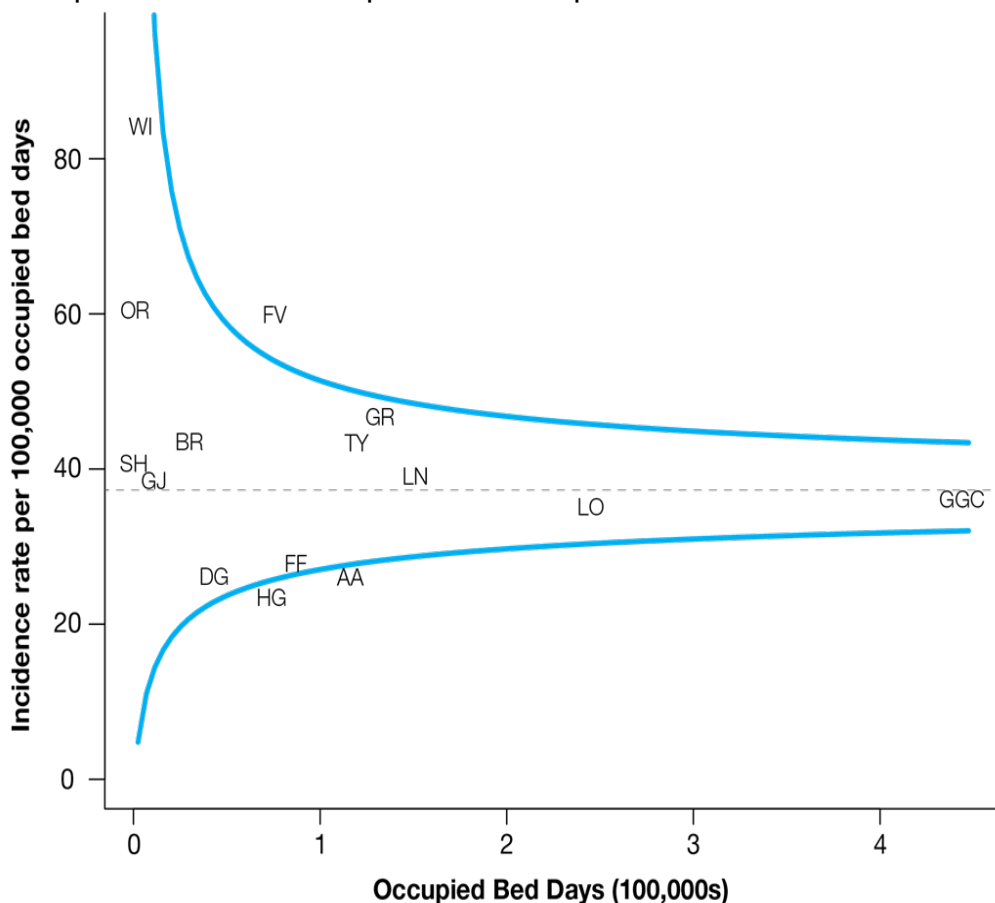


Figure 12 – Funnel plot of ECB incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS boards in Scotland in January – March 2023

The Board's verified **annual** HCA rate for the year ending March 2023 was 32.7 a reduction from 47.6 from the previous year (**Figure 13**).

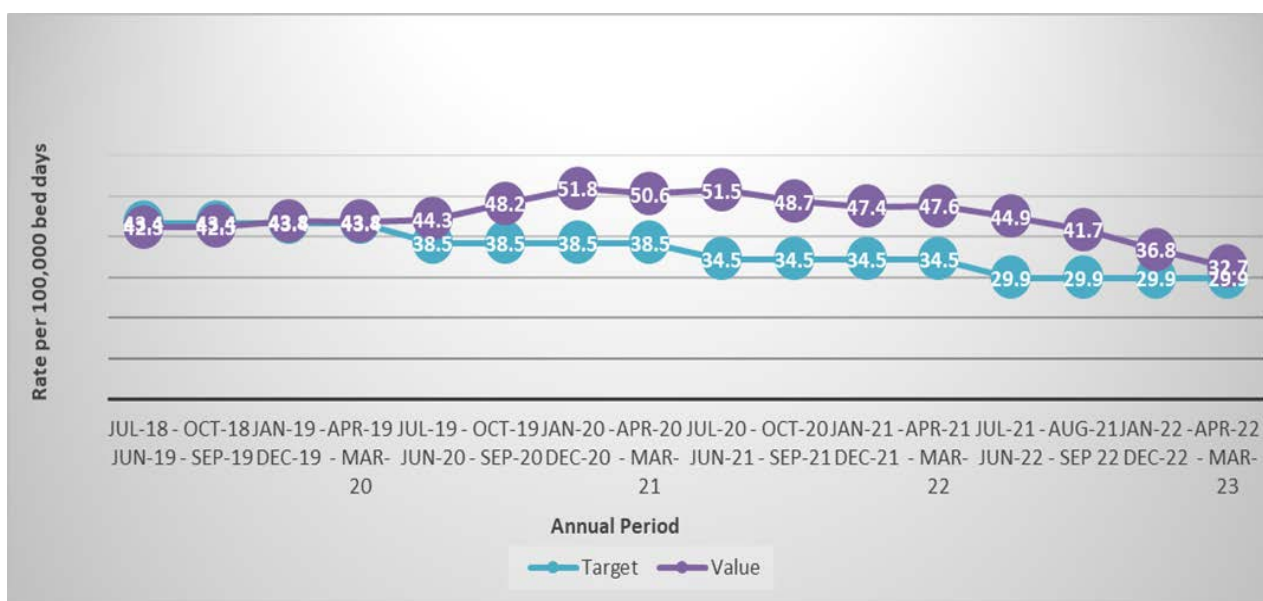


Figure 13 - Rolling Annual HCA ECB rate vs National Standard

The local ECB surveillance data is entered directly onto the national surveillance database with the results accessed via the Discovery platform.

Point of Entry	Year end March 2022	Year end March 23
Abscess	2	0
CAPD	2	0
Contaminant	1	0
Device Dialysis Line	0	1
Device other	5	6
Hepatobiliary	94	65
Lower urinary tract infection	29	70
Nephrostomy	9	1
Not known	47	48
Osteomyelitis	0	2
Other	37	30
Pneumonia	23	9
Pyelonephritis	114	69
Skin Ulcer	0	1
SSI (Deep)	4	2
SSI (Organ)	1	1
Suprapubic catheter	1	0
Urinary catheter	49	36
Grand Total	418	341

Figure 14 – Hospital Acquired ECBs Point of Entry comparing Year end March 2022 and March 2023

Comparing year ending March 2022 to year ending March 2023 (**Figure 14**), the largest reductions has been in cases of hepatobiliary and pyelonephritis. Further work is required to better understand this reduction to ensure these are maintained.

During summer 2022 there were significant changes to empirical guidance by the Antimicrobial Management Team (AMT). This has had a significant impact on the Boards *Clostridioides difficile* infection (CDI) rates. The IPCT will explore whether this may have also contributed to the positive reduction in ECB cases.

The Urinary Catheter Improvement Group continue to meet to establish improvement measures around insertion and maintenance of urinary catheters. This will contribute to a further reduction in cases within 2023-24.

Community Acquired ECB Rate

An action plan was submitted to Antimicrobial Resistance & Healthcare Associated Infection (ARHAI) Scotland following an exception report for community associated ECB for the previous quarter (October – December 2022). There has been a continued reduction in quarter 4, with an 18.3% overall reduction between 2021/2022 and 2022/2023. Note this may alter following correction of the national data for quarter 4 2022-23 and quarter 1 2023-24.

Quarter	Apr - Jun 21	Jul - Sept 21	Oct - Dec 21	Jan - Mar 22	Apr - Jun 22	Jul - Sept 22	Oct - Dec 22	Jan - Mar 23
No. ECB	49	57	60	45	54	40	51	46

Figure 15 – Number of ECBs per quarter for the years 2021/22 and 2022/23

Previously ARHAI provided further analysis of community ECB for the Board to explore, and it was identified that areas of deprivation had a higher number of cases. On discussion with Public Health a local campaign was being explored, resource permitting, around personal hygiene messaging. An update on progress is awaited.

Figure 16 provides the Board's position in comparison to the rest of Scotland. .

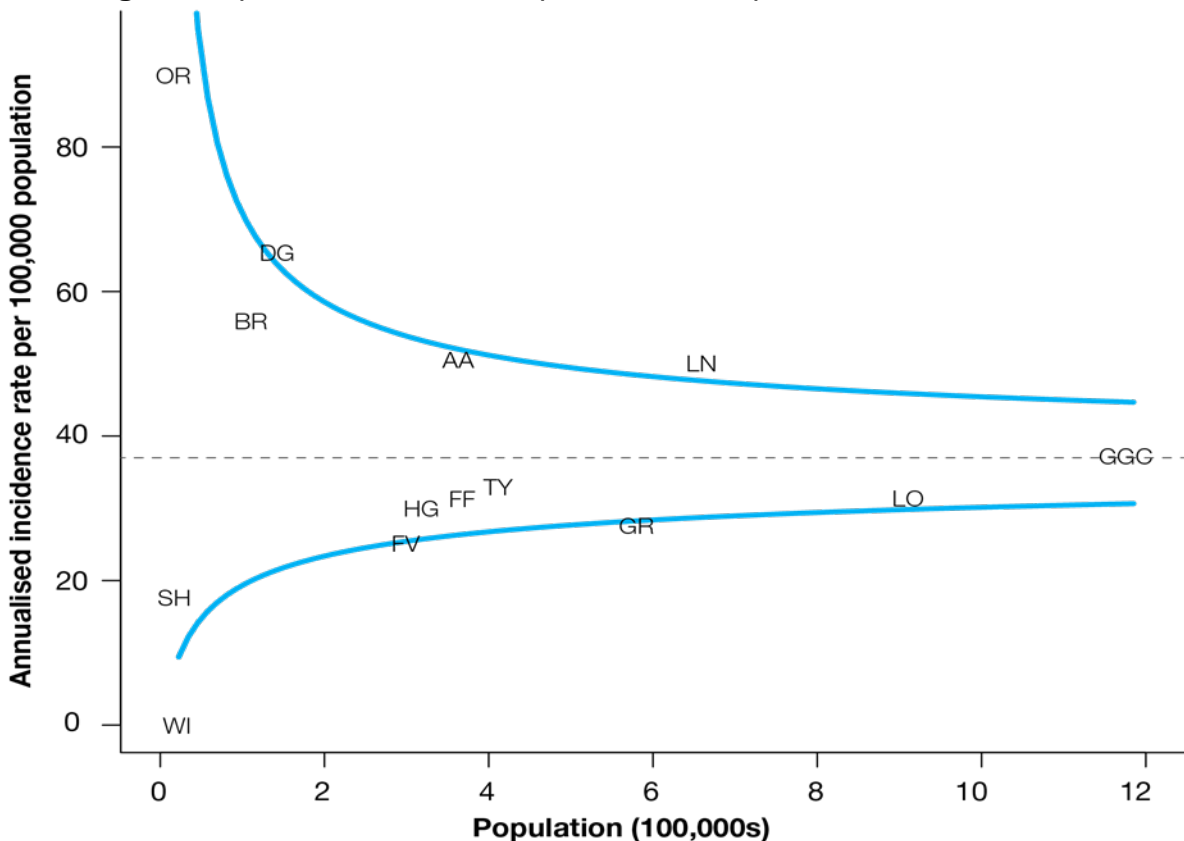


Figure 16 – Funnel plot of ECB incidence rates (per 100,000 TOBD) in community associated infection cases for all NHS boards in Scotland in January - March 2023

Hand Hygiene 2022-23

The Infection Control Environmental Audit and Standard Infection Control Precautions (SICPs) Monitoring Framework continues, and findings are presented to the Prevention Control of Infection Committee as well as being fed back to clinical areas. Compliance ranged from 86-97% across the different staff groups (**Figure 17**) with an overall compliance of 93%, in comparison to the national standard compliance of 95%.

Month	Apr – Jun 22	Jul – Sep 22	Oct – Dec 22	Jan – Mar 23
IPCT Independent Monitoring Compliance Score	91%	95%	95%	86%
Ward Routine Monitoring Compliance Score	98%	98%	97%	96%

Figure 17 – SCIPs Monitoring Framework

Estates and Cleaning Compliance

Figure 18 presents data on compliance with the requirements set out in the NHS Scotland National Cleaning Services Specification (NCSS). The NCSS set out the requirements for the minimum frequency and methods of cleaning carried out by Domestic staff. It sets out the same requirements for Estates staff when cleaning the Estates fabric. All healthcare facilities and component parts e.g. wards, treatment rooms, corridors, etc. are expected to be at least 90% compliant with the requirements set out in the NCSS. The Health Board met the national standard for both Domestic Service and Estates.

	NHS Ayrshire & Arran	Scotland
Domestic Services	95.74%	95.3%
Estates Services	97.0%	96.4%

Figure 18 – Estates and Cleaning Compliance January - March 2023

A robust audit programme structured in line with national requirements is in place: 543 domestic audits were carried out during the period January to March 2023. **(Figure 19)**

At the end of an audit, if the area falls below 90%, a re-audit is carried out. This is undertaken within 21 days if the score is between 70-90% and within 7 days if the score is below 70%.

Sector	Audits Undertaken	Re-audits	Non-scheduled audits	Any below 70%	Domestic	Estates
East	283	5	2	0	95.83%	96.93%
North	83	0	0	0	95.32%	98.29%
South	177	5	0	0	95.79%	96.5%
Total	543	10	2	0	95.74%	97.0%

Figure 19 – Domestic Audits January – March 2023

COVID-19

National reporting requirements changed in March 2023 resulting in Health Boards no longer requiring to validate hospital onset data in relation to COVID-19, and in May 2023 the World Health Organisation declared the global health emergency over.

ARHAI Scotland will continue to monitor epidemiological trends on hospital onset COVID-19 using unvalidated data and will notify Scottish Government and Ministers of any emerging changes to the epidemiology. Health Boards will continue to report COVID-19 clusters as per chapter 3 of the National Infection Prevention and Control Manual.

As well as the ICNs providing advice and expertise to the local clinical teams, the IPCT monitor all laboratory confirmed COVID-19 positive cases in hospital to assist with both national and local data collection.

Figure 20 displays the number of patients across all NHSAA in-patient sites who have tested positive for COVID-19. This data is correct as of 5th July 2023.

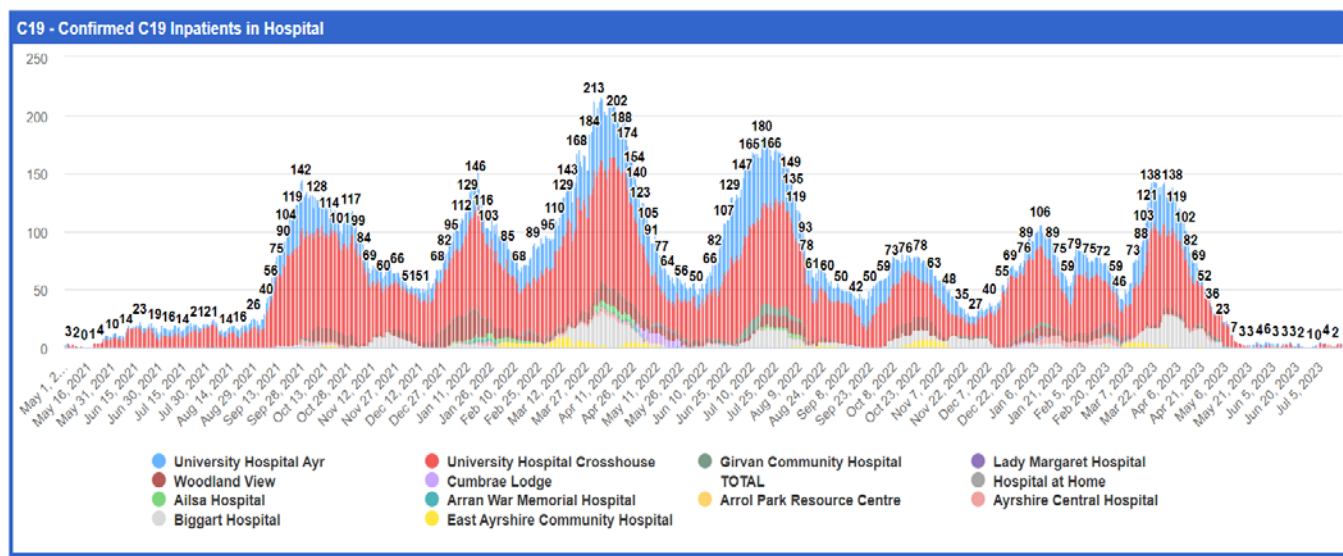


Figure 20 – Confirmed COVID-19 inpatients in hospital sites

Outbreaks

Respiratory outbreak management has continued to have significant impact on the organisation including IPCT resource, though the number of outbreaks has reduced significantly in quarter 1 2023-24.

Month	Apr – Jun 22	Jul – Sept 22	Oct – Dec 22	Jan – Mar 23	April – June 23
COVID	46	38	37	52	17
Influenza	0	0	5	2	0
RSV	0	0	2	1	0
Mixed	0	0	7	0	0
Other	0	0	0	0	1

Figure 21 – Respiratory Outbreak Activity April 22 – June 23

Healthcare Infection Incident Assessment Tool (HIIAT)

The ARHAI Healthcare Infection Incident Assessment Tool (HIIAT) is a tool used by NHS Boards to assess the impact of an outbreak or incident. The tool is a risk assessment allowing Boards to rate each outbreak/incident as **RED**, **AMBER** or **GREEN**. In the event of an outbreak or incident, a Problem Assessment Group (PAG) or Incident Management Team (IMT) meeting is convened and chaired by the Infection Control Doctor with staff from the area concerned, and actions are implemented to control further transmission of infection.

All outbreaks/incidents are reported to ARHAI who onward report to the Scottish Government Health and Social Care Directorate (SGHSCD).

Number of incidents reported to ARHAI (includes COVID) from April - June 2023:

HIIAT Green	11
HIIAT Amber	6
HIIAT Red	1

The Red HIIAT assessment related to a COVID-19 outbreak which has subsequently been closed.

2.3.1 Quality/patient care

Attainment of the national HCAI standards will result in fewer infections in patients and improve patient outcome.

2.3.2 Workforce

Reductions in HCAI will reduce exposure risk to staff from harmful infections.

2.3.3 Financial

Reductions in HCAI will lead to reduced inpatient lengths of stay and associated treatment costs.

2.3.4 Risk assessment/management

The Infection Prevention and Control Team provide clinical teams and managers with risk assessed advice and guidance based on national policy and best practice.

2.3.5 Equality and diversity, including health inequalities

An impact assessment has not been completed as this is an update report to Board members.

2.3.6 Other impacts

No other impacts to note.

2.3.7 Communication, involvement, engagement and consultation

This is a standing report to the Board.

2.3.8 Route to the meeting

This has been previously considered by the following groups as part of its development. The groups have either supported the content, or their feedback has informed the development of the content presented in this report.

- Prevention and Control of Infection Committee, 20 July 2023
- Healthcare Governance Committee, 31 July 2023

2.4 Recommendation

For discussion. Board members are asked to:

1. Scrutinise the current Board position in relation to national HCAI Standards, and note the work in progress to further reduce infections.
2. Confirm the report provides suitable assurance in relation to the HCAI Standards, or request further assurance if necessary.