

<b>NHS Greater Glasgow and Clyde</b>	<b>Paper No. 23/06</b>
<b>Meeting:</b>	<b>NHS Board</b>
<b>Meeting Date:</b>	<b>28/02/2023</b>
<b>Title:</b>	<b>The Healthcare Associated Infection Reporting Template (HAIRT) for October - December (Quarter 4) 2022</b>
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<b>Report Author:</b>	<b>Mrs Sandra Devine, Director of Infection Prevention and Control</b>

## 1. Purpose

The Healthcare Associated Infection Reporting Template (HAIRT) is a mandatory reporting tool for the Board to have an oversight of the Healthcare Associated targets (*Staphylococcus aureus* bacteraemias (SAB), *Clostridioides difficile* infections (CDI), *E. coli* bacteraemias (ECB), incidents and outbreaks and all other Healthcare Associated Infections' (HCAI) activities across NHS Greater Glasgow & Clyde (NHSGGC) over the last quarter of 2022 (October - December).

The full HAIRT will now be considered by the Clinical and Care Governance committee on an ongoing basis with a summary (this document) being submitted to the NHS Board meeting.

## 2. Executive Summary

**The paper can be summarised as follows:**

- Annual Operational Plan (AOP) targets set for 2019-2023 for SAB, CDI and ECB are presented in this report;
  - SAB rates remain within expected limits. There were 86 healthcare associated SAB reported locally this quarter. Aim is 69 or less per quarter.
  - ECB rates remain within normal control limits. There were 136 healthcare associated ECB this quarter, the aim is to have less than 114 cases per quarter.
  - There were 61 healthcare associated CDI this quarter, which is above the quarterly aim of 51 cases per quarter.
  - Surgical Site Infection (SSI) surveillance remains paused nationally but continues locally.
  - Data within this report, where appropriate, highlight continuous improvement over time.
  - Clinical Risk Assessment (CRA) compliance for MRSA was 83% and CPE CRA compliance was 88% this quarter. Actions to increase this to 90% again will be put in place.

- Prospective SAB, CDI ECB and SSI data with origin of infection is available to clinical staff via MicroStrategy IPC dashboard. This ensures frontline clinical teams have access to real time data to inform decisions and actions to reduce healthcare associated infections. This dashboard will continue to be developed.
- The following link is the ARHAI report for the period July to September 2022. This report includes information on GGC and NHS Scotland's performance for [Quarterly epidemiological data on Clostridioides difficile infection, Escherichia coli bacteraemia, Staphylococcus aureus bacteraemia and Surgical Site Infection in Scotland. July to September \(Q3\) 2022 | National Services Scotland \(nhs.scot\)](#). The 2023 targets continue to be challenging but the ARHAI report demonstrates that GGC are not outliers in any category presented. Charts within this report, where appropriate, highlight continuous improvement over time. Reduced variability indicate stable systems.
- The fifth issue of the Infection Prevention and Control Quality Improvement Network (IPCQIN) newsletter will be issued to staff via Core Brief in March 2023. This ensures shared learning across the organisation on the improvements implemented thus far by the network.
- COVID-19 activity continued during this quarter. IPCT are working closely with colleagues to support the implementation of national guidance in practice. ARHAI have updated the publication of COVID-19 data to exclude community onset cases and no longer report on hospital admissions by NHS Board. At the time of writing the report, in NHSGGC, there have been over 503,000 confirmed positive cases reported.
- The Board's cleaning compliance is 95% and Estates compliance is 97% for the Quarter.

### 3. Recommendations

The NHS Board is asked to consider the following recommendations:

- Note the content of the HAIRT report.
- Note the performance in respect of the Annual Operational Plan (AOP) Standards for SAB, CDI and ECB.
- Note the detailed activity in support of the prevention and control of Healthcare Associated Infections.

### 4. Response Required

This paper is presented for assurance

### 5. Impact Assessment

The impact of this paper on NHSGGC's corporate aims, approach to equality and diversity and environmental impact are assessed as follows:

- |                        |                        |
|------------------------|------------------------|
| • Better Health        | <u>Positive</u> impact |
| • Better Care          | <u>Positive</u> impact |
| • Better Value         | <u>Positive</u> impact |
| • Better Workplace     | <u>Positive</u> impact |
| • Equality & Diversity | <u>Neutral</u> impact  |
| • Environment          | <u>Positive</u> impact |

## **6. Engagement & Communications**

**The issues addressed in this paper were subject to discussion with the Infection Prevention and Control (IPC) Team and the IPC Surveillance & Data Team. Comments were also taken into consideration from the below groups when reviewing the content and format following presentation:**

- Partnerships Infection Control Support Group (PICSG)
- Acute Infection Control Committee (AICC)
- Board Infection Control Committee (BICC)

## **7. Governance Route**

**The full report has been previously considered by the following groups as part of its development:**

- The Infection Prevention and Control Team (IPCT)
- Partnerships Infection Control Support Group (PICSG)
- Acute Infection Control Committee (AICC)
- Board Infection Control Committee (BICC)
- Clinical and Care Governance Committee (CCGC)

The full report is then shared with the Board Clinical Governance Forum for information once considered by CCGC.

## **8. Date Prepared & Issued**

*Date the paper was written: 29/01/2023*

*Date issued to NHS Board on: 21/02/23*

**Healthcare Associated Infection Summary – October to December 2022**

The HAIRT Report is the national mandatory reporting tool and is presented quarterly to the Clinical and Care Governance Committee with a summary report to the NHS Board. This is a Scottish Government requirement and informs NHSGGC of activity and performance against Healthcare Associated Infection Standards and performance measures. This section of the report focuses on NHSGGC Board-wide prevention and control activity and actions.

**Performance at a glance relates only to the quarter reported and should be viewed in the context of the overall trend in the following pages.**

	Oct 2022	Nov 2022	Dec 2022	Status toward AOP target (based on trajectory to Mar 2023)
Healthcare Associated <i>Staphylococcus aureus</i> bacteraemia (SAB)	24	35	27	Aim is 23 per month
Healthcare Associated <i>Clostridioides difficile</i> infection (CDI)	20	20	21	Aim is 17 per month
Healthcare Associated <i>Escherichia coli</i> bacteraemia (ECB)	44	37	55	Aim is 38 per month
Hospital acquired IV access device (IVAD) associated SAB	4	7	8	
Healthcare associated urinary catheter associated ECB	6	2	8	
Hand Hygiene	96	96	97	
National Cleaning compliance (Board wide)	95	95	95	
National Estates compliance (Board wide)	96	97	97	

**Key infection control challenges (relating to performance)**

**Staphylococcus aureus bacteraemia**

- There were 24 healthcare associated SAB in October; 35 in November and 27 in December. Aim is 23 or less per month.

**Clostridioides difficile infection**

- There were 20 healthcare associated CDI in October; 20 in November and 21 in December. Aim is 17 or less per month.

**Escherichia coli bacteraemia**

- There were 44 healthcare associated ECB in October; 37 in November and 55 in December. Aim is 38 or less per month.

**SAB, CDI and ECB case numbers remain within SPC chart control limits this period.**

**Surgical Site Infection Surveillance**

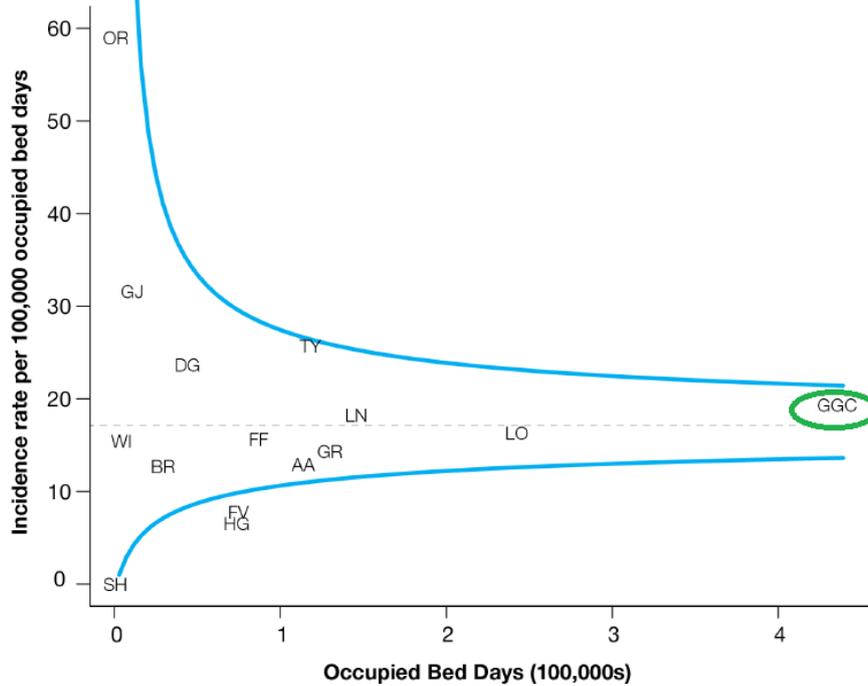
- Surveillance was paused nationally (CNO letter 25<sup>th</sup> March 2020) however, NHSGGC continued to sustain SSI surveillance until December 2021, when it was paused locally due to the surveillance nurses being deployed to support the vaccine rollout programme.  
Local surveillance recommenced on 1<sup>st</sup> February 2022.

### Healthcare Associated Infection (HCAI) Surveillance

NHSGGC has systems in place to monitor key targets and areas for delivery. The surveillance and HCAI systems and ways of working allow early detection and indication of areas of concern or deteriorating performance.

<b>Staphylococcus aureus bacteraemia (SAB)</b>				
	<b>Oct 2022</b>	<b>Nov 2022</b>	<b>Dec 2022</b>	Healthcare associated <i>S. aureus</i> bacteraemia total for the rolling year January to December 2022 = 315.  HCAI yearly aim is <b>280</b> .  <b>*Hospital and Healthcare are the cases which are included in the Scottish Government (SG) reduction target.</b>
Total	<b>27</b>	<b>45</b>	<b>33</b>	
Hospital *	14	23	21	
Healthcare*	10	12	6	
Community	3	10	6	
<b>HCAI monthly Aim for Hospital and Healthcare is 23 patient cases.</b>				
<b>Comments:</b> <ul style="list-style-type: none"> <li>There was an increase in the overall SAB cases in November 2022 with 45 cases in total, however this has reduced in December 2022.</li> <li>The number of Healthcare Associated SAB cases has returned to within expected limits with 27 cases in December.</li> <li>In addition to the nationally set targets and mandatory surveillance, in GGC infections from an IVAD caused by <i>S. aureus</i> or <i>E.coli</i> are investigated fully and reported in the monthly directorate reports and in the quarterly SAB &amp; ECB report.</li> <li>There have been 19 SAB cases associated with an IVAD in this quarter. Local SAB reduction groups continue in each of the geographical sectors and Regional Services as part of the IPCQIN.</li> </ul>				

### ARHAI Validated Q3 (July - September) funnel plot – HCAI SAB cases



Rate: **19.4** per 100,000 TOBDs. Above HCAI standard aim. NMSGGC within chart control limits.

**E.coli bacteraemia (ECB)**

	Oct 2022	Nov 2022	Dec 2022
<b>Total</b>	<b>76</b>	<b>87</b>	<b>90</b>
Hospital *	18	20	25
Healthcare*	26	17	30
Community	32	50	35

**HCAI Aim for Hospital and Healthcare is 38.**

Healthcare associated *E. coli* bacteraemia total for the rolling year January to December 2022 = 535.

HCAI yearly aim is **452**.

**\*Hospital and Healthcare are the cases included in the SG reduction target.**

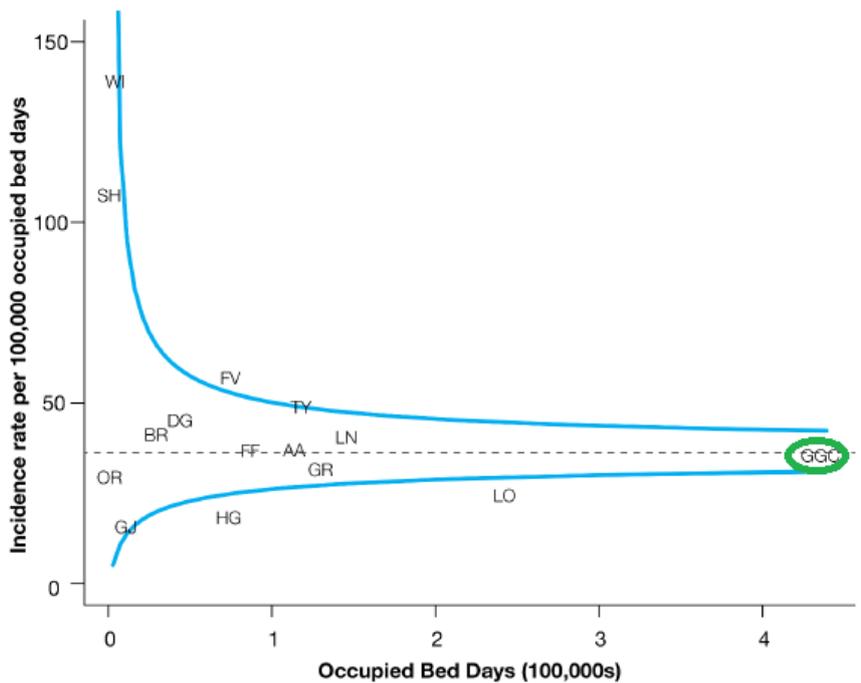
**Comments:**

- There has been a decrease in the overall ECB cases for this quarter.
- There has been a monthly decrease in cases since August, however a slight increase in cases again in December. Numbers remains within control limits. Enhanced surveillance of ECB continues and is prospectively available to view by clinicians on Microstrategy.
- There is some variability within community acquired cases this quarter, however numbers remains within control limits.
- Urinary catheters remain a high risk factor for ECB, and were associated with 12% (n=16) of all healthcare associated cases this quarter. Work is ongoing with colleagues to plan reduction strategies to reduce the number of ECBs associated with urinary catheters. This is part of the IPC workplan.
- SPC charts for healthcare associated cases related to a urinary catheter are now included in each Acute Sector monthly report.
- Ward level data of entry point of bacteraemia is also available via MicroStrategy. This provides real time information to Senior Charge Nurses to assist in the decision

to use improvement methodology to test interventions that may lead to a reduction in the number of patients with this infection.

- The Public Health Scotland **Urinary Catheter Care Passport contains guidelines to help minimise the risk of developing an infection and is available at: [HPS Website - Urinary Catheter Care Passport \(scot.nhs.uk\)](https://www.scot.nhs.uk/hps/urinary-catheter-care-passport)**. This will inform the work noted above re urinary catheters.

**ARHAI Validated Q3 (July - September) funnel plot – HCAI ECB cases**



Rate: 35.5 per 100,000 TOBDs. NHS GGC within chart control limits.

**Clostridioides difficile infection (CDI)**

	Oct 2022	Nov 2022	Dec 2022
<b>Total</b>	<b>22</b>	<b>26</b>	<b>21</b>
Hospital *	12	10	12
Healthcare*	4	8	6
Indeterminat e*	4	2	3
Community	2	6	0

Healthcare associated *Clostridioides difficile* total for the rolling year January to December 2022 = 208.

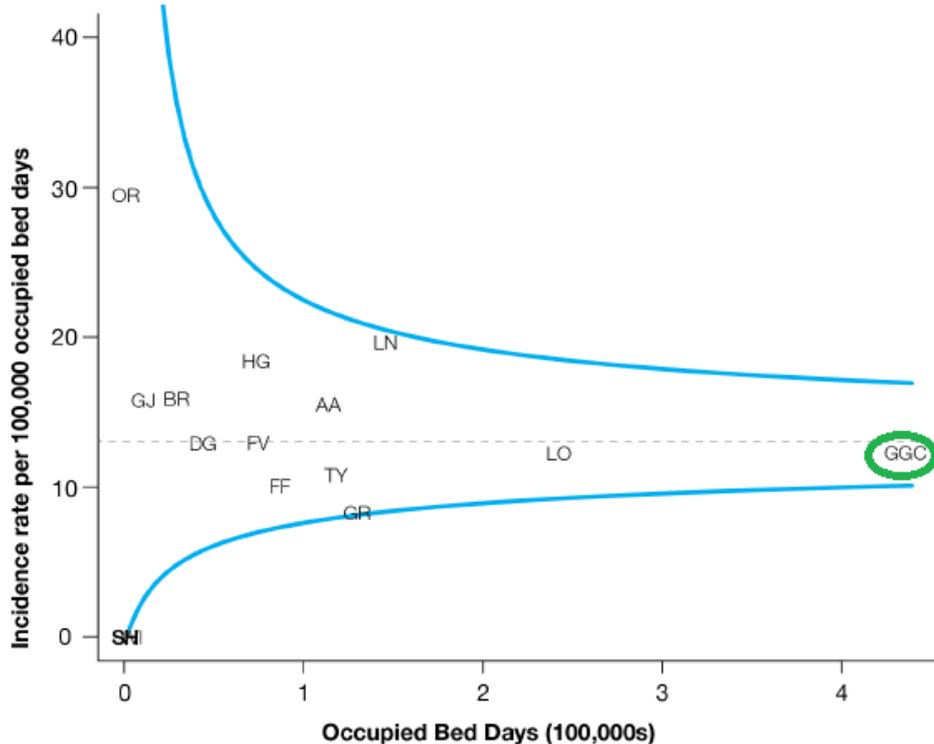
HCAI yearly aim is 204.

\* **Hospital, Healthcare & Indeterminate** are the cases which are included in the SG reduction target.

**HCAI aim for Hospital and Healthcare and Indeterminate onset is 17.**

**Comments:**

- There has been a reduction in the overall cases from October 2021 to date. The IPCT continues to closely monitor and implement local actions in any area with higher than expected numbers.
- There has been a **7% reduction** in healthcare associated CDI cases in 2022 to date (n=208), compared to the same period in 2021 (n=224).

**ARHAI Validated Q3 (July - September) funnel plot – HCAI CDI cases**

Rate: **12.3** per 100,000 TOBDs. HCAI standard aim met. NHSGGC within chart control limits.

**Micro-Strategy and ICNet – prospective tailored data provision on SAB, CDI, ECB and SSI Surveillance**

IPC have been working collaboratively with eHealth colleagues to incorporate several measures into the MicroStrategy dashboard. These went live in May 2021. This has enabled staff to quickly view real time information on SAB, CDI and ECB from point of care to Board level. The software platform has the benefits of providing users with the ability to view all key quality indicators in one screen to get a quick overview of performance in real-time and also easily interpret detailed information with data graphics.

Security access for each specific user will allow tailored access to interactive dossiers for each ward area. The system provides functionality to filter reports seamlessly for the users and the capacity to view trends over time in order to monitor improvement in the reduction of HCAI cases in NHSGGC.

This will allow SCNs in the Acute Sector to access their own ward level data on each of the three measures. Lead Nurses, Clinical Service Managers and General Managers will have access to the wards and hospitals included in their remit.

Acute Directors, the Chief Operating Officer and Chief Executive will also be able to view this information via the suite of reporting tools.

Surgical Site Infection (SSI) surveillance information was also incorporated into the platform in December 2021. This provides information and data on surgical procedures included in the SSI programme to the respective surgical clinicians in real time.

**Meticillin resistant *Staphylococcus aureus* (MRSA) and *Clostridioides difficile* recorded deaths**

The National Records of Scotland monitor and report on a variety of death causes recorded on the death certificate. Two organisms are monitored and reported; MRSA and *C. difficile*. Please click on the link for further information:

<https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/vital-events/deaths>

There were three deaths in October 2022, three in November 2022 and one in December 2022, where hospital acquired *Clostridioides difficile* was recorded in one of the parts of the patients' death certificates. These were all considered to be antibiotic associated and not due to cross infection (all were in different wards and did not cross in time or place). Datix incident reports were raised and the clinical teams were asked to complete clinical reviews.

	GRI	BOC	QEUH	IRH
<b>Hospital acquired CDI recorded on one part of the Death Certificate</b>	2	2	2	1

There were no deaths this quarter where hospital acquired MRSA was recorded on the death certificate.

### Hand Hygiene Monitoring Compliance

NHSG GC	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Jun 2022	Jul y 2022	Aug 2022	Sep t 2022	Oct 2022	Nov 2022	Dec 2022
<b>Board Total</b>	98	97	98	98	98	97	97	97	97	96	96	97

### Estate and Cleaning Compliance (per hospital)

The data is collected through audit by the Domestic Services Team using the Domestic Monitoring National Tool. Areas chosen within each hospital are randomly selected by the audit tool. Any issues such as inadequate cleaning is scored appropriately and if the score is less than 80%, a re-audit is scheduled. Estates compliance assesses whether the environment can be effectively cleaned; this can be a combination of minor non-compliances such as missing screwcaps, damaged sanitary sealant, scratches to woodwork etc. The results of these findings are shared with Serco/Estates for repair. Similar to the cleaning audit. Scores below 80% trigger a re-audit.

### Infection Prevention and Control Quality Improvement Network (IPCQIN) Update

The IPCQIN aim is to create the organisational conditions to facilitate and support the reduction of preventable infections associated with healthcare delivery. The Steering Group and the Operational Group continue to meet and the three main work streams are progressing.

The fifth issue the network's Newsletter will be available in March 2023.

**COVID-19**

NHS Scotland is now experiencing its most recent wave of COVID-19. At time of reporting, in NHSGGC there have been over **503,000** confirmed positive cases.

This data is publically available at: [Daily COVID-19 Cases in Scotland - Total Cases By Health Board - Scottish Health and Social Care Open Data \(nhs.scot\)](https://nhs.uk/open-data/daily-covid-19-cases-scotland)

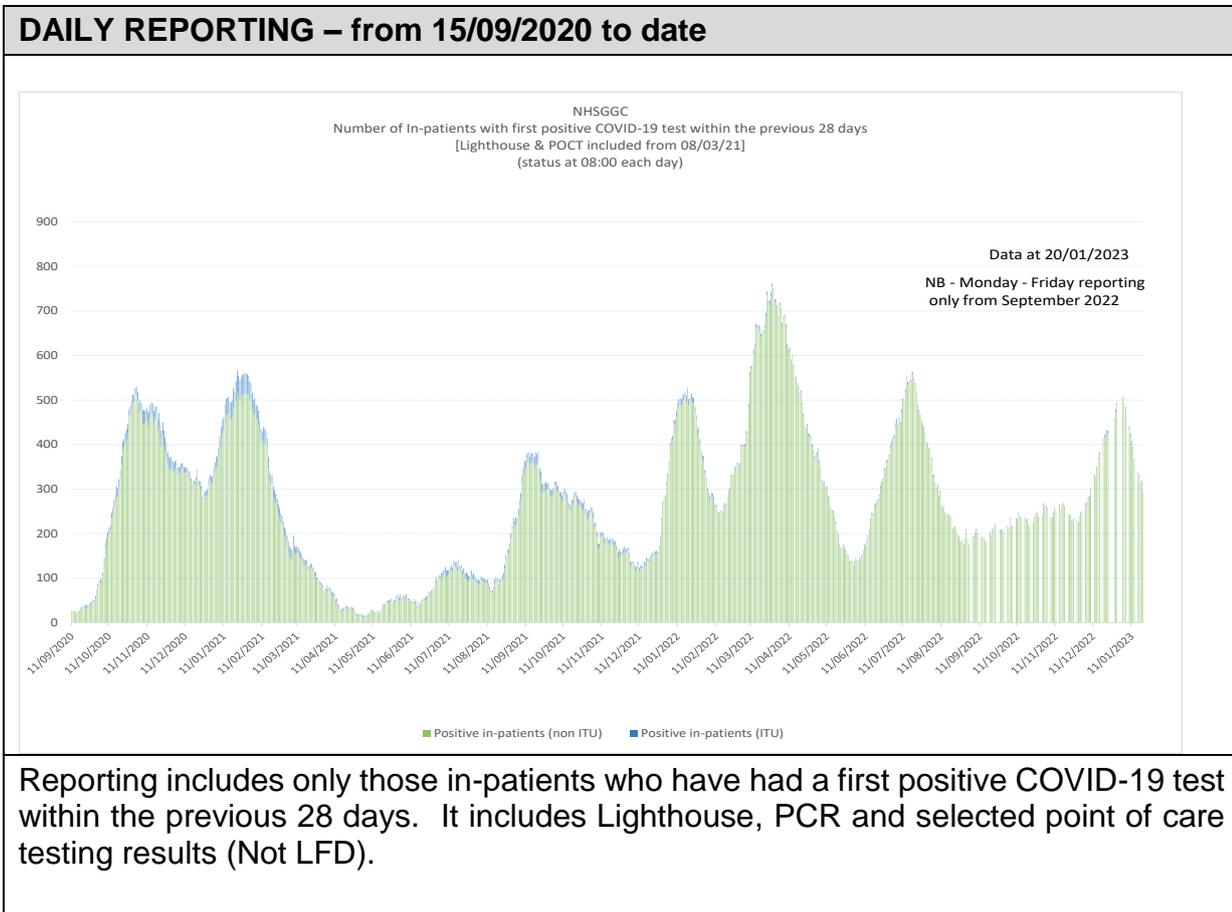
This has continued to be a significant wave in terms of inpatient activity, with an average of 324 in-patients per day over the quarter, however ICU in-patient activity has been very low.

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

The bar graph displays the number of in-patients across all GGC hospitals who tested positive for COVID-19. In blue is the number of people in intensive care areas. Data correct as of 20<sup>th</sup> January 2023.

Please note there has been significant changes to testing requirements, as per DL(2022)32. Details of these changes be viewed here [www.sehd.scot.nhs.uk/dl/DL\(2022\)32.pdf](http://www.sehd.scot.nhs.uk/dl/DL(2022)32.pdf)

Further information on the revisions to testing and reporting are available at: [Why we are changing our COVID-19 reporting - Our blog - Public Health Scotland](#)



Public Health Scotland now publish weekly reports on the incidence of hospital onset COVID-19 in Scotland. These are available at: [Hospital onset COVID-19 cases in Scotland - Week ending 01 March 2020 to week ending 18 December 2022 - Hospital onset COVID-19 cases in Scotland - Publications - Public Health Scotland](#)

Further information on Coronavirus (COVID-19) data, intelligence and guidance is available at:

<https://www.publichealthscotland.scot/our-areas-of-work/sharing-our-data-and-intelligence/coronavirus-covid-19-data-and-guidance>

Ward closures due to COVID-19												
There were <b>82</b> ward closures this quarter for COVID-19.												
Month	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Jun 2022	July 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022	Dec 2022
Ward Closures	65	41	84	47	13	36	36	21	10	25	20	37
Bed Days Lost	3262	2087	3576	1582	526	1834	1545	809	620	865	573	1657

## Outbreaks or Incidents in Quarter 4 2022

### Outbreaks / Incidents

Outbreaks and incidents across NHSGGC are identified primarily through ICNet (surveillance software package), microbiology colleagues or from the ward. ICNet automatically identifies clusters of infections of specific organisms based on appendix 13 of the National Infection Prevention & Control Manual (NIPCM) to enable timely patient management to prevent any possible spread of infection. The identification of outbreaks is determined following discussion with the Infection Control Doctor/Microbiologist. In the event of a possible or confirmed outbreak/incident, a Problem Assessment Group (PAG) or Incident Management Team (IMT) meeting is held with staff from the area concerned, and actions are implemented to control further infection and transmission.

The ARHAI Healthcare Infection Incident Assessment Tool (HIIAT) is a tool used by the IMT to assess the impact of the outbreak or incident. The tool is a risk assessment and allows the IMT to rate the outbreak/incident as **RED**, **AMBER**, or **GREEN**.

All incidents that are HIIAT assessed are reported to the Antimicrobial Resistance & Healthcare Associated Infection (ARHAI) group.

### HIIAT

The HIIAT is a tool used by boards to assess the impact of an outbreak or incident. The tool is a risk assessment and allows boards to rate the outbreak/incident as **RED**, **AMBER**, or **GREEN**. ARHAI are informed of all incidents who onward report to the Scottish Government Health and Social Care Directorate (SGHSCD).

HIIAT **GREEN** - 27 reported in October; 8 in November and 16 in December

HIIAT **AMBER** - 4 reported in October; 11 in November and 14 in December  
 HIIAT **RED** - 3 reported in October; 6 in November and 11 in December  
 (COVID-19 incidents are now included in the above totals but not reported as incident summaries)

## Outbreaks/Incidents (HIIAT assessed as AMBER or RED excluding COVID-19)

### **Glasgow Royal Infirmary, Intensive Care Unit (ITU) - Environmental Bacteria: *Acinetobacter Baumannii***

3 cases of HAI MDRO *Acinetobacter baumannii* in ITU in a 13 day period. The incident was HIIAT assessed as **AMBER** on 7<sup>th</sup> October 2022 then **GREEN** on 11<sup>th</sup> October 2022. Cases 1 and 2 appeared to be from the same cluster on PFGE analysis. Organism is Carbapenemase producing as well as MDR, Oxa 51 and 23. All three patient cases received board spectrum antibiotics. Prescribing was on advice from microbiology which was appropriate for the patients' underlying conditions. Following investigation and the control measures being in place, there were no further cases and the incident was closed on 26<sup>th</sup> October 2022.

### **Glasgow Royal Infirmary, Medicine – Influenza virus A**

2 cases of influenza A (1 community acquired and 1 indeterminate) were identified on 19<sup>th</sup> October 2022 within a single medical Ward in Glasgow Royal Infirmary in a 24 hour period. The incident was HIIAT assessed as **GREEN** on 31<sup>st</sup> October 2022 then **RED** on 4<sup>th</sup> November 2022 due to the death of one of the patients. No further cases were identified post control measures being put in place and the incident was de-escalated to **GREEN** and closed on 7<sup>th</sup> November 2022.

### **Royal Alexandra Hospital, Medicine – Influenza virus A**

1 case of HAI Influenza A was identified and the ward was visited by the Infection Prevention and Control Team (IPCT) to provide IPC advice on the 16<sup>th</sup> December 2022. During ward visit it was reported that 3 further cases had symptoms suggestive of Influenza (of which one was confirmed as positive). Control measures were put in place.

On 21<sup>st</sup> December 2022, 3 further patients were confirmed positive for Influenza A – all were direct contacts of the second confirmed patient. The incident was HIIAT assessed as **AMBER** on 22<sup>nd</sup> December 2022 then **GREEN** on 27<sup>th</sup> December 2022 due to no further cases, then **RED** on 5<sup>th</sup> January 2023 due to a death of one of the patients. It was then de-escalated to **GREEN** on 6<sup>th</sup> January and closed.

### **Greater Glasgow & Clyde COVID-19 Incidents:**

During this quarter there were 46 outbreaks of COVID 19 which scored either **AMBER** (28) or **RED** (18). As a precautionary principle, during incidents and outbreaks in GGC, if COVID 19 appeared on any part of a patient's death certificate, the assessment was considered to be automatically **RED**. This was in excess of what is in the HIIAT assessment tool in which states that a major impact on patients should be defined as

“Patients require major clinical interventional support as a consequence of the incident and/or Severe/life threatening/rare infection and/or there is associated mortality.”

All incidents and outbreaks are reported to ARHAI regardless of the assessment. National guidance has been implemented for all incidents and outbreaks as per the NIPCM (COVID 19 Appendix 21 – Pandemic Controls for Acute NHS Settings including Scottish Ambulance Service (SAS) Dental Services).

Sector	GRI	Lightbu rn	QEUH	GGH	RAH	VoL
COVID-19 (RED HIIAT)	5	2	1	3	4	3

### Healthcare Environment Inspectorate (HEI)

There was an unannounced inspection to Inverclyde Royal Hospital, NHS Greater Glasgow and Clyde on Tuesday 18<sup>th</sup> and Wednesday 19<sup>th</sup> October 2022 by Health Improvement Scotland (HIS) using their safe delivery of care inspection methodology. The report of this visit was published in January 2023 and an action plan was completed and is in progress.

All HEI reports and action plans can be viewed by clicking on the link:

[http://www.healthcareimprovementscotland.org/our\\_work/inspecting\\_and\\_regulating\\_care/nhs\\_hospitals\\_and\\_services/find\\_nhs\\_hospitals.aspx](http://www.healthcareimprovementscotland.org/our_work/inspecting_and_regulating_care/nhs_hospitals_and_services/find_nhs_hospitals.aspx)

### Multi-drug resistant organism screening

As part of the national mandatory requirements, each board is expected to screen specific patients for resistant organisms. These are Carbapenemase producing Enterobacteriaceae (CPE) and MRSA. Assessment to screen depends on a clinical risk assessment performed on all admissions to indicate whether the patient requires to be screened. On a quarterly basis we assess compliance of completing this risk assessment to provide assurance of effective screening and report this nationally. The national expectation of compliance is **90%**.

Last validated quarter Jul-Sep 2022		NHSGGC <b>89%</b> compliance rate for CPE screening	Scotland 78%
		NHSGGC <b>91%</b> compliance rate for MRSA screening	Scotland 78%
Current local quarter Oct- Dec 2022		NHSGGC <b>88%</b> compliance rate for CPE screening	Scotland <i>tbc</i>
		NHSGGC <b>83%</b> compliance rate for MRSA screening	Scotland <i>tbc</i>

We continue to support clinical staff to implement this screening programme and work is currently underway with eHealth to incorporate this information electronically into the patient admission eRecord.

**APPENDIX - 1****Healthcare Associated Infection Reporting Guidance, Glossary, Definitions and Infection Control Targets****Purpose:**

This paper can be referred to when reading the HAIRT Summary Reports, it covers any Scottish Government guidance and aims relating to Infection Prevention and Control (IPC), list of abbreviations and definitions for some of the medical terms or infection types mentioned in the HAIRT Summary reports. It also includes some systems and processes that have been put in place by IPC to reduce the harm from infections and prevent them from happening.

**Glossary of abbreviations**

Following feedback from stakeholders, below is a list of abbreviations used within this report:

<b>AOP</b>	Annual Operational Plan
<b>ARHAI</b>	Antimicrobial Resistance Healthcare Associated Infection
<b>CDI</b>	<i>Clostridioides difficile</i> infection
<b>CPE</b>	Carbapenemase producing Enterobacteriaceae
<b>CVC</b>	Central Venous Catheter
<b>ECDC</b>	European Centre for Disease Control
<b>HAI</b>	Hospital Acquired Infection (not present or incubating on admission to hospital and arising $\geq$ 48 hours after admission). Please note this excludes COVID-19 cases (hospital onset currently thought to be >14 days).
<b>HCAI</b>	Healthcare Associated Infection
<b>HEI</b>	Healthcare Environment Inspectorate
<b>HIIAT</b>	Healthcare Infection Incident Assessment Tool
<b>HPV</b>	Hydrogen Peroxide Vapour
<b>IMT</b>	Incident Management Team
<b>IPCAT</b>	Infection Prevention and Control Audit Tool
<b>IPCN</b>	Infection Prevention and Control Nurse
<b>IPCT</b>	Infection Prevention and Control Team
<b>IVAD</b>	Intravenous/Intravascular Access Device
<b>MRSA</b>	Meticillin Resistant <i>Staphylococcus aureus</i>
<b>NES</b>	NHS Education for Scotland
<b>PAG</b>	Problem Assessment Group
<b>PEG</b>	Percutaneous Endoscopic Gastrostomy
<b>PICC</b>	Peripherally Inserted Central Catheter
<b>PVC</b>	Peripheral Vascular/Venous Catheter
<b>SAB</b>	<i>Staphylococcus aureus</i> bacteraemia
<b>SG</b>	Scottish Government
<b>SGHSCD</b>	Scottish Government Health and Social Care Directorate
<b>SICPs</b>	Standard Infection Control Precautions
<b>SSI</b>	Surgical Site Infection
<b>UCC</b>	Urinary Catheter Care
<b>UTI</b>	Urinary Tract Infection
<b>SPC</b>	Statistical Process Control: An analytical technique that plots data over time. It helps us understand variation and in so doing, guides us to take the most appropriate action. SPC is a good technique to

use when implementing change as it enables us to understand whether changes made have resulted in an improvement.

**Datix** The software used by NHS Greater Glasgow and Clyde for clinical and non-clinical incident reporting (and managing complaints and legal claims) and forms part of the Risk Management Strategy. It is a web-based application that allows any staff member with access to StaffNet to report an incident.

***S. aureus* and *E. coli* bacteraemias**

Definition of a bacteraemia

Bacteraemia is the presence of bacteria in the blood. Blood is normally a sterile environment, so the detection of bacteria in the blood (most commonly accomplished by blood cultures) is always abnormal. It is distinct from sepsis, which is the host response to the bacteria. Bacteria can enter the bloodstream as a severe complication of infection, (like pneumonia, meningitis, urinary tract infections (UTI) etc.), during surgery, or due to invasive devices such as peripheral vascular catheters (PVC), Hickman lines, urinary catheters etc. Transient bacteraemias can result after dental procedures or even brushing of teeth although this poses little or no threat to the person in normal situations.

Bacteraemia can have several important health consequences. The immune response to the bacteria can cause sepsis and septic shock which has a high mortality rate. Bacteria can also spread via the blood to other parts of the body (haematogenous spread), causing infections away from the original site of infection, such as endocarditis (infection of the heart valves) or osteomyelitis (infection of the bones). Treatment for bacteraemia is with intravenous antibiotics often for a prolonged period, e.g. in cases of *S. aureus* bacteraemia, 14 days of antibiotic therapy is normally required.

**Origin Definitions for Bacteraemia Surveillance**

<https://www.ARHA1.scot.nhs.uk/web-resources-container/protocol-for-national-enhanced-surveillance-of-bacteraemia>

<b>Healthcare Associated Infection</b>	<p><b>Hospital Acquired Infection</b></p> <p>Positive blood culture obtained from a patient who has been hospitalised for ≥48 hours. If the patient was transferred from another hospital, the duration of in-patient stay is calculated from the date of the first hospital admission.</p> <p>If the patient was a neonate / baby who has never left hospital since being born. OR The patient was discharged from hospital in the 48 hours prior to the positive blood culture being taken. OR A patient who receives regular haemodialysis as an out-patient. OR Contaminant if the blood aspirated in hospital. OR If infection source / entry point is surgical site infection (SSI). <i>[This will be attributed to hospital of surgical procedure]</i></p>
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	<p><b>Healthcare Associated Infection</b></p> <p>Positive blood culture obtained from a patient within 48 hours of admission to hospital and fulfils one or more of the following criteria:</p> <p>Was hospitalised overnight in the 30 days prior to the positive blood culture being taken. OR Resides in a nursing, long-term care facility or residential home. OR IV, or intra-articular medication in the 30 days prior to the positive blood culture being taken, but excluding IV illicit drug use. OR Had the use of a registered medical device in the 30 days prior to the positive blood culture being taken, e.g. intermittent self-catheterisation or Percutaneous Endoscopic Gastrostomy (PEG) tube with or without the direct involvement of a healthcare worker (excludes haemodialysis lines see HAI). OR Underwent any medical procedure which broke mucous or skin barrier, i.e. biopsies or dental extraction in the 30 days prior to the positive blood culture being taken. OR Underwent care for a medical condition by a healthcare worker in the community which involved contact with non-intact skin, mucous membranes or the use of an invasive device in the 30 days prior to the positive blood culture being taken, e.g. podiatry or dressing of chronic ulcers, catheter change or insertion.</p>
<b>Community Acquired Infection</b>	<p>Positive blood culture obtained from a patient within 48 hours of admission to hospital who does not fulfil any of the criteria for healthcare associated bloodstream infection.</p>

### Healthcare Associated Infection (HCAI) Surveillance

NHSGGC has systems in place to monitor key targets and areas for delivery. The surveillance and HCAI systems and ways of working allow early detection and indication of areas of concern or deteriorating performance.

### ***Staphylococcus aureus* bacteraemia (SAB), *Escherichia coli* Bacteraemia (ECB) & *Clostridioides difficile* infection (CDI) targets.**

SAB, ECB and CDI targets are described in [DL \(2022\)13.pdf \(scot.nhs.uk\)](#). The target is Board-specific, based on the NHS Boards current infection rates. The target was set to be achieved by 2022, however, this was extended due to the pandemic and is now to be achieved by 2023.

Information on performance against all three targets is available to the Directorate/Division in three ways; monthly summary reports, SAB and ECB specific quarterly reports and via the micro strategy dashboard. All SABs/ECBs associated with an IVAD are followed-up by an audit of PVC/CVC practice in the ward or clinical area of origin and the results are returned to the Chief Nurse for the Sector/Directorate. The analysis of the data and subsequent reports enable the IPCT to identify trends in particular sources of infections such as Hickman line infections etc. and it also enables the IPCT to identify areas requiring further support. The data collected on all targets influences the IPC Annual Work Plan and the IPCQIN.

Continual monitoring and analysis of local surveillance data, enables the IPCT and local teams to identify and work towards ways to reduce infections associated with IVADs. All SABs/ECBs are reviewed and investigated fully and highlighted to the patients' clinicians, nursing staff and management colleagues. Where appropriate, a DATIX is generated for infections so learning is shared and discussed at local clinical governance meetings.

**Healthcare Associated Infection Standards – local reduction aims**

- *S. aureus* bacteraemia – reduction of 10% from 2019 to 2023

Local quarterly reduction aim charts have been produced for GGC as a whole and for the five Acute Sectors

	2018/19 Rate (base line) per 100,000 total bed days	No of HCAI cases (per annum)	Reduction %	Date for reduction	Target HCAI rate per 100,000 total bed days	Target HCAI cases per annum	Target HCAI cases per month
<b>SAB</b>	19.3	324	10	2023	<b>17.4</b>	280	23

**Sector/Directorate local reduction aims – October to December cases**

	Patient cases	Aim per Quarter	Status
Clyde Sector	17	14	Above aim
North Glasgow Sector	22	17	Above aim
Regional Services	16	13	Above aim
South Glasgow Sector	26	22	Above aim
Women’s & Children	5	4	Above aim
<b>GGC Total</b>	<b>86</b>	<b>69</b>	<b>Above aim</b>

Sector/Directorate reports are issued for action by IPCT Sector/Directorate teams.

Information (including source if known) for all acute hospital cases are available in real time on the MicroStrategy IPC dashboard.

**Escherichia coli bacteraemia (ECB)**

**NHSGGC’s approach to ECB prevention and reduction**

*E. coli* is one of the most predominant organisms of the gut flora, and for the last several years the incidence of *E. coli* isolated from blood cultures, i.e. causing sepsis, has increased to the point that it is the most frequently isolated organism in the UK. As a result of this, the HAI Policy Unit has now included *E. coli* as part of the AOP targets. The most common cause of ECB is from complications arising from UTIs, hepato-biliary infections (gall bladder infections) and infections associated with urinary catheters. It should be acknowledged that there is limited number of possible interventions to target ECB because infections are often spontaneous and not associated with health care or health care interventions.

**Healthcare Associated Infection Standards – local reduction aims**

- *E.coli* bacteraemia – initial reduction of 25% by 2021/2023

Local reduction aim charts have been produced for GGC as a whole and for the five Acute sectors. The IPC Work Plan for 2022/2023 includes the development of tools to assist clinical teams to reduce the incidence of *E. coli* bacteraemia.

	2018/19 Rate (base line) per 100,000 total bed days	No of HCAI cases (per annum)	Reduction %	Date for reduction	Target HCAI rate per 100,000 total bed days	Target HCAI cases per annum	Target HCAI cases per month
<b>ECB</b>	38.1	638	25	2023	<b>28.6</b>	452	38

Sector/Directorate local reduction aims October - December cases			
	Patient cases	Aim per Quarter	Status
Clyde Sector	26	27	Below aim
North Glasgow Sector	34	35	Below aim
Regional Services	21	12	Above aim
South Glasgow Sector	51	35	Above aim
Women's & Children	4	4	On aim
<b>GGC Total</b>	<b>136</b>	<b>113</b>	<b>Above aim</b>

Information (including source if known) for all acute hospital cases are available in real time on the MicroStrategy IPC dashboard.

**Clostridioides difficile infection (CDI)**

Reporting to ARHAI of *C. difficile* infections has been mandatory for many years in NHS Scotland. NHSGGC has met its targets over the years and has maintained a low rate of infection. Similar to the SAB target, the new target set for 2019-2023 is based on our Board's rate rather than an overall national rate.

*C. difficile* can be part of the normal gut flora and can occur when patients receive broad-spectrum antibiotics which eliminate other gut flora, allowing *C. difficile* to proliferate and cause infection. This is the predominant source of infection in GGC. *C. difficile* in the environment can form resilient spores which enable the organism to survive in the environment for many months, and poor environmental cleaning or poor hand hygiene can lead to the organism transferring to other patients, leading to infection. Another route of infection is when a patient receives treatment to regulate stomach acid which affects the overall pH of the gut allowing the organism to proliferate and cause infection.

**Origin definitions for Clostridioides difficile infections**

**Local Enhanced CDI Surveillance in NHSGGC: Definition of Origin**

**Hospital acquired CDI** is defined as when a CDI patient has had onset of symptoms at least 48 hours following admission to a hospital.

**Healthcare associated CDI** is defined as when a CDI patient has had onset of symptoms up to four weeks after discharge from a hospital.

**Indeterminate cases of CDI** is defined as a CDI patient who was discharged from a hospital 4-12 weeks before the onset of symptoms.

**Community associated CDI** is defined as a CDI patient with onset of symptoms while outside a hospital and without discharge from a hospital within the previous 12 weeks; or with onset of symptoms within 48 hours following admission to a hospital without stay in a hospital within the previous 12 weeks.

**NHSGGC's Approach to CDI Prevention and Reduction**

Similar to our SAB and ECB investigations, patient history is gathered including any antibiotics prescribed over the last several months. Discussions with the clinical teams and microbiologists assist in the determination and conclusion of the significance of the organism, as occasionally the isolation of the organism can be an incidental finding and not an infection. Data is shared with the antimicrobial pharmacists to identify any issues with prescribing and incidence of infections are discussed at the Antimicrobial Utilisation Committee.

**Revised Guideline:** approved 10<sup>th</sup> May 2022

Suspected or Proven Clostridioides Difficile Infection Management in Adults  
[clostridioides.pdf \(nhsggc.org.uk\)](https://www.nhs.uk/clinical-guidance/clostridioides.pdf)

**Healthcare Associated Infection Standards – local reduction aims *C. difficile* – reduction of 10% from 2019 to 2023**

	2018/19 Rate (base line) per 100,000 total bed days	No of HCAI cases (per annum)	Reduction %	Date for reduction	Target HCAI rate per 100,000 total bed days	Target HCAI cases per annum	Target HCAI cases per month
CDI	19.0	318	10	2023	17.1	204	17

**Sector/Directorate local reduction aims – October - December cases**

	Patient cases	Aim per Quarter	Status
Clyde Sector	8	15	Below aim
North Glasgow Sector	17	15	Above aim
Regional Services	11	5	Above aim
South Glasgow Sector	17	15	Above aim
Women’s & Children (age ≥ 15 yr)	0	1	Below aim
GP specimens	8	-	n/a
<b>GGC Total</b>	<b>61</b>	<b>51</b>	<b>Above aim</b>

Information on all Acute hospital cases is available on Micro-Strategy.

**Surgical Site Infection (SSI) Surveillance**

SSI surveillance is the monitoring and detection of infections associated with a surgical procedure. In GGC the procedures included are hip arthroplasty, caesarean birth, major vascular surgery and large bowel surgery. These are all mandatory procedure categories for national reporting. In addition, the IPCT undertake surveillance on knee arthroplasty and repair of fractured neck of femur.

SSI surveillance in spinal and cranial surgery in the Institute of Neurological Sciences (QEUEH campus) has been paused since July, however the clinical service has now recruited a 0.5WTE INS surveillance nurse and the programme will be re-established in January 2023.

The IPC surveillance team monitor patients for 30 days post-surgery and for those procedures with implants, up to 90 days post-surgery including any microbiological investigations from the ward for potential infections and also hospital re-admissions relating to their surgery.

National SSI surveillance remains paused.

**NHSGGC’s Approach to SSI Prevention and Reduction**

SSI criteria is determined by using the European Centre for Disease Control (ECDC) definitions. Any infection identified is investigated fully and information is gathered to identify risk factors which in turn inform reduction strategies. The types of information collected includes the patients’ weight, duration of surgery, grade of surgeon, prophylactic antibiotics given, theatre room, elective or emergency, primary theatre dressing, etc. The IPCT closely monitor infection rates, and any increased incidence of SSIs are promptly reported to management and clinical teams, and if required Incident Management Team (IMT) meetings are held.

SSI rates should be interpreted with due caution, as procedure denominators vary between surgery categories. The impact of COVID-19 pandemic upon NHS services should also be reflected upon when comparing current SSI rates with those prior to 2020.

Please note that surveillance is not yet complete for procedures undertaken in December 2022.

### **Meticillin resistant *Staphylococcus aureus* (MRSA) and *Clostridioides difficile* recorded deaths**

The National Records of Scotland monitor and report on a variety of death causes recorded on the death certificate. Two organisms are monitored and reported; MRSA and *C. difficile*. Please click on the link for further information:

<https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/vital-events/deaths>

### **COVID-19**

Public Health Scotland now publish weekly reports on the incidence of hospital onset COVID-19 in Scotland. These are available at: [Hospital onset COVID-19 cases in Scotland - Week ending 01 March 2020 to week ending 18 December 2022 - Hospital onset COVID-19 cases in Scotland - Publications - Public Health Scotland](#)

Further information on Coronavirus (COVID-19) data, intelligence and guidance is available at: <https://www.publichealthscotland.scot/our-areas-of-work/sharing-our-data-and-intelligence/coronavirus-covid-19-data-and-guidance>