

Healthcare Associated Infection (HAI) Quarterly Report – October 2024

The following is a summary of the [ARHAIS \(Antimicrobial Resistance and Healthcare Associated Infection Scotland\) Quarterly Epidemiological Data Report \(April 2024 – June 2024\)](#) which was published on 1st October 2024.

Executive Summary

April – June 2024

***Clostridioides difficile* Infection (CDI)**

- Incidence rate (per 100,000 TOBD *) for healthcare associated infections: **10.8**
 - The incidence rate for the previous quarter was 10.1
 - The incidence rate for the whole of Scotland this quarter was 17.0
- Incidence rate (per 100,000 population) for community associated infections: **5.5**
 - The incidence rate for the previous quarter was 6.9
 - The incidence rate for the whole of Scotland this quarter was 7.1

***Escherichia coli* bacteraemia (ECB)**

- Incidence rate (per 100,000 TOBD *) for healthcare associated infections: **42.5**
 - The incidence rate for the previous quarter was 31.8
 - The incidence rate for the whole of Scotland this quarter was 39.4
- Incidence rate (per 100,000 population) for community associated infections: **26.9**
 - The incidence rate for the previous quarter was 33.2
 - The incidence rate for the whole of Scotland this quarter was 36.2

***Staphylococcus aureus* bacteraemia (SAB)**

- Incidence rate (per 100,000 TOBD *) for healthcare associated infections: **15.1**
 - The incidence rate for the previous quarter was 23.1
 - The incidence rate for the whole of Scotland this quarter was 17.3
- Incidence rate (per 100,000 population) for community associated infections: **10.4**
 - The incidence rate for the previous quarter was 14.5
 - The incidence rate for the whole of Scotland this quarter was 10.0

* *Total Occupied Bed Days*

Executive Summary

April – June 2024

Above Target

- Cleaning compliance (**93%**)
 - This is the **same** as the previous quarter (93%)
 - The target, set by Health Facilities Scotland, is 90%
- Estates monitoring compliance (**93%**)
 - This is the **same** as the previous quarter (93%)
 - The target, set by Health Facilities Scotland, is 90%
- Hand hygiene compliance amongst Allied Health Professionals (**99%**)
 - This is the **same** as the previous quarter (99%)
 - The target, set by NHS Grampian, is 95%
- Hand hygiene compliance amongst ancillary staff (**97%**)
 - This is an **increase** compared to the previous quarter (96%)
 - The target, set by NHS Grampian, is 95%
- Hand hygiene compliance amongst medical staff (**96%**)
 - This is the **same** as the previous quarter (96%)
 - The target, set by NHS Grampian, is 95%
- Hand hygiene compliance amongst nursing staff (**99%**)
 - This is an **increase** compared to the previous quarter (98%)
 - The target, set by NHS Grampian, is 95%

Below Target

- Meticillin-Resistant *Staphylococcus Aureus* (MRSA) Clinical Risk Assessment (CRA) screening compliance (**69%**)
 - This is an **increase** compared to the previous quarter (55%)
 - The target, set by ARHAIS, is 90%
- Carbapenemase Producing Enterobacteriaceae (CPE) Clinical Risk Assessment (CRA) screening compliance (**74%**)
 - This is an **increase** compared to the previous quarter (65%)
 - The target, set by NHS Grampian, is 90%

Ward Closures (due to enteric and respiratory incidents / outbreaks)

- Total number of wards fully closed: **7**
- Total number of wards partially closed: **7**

1. Actions Recommended

The Board is requested to note the content of this quarterly Healthcare Associated Infection (HAI) Report, as directed by the HAI Policy Unit, Scottish Government Health Directorates (SGHD).

2. Strategic Context

- Updated Healthcare Associated Infections (HCAI) Standards for Scotland
- Updated Antibiotic Use Indicators for Scotland
- National Key Performance Indicators for MRSA CRA screening
- National Key Performance Indicators for CPE CRA screening
- National Health Facilities Scotland (HFS) Environmental Cleaning Target
- National Health Facilities Scotland (HFS) Estates Monitoring Target
- National Zero Tolerance to Hand Hygiene Non-Compliance

3. Risk Mitigation

By noting the contents of this report, the Board will fulfil its requirement to seek assurance that appropriate surveillance of healthcare associated infection is taking place and that this surveillance is having a positive impact on reducing the risk of avoidable harm to the patients of NHS Grampian (NHSG).

4. Responsible Executive Director and contact for further information

If you require any further information please contact:

Responsible Executive Director:

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Clostridioides (formerly Clostridium) difficile Infection (CDI) Surveillance

For a definition of this organism and details about surveillance, please see Appendix 1.

For the period April to June 2024 the rate of healthcare associated cases of CDI in NHS Grampian was 10.8 cases per 100,000 total occupied bed days. In the previous quarter, the rate for NHS Grampian was 10.1 cases per 100,000 total occupied bed days.

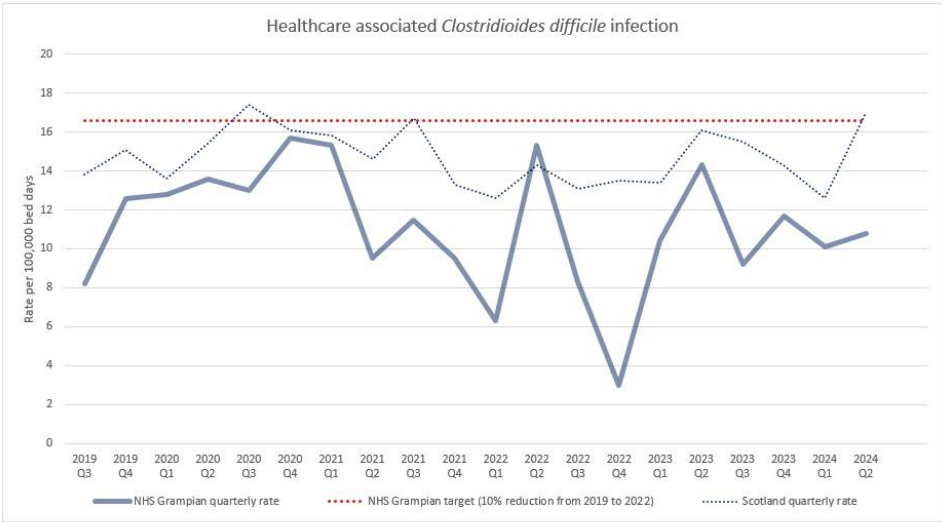


Figure (1a) shows trends in healthcare associated *C. difficile* infection in NHS Grampian (thick blue line) and Scotland (dotted blue line) over the last 5 years. In the latest quarterly data (2024 Q2) NHS Grampian rates of healthcare associated *C. difficile* infection are stable i.e. average / below average (within the statistical limits of variation) compared to the rest of Scotland.

The COVID-19 pandemic has impacted other areas of healthcare and caution is advised interpreting data from 2020 Q2 onwards. NHS Grampian met the Scottish Government target for reducing *C. difficile* infection (thick blue line is below the straight dotted red line).

For the period April to June 2024 the rate of community associated cases of CDI in NHS Grampian was 5.5 cases per 100,000 population. In the previous quarter, the rate for NHS Grampian was 6.9 cases per 100,000 population.

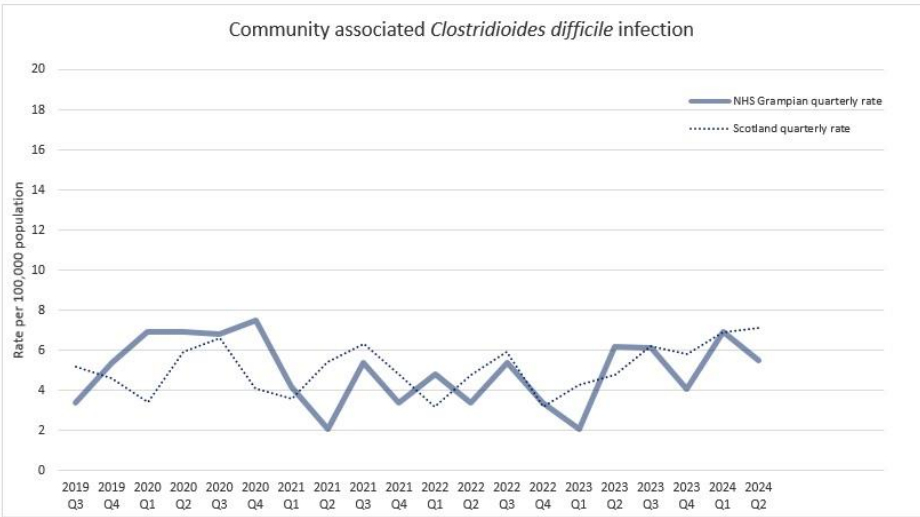


Figure (1b) shows trends in community associated *C. difficile* infection in NHS Grampian (thick blue line) and Scotland (dotted blue line) over the last 5 years. In the latest quarterly data (2024 Q2) NHS Grampian rates of community associated *C. difficile* infection are stable i.e. average / below average (within the statistical limits of variation) compared to the rest of Scotland.

The COVID-19 pandemic has impacted other areas of healthcare and caution is advised interpreting data from 2020 Q2 onwards.

Escherichia coli Bacteraemia (ECB) Surveillance

For a definition of this organism and details about surveillance, please see Appendix 1.

In NHS Grampian, the rate of healthcare associated cases of ECB between April and June 2024 was 42.5 cases per 100,000 total occupied bed days. In the previous quarter the rate in NHS Grampian was 31.8 cases per 100,000 total occupied bed days.

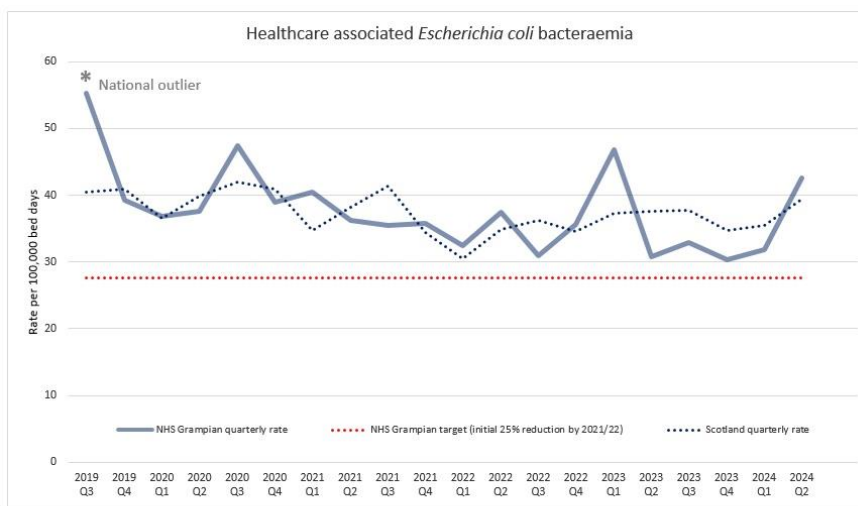


Figure (2a) shows trends in healthcare associated *E. coli* bacteraemia in NHS Grampian (thick blue line) and Scotland (dotted blue line) over the last 5 years. In the latest quarterly data (2024 Q2) **NHS Grampian rates of healthcare associated *E. coli* bacteraemia are stable** i.e. average / below average (within the statistical limits of variation) compared to the rest of Scotland.

The COVID-19 pandemic has impacted other areas of healthcare and caution is advised interpreting data from 2020 Q2 onwards. NHS Grampian like other Health Boards, did not meet the Scottish Government target for reducing *E. coli* bacteraemia (thick blue line is above dotted red line). The initial reduction has now been deferred and acknowledged to be unachievable due to no underlying scientific rationale for setting the target.

In NHS Grampian, the rate of community associated cases of ECB between April and June 2024 was 26.9 cases per 100,000 population. In the previous quarter the rate in NHS Grampian was 33.2 per 100,000 population.

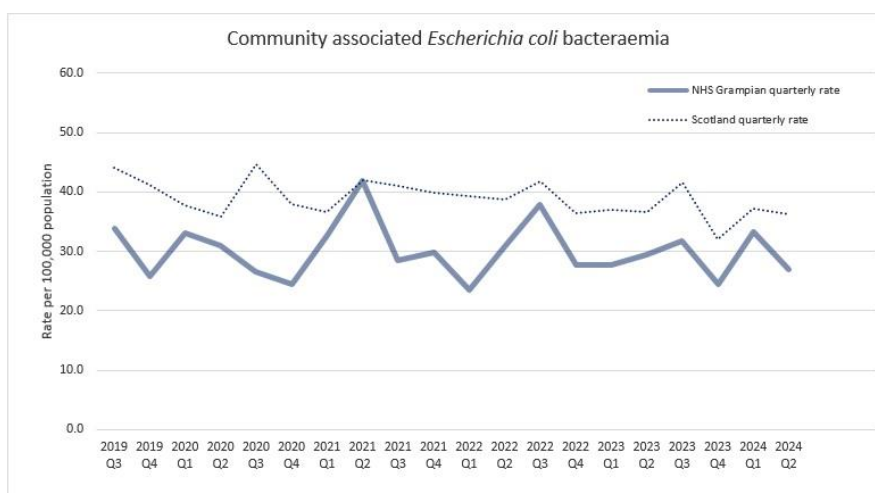


Figure (2b) shows trends in community associated *E. coli* bacteraemia in NHS Grampian (thick blue line) and Scotland (dotted blue line) over the past 5 years. In the latest quarterly data (2024 Q2) **NHS Grampian rates of community associated *E. coli* bacteraemia are stable** i.e. average / below average (within the statistical limits of variation) compared to the rest of Scotland.

The COVID-19 pandemic has impacted other areas of healthcare and caution is advised interpreting data from 2020 Q2 onwards.

Enhanced *Staphylococcus aureus* Bacteraemia (SAB) Surveillance

For a definition of this organism and details about surveillance, please see Appendix 1.

Between April and June 2024, the rate of healthcare associated cases of SAB in NHS Grampian was 15.1 cases per 100,000 total occupied bed days. In the previous quarter, the rate in NHS Grampian was 23.1 cases per 100,000 total occupied bed days.

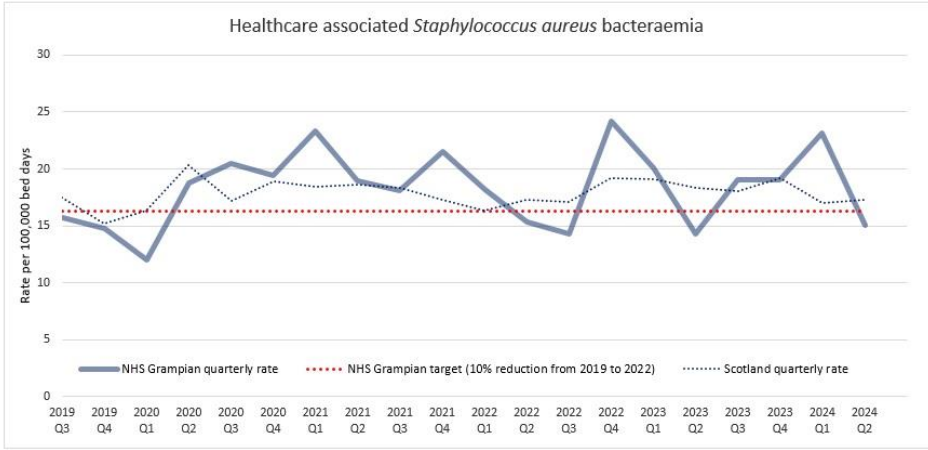


Figure (3a) shows trends in healthcare associated *S. aureus* bacteraemia in NHS Grampian (thick blue line) and Scotland (dotted blue line) over the last 5 years. In the latest quarterly data (2024 Q2) NHS Grampian rates of healthcare associated *S. aureus* bacteraemia are stable i.e. average / below average (within the statistical limits of variation) compared to the rest of Scotland.

The COVID-19 pandemic has impacted other areas of healthcare and caution is advised interpreting data from 2020 Q2 onwards. Overall, NHS Grampian did not meet the Scottish Government target for reducing *S. aureus* bacteraemia (thick blue line is above the dotted red line) although it did this quarter. The initial reduction was deferred from 2019 to 2024.

Between April and June 2024, the rate of community associated cases of SAB in NHS Grampian was 10.4 cases per 100,000 population. In the previous quarter, the rate in NHS Grampian was 14.5 cases per 100,000 population.

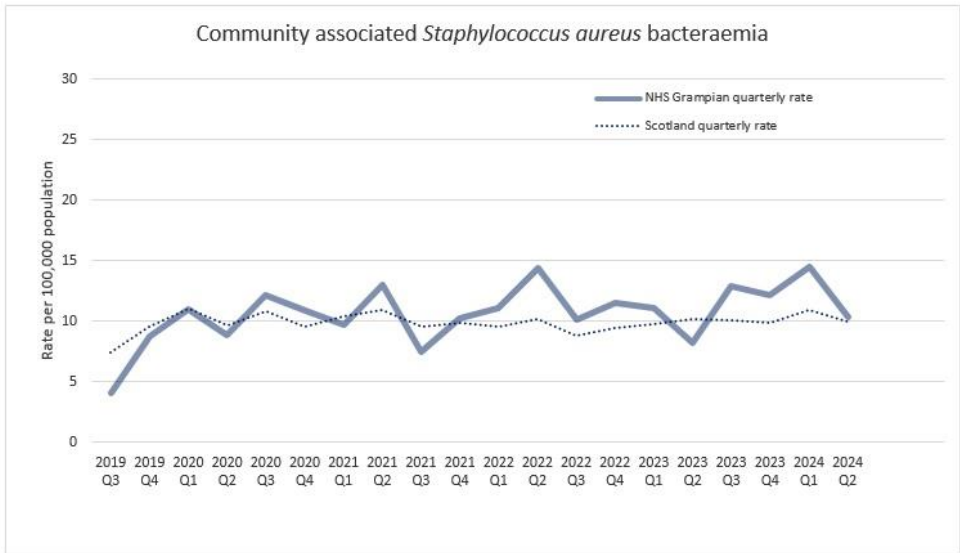


Figure (3b) shows trends in community associated *S. aureus* bacteraemia in NHS Grampian (thick blue line) and Scotland (dotted blue line) over the last 5 years. In the latest quarterly data (2024 Q2) NHS Grampian rates of community associated *S. aureus* bacteraemia are stable i.e. average / below average (within the statistical limits of variation) compared to the rest of Scotland.

The COVID-19 pandemic has impacted other areas of healthcare and caution is advised interpreting data from 2020 Q2 onwards.

Surgical Site Infection (SSI) Surveillance *

For a definition of this organism and details about surveillance, please see Appendix 1.

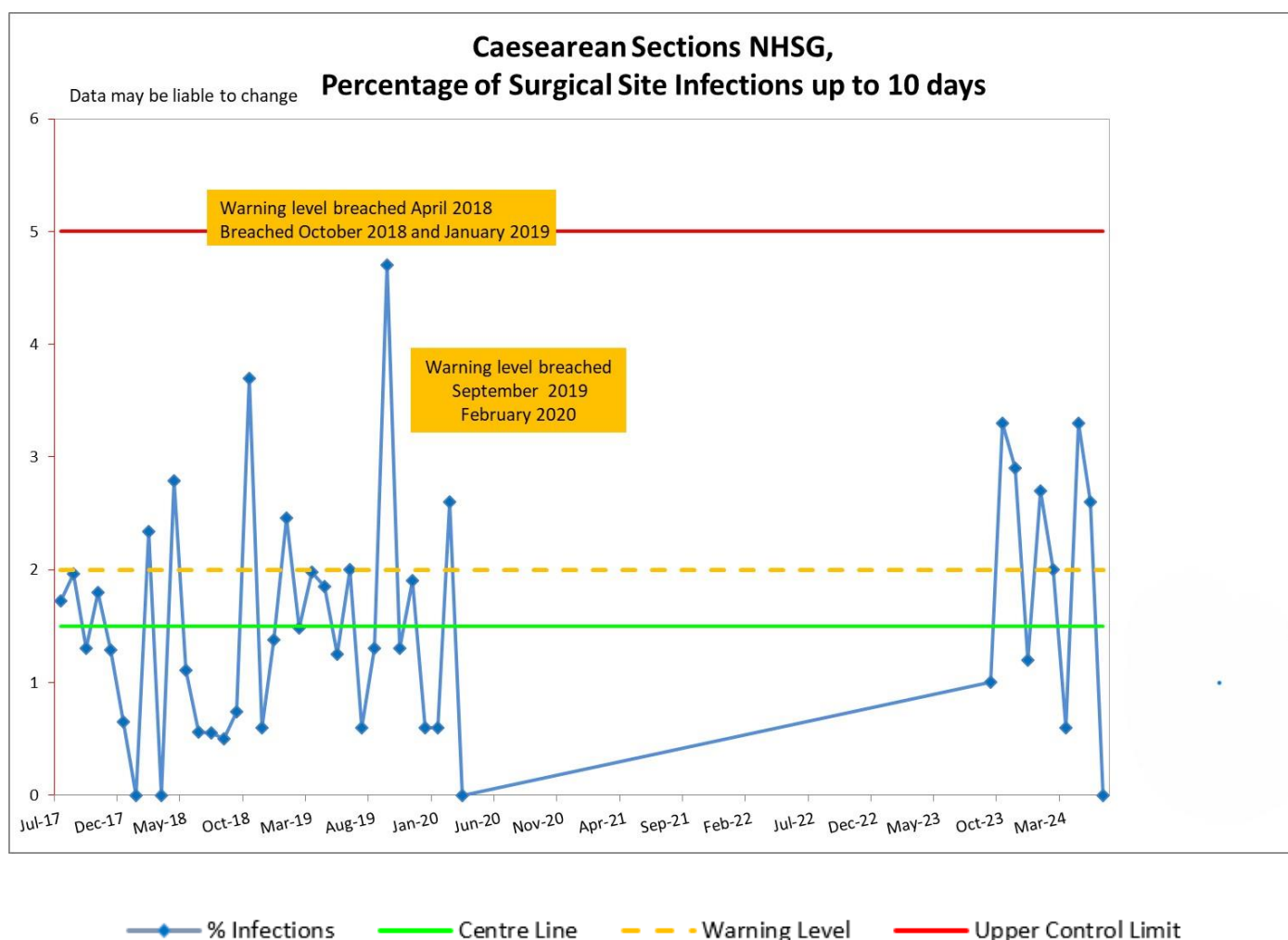
Voluntary Surgical Site Infection (SSI) Surveillance: Caesarean Sections

For details about this voluntary surveillance, please see Appendix 1.

The percentage of caesarean sections performed in NHS Grampian that resulted in an SSI (up to ten days post-surgery).

Quarter 1: 2.7% for January 2024, 2.0% for February 2024, and 0.6% for March 2024

Quarter 2: 3.3% in April 2024, 2.6% in May 2024, and 2.6% in June 2024.



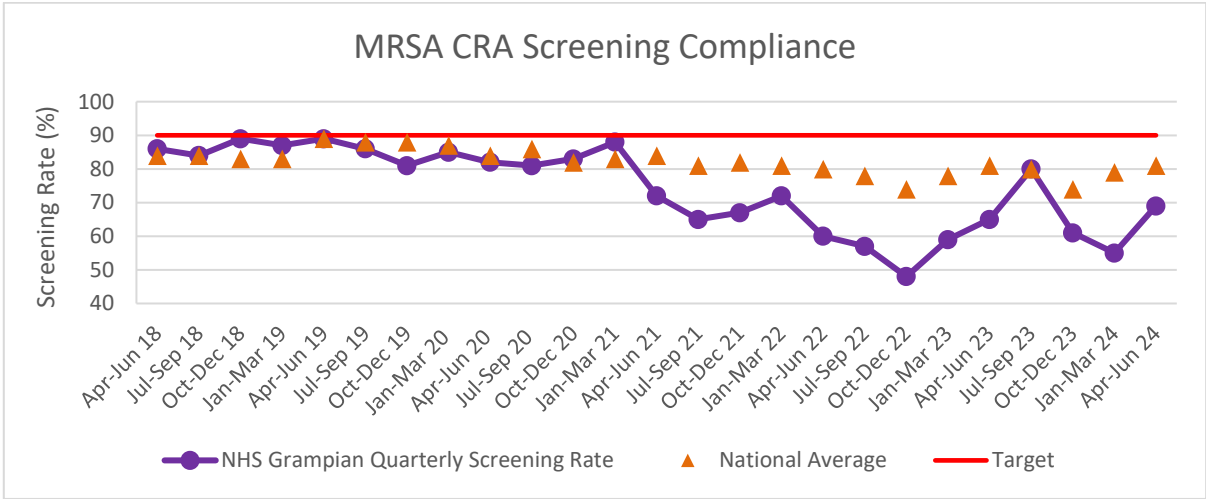
NB Limit breaches have not been annotated due to there not being enough points of data from the restart in September 2023. These will be added on reaching 25 points of data post September 2023.

** National surveillance was paused to support the COVID-19 response and has not yet resumed – this is currently under review by ARHAIS*

Meticillin-Resistant *Staphylococcus Aureus* (MRSA) Screening

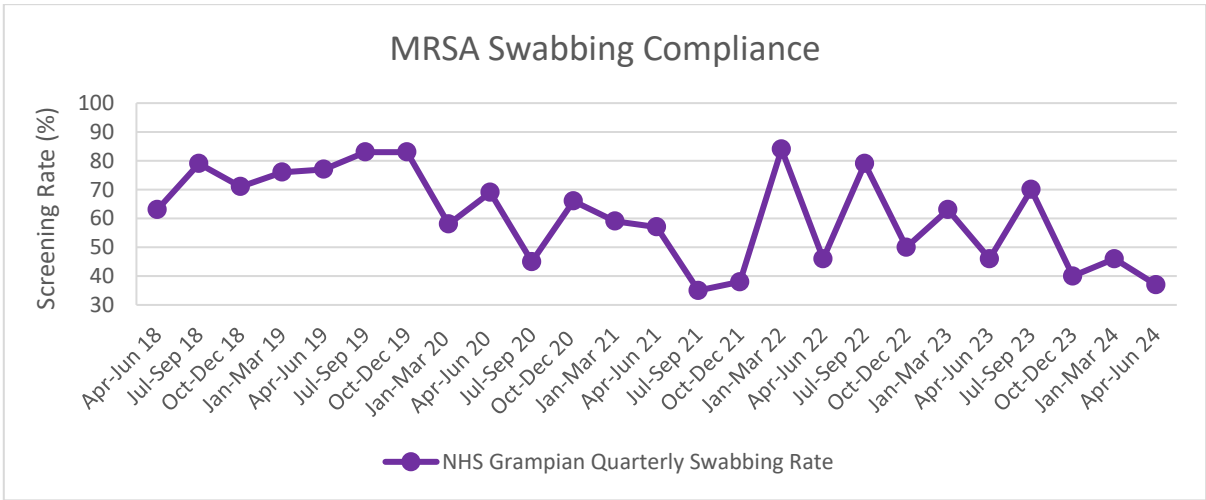
For a definition of this organism and details about surveillance, please see Appendix 1.

NHS Grampian’s MRSA CRA screening compliance for April to June 2024 was 69%. This is an increase from the previous quarter (55%), but is below the national average (81%), and is below the national target (90%).



The MRSA CRA screening figures are tabled at the NHS Grampian Acute HAI Group meetings, for awareness and so that actions can be taken, where necessary, to improve compliance. The poor compliance for MRSA CRA screening in NHS Grampian has also been raised at recent NHS Grampian governance meetings, and education for staff is being delivered by the NHS Grampian Infection Prevention & Control Team.

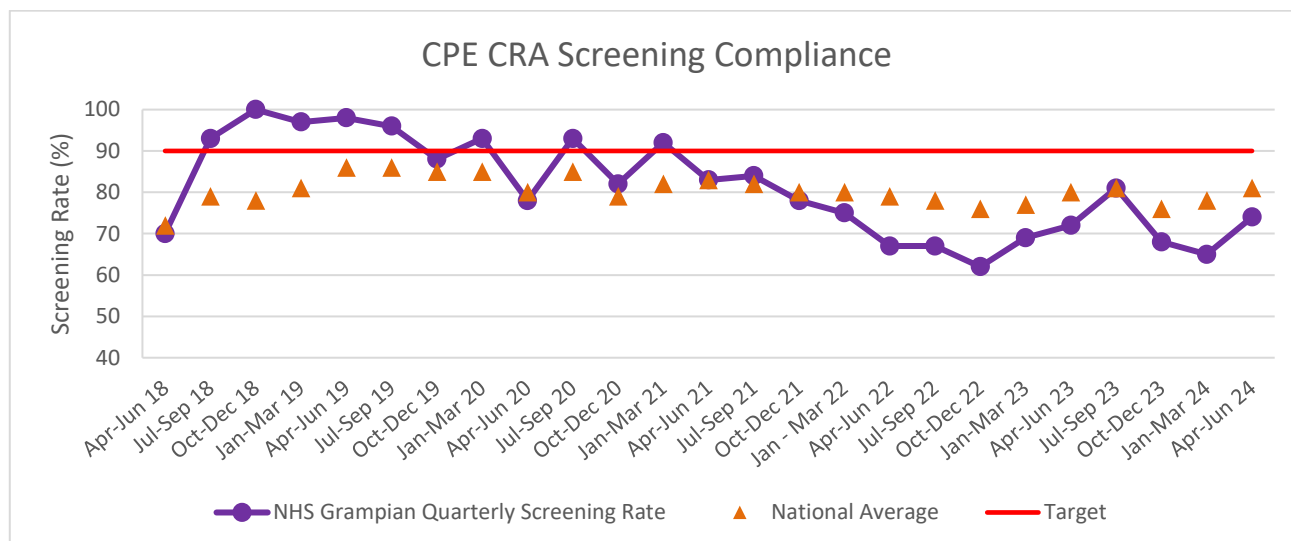
NHS Grampian’s MRSA swabbing compliance for April to June 2024 was 37%. This is a decrease from the previous quarter (46%).



Carbapenemase Producing Enterobacteriaceae (CPE) Screening

For a definition of this organism and details about surveillance, please see Appendix 1.

NHS Grampian's CPE Clinical Risk Assessment (CRA) screening compliance for April to June 2024 was 74%. This is an increase from the previous month's compliance (65%), but is below the national average (81%), and is below NHS Grampian's target (90%).

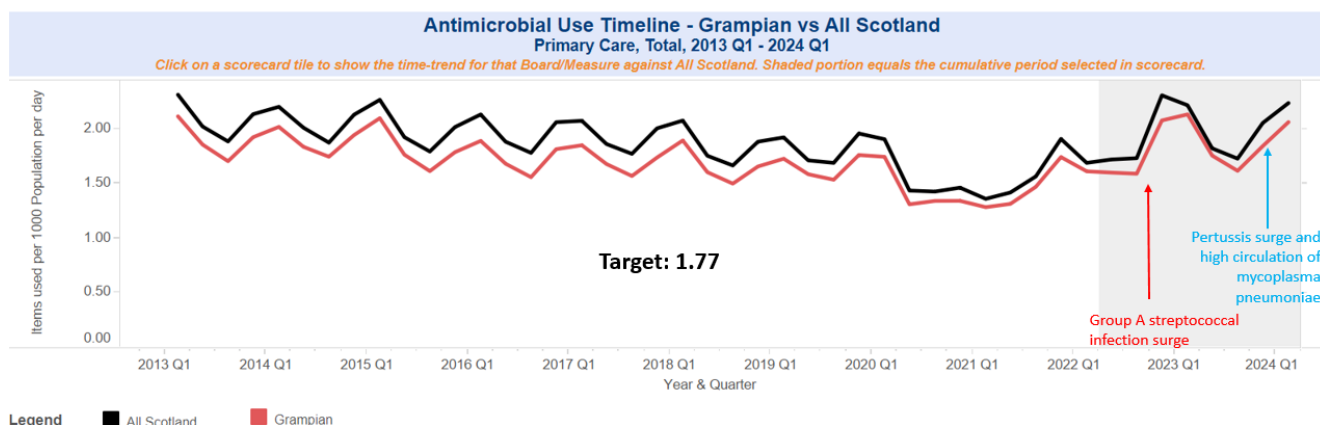


The CPE CRA screening figures are tabled at the Acute HAI Group meetings, for awareness and so that actions can be taken, where necessary, to improve compliance. The recent decline in compliance for CPE CRA screening in NHS Grampian has also been raised at recent NHS Grampian governance meetings, and education for staff is being delivered by the NHS Grampian Infection Prevention & Control Team.

Antibiotic Use Indicators for Scotland (Data source NSS Discovery)

The 3 national indicators, agreed by the Scottish Antimicrobial Prescribing Group (SAPG) and approved by the Scottish Government in October 2019, are detailed below (the indicators were extended until March 2024). Following the publication of [UK 5-year action plan for antimicrobial resistance 2024 to 2029](#) in May 2024, we are awaiting the Scottish Implementation Plan, and any updated indicators, to work towards achieving the targets set out in the UK plan.

1. A 10% reduction of antibiotic use in Primary Care (excluding dental) by 2022, using 2015 / 2016 data as a baseline (items/1000/day)



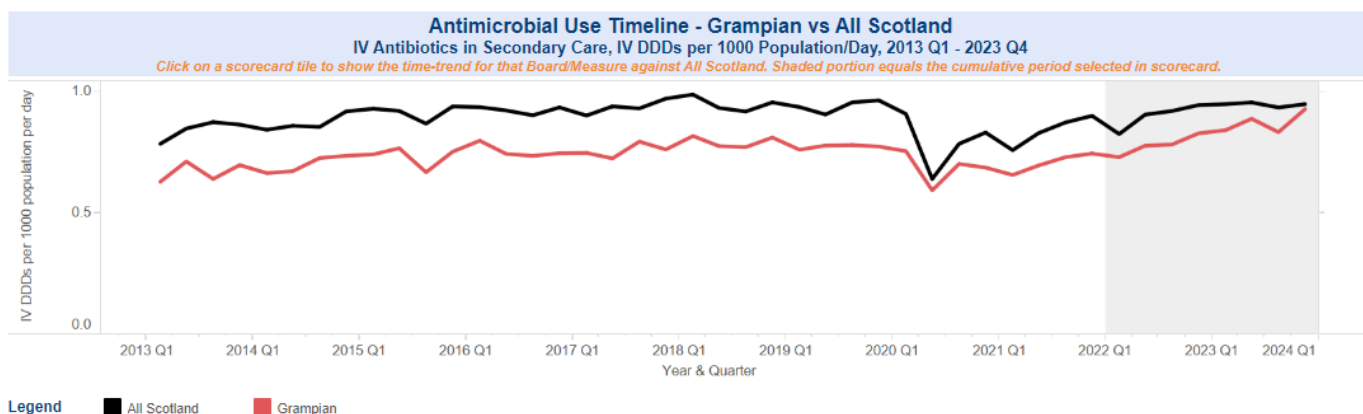
Calendar quarter	Items used per 1000 Population per day (Grampian)
Q2 2023	1.75
Q3 2023	1.61
Q4 2023	1.84
Q1 2024	2.06
Q2 2023 – Q1 2024	1.815

Prescribing in Grampian continues to mirror the national trends, with seasonal variation and circulating infections both having an impact. Improvement work is ongoing nationally to better understand increases in prescribing rates. At board level, the Antimicrobial Management Team (AMT) have been in contact with the Primary Care Prescribing Group with regards to the prescribing levels and will continue to liaise with them in regards to any necessary actions.

Actions taken:

- Messaging on prescribing levels has been shared via the Primary Care brief and highlighted at the Grampian Area Drug and Therapeutics committee (GADTC), with the aim of engaging practices in some local audit work to gain greater understanding of how antibiotics are being used, specifically the indications for co-amoxiclav, which has seen a large increase in prescribing.
- A review of the primary care empiric antimicrobial prescribing guidance is underway, with indications being updated individually, allowing publication in a more timely manner than was previously possible.
- The NHS Grampian AMT have agreed to focus the efforts for World Antimicrobial Resistance Awareness Week (WAAW) 2024 in Primary Care.

2. Use of intravenous antibiotics in secondary care defined as DDD*/1000population/day will be no higher in 2022 than it was in 2018



Average over last 4 quarters = 0.875 (target 0.796)

Actions taken:

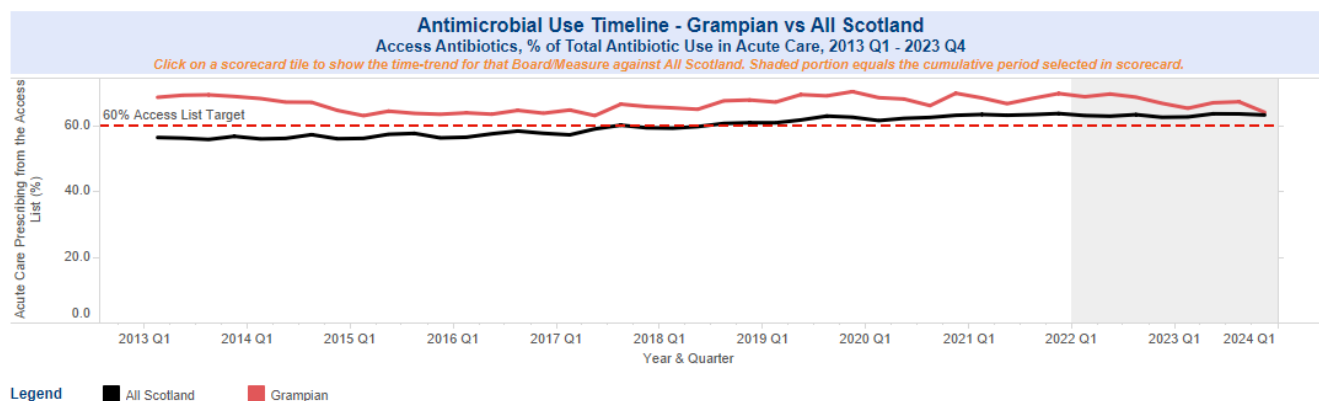
- Discussed at May 2024 AMT meeting. AMT will continue to monitor data and aim to determine any potential reasons for the increase, and any resulting actions.
- IV to Oral Switch guidance update progressed, with publication due prior to next report.

Note: The re-introduction and expansion of the Outpatient Parenteral Antibiotic Therapy Service (OPAT) from January 2022 allows patients to receive IV antibiotics while not using an inpatient bed. This creates bed capacity, but may impact on use of IV antibiotics, as these figures will contribute to the secondary care usage.

* *Defined Daily Dose*. Further information can be found at:

[WHOCC - Definition and general considerations](#)

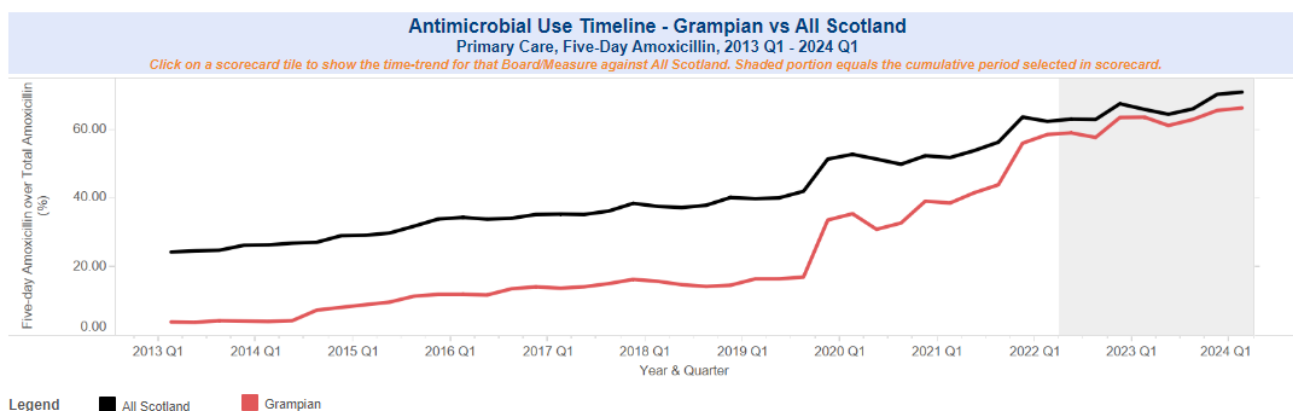
3. Use of WHO Access Antibiotics (NHSE list) $\geq 60\%$ of total antibiotic use in acute hospitals by 2022



NHS Grampian is consistently meeting this target, with an average of 65.9% over the last 4 quarters.

Primary Care data demonstrates that use of Access Antibiotics in NHS Grampian is around 81%, which is just above the national average. There is currently no national target set for Primary Care, but the new National Action Plan features a target of 70% of total use of antibiotics from the Access category (new UK category) across the human healthcare system.

Amoxicillin course length in Primary Care



The percentage of prescriptions for amoxicillin in primary care that are for a 5 day duration is consistently increasing since updates to local guidance in November 2019, and is now much nearer the national level. There is currently no national target for this parameter.

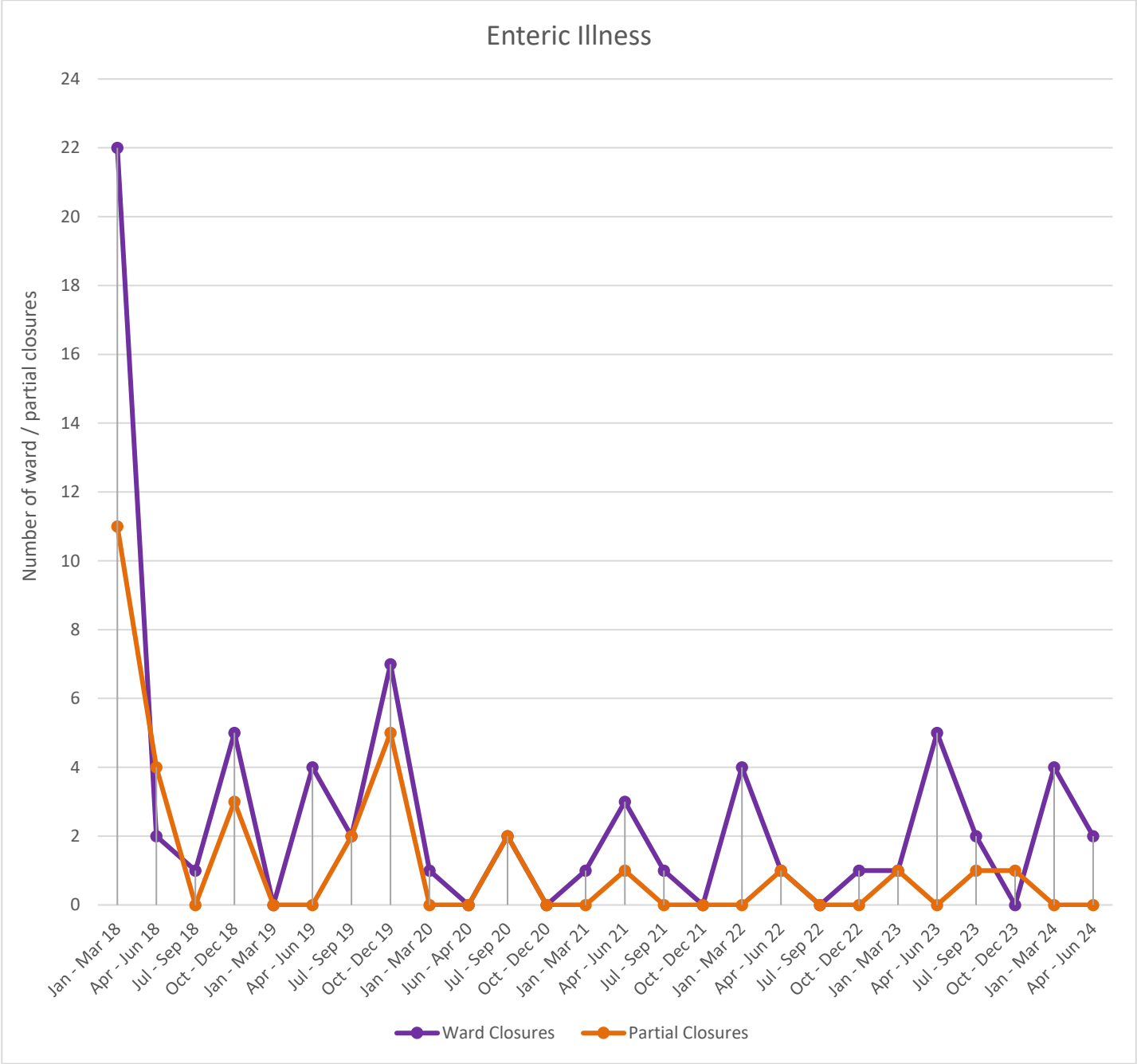
Actions taken:

- Continue to review durations in guidance.
- Include focus on duration during WAAW activities.

Incidents and Outbreaks - Enteric Illness

For information on incidents and outbreaks, please see Appendix 1.

For the period April to June 2024 there were 2 ward closures and 0 partial closures in NHS Grampian due to enteric illness (including confirmed or suspected Norovirus). During the previous quarter there were 4 ward closures and 0 partial closures due to enteric illness.

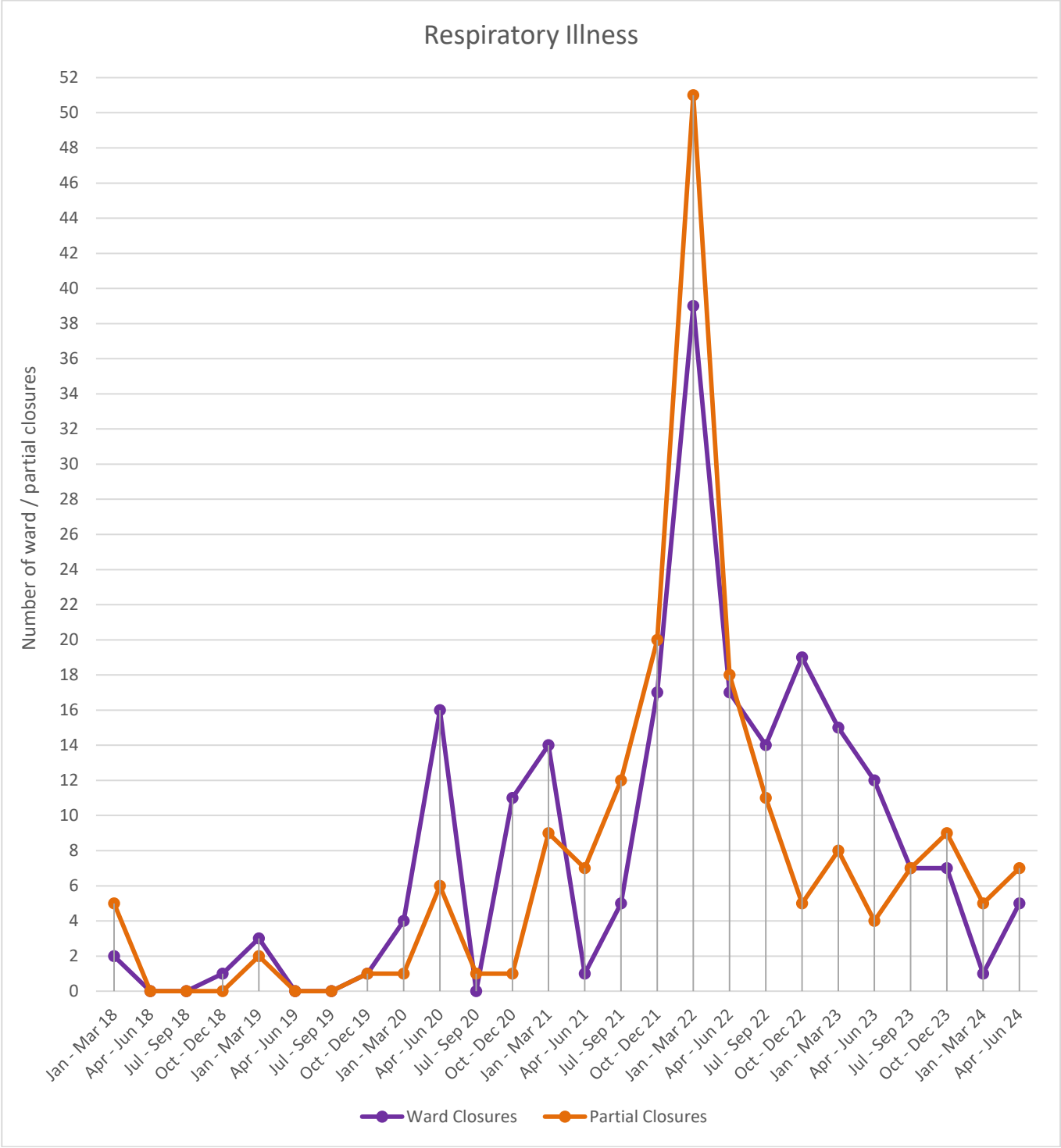


Adding together ward closures and partial closures will illustrate the overall impact on wards.

Incidents and Outbreaks - Respiratory Illness

For information on incidents and outbreaks, please see Appendix 1.

For the period April to June 2024 there were 5 ward closures and 7 partial closures in NHS Grampian due to respiratory illness (including confirmed or suspected Influenza and COVID-19). During the previous quarter there was 1 ward closure and 5 partial closures due to respiratory illness.



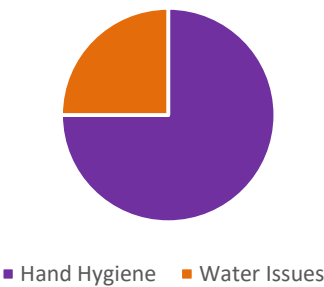
Adding together ward closures and partial closures will illustrate the overall impact on wards.

Preliminary Assessment Group (PAG) and Incident Management Team (IMT) Meetings

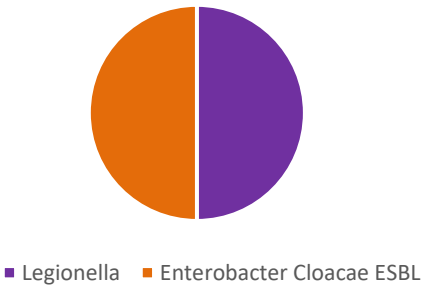
For information on PAG and IMT meetings, please see Appendix 1.

Between April and June 2024, the number of Infection Prevention & Control (IPC)-led PAG meetings in NHS Grampian was 4 and the number of IPC-led IMT meetings was 4.

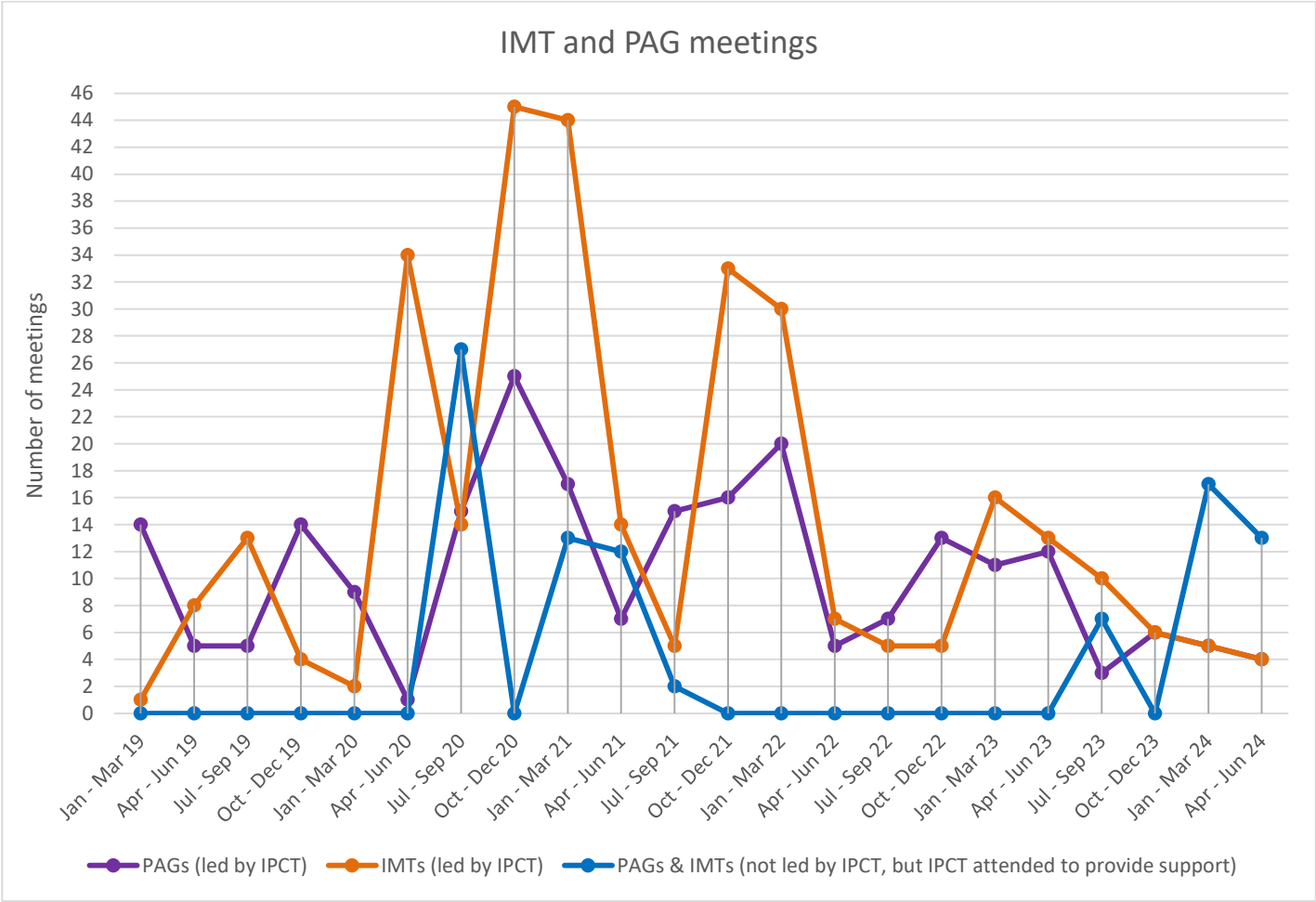
Reason for PAG meetings
April - June 2024



Reason for IMT meetings
April - June 2024



Between April and June 2024 the IPC Team also provided support at a total of 13 PAG and IMT meetings that were led by other teams: 2 PAG meetings (1 for Legionella, and 1 for water results) and 11 IMT meetings (4 for leakage from a blocked toilet, 3 for water results, 3 for ventilation, and 1 for Tuberculosis).



Cleaning and the Healthcare Environment

For information on the monitoring of cleaning and the healthcare environment, please see Appendix 1.

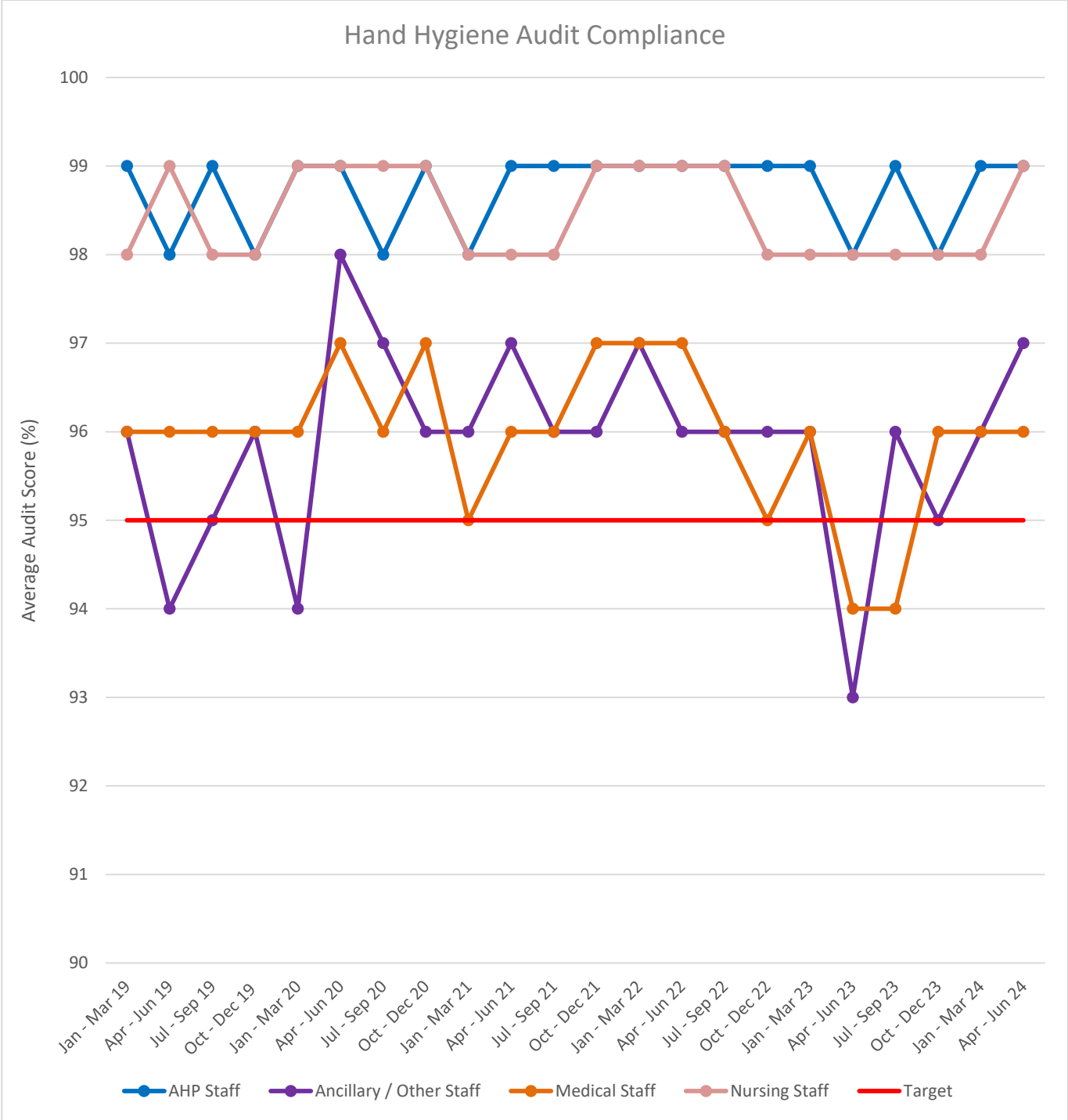
Between April and June 2024, NHS Grampian was, overall, compliant with the required cleanliness standards, as monitored by the Facilities Monitoring Tool. NHS Grampian was, overall, also compliant during the previous quarter.

	Jan 2024 Domestic	Jan 2024 Estates	Feb 2024 Domestic	Feb 2024 Estates	Mar 2024 Domestic	Mar 2024 Estates	Jan - Mar 2024 Domestic	Jan - Mar 2024 Estates
NHS Grampian Overall	92.75	93.30	93.85	93.25	93.10	92.85	93.23	93.13
Aberdeen Maternity Hospital, RACH & Outlying Areas	93.00	95.35	94.20	96.10	93.05	94.00	93.41	95.15
Aberdeen Royal Infirmary	92.90	94.60	94.55	94.90	93.45	94.80	93.63	94.76
Aberdeenshire North & Moray Community	94.60	87.55	94.95	91.85	95.20	91.70	94.91	90.36
Aberdeenshire South & Aberdeen City	91.95	90.90	92.60	91.80	92.70	92.25	92.41	91.65
Dr Gray's Hospital	93.25	91.80	93.50	91.05	92.35	92.55	93.03	91.80
Royal Cornhill Hospital	91.70	93.45	93.30	92.45	90.05	92.45	91.68	92.78
Woodend Hospital	91.25	92.80	91.05	88.65	92.25	86.00	91.51	89.15

Hand Hygiene Compliance

For information on hand hygiene audit compliance, please see Appendix 1.

The average hand hygiene audit compliance scores for the period April to June 2024 were 99% for Allied Health Professionals (AHPs), 99% for nursing staff, 96% for medical staff, and 97% for ancillary / other staff. For the previous quarter, the average scores were 99% for Allied Health Professionals (AHPs), 98% for nursing staff, 96% for medical staff, and 96% for ancillary / other staff.



References

- 1: Scottish Healthcare Associated Infection Strategy 2023 – 2025. Available at: <https://www.gov.scot/publications/scottish-healthcare-associated-infection-hcai-strategy-2023-2025/documents/>
- 2: Director's letter from the Scottish Government regarding Healthcare Associated Infection (HCAI) and Indicators on Antibiotic Use. Available at: <https://www.publications.scot.nhs.uk/files/dl-2023-06.pdf>
- 3: NHS Grampian Staff Protocol for the Screening and Placement of Patients with Meticillin-Resistant Staphylococcus aureus (MRSA) within NHS Healthcare Settings (Excluding Care Homes) – Version 5, September 2022. Available at: <http://nhsgintranet.grampian.scot.nhs.uk/depts/InfectionPreventionAndControlManual/Documents/NHSG%20Staff%20Protocol%20for%20the%20Screening%20and%20Placement%20of%20Patients%20with%20MRSA%20within%20NHS%20Healthcare%20Settings%20September%202022.pdf>
- 4: ARHAIS Data & Intelligence for Multi-drug resistant organism admission screening (2021). Available at: <https://www.nss.nhs.scot/antimicrobial-resistance-and-healthcare-associated-infection/data-and-intelligence/multi-drug-resistant-organism-admission-screening/>
- 5: Director's letter from the Scottish Government regarding policy requirement for Carbapenemase Producing Enterobacteriaceae (CPE) Screening in NHS Boards (2017). Available at: [https://www.sehd.scot.nhs.uk/dl/DL\(2017\)02.pdf](https://www.sehd.scot.nhs.uk/dl/DL(2017)02.pdf)
- 6: Health Protection Scotland (2019) National Infection prevention and Control Manual – Chapter 3. Available at: <http://www.nipcm.hps.scot.nhs.uk/chapter-3-healthcare-infection-incidents-outbreaks-and-data-exceedance/>
- 7: Health Protection Scotland (2022) Healthcare Infection Incident Assessment Tool. Available at: <http://www.nipcm.hps.scot.nhs.uk/appendices/appendix-14-mandatory-nipcm-healthcare-infection-incident-assessment-tool-hiiat/>
- 8: Management of Public Health Incidents: Guidance on the Role and Responsibilities of NHS Led Incident Management Teams. Available at: https://hpspubsrepo.blob.core.windows.net/hps-website/nss/1673/documents/1_shpn-12-mphi-21062017.pdf
- 9: World Health Organisation – Hand Hygiene Technical Manual (2009). Available at: <https://www.who.int/publications/i/item/9789241598606>
- 10: CEL 5 (2009) – Zero Tolerance to Non Hand Hygiene Compliance. Available at: <https://www.publications.scot.nhs.uk/publication/2848>

Appendix 1

Organism definitions, surveillance information, and information on processes

***Clostridioides* (formerly *Clostridium*) *difficile* Infection (CDI) Surveillance**

Clostridioides difficile (*C.diff*) is a spore forming bacterium occurring naturally and harmlessly in the bowel in up to 5% of the population. It can develop into an infection when the balance of the gut flora is disturbed by taking antibiotics and other medications. Age is also a risk factor as the majority of cases can be found in people over 65 years of age. The main symptom of *C.diff* is diarrhoea, which can range from mild to life threatening.

C.diff can be easily spread by released spores landing on surrounding surfaces. It can then be picked up by someone touching these contaminated surfaces and not cleaning their hands properly with running water and liquid soap. Putting contaminated hands near the mouth or eating can then allow the spores to spread to the gut and infect this new person.

It is important to realise that *C.diff* can develop in the community as well as in hospital.

C.diff data for patients aged 15 and above is collected for the mandatory Scottish *Clostridioides difficile* Surveillance programme, and reported to ARHAI Scotland, following a robust investigation of every possible case by the NHS Grampian Infection Prevention and Control Team. Positive samples can be excluded if the patient does not fulfil the surveillance criteria or has another cause for their diarrhoea. The data is then fed back to every ward in NHS Grampian, by way of monthly reports and statistical process control charts. To date the surveillance has been very successful in enabling NHS Grampian to reduce the infection rate, prevent outbreaks and promote patient safety.

In regard to national CDI targets for healthcare associated cases, one of the objectives in the Scottish Healthcare Associated Infection Strategy 2023 – 2025¹ is for ARHAIS Scotland and the Scottish Government to review the current national HAI targets and indicators² to ensure that they are relevant and reflective of current context.

Further information on CDI surveillance can be found at:

<https://www.nss.nhs.scot/publications/protocol-for-the-scottish-surveillance-programme-for-clostridioides-difficile-infection-user-manual/>

***Escherichia coli* Bacteraemia (ECB) Surveillance**

Escherichia coli (*E.coli*) is a Gram Negative bacterium that forms part of the normal flora in the human gastrointestinal tract and is a common cause of urinary tract and hepatobiliary infections. Serious disease may occur if *E. coli* breaches the body's defence mechanisms and enters the bloodstream (bacteraemia).

It is important to be aware that *E.coli* Bacteraemia can occur in the community as well as in hospital.

In Scotland, mandatory surveillance for ECB commenced in 2016. Each case is robustly investigated by the microbiology and Infection Prevention and Control team. The origin of each positive blood culture is classified as either Healthcare or Community associated, and the source established according to ARHAI Scotland protocols.

In regard to national ECB targets for healthcare associated cases, one of the objectives in the Scottish Healthcare Associated Infection Strategy 2023 – 2025¹ is for ARHAIS Scotland and the Scottish Government to review the current national HAI targets and indicators² to ensure that they are relevant and reflective of current context.

Information on the national surveillance programme for *Escherichia coli* infection can be found at:

<https://www.nss.nhs.scot/antimicrobial-resistance-and-healthcare-associated-infection/data-and-intelligence/escherichia-coli-bacteraemia/>

Enhanced *Staphylococcus aureus* Bacteraemia (SAB) Surveillance

Staphylococcus aureus (*S. aureus*) is a Gram-positive bacterium that colonises the nasal cavity and/or groin in approximately a third of the population. Although colonisation is harmless, serious infection occurs if *S. aureus* breaches the skin barrier and enters the bloodstream, usually by way of a skin break, in the community, e.g. leg ulcer, or by way of a hospital device such as a peripheral venous catheter. This is called a bacteraemia. From there it can migrate to deep sources, e.g. osteomyelitis, joint replacements and infective endocarditis.

In Scotland, mandatory enhanced surveillance for *Staphylococcus aureus* bacteraemia (SABs) commenced in 2014. The origin of each positive blood culture is classified as either Healthcare or Community associated, and the entry point, any deep sources, and whether the cause has been potentially preventable or not, is established at a multi-disciplinary team meeting, according to ARHAI Scotland protocols.

If a healthcare associated case is deemed to have been potentially preventable, it is Datixed by the NHS Grampian surveillance team in order to provide governance and establish a culture of lessons learned, to increase patient safety. All SABs are also fed back to clinical teams by way of an SBAR, monthly reports and statistical process control charts for each area and hospital.

In regard to national SAB targets for healthcare associated cases, one of the objectives in the Scottish Healthcare Associated Infection Strategy 2023 – 2025¹ is for ARHAIS Scotland and the Scottish Government to review the current national HAI targets and indicators² to ensure that they are relevant and reflective of current context.

More information on the national surveillance programme for *Staphylococcus aureus* bacteraemias can be found at:

<https://www.nss.nhs.scot/publications/protocol-for-national-enhanced-surveillance-of-bacteraemia/>

Surgical Site Infection (SSI) Surveillance

A Surgical Site Infection (SSI) is an infection that occurs in the 30 days following surgery, and may be superficial, deep or organ/space. It is one of the most common types of HAI in Scotland.

In Scotland, the mandatory Surgical Site Infection (SSI) surveillance programme commenced in 2002, the aim being to monitor trends and outbreaks, and reduce SSI rates by collaboration with surgical colleagues.

The mandatory procedures included in the surveillance are:

- Caesarean Section
- Hip arthroplasty
- Large bowel surgery (planned only)
- Vascular surgery (planned only)

The data is measured against other health boards in Scotland by ARHAI Scotland.

Local monthly data is fed back to clinical teams.

Mandatory SSI surveillance was paused in April 2020, due to the COVID-19 pandemic, and has not restarted at the present time. This is currently under review by ARHAI Scotland.

In regard to national SSI targets for healthcare associated cases, one of the objectives in the Scottish Healthcare Associated Infection Strategy 2023 – 2025¹ is for ARHAIS Scotland and the Scottish Government to review the current national HAI targets and indicators² to ensure that they are relevant and reflective of current context.

Information on the national surveillance programme for Surgical Site Infection can be found at: <https://www.nss.nhs.scot/antimicrobial-resistance-and-healthcare-associated-infection/data-and-intelligence/surgical-site-infection/>

Voluntary SSI surveillance for caesarean sections recommenced in NHS Grampian in September 2023. This was following a request from the obstetric team in Aberdeen Maternity Hospital (AMH), as they required some baseline data for caesarean sections performed in AMH, so that they can compare data when they move to the new Baird Family Hospital once building is complete. Please note that Dr Gray's Hospital stopped performing caesarean sections in August 2018, so has not been included in any SSI surveillance for caesarean sections since that time.

This voluntary data is for local use only and is not sent to ARHAI Scotland.

A Statistical Process Control (SPC) chart is a quality improvement tool which shows continuous real-time data and helps distinguish between natural and unnatural variation, shows when and where there is a need to act, aids communication, and helps show if interventions have been successful. They are used by the Infection Prevention & Control Team to guide where infection control processes might be awry, using alert organisms as indicators. They are intended to help get systems under control and keep them stable, resulting in reduced variation.

- **Centre Line (CL)**

The centre line should run through the centre of the data and is the average of all the data points. This is where we want the data to be. The data will naturally go up and down around the centre line and is called 'natural variation'. Eight data points in a row above this line indicates an upwards trend.

- **Warning Level (WL)**
Data which reaches or exceeds this level indicates that there may be an issue in that area which should be investigated.
- **Upper Control Limit (UCL)**
Data which reaches or exceeds this limit is of concern, as it indicates that the chart is out of control in that area. Plans should be made to investigate and instigate corrective practices.

Meticillin-Resistant *Staphylococcus Aureus* (MRSA) Screening

MRSA is a *Staphylococcus aureus* (*S. aureus*) that is resistant to commonly used antibiotics e.g. flucloxacillin. This makes MRSA infections more difficult and costly to treat, hence every effort must be made to prevent spread³. Both MRSA and *S. aureus* are transmitted in the same way and cause the same range of infections. The majority of MRSA positive individuals are colonised. This occurs when an organism lives harmlessly on the body, e.g. skin, with no signs or symptoms of infection. Infection is characterised by inflammation including redness, heat, swelling, pain, loss of function and/or if the organism gains entry or penetrates tissue or sterile sites and causes further disease processes.

Early detection of high-risk patients – using a clinical risk assessment (CRA) based approach – allows early isolation while microbiological samples are tested. This reduces the opportunity for transmission if a patient is colonised or infected. To ensure that CRA based screening is as effective as universal screening, a minimum of 90% compliance with application of the CRA is required for MRSA Screening⁴.

More information on the national surveillance programme for MRSA screening can be found at: <https://www.hps.scot.nhs.uk/web-resources-container/protocol-for-cra-mrsa-screening-national-rollout-in-scotland/>

The results for MRSA swabbing, which commenced during 2018, are not reported nationally. There is no local, or national, target for MRSA swabbing.

Carbapenemase Producing Enterobacteriaceae (CPE) Screening

CPEs are highly resistant bacteria with very few (if any) antimicrobial treatment options. The number of CPE cases in Scotland remains low, however, there has been a 50% increase in cases between 2016 (73) and 2017 (108). The majority of cases were acquired abroad and consequently reduced during the Covid-19 pandemic.

Individuals may be colonised e.g. in the gut requiring no treatment. On the other hand, CPE may cause a range of clinical infections associated with high rates of morbidity and mortality.

CPE screening and data collection commenced on 1st April 2018 at the request of the Scottish Government. All NHS Boards are required to undertake clinical risk assessment (CRA) based screening as per the mandatory requirements of DL (2017) 2⁵. The NHS Grampian target, for compliance with application of the CRA based screening for CPE, is set at 90%.

More information on CPE screening can be found at:

<https://www.hps.scot.nhs.uk/resourcedocument.aspx?id=6990>

The number of patients in NHS Grampian returning a positive CRA for CPE is predicted to be very low and, as such, swabbing is not required. Therefore there is no CPE swabbing data available for NHS Grampian.

Incidents and Outbreaks

Any ward closures (complete ward closures as well as only partial ward closures) in NHS Grampian due to enteric illness (including confirmed or suspected Norovirus) and due to respiratory illness (including confirmed or suspected Influenza, and confirmed or suspected COVID-19) are included in outbreak reports sent by the Infection Prevention & Control Team to ARHAIS each week day.

For the purpose of this report, if any ward has a partial closure immediately before or after a complete closure (for the same incident), then it has only been included once (as a complete closure).

For the purpose of this report, if a ward has a complete or partial closure that continues into the following quarter, then it has only been included once (in the quarter that the incident began).

Preliminary Assessment Group (PAG) and Incident Management Team (IMT) Meetings

In NHS Grampian the Infection Prevention and Control Team are continually alert for an actual or potential healthcare incident, infection and outbreak or data exceedance. We apply Chapter 3 of the National Infection Prevention and Control Manual⁶. The Healthcare Infection Incident Assessment Tool (HIIAT)⁷ guides assessment, communication and escalation of risk within the Health Board, ARHAIS and Scottish Government. Multi-disciplinary meetings to address the infection risk are called Preliminary Assessment Group (PAG) and Incident Management Team (IMT) meetings.

A PAG may be convened to assess and determine if an IMT is required or whether there has been a greater than expected data exceedance, such as non-compliant hand hygiene audits.

An IMT is defined as a multi-disciplinary, multi-agency group with responsibility for investigating and managing an incident⁸.

PAG and IMT meetings establish and monitor risk control measures for patient and staff safety, and can be supported by NHS Grampian's Health Protection Team and ARHAIS.

Cleaning and the Healthcare Environment

Information on the domestics and estates audits which are carried out in NHS Grampian hospitals on a monthly basis can be found within the National Facilities Monitoring Framework Manual:

<https://www.nss.nhs.scot/publications/national-facilities-monitoring-framework-manual-shfn-01-01/>

Hand Hygiene

All wards / depts in NHS Grampian are required to undertake monthly hand hygiene audits, during which twenty observations are made of staff undertaking the “5 moments of Hand Hygiene” (as detailed in the World Health Organisation’s Hand Hygiene Technical Manual, 2009⁹). For each observation to be deemed compliant, the opportunity to perform hand hygiene must have been taken **and** the hand hygiene technique must have been performed correctly.

Good hand hygiene practice is central to the control and prevention of HAIs¹⁰. NHS Grampian has a zero tolerance approach to hand hygiene, and, as such, the target compliance score for hand hygiene audits is 95%.

For reporting purposes, staff observed during hand hygiene audits are split into four main groups:

- Medical
- Nursing
- Allied Health Professionals
- Ancillary / Other

For the purpose of this report, the average percentage for each quarter has been rounded up or down to the nearest whole figure.

Further information on the hand hygiene auditing process within NHS Grampian can be found in the NHS Grampian Staff Protocol for Hand Hygiene Auditing:

<https://nhsgintranet.grampian.scot.nhs.uk/depts/InfectionPreventionAndControlManual/Documents/NHS%20Grampian%20Staff%20Protocol%20for%20Hand%20Hygiene%20Auditing%20v3%20August%202022.pdf>