

# Infection Prevention and Control

## Annual Report

### 2021/22



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## Foreword by the Director of Infection Prevention and Control (DIPC)

Infection Prevention and Control (IPC) is fundamental in improving the safety and quality of care provided to patients. Healthcare-associated Infections (HCAI) can cause significant harm to those infected. As a result, IPC remains a key priority for the Royal Orthopaedic Hospital NHS Foundation Trust (ROH).

I am proud to be able to present the Infection Prevention and Control annual report for 2021/2022.

The work of the IPC team and the Trust was significantly impacted by the COVID-19 pandemic from mid-January 2020, initially with the management of potential cases of SARS-CoV-2 infection as a high consequence infectious disease (HCID), and then as significant numbers of cases were managed in the Trust in March 2020 onwards. Further to this the NHS continues to experience unprecedented challenge clinically, operationally, and economically. However, our staff have sustained a culture of continuous improvement which is both patient-centred and safety-focused. Our vision is to constantly provide the highest possible standards of care across our healthcare economy. You can learn all about the challenges faced by the ROH during the pandemic within this report.

The Trust recognises that the effective prevention and control of HCAs is essential to ensure that patients using services at ROH receive safe and effective care. Effective prevention and control must be an integral part of everyday practice and applied consistently to ensure the safety of our patients. In addition, good management and organisational processes are crucial to ensure high standards of infection prevention and control measures are maintained. During the pandemic we continued this work to the standard we have always worked to.

This report demonstrates how the Trust has systems in place, for compliance with the Health and Social Care Act 2008: Code of Practice on the prevention and control of infections and related guidance. The IPC agenda has continued to be strengthened with a highly visible Infection Prevention Team and Lead IPC Nurse. The development of our IPC nurses is in line with the core competency framework developed by the Infection Prevention Society.

This report summarises the combined activities, commitment and hard work of the IPC Team, Board colleagues, all staff, governors, and volunteers across ROH, Clinical Commissioning Groups and the UK Health Security Agency (UKHSA) (Formerly Public Health England) in relation to the prevention of avoidable HCAs.

Garry Marsh

Executive Director of Nursing and Clinical Governance  
Director of Infection Prevention and Control



## Update From Director of Infection Prevention and Control (DIPC)

During May 2022, prior to submission of this report, Garry Marsh left the Trust and the DIPC role was taken on by Nicola Brockie.

In my new capacity as Director of Infection Prevention and Control I am proud to be able to present this report for FY 21/22. The work that has been achieved to date has established a strong foundation of best practice and a willingness to reflect and build on lessons learned for the coming year. The IPC team have worked hard to ensure education and learning is up to date and shared with the clinical teams, building on the IPC link worker days.

I would like to take this opportunity to thank all our staff for their support relating to the management of IPC across The Royal Orthopaedic Hospital, and I look forward to presenting next year's annual report.

Nicola Brockie  
Acting Chief Nurse  
Director of Infection Prevention and Control



## Section 1: Key Achievements of 2021/22

During 2021/2022 the COVID-19 pandemic continued to be the most significant issue faced in relation to Infection Prevention and Control (IPC) in the Trust alongside continued vacancies within the IPC team (IPCT). During the year, focus had started to shift back to elective recovery with changes in national COVID-19 guidance to reflect this.

Key achievements:

- The IPC team remained actively involved in planning for patients with COVID-19 and supporting clinical teams with their management. This involved continuous updating and training of staff in line with new national guidance being released.
- The Trust reported zero cases of MRSA bacteraemia which is the same compared to the previous 9 years.
- The IPCT led on the formation and implementation of a Surgical Site Infection Surveillance Group to formalise the monitoring of SSI rates and foster a wider MDT approach to prevention measures.
- The IPCT supported the implementation of ultraviolet cleaning within the Trust with the procurement of 2 UV-D robots.
- The IPCT assisted the set up and delivery of a Ventilation Safety Group to review and monitor ventilation systems across the Trust.
- Strengthened system working ensured inclusion and representation of ROH at associated forums.
- Continued to deliver and improve the IPC training and education programme provided across the Trust.
- Organised and celebrated several key events in the IPC calendar across ROH, this included RCN Glove Awareness Day 2021, World Hand Hygiene Day, World Antimicrobial Awareness Week, and International Infection Prevention Week 2021.

## Section 2: Introduction

The Trust recognises that the effective prevention and control of healthcare associated infections (HCAI) is essential to ensure that patients using our services receive safe and effective care. Effective prevention and control must be an integral part of everyday practice and applied consistently to ensure the safety of our patients. In addition, good management and organisational processes are crucial to ensure high standards of infection prevention and control measures are maintained. This report demonstrates how the Trust has systems in place for compliance with the Health and Social Care Act 2008: code of practice on the prevention and control of infections. The Trust set out to continue the commitment to improve performance in infection prevention practice. As outlined in the Health and Social Care Act 2008, at the heart of this there are two principles:

- to deliver continuous improvements of care
- it meets the need of the patient

Compliance with the Health and Social Care Act 2008: code of practice on the prevention and control of infections is judged against 10 criteria which we will look at in detail in the next section.

Compliance criterion	What the registered provider will need to demonstrate
<b>1</b>	Systems to manage and monitor the prevention and control of infection. These systems use risk assessments and consider the susceptibility of service users and any risks that their environment and other users may pose to them.
<b>2</b>	Provide and maintain a clean and appropriate environment in managed premises that facilitates the prevention and control of infections.
<b>3</b>	Ensure appropriate antimicrobial use to optimise patient outcomes and to reduce the risk of adverse events and antimicrobial resistance.
<b>4</b>	Provide suitable accurate information on infections to service users, their visitors and any person concerned with providing further support or nursing/ medical care in a timely fashion.
<b>5</b>	Ensure prompt identification of people who have or are at risk of developing an infection so that they receive timely and appropriate treatment to reduce the risk of transmitting infection to other people.
<b>6</b>	Systems to ensure that all care workers (including contractors and volunteers) are aware of and discharge their responsibilities in the process of preventing and controlling infection.
<b>7</b>	Provide or secure adequate isolation facilities.
<b>8</b>	Secure adequate access to laboratory support as appropriate.
<b>9</b>	Have and adhere to policies, designed for the individual's care and provider organisations that will help to prevent and control infections.
<b>10</b>	Providers have a system in place to manage the occupational health needs and obligations of staff in relation to infection.

## Section 3: Compliance

**CRITERION 1:** Systems to manage and monitor the prevention and control of infection. These systems use risk assessments and consider the susceptibility of service users and any risks that their environment and other users may pose to them.

### Infection Prevention and Control Team

At the Royal Orthopaedic Hospital NHS Foundation Trust (ROH) the Director of Infection Prevention and Control (DIPC) has overall responsibility for the IPC Team (IPCT). This role is held by the Executive Director of Nursing and Clinical Governance who works collaboratively alongside the IPCT, other Executives and clinical leaders at the Trust.

Specialist advice is provided to clinicians throughout the hospital by the Infection Prevention and Control Team. The IPCT is led by the Infection Prevention and Control Matron and is supported by IPC Specialist Nurses, Surgical Site Infection (SSI) Surveillance Coordinators, and a team Administrator. The team operates between the hours of 08:30 and 16:30 Monday to Friday (Except bank holidays).

The Trust has 24-hour access to expert Consultant Microbiology advice and support via a Service Level Agreement (SLA) with the University Hospitals Birmingham (UHB). A Consultant Microbiologist is the designated Infection Prevention and Control Doctor (IPCD) which is also provided via an SLA with UHB. This allows for the weekly allocation of 2 programmed activities (PAs) of Infection Control Doctor time. 2 Consultant Microbiologist PAs are also provided by the IPC Doctor for the Trusts Bone Infection Service, which is currently run as part of the IPC service.

Cover for leave of absence of the IPCT and out of hours service is provided by the on-call Microbiology team at UHB which is covered in the SLA.

The IPC service is provided through a structured annual programme of work which includes expert advice, audit, teaching, education, surveillance, policy development and review as well as advice and support to staff, patients, and visitors. The main objective of the annual programme is to maintain the high standard already achieved and enhance or improve on other key areas. The programme addresses national and local priorities and encompasses all aspects of healthcare provided across the Trust. The annual programme is agreed at the IPC Committee.

The remit of the IPCT includes:

- To have policies, procedures and guidelines for the prevention, management, and control of infection in place across ROH.



- To communicate information relating to communicable disease to all relevant staff within ROH.
- To ensure that training in the principles of infection prevention and control is accurate and appropriate to the relevant staff groups.
- To work with clinicians to improve surveillance and to strengthen prevention and control of infection.
- To provide appropriate infection control advice to key ROH committees, taking national guidance and policy into account.
- To share information with relevant stakeholders within the NHS when transferring the care of patients to other healthcare settings.
- To ensure high standards of infection control are maintained throughout ROH through a programme of audits and surveillance.

The COVID-19 pandemic has further exacerbated ongoing recruitment pressures to the IPC Team. The Senior IPC Nurse (band 7) post has remained vacant since December 2020 despite several recruitment attempts and role rebranding. This has put significant strain on the service and has resulted in the need for the IPC Matron to undertake more operational duties to ensure support for junior colleagues and continuity of service. The role of the IPC Matron is to undertake operational and strategic service planning. Opportunity to fulfil this to as high a standard as desired has been hampered due to the IPCT vacancies and ongoing pandemic.

During 2021/22, the existing band 3 SSI coordinator was successful in obtaining their NMC registration (overseas nurse) and as such was able to undertake a band 5 nurse role within the IPC team focusing on SSI surveillance and prevention. This was an excellent addition to the team and focused efforts in creating a better-established SSI service with formal reporting processes and future strategy planning.

The structure for Infection Prevention and Control in the Trust is shown in Appendix 1.

### **IPCT Vision and Mission**

Each year the IPCT meet to review the work achieved in the previous year and undertake a look forward exercise to plan key priorities for the annual programme of work. This includes reviewing the IPCT vision and mission statements. For 2021/22 the ROH vision and mission statements were updated to:

#### ROH IPC Vision

Preventing harm from avoidable infection by delivering clean, safe care.



## ROH IPC Mission

To deliver a patient focused, expert infection prevention service that supports and empowers staff and patients through education, innovation, and role modelling, to ensure harm free care for all.

## **External Reviews**

No external reviews of IPC practice were undertaken during 2021/22.

## **Committee Structures and Assurance Process**

The Trust Infection Prevention and Control Committee (IPCC) is held bi-monthly and is chaired by the DIPC. A workplan is in place which details the cycle of reporting. Each clinical division and specialist service reports according to this to provide information by exception relating to IPC issues within their areas and assurance of mitigating actions taken to address these.

IPC updates are also provided quarterly to the Quality and Safety Committee (QSC), which reports directly to Trust Board and is attended by the DIPC.

The committee structure in relation to Infection Prevention and Control reporting is shown in Appendix 2.

## **Trust Board**

The Code of Practice requires that the Trust Board has a collective agreement recognising its responsibilities for Infection Prevention and Control. The Chief Executive Officer (CEO) has overall responsibility for the control of infection at the Trust. The Trust designated DIPC role is undertaken by the Executive Director of Nursing and Clinical Governance. The DIPC attends Trust Board meetings and provides detailed updates and assurance on infection prevention and control matters.

## **Quality and Safety Committee**

The Quality & Safety Committee (QSC) is a sub-committee of the Trust Board chaired by a Non-Executive Director (NED) and is the committee with overarching responsibility for managing organisational quality and safety risks. The committee reviews high level performance data in relation to infection prevention and control, monitors compliance with statutory obligations and oversees management of the risks associated with infection prevention and control.

QSC is responsible for ensuring that there are processes for ensuring patient safety, and continuous monitoring and improvement in relation to infection prevention. QSC receives assurance from the IPCC that adequate and effective policies and systems to monitor and control infections are in place. This assurance is provided through a regular process of

reporting. IPC performance is reported monthly through the Integrated Performance Dashboard to QSC, the DIPC provides a monthly report on surveillance and outbreaks which is reported at the IPCC and monthly to QSC via the IPC Update.

### **Infection Prevention and Control Committee**

IPCC provides direct assurance to the DIPC. The main objective of the IPCC is to provide a strategic drive in ensuring improved performance in relation to reducing and preventing HCAs. The Committee has a designated Non-Executive Director as a core member and is chaired by the DIPC.

The Trust IPCC met bi-monthly between April 2021 to March 2022 and the following reports were received:

BI-MONTHLY	QUARTERLY
Division 1 Report	SSI Surveillance Group Upward Report
Division 2 Report	Decontamination Report
Facilities Report	HCAI Reduction Plan Update
Estates Report	Occupational Health Report
COVID-19 BAF	Water Safety Group Upward Report
IPC Risk Register	Antimicrobial Stewardship Group Upward Report
IPOG Upward Report	ANNUAL
HCAI Update Report	
Quality & Safety Report (Info only)	IPC Annual Report (for approval)
Policies and Procedures	IPC Annual Programme (For approval)

In December 2021 the governance structure for IPC was reviewed by the DIPC and new governance processes put in place. To ensure better assurance and quality of information provided at IPCC and to avoid the duplication of reporting, the Infection Prevention and Control Operational Group (IPOG) meetings were stepped down.

### **Antimicrobial Stewardship Group**

The Antimicrobial Stewardship Group (AMG) is a multidisciplinary group responsible for the monitoring and review of good antimicrobial stewardship within the Trust. The AMG reports through to the Drug and Therapeutics Committee and meet on a quarterly basis.

The AMG has been working to improve engagement from clinicians and the ability for the meetings to be quorate and beneficial to the organisation. The group aims to drive forward local activities to support the implementation of international and national initiatives on

antimicrobial stewardship including 'Start Smart then Focus' and the World Antimicrobial Awareness Week' campaign. Some of the work the AMG oversees:

- Produce and update local antimicrobial guidelines which consider local antibiotic resistance patterns.
- Regular auditing of the guidelines; antimicrobial stewardship practice and quality assurance measures.
- Facilitate actions to address poor compliance with guidelines.

Antimicrobial audit results related to compliance with the local antimicrobial guidelines are produced and are reported quarterly to IPCC by the Trust Antimicrobial Pharmacist.

It is recognised that more work needs to be undertaken to ensure the results of audits are fed back and actioned by divisional and clinical teams. What is required is a clear escalation process for clinical areas that do not follow clinical guidelines and a formalised process of active engagement at executive level with senior clinicians in specialities with repeated non-compliance.

The Trusts Antimicrobial Pharmacist uses local antibiotic usage information to benchmark the Trust against other Trusts in the area or of a similar size to identify variation in consumption and stimulate investigation where necessary.

The Trusts Antimicrobial Pharmacist, whom along with ward-based pharmacists provide a point of contact for support and advice for other members of the pharmacy team, clinical teams and microbiology regarding antimicrobial stewardship and prescribing.

### **Water Safety Group and Ventilation Safety Group**

The Water Safety Group (WSG) and Ventilation Safety Group (VSG) are subgroups of the IPCC, these groups meet quarterly. Both groups are chaired by the Deputy Director of Delivery with multi-disciplinary representation.

### **Surgical Site Infection Surveillance Group**

During April 2021 the SSI Surveillance Group (SSISG) was set up by the IPC Matron supported by the SSI coordinators and Medical Director. A SSISG is necessary to support and direct the surveillance and to establish systems for collecting the data that conform to the methodology described in the standardised protocol (as set out by UKHSA).

Key responsibilities of the group include:

- Developing a planned programme of surveillance.
- Ensuring adequate resources have been identified to implement the planned programme of surveillance.
- Promote the surveillance within the Trust.

- Plan and oversee the collection and submission of data, including that required for post-discharge surveillance, and ensure effective arrangements are made to cover absence due to annual leave or sickness.
- Identify and address training needs.
- Monitor the accuracy and completeness of data collected.
- Review, interpret and distribute reports and results of the surveillance.
- Contribute to the development and monitoring of action plans for improving practice when the results of the surveillance suggest this is required.

Membership of the surveillance group include representatives of the following key stakeholders:

- Surgical Teams (Surgeons and Anaesthetists)
- Director of Infection Prevention (DIPC)
- Medical Director
- Surgical Site Surveillance Coordinators
- Infection Prevention & Control Team
- Consultant Microbiologist (Infection Control Doctor)
- Clinical Governance
- Theatres Matron
- Business Intelligence – data analyst

The SSISG meet quarterly to coincide with quarterly UKHSA SSI reporting and produce an upward report for the IPCC.

#### **Groups and Meetings Attended by the IPCT**

To keep IPC high on the agenda the IPCT regularly attend and champion IPC at the following forums, meetings etc.:

DAILY	QUARTERLY
Site Safety Meetings (09:30hrs)	IPC Link Worker Meetings
WEEKLY	Water Safety Group
IPCT Huddle	Ventilation Safety Group
BI-WEEKLY	Antimicrobial Stewardship Group
Environmental Cleaners IPC Huddle	Accommodation Review Group
Porters IPC Huddle	Emergency Preparedness, Resilience & Response Group
Divisional Governance Meetings	Surgical Site Infection Surveillance Group
MONTHLY	BI-MONTHLY
IPC Team Meeting	

Senior Nurses Meeting	Infection Prevention & Control Committee
Ward & Dept. Managers Meeting	Medical Devices and Safety Advisory Group
CCG IPC Assurance Meeting	Health and Safety Group
Clinical Quality Group	Theatre Cleanliness Meeting
<b>AD-HOC</b>	
Post Infection Reviews/RCA Meetings	
Outbreak Control Group Meetings	
Admin Matters Forum	
Patient Engagement and Experience Group	
Estates Refurbishment/Planning Meetings	

## System Working

The COVID-19 pandemic has highlighted the importance of working collaboratively and at pace with system partners. Improved communication and patient flow lead to positive outcomes for patients and their families when the system works together. The IPCT have been actively engaged in maintaining and expanding networks locally, regionally, and nationally. This has included:

- Regional and national meetings with NHS England and Improvement (NHSE/I).
- Birmingham and Solihull (BSOL) system IPC Meetings.
- National personal protective equipment forums.

## Infection Prevention Surveillance

The Trust participates in the mandatory HCAI surveillance programme facilitated by the UK Health Security Agency (UKHSA) including:

- *Clostridioides difficile* infection (CDI)
- Meticillin-resistant *Staphylococcus aureus* (MRSA) (bacteraemia)
- Meticillin-sensitive *Staphylococcus aureus* (MSSA) bacteraemia
- *Escherichia coli* (*E coli*) bacteraemia
- *Klebsiella species* bacteraemia
- *Pseudomonas aeruginosa* (*P. aeruginosa*) bacteraemia
- Quarterly Mandatory Laboratory Return (QMLR)

Performance is monitored by Birmingham and Solihull Clinical Commissioning Group (CCG).

National reduction objectives have been set for five of the six HCAI included in mandatory surveillance and due to the impact of the COVID-19 pandemic on hospital admissions the

baseline period used to set these objectives was the calendar year 2019. MSSA is the only HCAI without a national objective.

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

*C. difficile* is a bacterium that is found in the gut of around 3% of healthy adults. It seldom causes a problem as it is kept under control by the normal bacteria of the intestine. Infection is nearly always preceded by antibiotic treatment, but antibiotics may have been stopped up to 6 weeks before the patient presents with symptoms. Although most antibiotics have been implicated, broad-spectrum agents such as cephalosporins, quinolones and carbapenems (e.g., Meropenem) are most likely to cause it as they wipe out the “normal flora” of the gut which usually holds *C. difficile* in check. In harsh environments (oxygen rich) it forms resistant spores which require very effective cleaning and disinfection to remove from the environment.

From April 2019 NHSE described changes to the CDI reporting algorithm which saw the number of days to apportion hospital-onset healthcare associated cases reduced from three or more (day 4 onwards) to two or more (day 3 onwards) days following admission. This change saw an overall increase in numbers of cases that were Trust assigned, particularly as healthcare associated cases include those with recent hospitalisation (within the last four weeks).

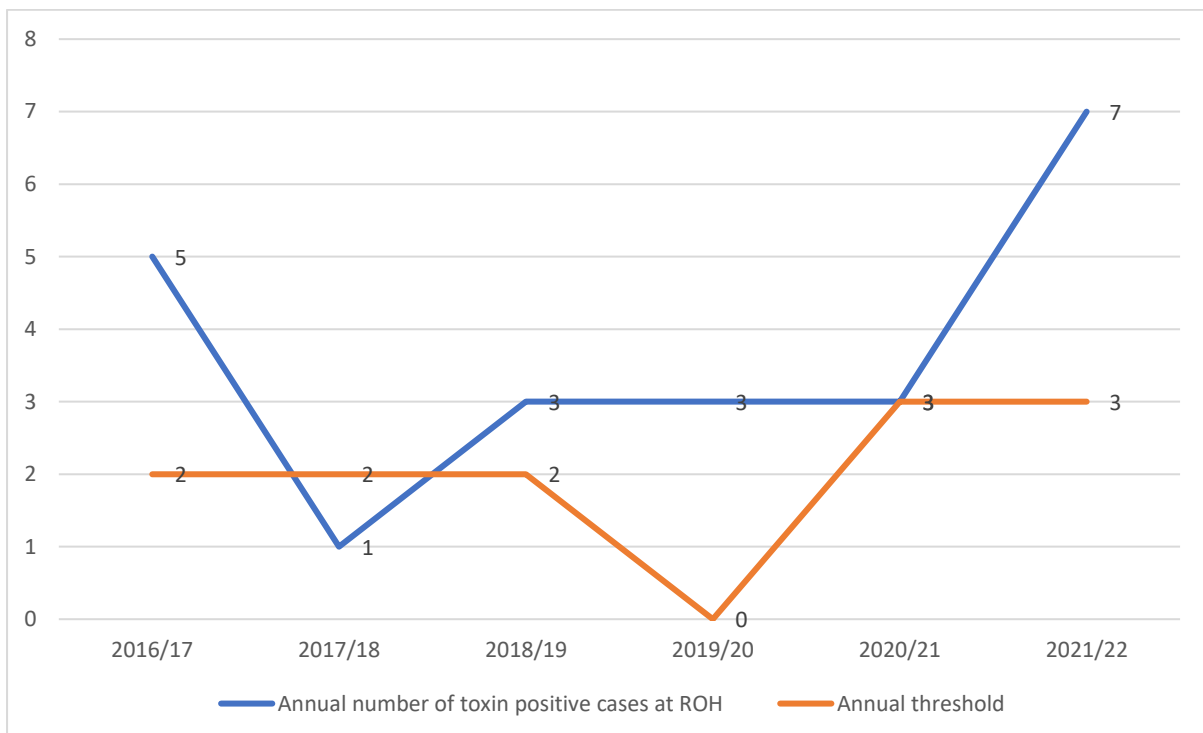
All toxin positive cases of CDI are reportable to UKHSA via the HCAI data capture system (DCS), and since April 2020, all healthcare associated (HOHA and COHA) cases count towards the ROH threshold. Prior to this, a scrutiny panel led by the CCG IPCT would meet to identify if there were any lapses in care associated with each case. If it was deemed there were lapses in care which were thought to have contributed to or caused the onset of infection, this case would count towards the Trust’s threshold for that year.

#### Definition of CDI according to prior Trust exposure

<b>CDI prior trust exposure categories</b>	<b>Definition</b>
Hospital onset-healthcare-associated (HOHA)	Stool specimens taken on the third day of admission onwards (i.e., $\geq$ day 3 when day of admission is day 1) for inpatients or day-case patients.
Community onset-healthcare-associated (COHA)	Is not categorised HOHA and the patient was most recently discharged from the same reporting trust in the 28 days prior to the specimen date (where day 1 is the specimen date).
Community-onset indeterminate association (COIA)	Is not categorised HOHA and the patient was most recently discharged from the same reporting trust between 29 and 84 days prior to the specimen date (where day 1 is the specimen date).

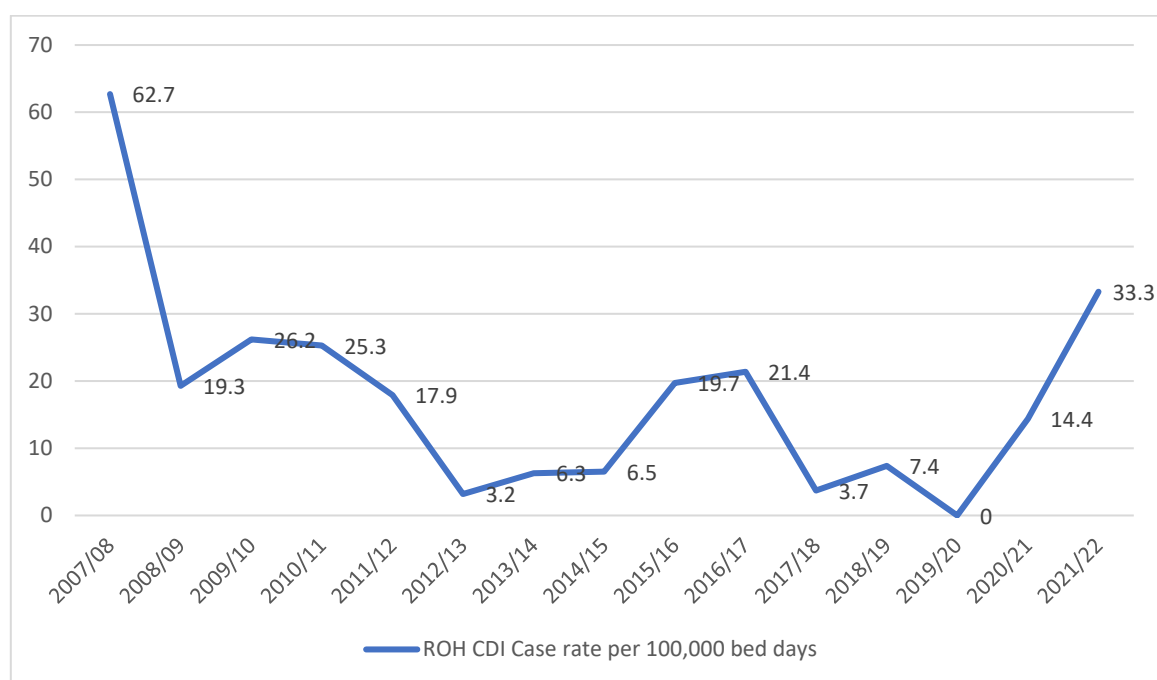
Community-onset community-associated (COCA)	Is not categorised HOHA and the patient has not been discharged from the same reporting organisation in the 84 days prior to the specimen date (where day 1 is the specimen date)
Unknown	The reporting trust answered 'Don't know' to the question regarding previous discharge in the 3 months prior to CDI case.
No Information	The reporting trust did not provide any answer for questions on prior admission.

#### Total number of toxin positive CDI reported by ROH annually



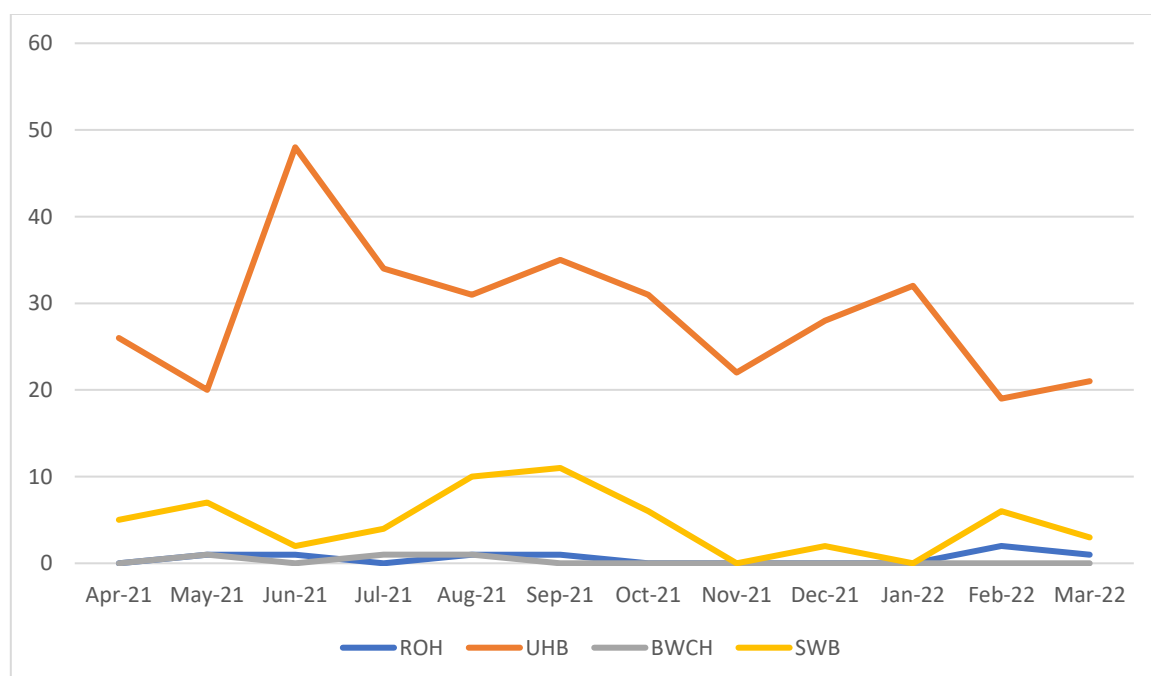


### ROH annual CDI rate per 100,000 bed days



As can be seen in the table below, ROH contributes relatively few cases of *Clostridioides difficile* (*C. difficile*) to the overall BSOL system totals.

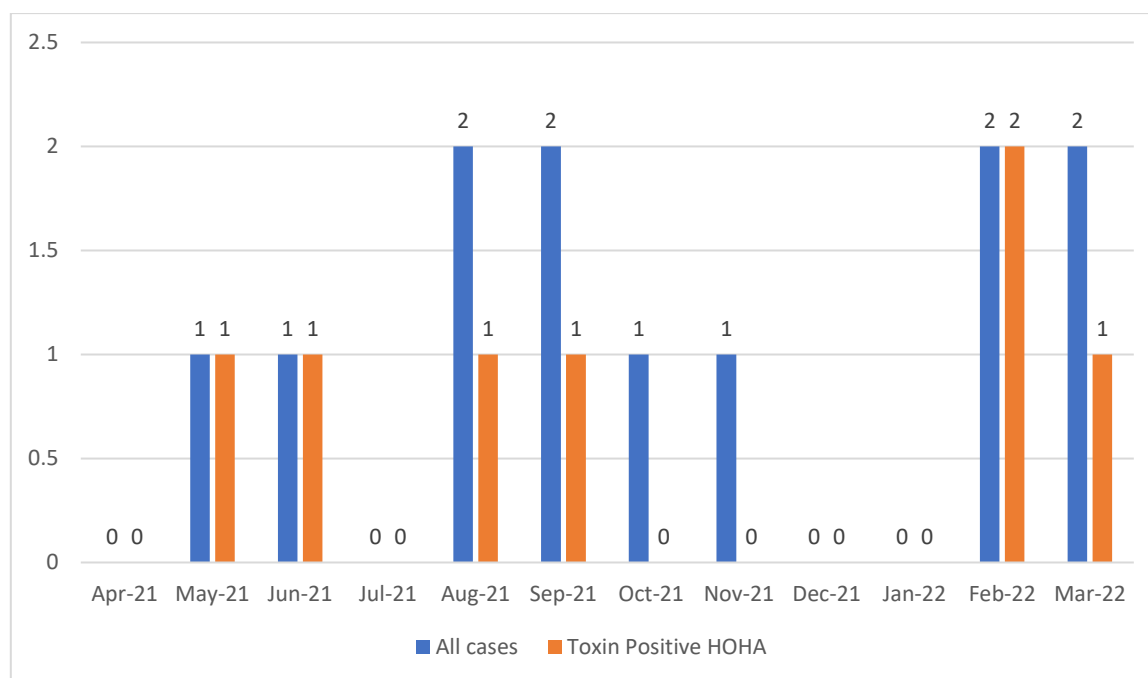
### CDI cases reported by Trusts within BSOL system 2021/22\*



\*Data obtained from <https://www.gov.uk/government/statistics/c-difficile-infection-monthly-data-by-prior-trust-exposure>

Trusts are required under NHS standard contract to minimise rates of *Clostridioides difficile* so that they are no higher than the threshold level set by NHS England. The ROH CDI 'threshold' for 2021/22 was set at 0 healthcare-associated cases. For 2021/22 ROH reported 7 healthcare associated cases of CDI.

#### CDI cases reported by ROH between April 2021 and March 2022



Cases were spread out across the year and no direct links could be identified. Most cases were reported from Ward 1; however, this was the main admission ward during the COVID-19 pandemic, all emergency admissions or patients without a negative COVID-19 swab prior to admission will have been admitted to this ward. There was no evidence of confirmed transmission events occurring. In all cases, likely prior colonisation was deemed to be a contributory factor, with onset of infection as a result of appropriate clinical care. The cohort of patients we were caring for at this time all had additional risk factors such as recent/current chemotherapy, extended use of proton pump inhibitors and recent exposure to broad spectrum antimicrobials.

During 2021/22 ROH provided support to University Hospitals Birmingham NHS Foundation Trust (UHB), taking over inpatient care to help free up beds within UHB urgently required for emergency admissions. Due to this the demographic of patients cared for at ROH changed, and we began to care for patients with increased risk of developing CDI such as prior healthcare exposure at higher risk settings (healthcare facilities with high incidence of reported CDI).

Many of the CDI cases identified at ROH have a history of unavoidable antimicrobial usage which along with frequent healthcare facility attendance and inpatient episodes, increases

their risk of developing CDI. 5 out of the 12 cases of CDI identified at the ROH between April 2021 and March 2022 were known to our Bone Infection Service and received ongoing antimicrobial treatment for prosthetic joint infections. 4 out of the 5 were toxin positive cases. In comparison, out of the 7 cases not known to the BIS, only 3 were toxin positive.

Up to and including 2021/22, NHS organisations have continued to be required to demonstrate year on year reductions in *Clostridioides difficile* Infection (CDI) cases. However, as published national data shows, the rate of improvement for CDI has slowed over recent years.

There are indications that, for some organisations at least, the level of CDIs may be approaching their irreducible minimum level at which these infections will occur regardless of the quality of care provided. This can occur since some people carry *C. difficile* in their bowel and will develop symptoms due to their underlying clinical conditions or as a consequence of the antibiotics they must take. Put simply, some infections are a consequence of factors outside the control of the NHS organisation that detected the infection.

All HOHA and COHA toxin positive cases are subject to a robust post infection review (PIR). Common themes relating to minor delays in recognition and response to symptoms of CDI, specifically not sending a stool sample on first episode had been noted from the investigations. Nursing colleagues were engaged by the IPCT to identify barriers to this practice and identify possible solutions. Care and treatment of patients once diagnosed with CDI was identified to be good and adhered to local and national guidance.

Preventing and controlling the spread of CDI is a priority of the Trust's quality and safety agenda. It is undertaken using a multimodal approach ensuring proactive recognition and response to new infection. This relies upon appropriate antibiotic prescribing and advice, the earliest detection of possible CDI case and prompt isolation of patients with diarrhoea.

In all cases control measures are instigated immediately. All stool samples positive for *C. difficile* are communicated in person to the ward as soon as they are available with advice on the most appropriate antibiotic based on the clinical scenario. These measures in addition to environmental cleaning, good hand hygiene technique and IPC practice help to minimise the risk of cross infection.

Each inpatient with a confirmed CDI diagnosis is reviewed daily by the IPCT, which is escalated to MDT review depending upon the severity of infection, and clinical needs of the patient. These MDT reviews are conducted by the IPCT in conjunction with a Physician, Consultant Microbiologist/Consultant in Infection and Antimicrobial Pharmacist. Patients who are known to the Bone Infection Service (BIS) are also reviewed as part of the weekly multi-disciplinary review where the patient's antimicrobial therapy is reviewed and where necessary thorough feedback provided to the patient's clinical team.

All HOHA/COHA toxin positive CDI cases are subject to a post infection review which are attended by the CCG IPCT to determine if there were any lapses in care that contributed to the onset of infection or lapses in quality which effected the recognition, response, or treatment of infection. Feedback is provided to the DIPC and shared at IPCC.

### **MRSA bacteraemia**

*Staphylococcus aureus* (*S. aureus*) is an organism harmlessly carried by around 30% of the healthy population. It can cause infection if there is an opportunity for the bacteria to enter the body. Infection associated with indwelling medical devices, particularly intravascular devices, is a major cause of morbidity and occasionally, mortality. The risk of prosthetic joint infection and other orthopaedic implant infection is a particular concern in the patient population that ROH treats. *S. aureus* is a leading cause of surgical site infection (post-operative wound infection).

MRSA (Methicillin resistant *Staphylococcus aureus*) is a type of *S. aureus* that is resistant to the most used group of antibiotics for perioperative prophylaxis i.e., prevention of post-operative wound infection. It is less commonly carried than the more sensitive strains.

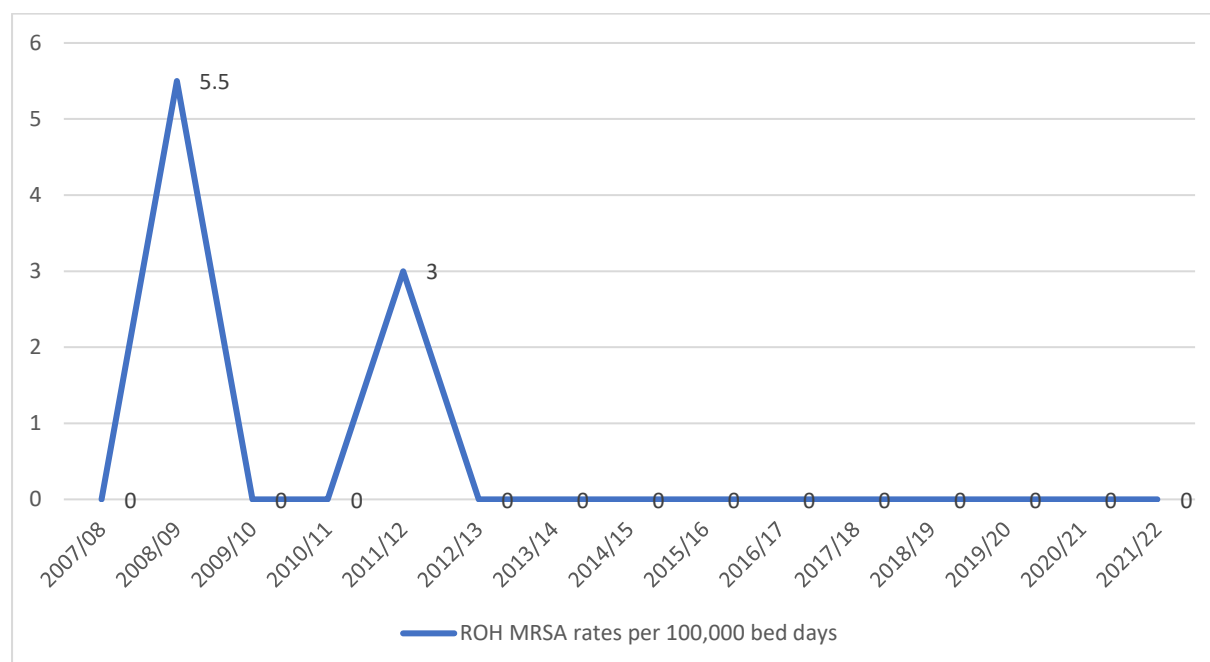
ROH continues to mitigate the risk of MRSA infection by active pre-admission screening, decolonisation, and isolation of colonised patients, in keeping with national guidance. Screening involves a simple skin (groin) and nasal swab. Screening results also enables effective use of appropriate prophylactic antibiotics in colonised patients.

The ROH comply with national guidance to reduce the risk of bacteraemia. Low rates of bacteraemias therefore offer assurance of:

- Effective screening strategies
- Appropriate management and care of devices
- Appropriate antibiotic prophylaxis
- Compliance with national guidance

During 2021/22 ROH reported zero cases of MRSA bacteraemia which is the same compared to the previous 9 years.

### Methicillin resistant *Staphylococcus aureus* blood stream infections ROH rate per 100,000 bed days



### **MSSA bacteraemia**

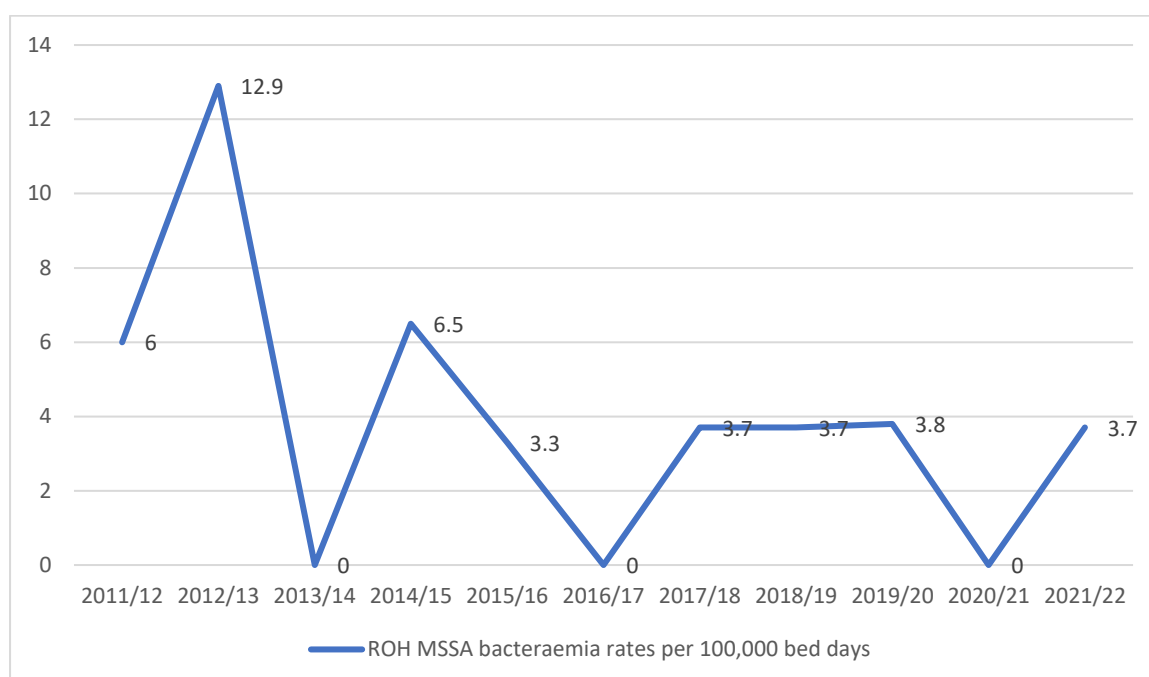
MSSA (Methicillin sensitive *Staphylococcus aureus*) is the much commoner antibiotic sensitive version of *S. aureus*.

ROH reported 1 MSSA bacteraemia during 2021/22. This is an increase of 1 case from 2020/21 in which 0 cases were reported.

The case was subject to a PIR which found the source of infection was most likely a peripheral venous cannula (PVC), there was evidence of poor device care which did not follow local policy for the ongoing care and maintenance which resulted in phlebitis and subsequent systemic infection. Actions were implemented to address the issues identified which focused on:

- Accurate and timely documentation of device access and ongoing care.
- Daily review of invasive devices and prompt removal when no longer required. Addition of prompt reviews to nursing handover tools.
- Reiteration of PVC care standards through ward-based teaching.

### MSSA bacteraemia rates per 100,00 ROH bed days



### **Gram-negative Organism Bacteraemia**

There are many different types of Gram-negative bacteria. Some live in the intestine harmlessly, while others may cause a variety of diseases. Bacteria that are normally harmless in their usual environment can cause problems if they grow in other parts of the body and can cause a range of infections with differing severity and associated mortality. One of the most serious infections Gram-negatives can cause are bacteraemia.

Gram-negative bacteria such as *Escherichia coli*, *Klebsiella spp.* and *Pseudomonas aeruginosa* are the leading causes of healthcare associated bacteraemia.

Gram-negative bacteria can be resistant to antibiotics and in some cases will be multi-resistant rendering most available antibiotics ineffective. Some of the antibiotic resistance mechanisms are on mobile genetic elements, such as plasmids, which allow the genes that encode resistance to spread more easily, and importantly, between different bacterial species.

Many Gram-negative organisms form part of the normal gut flora and due to the human anatomy, they are particularly associated with urinary tract infection (UTI). Primary colonisation/infection of the bowel can spread to the urinary tract and if this occurs in a susceptible individual, can cause a bacteraemia. This risk may be increased by inappropriate care and use of urinary catheters. The very nature of orthopaedic surgery necessitates the use of urinary catheters and therefore the stringent management of catheters is paramount.

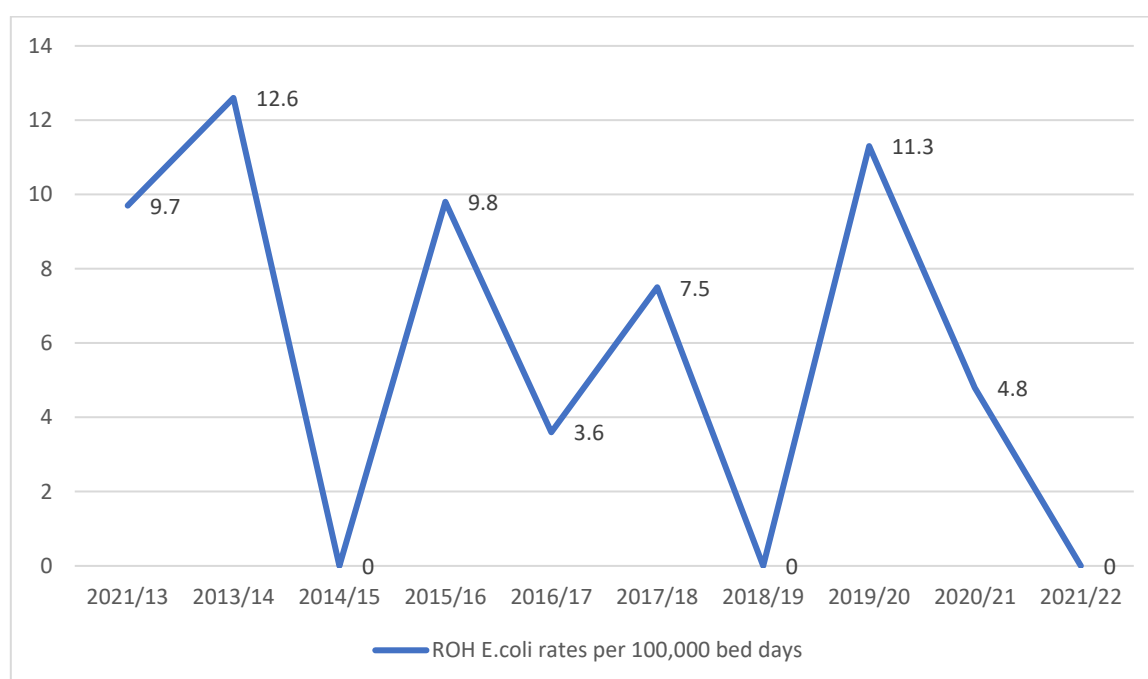
## ***Escherichia coli* (*E. coli*) Bacteraemia**

*E. coli* bacteria are frequently found in the intestines of humans and animals. There are many different types of *E. coli*, and while some live in the intestine quite harmlessly, others may cause a variety of diseases. The bacterium is found in faeces and can survive in the environment. *E. coli* bacteria can cause a range of infections including UTI, cystitis (infection of the bladder), and intestinal infection. *E. coli* bacteraemia may be caused by primary infections spreading to the blood.

In 2017, the Secretary of State for Health launched an ambition to reduce healthcare associated Gram-negative BSI by 50% by 2021. Gram-negative BSIs are believed to have contributed to 5,500 NHS patient deaths in 2015. The initial focus to support this ambition was on *E-coli* BSI reduction. Enhanced surveillance of *E. coli* BSI has been mandatory for NHS acute trusts since June 2011 and is reported monthly to UKHSA.

ROH reported 0 *E. coli* bacteraemia during 2021/22. This is a reduction of 1 case on the previous year.

### ROH annual *E. coli* bacteraemia rates per 100,000 bed days



## ***Klebsiella* spp. Bacteraemia**

*Klebsiella* species are a Gram-negative rod-shaped bacterium belonging to the *Enterobacteriaceae* family. They are commonly found in the environment and in the human intestinal tract (where they do not normally cause disease). These species can cause a range of HCAI, including pneumonia, BSI, wound or surgical site infections and meningitis. Acquired



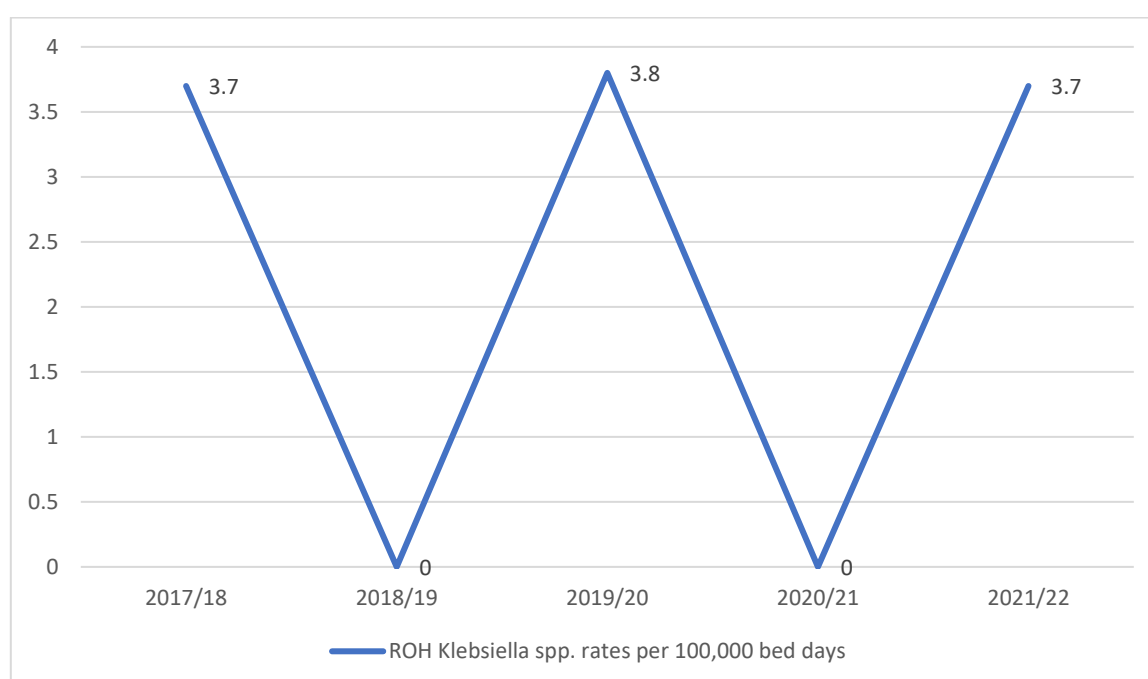
endogenously (from the patient's own gut flora) or exogenously from the healthcare environment.

Patient to patient spread occurs through contaminated hands of healthcare workers or less commonly by contamination of the environment. Vulnerable patients, like the immunocompromised, are most at risk. Infections can be associated with use of invasive devices or medical procedures.

ROH reported 1 *Klebsiella spp.* bacteraemia during 2021/22. This is an increase of 1 case on the previous year.

The case was subject to a PIR which found no clear source of infection. The patient had multiple risk factors and invasive devices which may have contributed to the development of the bacteraemia. The investigation found deficiencies in documentation of care given and the following improvement action were implemented:

- Increased spot checks of invasive device documentation by divisional management to monitor accuracy and adherence to Trust standards.
- Addition of invasive devices to shift hand over documentation to prompt review and removal if no longer required.
- Reiteration of PVC care standards to medical staff via ward-based teaching sessions.



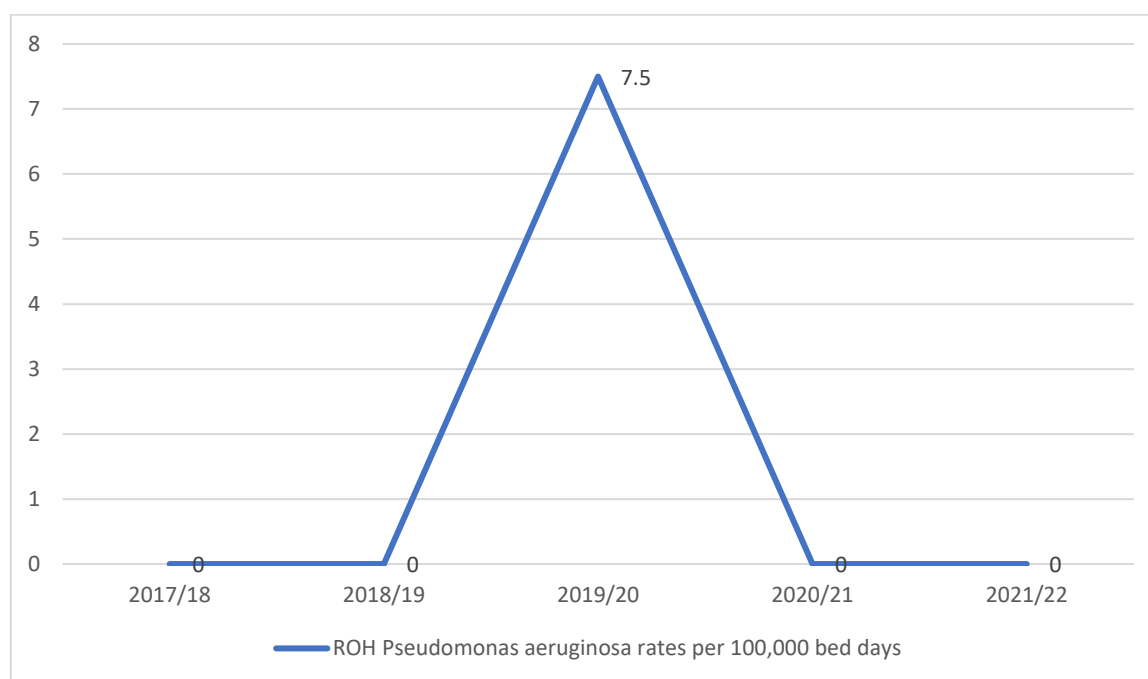
### ***Pseudomonas aeruginosa* Bacteraemia**

*Pseudomonas aeruginosa* (*P. aeruginosa*) is a Gram-negative bacterium often found in soil and water. It is an opportunistic pathogen, and it rarely affects healthy individuals. It can

cause a wide range of infections, particularly in those who are immunocompromised, e.g., cancer patients, people with severe burns, diabetes mellitus or cystic fibrosis.

*P. aeruginosa* infections are sometimes associated with contaminated water. In hospitals, the organism can contaminate devices that are left inside the body, such as respiratory equipment and catheters and it is resistant to many commonly used antibiotics.

ROH reported 0 *P. aeruginosa* bacteraemia during 2021/22. This is the same as the number of cases reported in the previous year.



### Carbapenemase producing *enterobacteriaceae* (CPE)

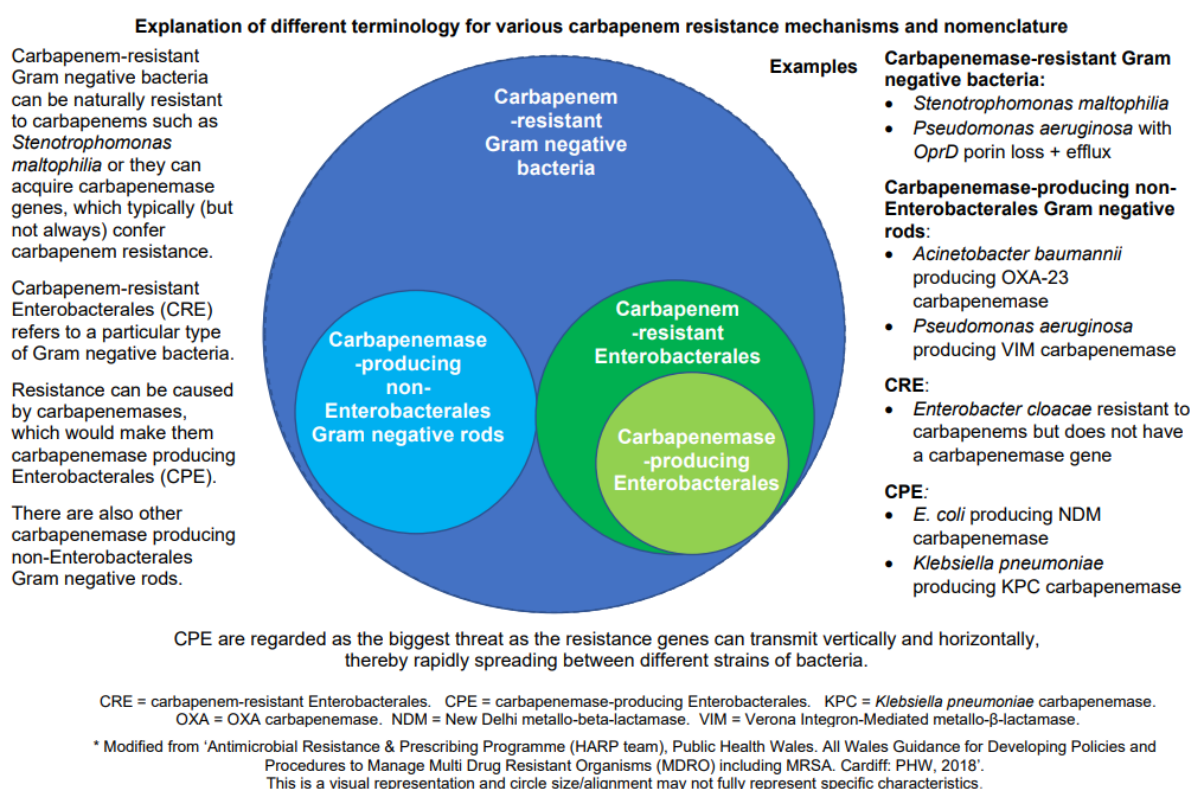
Recent taxonomy changes have included the family *Enterobacteriaceae* within the order *Enterobacterales*. *Enterobacterales* are a large family of bacteria that usually live harmlessly in the gut of humans and animals. They include species such as *Escherichia coli*, *Klebsiella spp.* and *Enterobacter spp.* However, these organisms are also some of the most common causes of infections, including UTI, intra-abdominal infections, and BSI.

Carbapenems are a valuable family of beta-lactam (penicillin-like) antibiotics normally reserved to treat serious life-threatening multidrug-resistant Gram-negative infections in hospitals. They include meropenem, ertapenem and imipenem.

Resistance to some or all carbapenems is an intrinsic (natural) characteristic of some Gram-negative bacteria. Others can produce carbapenemases, which are enzymes that destroy carbapenem antibiotics, conferring resistance.

In the context of HCAs, much emphasis is put on the prevention and control of acquired carbapenemases, a particular concern as these genes (usually located on mobile elements such as plasmids) can move vertically (within a strain) and horizontally (between strains, species, and genera).

*Enterobacterales* producing acquired carbapenemases are referred to as CPE. KPC, OXA-48-like, NDM, VIM, and IMP enzymes are the most prevalent enzymes in the UK. Increasing gut colonisation with these resistant bacteria will inevitably lead to an increase in difficult-to-treat infections. The image below illustrates the relationship between CPE and other carbapenem-resistant and carbapenemase-producing Gram-negative bacteria.



Unless action is taken, rapid spread of CPE will pose an increasing threat to public health and medical treatment pathways in the UK. These resistant bacteria can spread rapidly in healthcare settings. Invasive infections with CPE increase both patient length of stay, as a consequence of morbidity, and mortality, compared to bacteria not carrying resistance markers. Additionally, large outbreaks in the UK have led to substantial costs (both healthcare, staffing and other resources) given the time taken to achieve control once an outbreak is established. In some health and social care organisations in England, CPE are now endemic.

Colonisation usually precedes infection. Early identification of patients colonised or infected with CPE can help minimise transmission and inform therapy and early interventions to

prevent invasive infections. At ROH, CPE screening is undertaken pre-admission (or on admission for emergency cases) where:

- Patient is transferred directly from a healthcare facility abroad.
- Patient has been an inpatient in a hospital abroad within the last 12 months (this includes emergency and elective admissions).
- Patient has been an inpatient in a UK hospital known to have a high prevalence of CPE cases/outbreaks.
- Patient has previously been colonised or infected with CPE.
- Patients undergoing renal haemodialysis (Patient who has undergone dialysis abroad, both elective 'holiday dialysis' and emergency dialysis, or at another UK hospital with a high prevalence of CPE cases or outbreaks).

ROH reported 0 cases of CPE during 2021/22. This is the same as the number of cases reported the previous year.

Reporting of quarterly totals of rectal swabs and faecal specimens taken for CPE screening was added to the mandatory quarterly laboratory returns (QMLR) section of the HCAI DCS in October 2019, and reporting became mandatory in October 2020.

#### Number of samples sent to be test for CPE during 2021

Trust	Trust Type	2021			
		Jan to March	April to June	July to Sep	Oct to Dec
ROH	Specialist	25	56	31	38

### **Norovirus**

Norovirus, also known as winter vomiting disease, causes gastroenteritis and is highly infectious. The virus is easily transmitted through contact with infected individuals from one person to another. Outbreaks are common in semi-enclosed environments such as hospitals, nursing homes, schools and cruise ships and can also occur in restaurants and hotels. The virus is usually mild and lasts for 1 to 2 days. Symptoms include projectile vomiting, diarrhoea, and fever. Most people make a full recovery within a couple of days, but it can be dangerous for the very young and elderly population.

During 2021/22, ROH reported 0 Norovirus cases and 0 Norovirus associated outbreaks. This is the same as the number of cases reported the previous year.

### **Influenza**

Influenza (flu) is a viral infection affecting the lungs and airways. The symptoms can appear very quickly and commonly include headache, fever, cough, sore throat, aching muscles & joints.

Complications include bacterial pneumonia and can be life threatening especially in the elderly population and those with underlying health conditions.

Influenza occurs most often during winter months in the UK and peaks between January and March.

There are 2 types of influenza that commonly affect humans:

- Influenza A
- Influenza B

Influenza B usually causes a milder illness and is most seen in children.

During 2021/22, ROH reported 2 Influenza cases and 0 outbreaks. Both cases were identified on admission following admission screening of symptomatic patients during March 2022 and were not a result of healthcare exposure or transmission.

## **COVID-19**

COVID-19 is an illness first discovered in 2019 and caused by a respiratory coronavirus. This virus is referred to as Severe Acute Respiratory Syndrome – Coronavirus 2 (SARS-CoV-2), and the associated illness is known as Coronavirus Infectious Disease 2019 (COVID-19).

Coronaviruses are a large family of related viruses that cause diseases in animals and humans. Some cause less severe disease, such as the common cold, and others cause more severe disease, such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). They are a different family of viruses to the influenza viruses that cause seasonal influenza.

SARS-CoV-2 is genetically related to the coronavirus responsible for the SARS outbreak of 2003 (SARS-CoV) and to viruses that have been isolated from bat populations. It is less closely related to the coronavirus responsible for MERS (MERS-CoV).

The 2019 emergent SARS-CoV-2 strain, usually referred to as the original or 'wild-type' strain has mutated over time. These mutations have given rise to new variants. Variants of the SARS-CoV-2 virus are being monitored across the globe by the World Health Organisation (WHO).

Most of these mutations have little effect. Where mutations have the potential to increase how easily the virus spreads, escapes immunity, or causes more severe disease, the variant is designated a variant of concern (VOC).

On 31st May 2021, the WHO recommended a naming system for SARS-CoV-2 variants that uses the Greek alphabet. UKHSA incorporates this recommended naming system in its surveillance of SARS-CoV-2 variants. To date the known circulating strains of SARS CoV2 are:

WHO label	lineage	Earliest documented samples	Date of designation
Alpha	B.1.1.7	United Kingdom, Sep-2020	VOC: 18-Dec-2020 Previous VOC: 09-Mar-2022
Beta	B.1.351	South Africa, May-2020	VOC: 18-Dec-2020 Previous VOC: 09-Mar-2022
Gamma	P.1	Brazil, Nov-2020	VOC: 11-Jan-2021 Previous VOC: 09-Mar-2022
Delta	B.1.617.2	India, Oct-2020	VOI: 4-Apr-2021 VOC: 11-May-2021
Omicron*	B.1.1.529	+S: R346K +S: L452X +S: F486V	Multiple countries, Nov-2021

\* Includes BA.1, BA.2, BA.3, BA.4, BA.5 and descendent lineages. It also includes BA.1/BA.2 circulating recombinant forms such as XE.

COVID-19 surveillance has been ongoing since January 2020, which due to the number of cases, changes to guidance, outbreak management and completion of risk assessments continues to provide the IPCT with significant challenges and workload pressures.

COVID-19 has been very different to anything the IPCT have had to manage before and continues to be a challenge for the team. However, because of the pandemic, system working has evolved, with local trusts within the Birmingham and Solihull region coming together to provide support and mutual aid. It has been an extremely good example of cross-healthcare system working. The IPCT continue to attend and contribute to internal and system meetings about COVID-19 and wider IPC issues, ensuring that clinical decisions in relation to new and evolving guidance are discussed and implemented in a timely and appropriate way.

The Trust continued to follow national guidelines and recommendations including the development of a COVID-19 vaccination program, working towards the elective recovery plan, and continuing to deliver high quality care whilst maintaining stringent infection prevention and control measures to provide safe environments for our patients, visitors, and staff.

The NHS England IPC board assurance framework (IPC BAF) continues to be utilised to provide ongoing assurance of the Trusts compliance with COVID-19 and wider IPC guidance, detailing measures taken to provide a safe environment for all. The BAF is reported to both private and public board. NHS England developed this framework to help providers assess themselves against the guidance as a source of internal assurance that quality standards are being maintained. It helps identify any areas of risk and show the corrective actions taken in response.

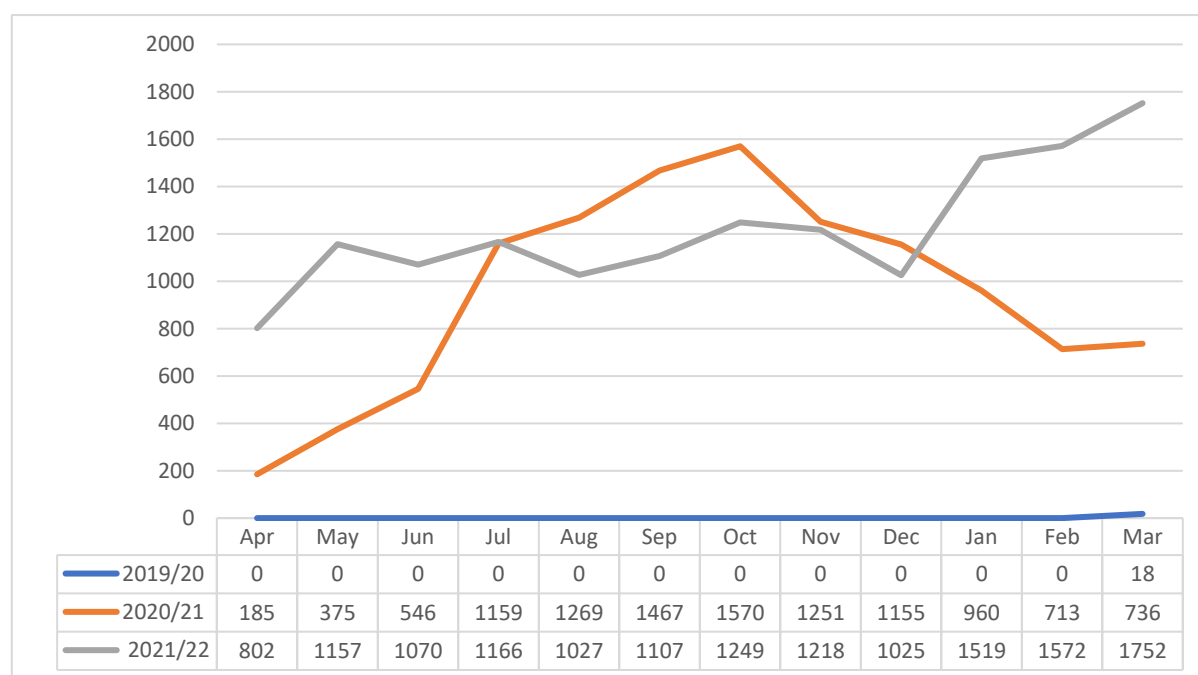
During 2021/22 the majority of the IPCT time was spent dealing with the local effects of the pandemic whilst supporting the elective recovery plan. This involved:

- Daily assessment and ongoing management of symptomatic patients and staff.
- Working alongside operational teams to review respiratory and non-respiratory patient pathways and to strategize the increase in elective surgery to meet backlog targets.
- Ongoing updates and communication of changes to the COVID-19 guidance, specifically testing and isolation guidance in line with changes to national guidance.
- PPE training, covering selection, donning, and doffing.
- Audit of practice to ensure staff and patient safety as well as minimising risk of transmission within the healthcare setting.
- Regularly advising on and conducting COVID-19 risk assessments, providing expert guidance.
- Organising and supporting the administration of COVID-19 vaccines for staff and surrounding local community.

From April 2021 to March 2022 the Trust cared for 56 patients positive for COVID-19. Of these 39 were found to be positive on or during admission. The remaining 17 were identified as COVID-19 positive prior to admission via pre-admission screening and testing.

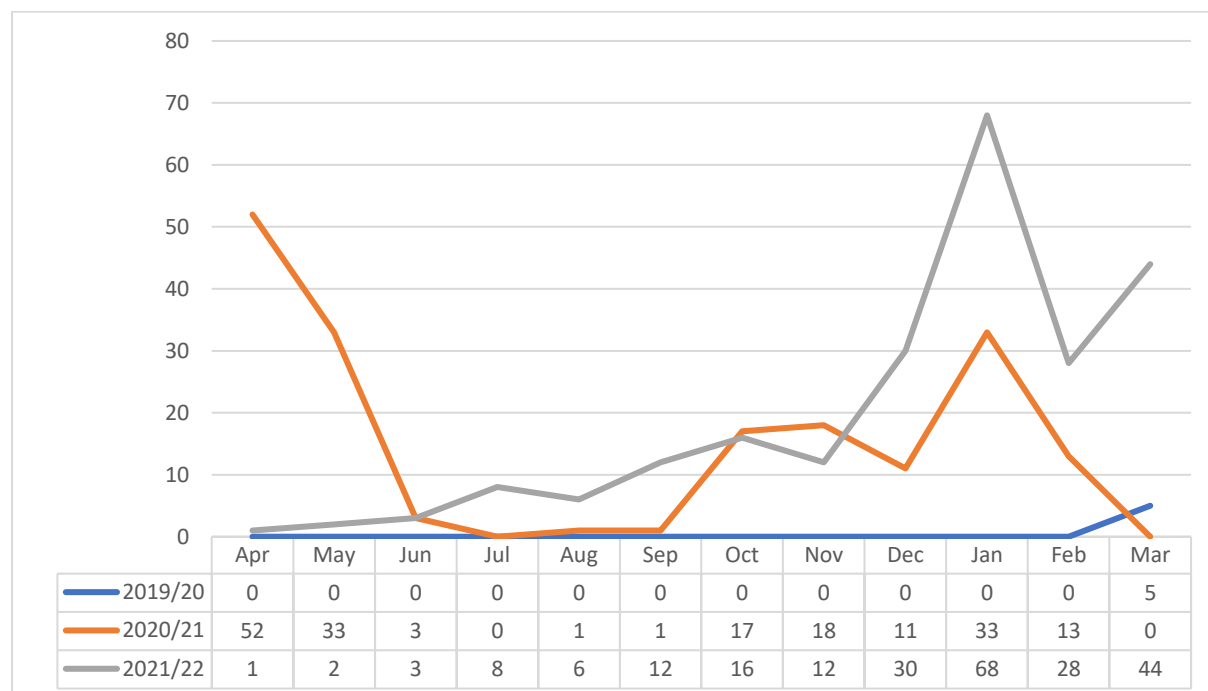
The graph below details the number of COVID-19 tests performed, positive cases and deaths reported between April 2021 and March 2022. To note, there were no staff deaths linked to COVID-19 in the Trust.

Total number of COVID-19 PCR swabs sent by ROH between March 2020 and March 2022

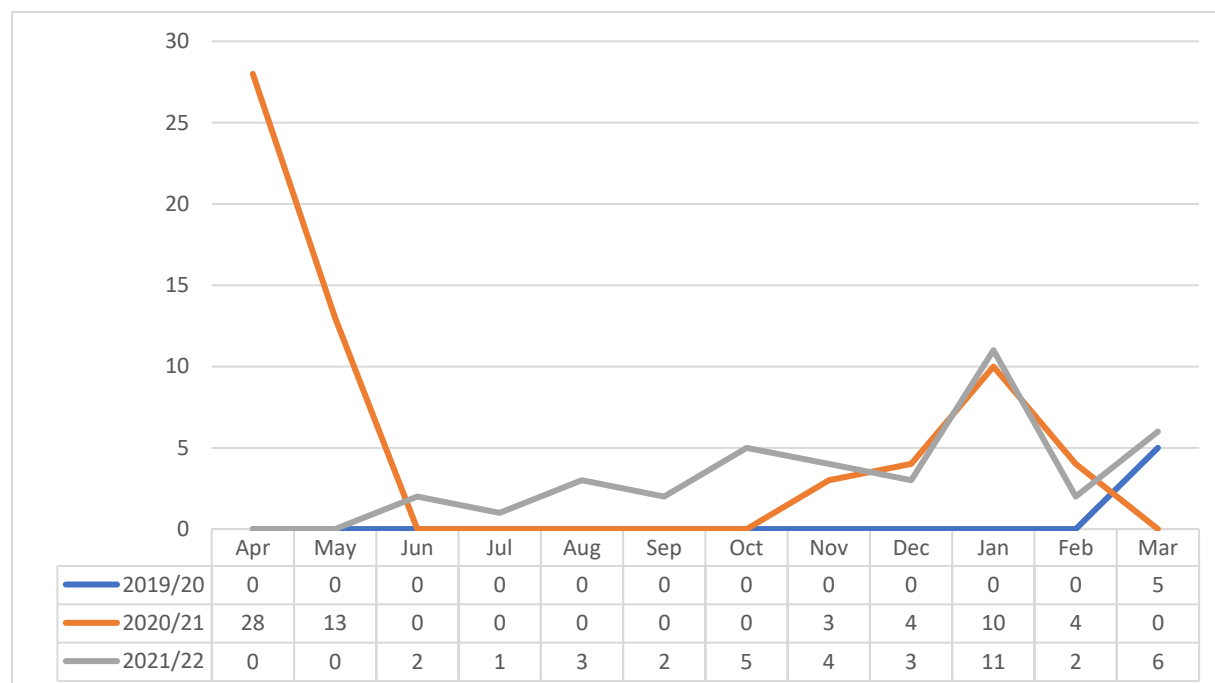




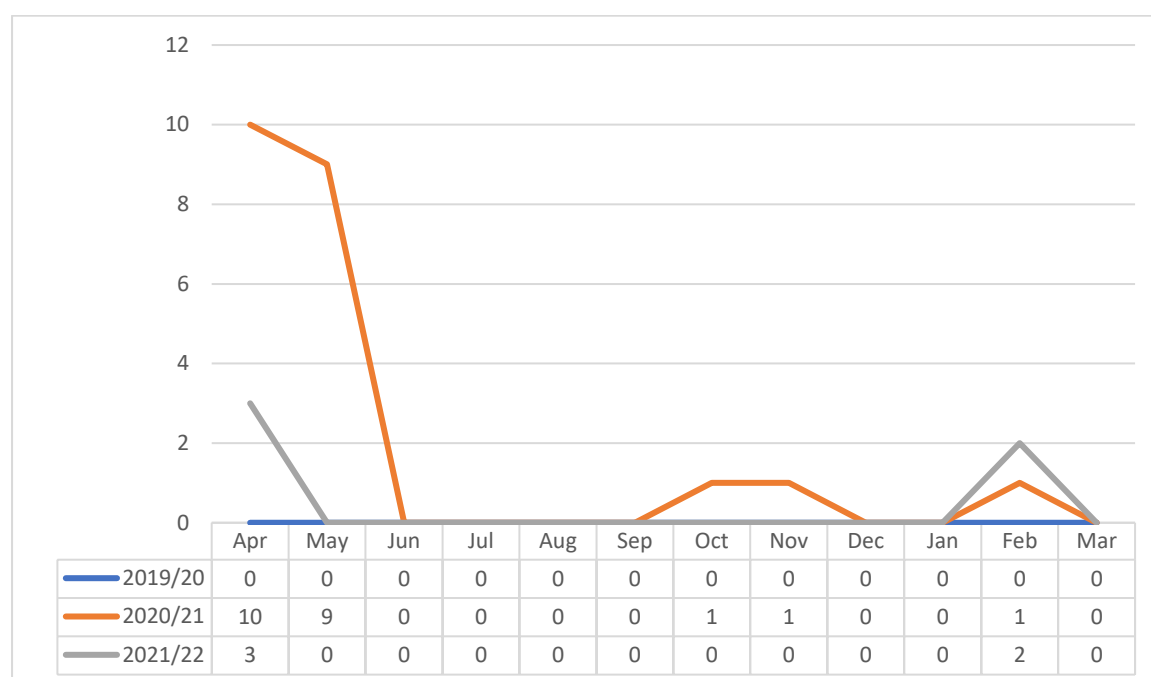
Total number of positive COVID-19 cases identified before, on or during admission to ROH between March 2020 and March 2022



Total number of positive COVID-19 cases identified at ROH on or during admission between March 2020 and March 2022



## Total number of COVID-19 related deaths at ROH between March 2020 and March 2022



All COVID-19 related deaths were investigated following the ROH learning from deaths process.

During 2021/22, ROH reported 10 COVID-19 outbreaks, 4 of which were in clinical areas and involved patients. A full breakdown of cases can be seen in the table below.

All COVID-19 outbreaks are investigated fully with the involvement of NHSE, UKHSA and the CCG IPCT. For all outbreaks, the outbreak management control group is formed (chaired by the DIPIC) and meet daily to review the situation and manage cases as well as oversee the implementation of mitigations and actions to prevent further transmission.

During the first wave and the start of the second wave, any outbreaks identified had to be reported to NHSE at a regional level on a daily form sent via email. Towards the end of the second wave, NHSE introduced an electronic reporting system to replace the manual system of reporting outbreaks. The IPCT report all COVID-19 related outbreaks via this online system and update them with changes until the outbreak is declared closed.

In May 2020 UKHSA (formerly PHE) provided four classifications to define the onset of COVID-19 infections:

- Day 0-2: Community-Onset (CO)
- Day 3-7: Hospital-Onset Indeterminate Healthcare-Associated (HOIHA)
- Day 8-14: Hospital-Onset Probable Healthcare-Associated (HOPHA)
- Day 15+: Hospital-Onset Definite Healthcare-Associated (HODHA)

Summary of onset of COVID-19 cases identified at ROH on or during admission from March 2020 to March 2022

Onset of cases – from admission (day 0)	2019/20	2020/21	2021/22
0-2 days (Community-onset)	2	11	25
3-7 days (Indeterminate)	0	28	7
8-14 days (Probable)	1	15	2
>15 days (Definite)	2	7	5
<b>Totals</b>	<b>5</b>	<b>61</b>	<b>39</b>

Summary of COVID-19 outbreaks reported at ROH between April 2021 and March 2022

Area	Date declared	Date closed	Total +ve staff	Total +ve patients			
				Total № of patients diagnosed at 0-2 days	Total № of patients diagnosed at 3 - 7 days (Indeterminate)	Total № of patients diagnosed at 8 - 14 days (probable)	Total № of patients diagnosed at 15+ days (definite)
Porters	July 21	29/07/2021	3	N/A	N/A	N/A	N/A
Ward 1	Sep 21	16/11/2021	0	0	0	1	2
HR	Nov 21	16/11/2021	2	N/A	N/A	N/A	N/A
IT	Dec 21	13/01/2022	3	N/A	N/A	N/A	N/A
Facilities (EC)	Dec 21	24/01/2022	6	N/A	N/A	N/A	N/A
Porters	Dec 21	30/01/2022	6	N/A	N/A	N/A	N/A
Ward 12	Jan 22	24/01/2022	2	0	1	1	0
Ward 3	Jan 22	26/01/2022	7	0	0	0	1
Ward 2	Jan 22	06/04/2022	11	2	6	0	0
Appointments team	Jan 22	10/02/2022	3	N/A	N/A	N/A	N/A

### IPC Audit Programme

Each year the ROH IPCT review the audit programme to ensure it meets the needs of the organisation and demonstrates compliance with the Health and Social Care Act 2008: code of practice on the prevention and control of infections. Audits are undertaken by both clinical teams, as self-assessments and the IPCT, as assurance of practice and data validation. Where additional risks are identified or upon the declaration of a period of increased

incidence/outbreak, the IPCT undertake additional audits, outside of the routine programme, in accordance with risk requirement.

Regardless of audit type or responsibility for completion, areas of poor or non-compliance are followed up by the IPCT.

Action plans are devised by the wards/departments where issues are highlighted, and completion of these are monitored within the responsible division and reported on at fortnightly divisional governance meetings. Details of audits undertaken by clinical areas and associated actions are upwardly reported by the divisional Head of Nursing to IPCC by exception or to champion good practice. Details of audits undertaken by the IPCT are included in the IPC summary report provided by the IPC Matron at the IPCC.

### Hand Hygiene Audits (inc. bare below the elbows)

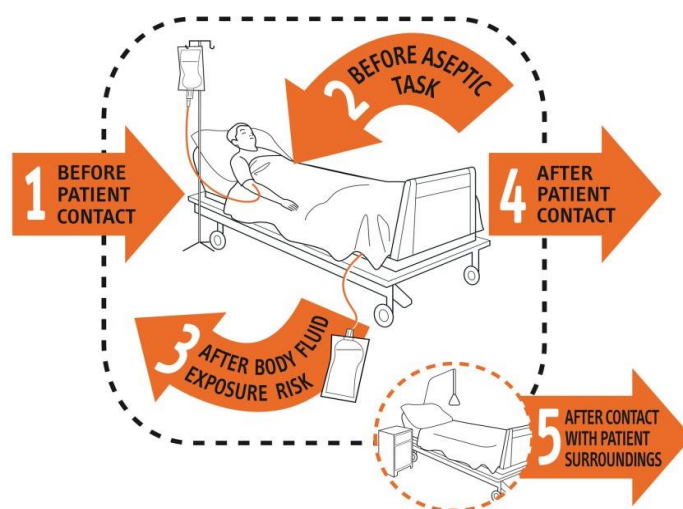
Hand hygiene audits are undertaken monthly by all clinical areas. Data is manually entered onto the quality dashboard by each area.

The hand hygiene compliance target for ROH has historically been >95%.

Hand hygiene audits are useful for challenging practice and highlighting key areas of risk associated with onward transmission risks, however, they should not be used as a solitary reflection of performance and must be viewed and considered in conjunction with other audit and surveillance data, such as infection rates, outbreaks etc. Research into hand hygiene monitoring suggests efforts to increase hand hygiene compliance above 65 to 70% has little impact in reducing onward transmission risk (Beggs et al, 2014).

From the audits undertaken during 2021/22, moment 1 - before patient contact is the most frequently missed opportunity to perform hand hygiene.

### WHO 5 Moments for Hand Hygiene



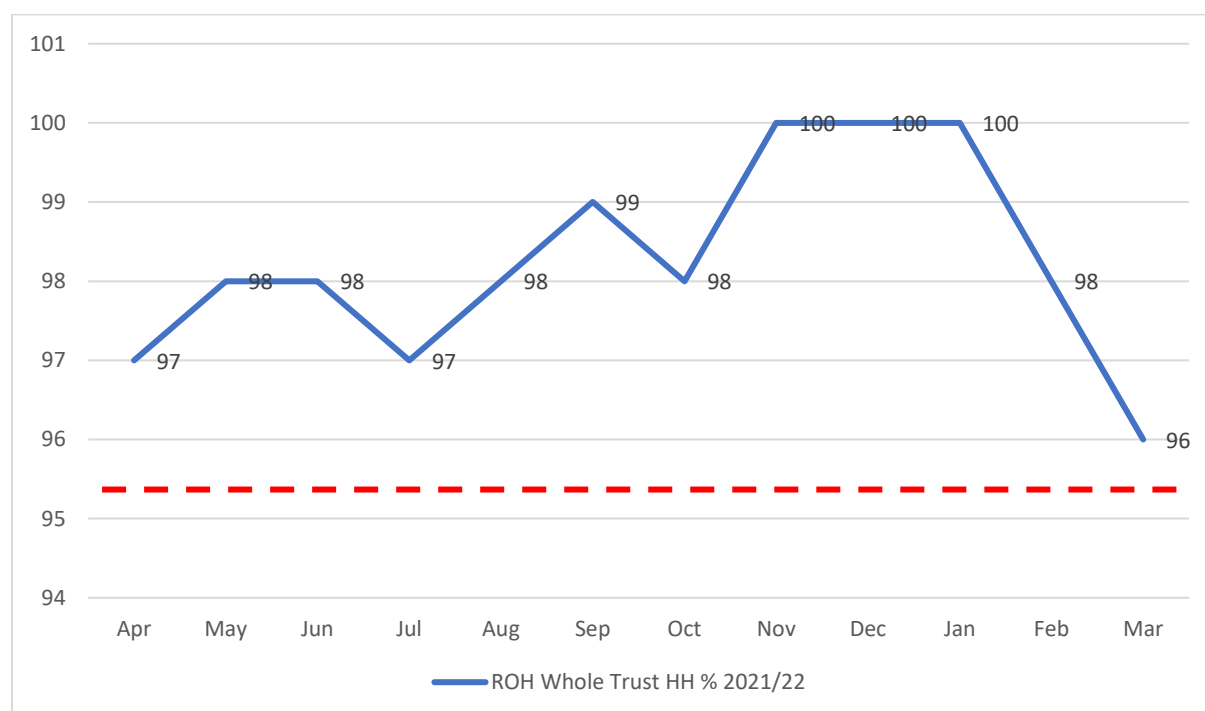
Audits completed by ward/departments report higher compliance than those undertaken by the IPCT. This is in part due to the competence of those undertaking the audit and audit bias (observation, observer, and selection bias).

IPCT do not regularly undertake hand hygiene audits for all clinical areas. Audit data provided by clinical areas is reviewed and areas of concerns (low or consistently high %) are audited by the IPCT – these are monitored weekly by the IPCT for the following month.

The Trust continues to focus on four main components of effective hand hygiene:

- Alcohol hand rubs being available at point of care prominently positioned by each patient so that hands can be cleaned before and after care within the patient's view.
- Audit of hand washing practice at least monthly.
- Patients are encouraged to challenge staff if they have any doubts about hand hygiene and in cases of repeated non-compliance, escalation of concerns.
- Raised awareness of hand hygiene and the 'bare below the elbow' dress code.

#### ROH Trust Hand Hygiene Compliance April 2021 to March 2022



#### Personal Protective Equipment Audits

Pre-COVID-19 pandemic, PPE audits focused on non-sterile glove use to raise awareness of inappropriate use which impacts upon opportunities for hand hygiene and contributes to the transmission of HCAI. During the COVID-19 pandemic, these audits have incorporated correct use (selection, donning and doffing) of face masks.

Audits are undertaken by the IPCT to monitor staff use of PPE during periods of increased surveillance (during outbreaks etc.) Wards/departments are also responsible for monitoring patient and visitor PPE use.

#### IPC Quality Assurance Audit (inc. use of isolation, TBPs, equipment cleanliness etc.)

These are spot checks that are undertaken by the IPCT in response to increased concerns relating to practice within a specific area e.g., in response to a suspected outbreak.

These audits can be undertaken by anyone (IPCT, Ward/Dept. manager, Matron) to monitor the IPC practice in a specific area.

#### Safe management of sharps

An annual sharps audit is conducted by Daniels who provide the ROH sharps bins, this was undertaken during March 2022. Audit data was fed back to the IPCT and Health and Safety Advisor and reported via the IPCC and Health and Safety Group.

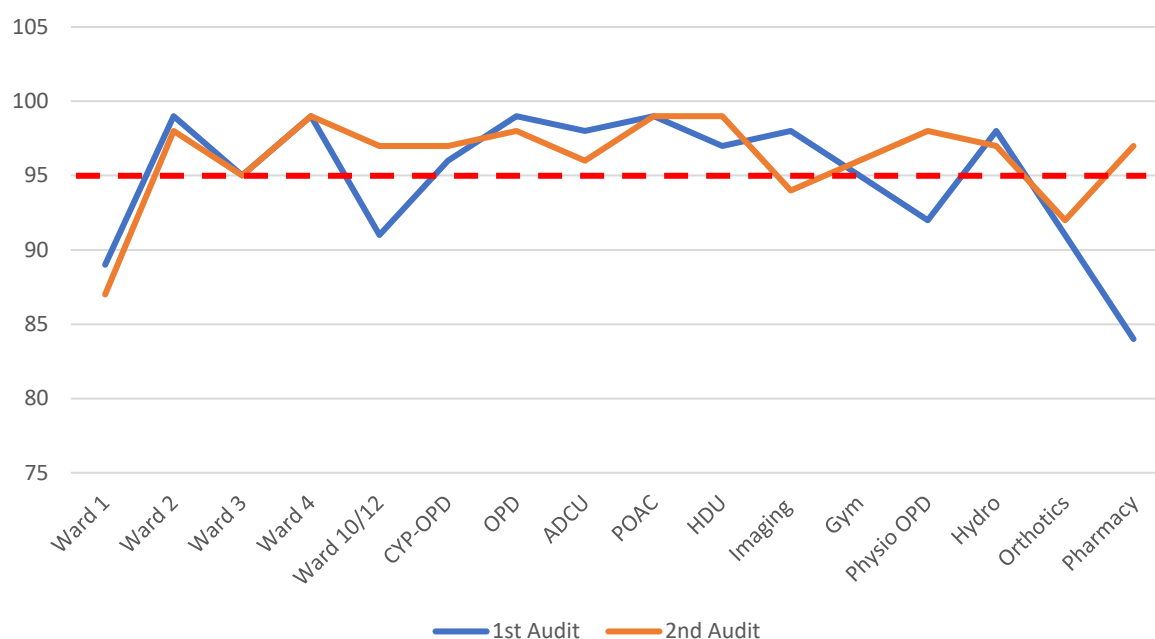
Daniels audited 142 sharps containers across 18 clinical areas. From this audit the most significant area of non-compliance was the utilisation of the temporary closure mechanism. It was recommended that training was implemented to remind staff to use the temporary closure mechanism and how to do this without prematurely sealing the container. This was incorporated into the IPCT training delivered as part of the IPC monthly focus programme.

#### IPC audit (Environment & practice)

All clinical areas are audited by the IPCT in conjunction with facilities and estates every 6 months. This is a formal structured review based on an audit tool developed by the Infection Prevention Society (IPS).

A RAG based scoring system is used and a formal process for audit escalation followed should an audit fail. This involves escalation to senior management within the division, re-audit within a specified time frame (dependent upon severity of findings) and feedback of corrective actions/measures taken to address issues.

### IPC audit (6 monthly) undertaken during 2021/22



All audits that fail (<95%) have improvement recommendations made and are reaudited until compliance achieved, however reaudit figures are not included in the chart above.

### Commode audit

Commode audits are undertaken monthly in all areas that have commodes by the IPCT. The audit is pass or fail.

Most failures are related to the absence of cleaning assurance tape, which is required to be applied at the end of the cleaning process, prior to storage. An audit failure due to lack of assurance of cleaning is just as significant as an audit that fails due to being visibly soiled. Microorganisms cannot be seen by eye and without any definitive evidence of cleaning taking place, we must assume that the equipment is dirty.

### High Impact Interventions

The high impact interventions (HII) were originally published in 2005 as part of 'Saving Lives'. The most recent update was April 2017. The HIIs are an evidence-based approach that relate to key clinical procedures or care processes. When these HIIs are performed appropriately they can reduce the risk of infection. They were developed to provide a practical way of highlighting the critical elements of a procedure or care process, the key actions required and a means of demonstrating assurance.

The HIIs undertaken at ROH are:

- Peripheral vascular access devices – Insertion

- Peripheral vascular access devices – Ongoing Care
- Central venous access devices – Insertion
- Central venous access devices – Ongoing Care
- Surgical site infection – Preoperative
- Surgical site infection – Intraoperative
- Catheter associated urinary tract infection – Insertion
- Catheter associated urinary tract infection - Routine maintenance and assessment for continuing indication
- Promote stewardship in antimicrobial prescribing – All Care Settings
- Promote stewardship in antimicrobial prescribing – Secondary Care

Overall compliance with the HII bundles across the Trust remains high which indicates good standards of care being delivered. To ensure improvements and provide ongoing assurance of these standards being maintained, further work is taking place to ensure documentation of care provided is accurately documented each time a device is accessed or reviewed.

Full details of the Trust's audit and escalation process can be found in the IPC Audit and Escalation SOP.

**CRITERION 2:** Provide and maintain a clean and appropriate environment in managed premises that facilitates the prevention and control of infections.

## **Safe Management of the Healthcare Environment**

### Facilities – Cleanliness

Cleaning and environmental decontamination services provided at ROH are undertaken by an in-house team within the Facilities department. These services are provided by a dedicated team of environmental cleaners and an enhanced cleaning team.

Environmental cleaners provide cover in all patient areas from 06:00 to 22:00hrs Monday to Friday and 08:30 to 19:00hrs Saturday & Sunday.

The enhanced cleaning team undertake all enhanced cleaning and terminal cleaning requests which includes UV-C & Bioquell between the hours 08:30am to 05:30am (split over two long shifts) Monday to Sunday.

Training for domestic staff continues to be provided by the housekeeping coordinators which includes the completion of a training manual.

Environmental cleaners are responsible for ensuring that cleaning methodologies are rigorously applied, and frequencies are maintained. All cleaning staff play an essential role in



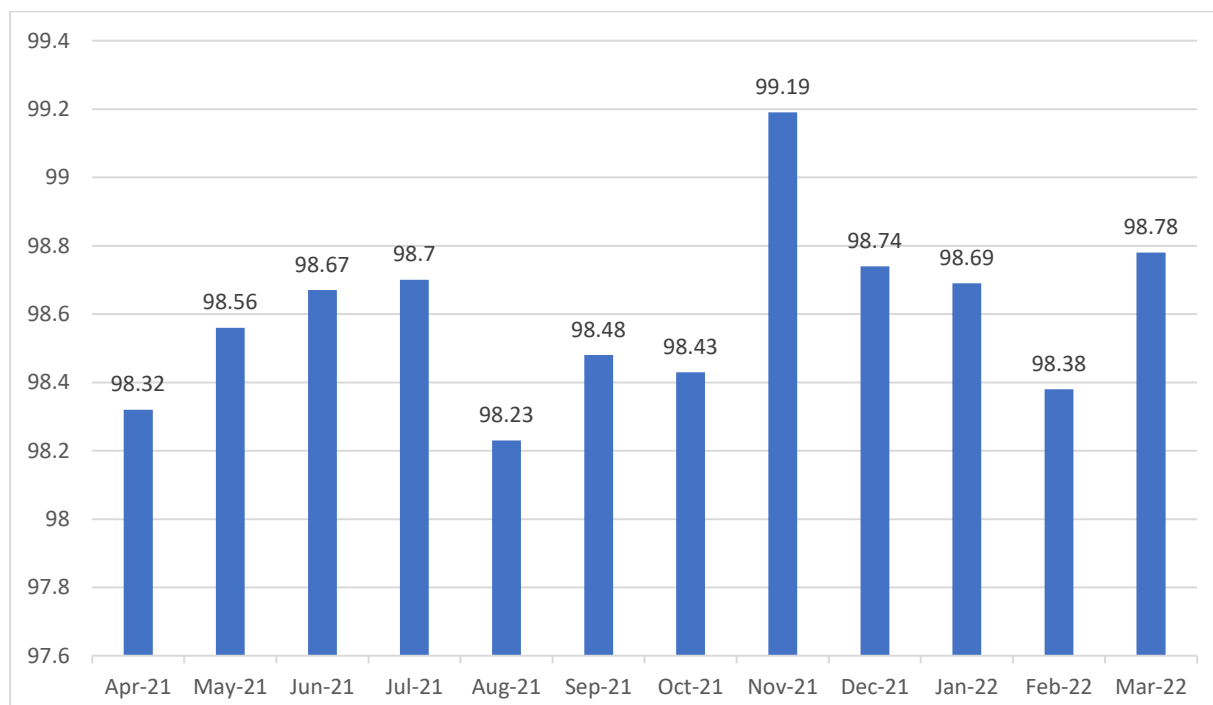
ensuring that the Trust maintain low incidence of HCAI which helps to promote confidence in patients and visitors.

### Monitoring in-house cleaning processes

The integrity of the audit process is fundamental to providing assurance that facilities and clinical teams are delivering safe standards of cleanliness. Accurate, honest, and open audit reporting underpins the ethos of the standards – to drive continuous improvement. The team work to national targets and local standards which are reflected in the environmental audit scores and our patient-led assessments of the care environment (PLACE) results. Facilities use the Micad C4C (credits for cleaning) software, which is widely used across the NHS, to monitor cleanliness standards and ensure all elements are carried out. The system then generates a report and percentage score, the reports are sent to the facilities team, estates team, department managers and Matrons for action. The facilities manager also participates in any outbreak or periods of increased incidents (PII) meetings when issues are identified on site.

Scheduled and ad hoc meetings with the IPCT, Matrons, and clinical colleagues to regularly monitor, review progress and address/resolve any issues are held to ensure that standards and performance target and compliance is met, whilst empowering nurse managers to be involved in the monitoring of cleanliness standards.

### % Compliance with the agreed Trust annual environmental audit 2021/22



## National Cleaning Standards

During May 2021 NHS England published the 'National Standards of Healthcare Cleanliness 2021'. Since the publication of the standards, facilities have welcomed the opportunity to measure performance in a uniform way, and to benchmark Trust cleaning services against other healthcare environments.

Once received and acknowledged it was clear that a collaborative approach was essential to continuously improve cleanliness standards. Facilities have greatly benefited from the professional objectivity and support of the Executive Director of Nursing and Clinical Governance who has actively encouraged cross departmental collaboration with clinical colleagues, partner organisations and patients in setting and monitoring cleaning standards for consistently high levels of service.

The new standards seek to drive improvements while being flexible enough to meet the different and complex requirements of the Trust.

Facilities, with collaboration of IPC colleagues have agreed how our cleaning resources are best organised for our local environment and services, while ensuring we continue to meet all aspects of the new standards.

Identifying the functional risk (FR) category for functional areas was the crucial first step in applying the new standards: the cleaning, monitoring and audit frequency and audit target scores are all directly linked to this.

Each staff group has recognisable cleaning responsibility to an assigned item or category. A multi-disciplinary approach is integral to meet the cleanliness standard that encompasses all elements within the assigned location.

### Responsible parties

- Healthcare cleaning professionals (environmental cleaners/enhanced cleaning team).
- Nursing & clinical teams.
- Allied health professionals.
- Estates operational services.

Published ratings reflect the cleanliness score for the complete area, not the performance of individual parties responsible for cleaning certain elements. Taking this approach makes it clearer to patients, staff, and visitors how clean an area is and encourages collective responsibility which ultimately inspires people to work together to achieve high standards.

With the introduction of the new standards, cleaning audit percentage scores were replaced with the new 'star ratings' for patient-facing areas. Star ratings are displayed to give patients, staff, and the public an easily understood visual score of the standard of cleanliness being

met. It reflects the cleanliness of a functional area regardless of which staff group is responsible for cleaning each element.

National Standards of Healthcare Cleanliness 2021 risk categories for functional areas at ROH.

Functional Risk Category:	(FR1)	ROH Standard
<b>Audit Target: Weekly</b>	<b>98% - 5 Stars</b>	<b>98% - 5 Stars</b>
<b>Standards Identified locations</b>	Operating theatres	Operating theatres
	Intensive care units	HDU
	Chemotherapy/immunocompromised units	Ward 3
	Augmented care	The labs
	A&E/resus/minor injuries/major trauma	

Functional Risk Category:	(FR2)	ROH Standard
<b>Audit Target: Monthly</b>	<b>95% - 5 Stars</b>	<b>95% - 5 Stars</b>
<b>Standards Identified locations</b>	Acute and community wards	Wards
	Treatment rooms where invasive procedures take place	POAC
		ADCU
		Discharge suite

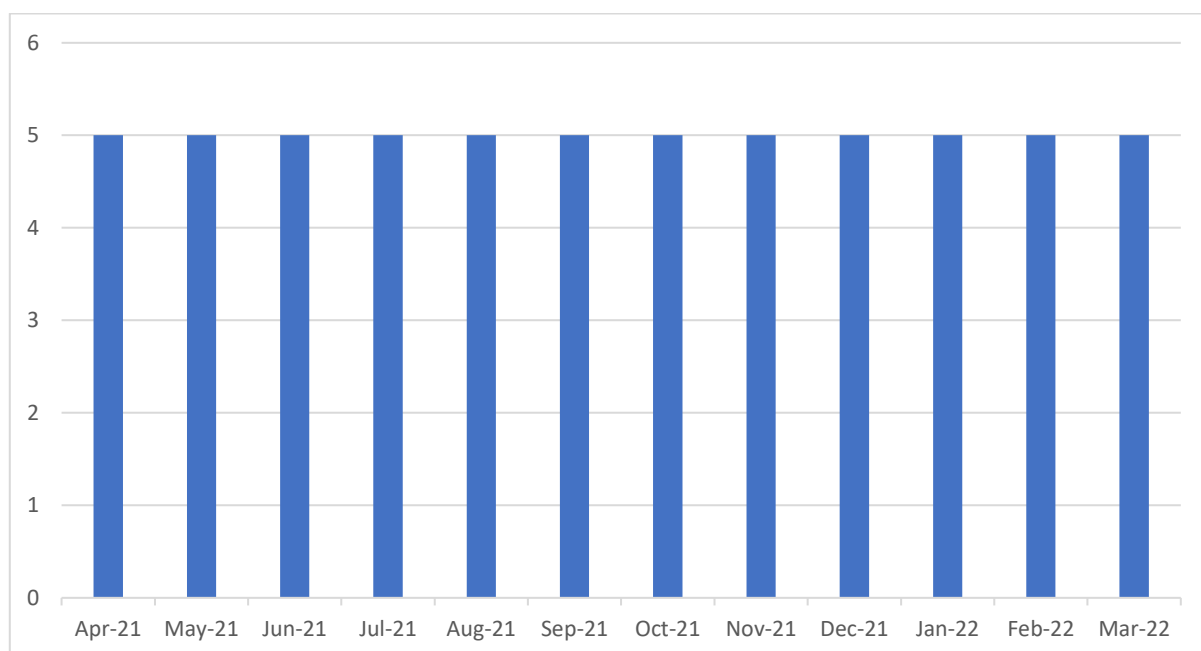
Functional Risk Category:	(FR3)	ROH Standard
<b>Audit Target: Bi-Monthly</b>	<b>90% - 5 Stars</b>	<b>90% - 5 Stars</b>
<b>Standards Identified locations</b>	Urgent care centres	Public corridors
	Emergency patient transport vehicles	Entrances
	Dental outpatient departments	OPD
		X-Ray & MRI Suites
		Rose Cottage
		Linen Room
		Pharmacy dispensary
		Therapy services gym
		Physiotherapy gym
		Hydrotherapy suite
		Residence
		IPC & ROC'S offices
		Orthotics department
		Prayer & refection suite
		Trust headquarters

Functional Risk Category:	(FR4)	ROH Standard
<b>Audit Target: Quarterly</b>	<b>85% - 5 Stars</b>	<b>90% - 5 Stars</b>

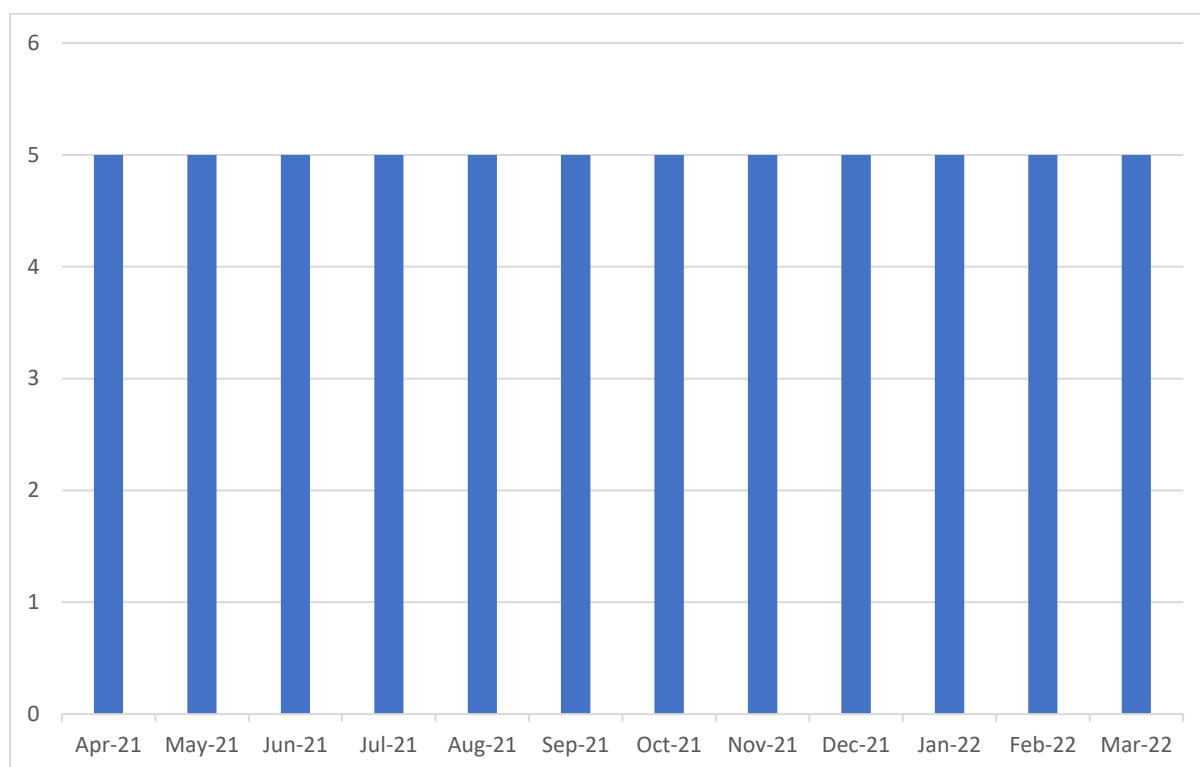
Standards Identified locations	Treatment rooms	Offices
	X-ray (non-invasive)/MRI/CT rooms	Main stores
	Entrances, receptions, and public corridors	Courtyard entrance
	Departure/discharge lounges	Knowledge hub Medical records Clinic waiting rooms
	Pharmacies	
	Public corridors, lifts, and stairwells	
	Laboratories	
	General outpatient departments/clinics	
	Physio outpatient departments	
	Pre-op assessment units	
	Linen and laundry departments	

<b>Functional Risk Category:</b>	<b>(FR5)</b>	<b>ROH Standard</b>
<b>Audit Target: 6 Monthly</b>	<b>80% - 5 Stars</b>	
Standards Identified locations	Visiting rooms where not directly associated with a ward	<b>Assigned into FR4</b>
	Main receptions	
<b>Functional Risk Category:</b>	<b>(FR6)</b>	<b>ROH Standard</b>
<b>Audit Target: Annual</b>	<b>80% - 5 Stars</b>	
Standards Identified locations	Administration/offices	<b>Assigned into FR4</b>
	Medical records	
	Education/postgrad and training centres	

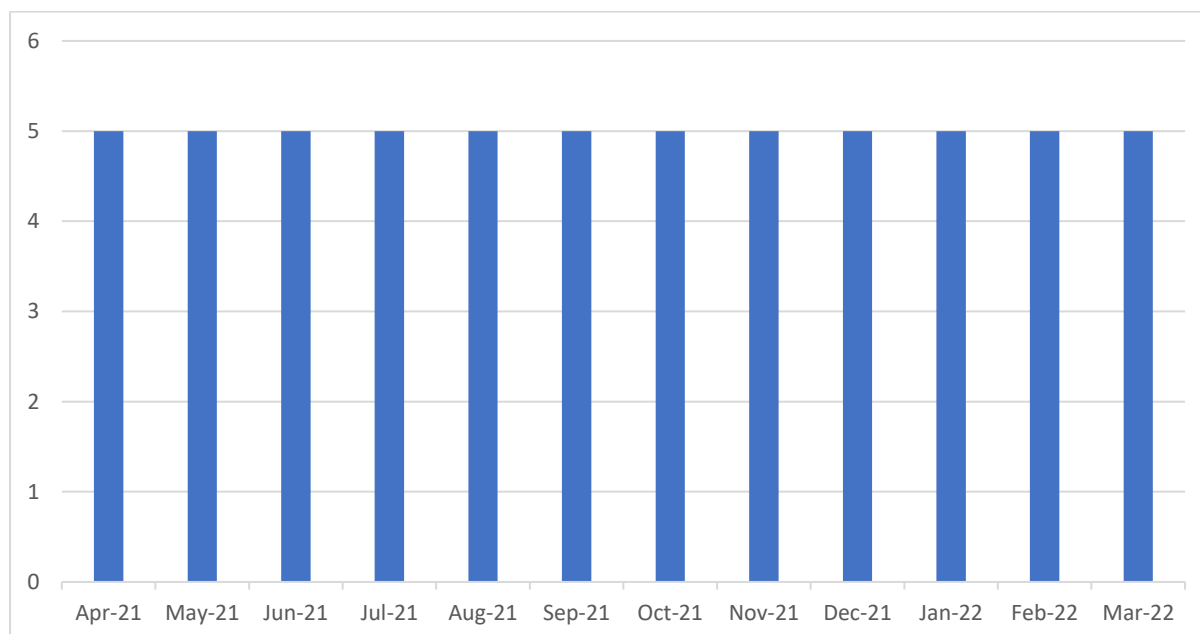
#### Environmental Cleanliness Star Rating Status - Theatres Functional Risk Category 1- (98%)



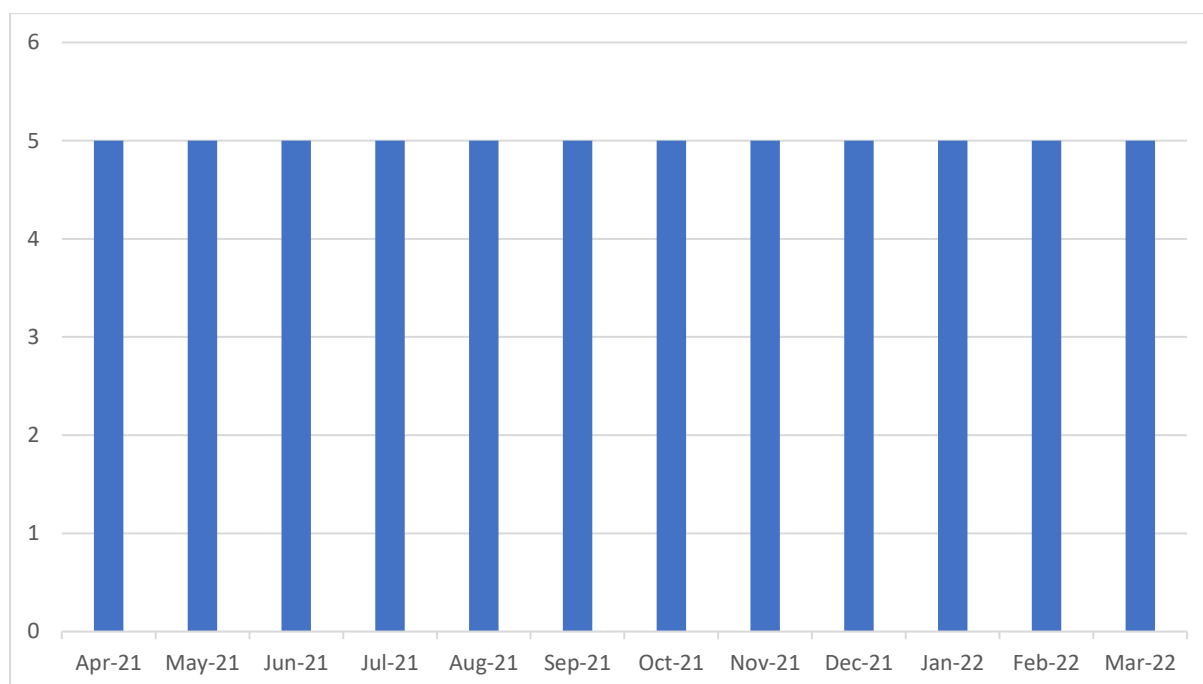
### Environmental Cleanliness Star Rating Status- Wards Functional Risk Category 2 - (95%)



### Environmental Cleanliness Star Rating Status- Clinics & Outpatients Functional Risk Category 3- (90%)



Environmental Cleanliness Star Rating Status- Offices, Public Toilets & Corridors (Functional Risk Category 3-(85%))



Introduction of Ultraviolet-C (UV-C) Disinfection

During May 2021 the Trust pioneered the implementation of two robot-controlled ultraviolet (UV-C) disinfection systems to further aid the prevention and control of infections.

UV Technology makes use of the bactericidal effect of UV-C light in the form of UV-C disinfection. Ultraviolet light in the C spectrum (UV-C) is energy-rich light with a wavelength of 200 – 280 nanometres (nm). UV-C light is very versatile and can be used for disinfecting water, destroying harmful microorganisms in other liquids, on surfaces, on food products and in 'air'. With UV-C technology it is possible to destroy pathogens within seconds, without addition of chemicals, without harmful side effects, inexpensively, highly efficiently and reliably.

Recently recognised with a top international award for its ground-breaking technology, the UVD Robots' system was deployed to ensure speedy and thorough decontamination throughout the Trusts wards, theatres and other patient facing areas.

The UVD Robot is used as part of the enhanced and regular cleaning regimes. It is user-friendly and designed to be operated by trained environmental cleaners. While UV light is invisible to the naked eye, the lamps have a blue colour when in operation. The unit drives around and positions itself autonomously in relation to its surroundings.

The machine treats surfaces in a hospital ward with UV-C light from several angles and up close. It disinfects all surfaces the light has contact with, stopping at pre-defined hotspots that

require a longer exposure time. The UV-C disinfection robot does not replace the manual cleaning process - it is designed as a complementary activity. Operating user training has been rolled out to the enhanced cleaning team and environmental coordinators. Further training to be rolled out to include the wider environmental cleaning team members based in clinical areas.



#### Patient-Led Assessments of the Care Environment (PLACE)

PLACE assessments were suspended in 2020 due to the risk to patients, assessors and staff undertaking the assessments during the COVID-19 pandemic. These were planned to be undertaken during 2021/22 but due to new circulating 'variants of concern' and an increase in COVID-19 cases, they were again postponed. A PLACE assessment is planned for 2022/23.



#### Terminal/Enhanced Cleaning

All terminal and enhanced cleans at the Trust are requested via the internal bleep system during working hours. Departments log a request with the housekeeping coordinators for the type of clean required (amber, violet or red). Outside of these hours, the call is sent through to the ROH enhanced cleaning team. A RAG system is used to make requesting the correct decontamination process as simple as possible.

All disinfection methods are completed after a 'green clean'. This is also referred to as the 'pre-clean' and undertaken by the department staff. It is a vital step in the cleaning and disinfection process which removes any physical dirt and organic material from the environment and equipment which would otherwise render disinfectants ineffective.

## ROH terminal clean poster

### Room Decontamination on transfer or discharge

Check the patients Infection alert on PICS  or red warning triangle on PAS 

GREEN	AMBER	VIOLET	RED
Department Staff	Department Staff & Environmental Cleaners	Department Staff & Environmental Cleaners	Department Staff & Environmental Cleaners
Clinell Universal Wipes	Clinell Universal Wipes Followed by Chlorine Solution	Clinell Universal Wipes Followed by Chlorine Solution Followed by UVD Robot (Ultraviolet)	Clinell Universal Wipes Followed by Chlorine Solution Followed by Bioquell (HPV)
Single Room/Bed Space: Approx. 20 minutes 4 Bedded Bay: Approx. 40 minutes	Single Room/Bed Space: Approx. 45 minutes 4 Bedded Bay: Approx. 1.5 hours	Single Room/Bed Space: Approx. 1 hour 4 Bedded Bay: Approx. 1.45 hours	Single Room/Bed Space: Approx. 4 hours 4 Bedded Bay: Approx. 8 hours
<ul style="list-style-type: none"> <li>General cleaning</li> <li>No identified infections</li> </ul>	<ul style="list-style-type: none"> <li>Chickenpox</li> <li>COVID-19</li> <li>Multi Drug Resistant (MDR) Gram Negatives (including ESBL organisms)</li> <li>Group A <i>Streptococcus</i></li> <li>Diarrhoea (Continent, Non-Infectious)</li> <li>Influenza</li> <li>RSV</li> <li>MRSA / MSSA</li> <li>Shingles</li> <li>Suspected infections</li> <li>Tuberculosis</li> <li>Unconfirmed wound infections</li> <li>VRE</li> </ul>	<ul style="list-style-type: none"> <li>Same organisms as per AMBER clean</li> <li>UVC can only be used in single rooms or empty bays etc.</li> </ul>	<ul style="list-style-type: none"> <li><i>Clostridioides difficile</i></li> <li>Diarrhoea (Incontinent or Infectious)</li> <li>Carbapenemase Producing <i>Enterobacteriaceae</i> (CPE)</li> <li>Norovirus</li> <li>Multi Drug Resistant (MDR) <i>Acinetobacter</i></li> <li>HPV can only be used in single rooms or empty bays etc.</li> </ul>

If the organism you need information for is not shown above, please contact the IPCT on the numbers below.  
For routine cleaning schedule information please refer to the cleaning matrix in your department.  
Decontamination standards can be found in the Decontamination Policy available on the Trust intranet.  
Amber, Violet and Red cleans must be requested by contacting the Housekeeping Coordinators via ext. 55603.  
Step down of cleaning requirements can only be authorised by the IPCT (in hours ext. 55872 or bleep: 2631) or on-call Microbiologist (out of hours via switchboard).

### Linen Services for 2021/22

Linen, particularly used linen within a healthcare setting can harbour large numbers of potentially pathogenic microorganisms. It is important that the appropriate precautions are taken to ensure contamination to/from linen does not occur as this might then lead to transmission of microorganisms to people or to the environment.

Standards monitoring applies to all stages of linen management: storage, handling, bagging, transporting, and laundering, as set out in the associated national guidance:

- HSG (95)18 Laundry treatments at high and low temperatures.
- HTM 01/04 - Decontamination of linen for health and social care.

For linen services the Trust has a contract with Elis Laundry. Elis provides the Trust with assurance relating to the above cited compliance criteria. ROH facilities management team undertake site visits to the Elis factory to see first-hand the process taking place to ensure safe handling, cleaning and storage of linen provided to ROH.




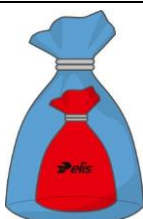

Elis provide linen services Monday to Friday ensuring soiled linen is collected and clean laundry is delivered each day.



Clean linen is provided to wards daily via the portering team at 08:00hrs. Additional requests made by departments are delivered as required.

Soiled linen is taken to the nearest waste disposal hold by clinical staff, where the waste operatives transfer it to an agreed soiled linen only central pick-up point for Elis. The Trust follows an agreed soiled linen bagging procedure.

#### ROH linen bagging poster

Used linen hire items	Infected linen hire items	Hospital owned items	Infected hospital owned items
E.g., Sheets, Pillowcases, Towels, Night Wear etc.		E.g., Curtains and Trust owned Scrubs	E.g., Curtains and Trust owned Scrubs
			
White Elis Bag	Dissolvable red bag inside white Elis Bag	Blue Elis Bag	Dissolvable red bag inside Blue Elis Bag
<b>Rejected Linen</b>	<b><u>Important Notes</u></b>  Before fastening any bag, make sure it is no more than three quarters full (bags that are too heavy may not be collected and could cause manual handling issues).  Soiled linen may not be collected if any of the above procedures are breached.  Colour coded soiled linen bags & rolls of Infected red dissolvable bags are available from the Linen Room upon request.		
Owned or hired			
			
Rejected / Return Items Only Pink Elis Bag			

#### Linen and laundry contract monitoring

The ROH facilities manager attends bi- monthly contract review meetings with Elis to ensure quality and stock levels are maintained. If Issues are presented, they are formally discussed, and if required an improvement action plan is commissioned and monitored through monthly contract review meetings.

#### Waste Management

The general waste and recycling waste generated within the Trust are collected by Veolia.

To summarise, during 2021/22, 231,199kg were collected costing £52,681.15. Of the waste collected:

- 99.4% of the waste was diverted from landfill.
- 28.02% of the waste collected was recycled which saved 65,600kg of CO<sub>2</sub>.

#### General waste:

- Collections of the compacted waste took place every week.
- Collections of 10 x 1100L bins took place daily Monday to Friday.
- Collections of the bulky item skip in the waste compound took place monthly or as required.
- Collections of the bulky item skip in the Estates waste compound took place as required.

#### Recycling waste:

- Collections of the compacted cardboard took place every week.
- Collections of 5 x 1100L bins took place twice a week.

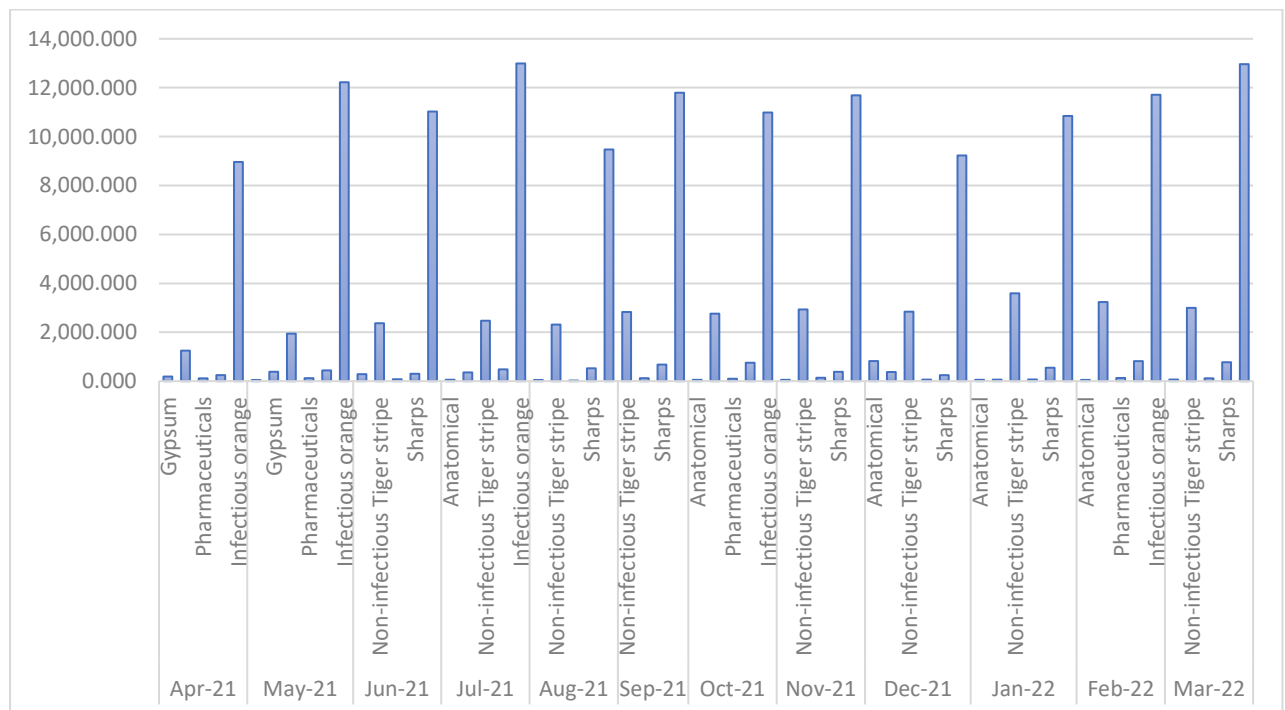
#### Metal recycling skip

- Collections of the metal recycling skip in the waste compound took place as required.

Clinical waste generated within the Trust are collected by Stericycle.

During 2021/22, collections took place four times a week on Monday, Wednesday, Thursday, and Friday. In total there was 175,576.88 kg of clinical waste collected costing £68,332.49.

#### Waste collected/kg during 2021/22



## Ventilation

During December 2021 the Ventilation Safety Group (VSG) was set up to oversee the management of the ventilation systems of the Trust. The VSG which is held bi-monthly has clearly defined roles and responsibilities, and is part of the Trust's governance structure, reporting via upward report to the DIPC at the IPCC. The DIPC is responsible for reporting on activities and recommendations of the VSG to the Quality and Safety Committee which feeds into Trust Board.

As per the requirements set out in Health Technical Memorandum (HTM) 03:01 Specialised ventilation for healthcare premises, the VSG is a multidisciplinary group whose remit is to assess all aspects of ventilation safety and resilience required for the safe development and operation of the ROH healthcare premises. The VSG group core membership includes:

- Authorised Engineer (Ventilation) – External.
- Infection Prevention and Control Person (Lead IPCN and IPC Doctor).
- The Authorised Person (Ventilation) (Deputy Director of Delivery).
- Estates (operations and projects) staff.
- Clinicians and specialist departments (for example theatres, critical care, pharmacy, medical microbiology, nursing).
- Personnel from the finance department with accountability for capital and revenue evaluation.
- Co-opted expertise as necessary, for example ventilation designers, consultants, and suppliers.

In response to the COVID-19 pandemic and wider ventilation needs across the Trust, a thorough ventilation system review has been authorised and will be reported on in the 2022/23 annual report.

## Water Safety

The Water Safety Group (WSG) continues to meet bi-monthly and reports upwardly to the IPCC. The group is chaired by the Deputy Director of Delivery (Estates). As per requirements set out in HTM 04-01: Safe water in healthcare premises, it is a multidisciplinary group formed to oversee the commissioning, development, implementation, and review of the Water Safety Plan (WSP). The aim of the WSG is to ensure the safety of all water used by patients, staff, and visitors, to minimise the risk of infection associated with waterborne pathogens. It provides a forum in which people with a range of competencies can be brought together to share responsibility and take collective ownership for ensuring it identifies water-related hazards, assesses risks, identifies, and monitors control measures and develops incident protocols.

The Trust continues to monitor and review work and actions undertaken toward the WSP. The plan was developed based on the peer review and reflects the status and identified risks of the Trust's water systems. This is monitored at the WSG.

The Estates department carried out planned preventive maintenance in accordance with the relevant water safety guidance documentation. Every two years the Trust commissions an independent Legionella Risk Assessment to be completed across the site, the outcome/actions from the assessment are discussed at the WSG.

The Trust every six months carries out water sampling to several fixed points throughout the site, at the same time we carry out randomised water sampling. The results are reported through the WSG. The water quality in our Hydrotherapy Pool is tested on a weekly basis, the tests are undertaken and monitored by our Hydrotherapy staff and exemptions are reported to the WSG.

Hospital water is a recognised potential source of *Pseudomonas aeruginosa* (*P. aeruginosa*) which is a microorganism that can act as an opportunistic pathogen and colonise and infect vulnerable patients. Several outbreaks of *P. aeruginosa* have been attributed to contaminated water systems in hospitals. An addendum to HTM 04-01 published in 2013 advised on how to deal with the presence of *P. aeruginosa* in augmented care units. Each year the WSG reviews the ROH areas for 'augmented care' status as set out HTM 04:01. For 2021/22 it was deemed none of the patient areas met this description which did not necessitate further action on the methodologies to control and minimise the risks of morbidity and mortality due to *P. aeruginosa* associated with water outlets.

### Estates

The IPCT continue to advise and support estates with refurbishments and new building projects within the Trust. This has required attendance at key design and planning meetings and the review of plans and minimum build standards.

During 2021/22 the IPCT have advised on:

- Relocation of outpatient Physiotherapy services to an offsite location.
- Relocation of outpatient MSK clinics to an offsite location.
- Relocation of Topography to a larger clinical area onsite.
- Relocation of the Pre-operative Assessment Clinic to a larger facility onsite.
- Relocation of Pharmacy to a larger purpose-built facility onsite.
- Installation of 'Omniceil' technology to clinical rooms in wards for dispensing medications.
- Installation of patient feedback equipment (smiley faces).

## Safe Management of Healthcare Equipment

### Decontamination

No decontamination of critical devices is undertaken onsite at ROH. This is contracted out to BBraun, who deliver an accredited decontamination service and oversee the process and management of all decontamination of surgical instruments. No other equipment used onsite or offsite as part of ROH services requires sterile decontamination.

As set out in HTM 01-01, which offers best practice guidance on the whole decontamination cycle including the management and decontamination of surgical instruments used in acute care, ROH have an appointed Sterile Services Manager (SSM) who takes responsibility for coordinating activity between the theatre, decontamination, and supply/purchase teams. They ensure that the inventory of surgical instruments is proactively reviewed and managed in accordance with national and local guidance, clinical requirements, and industry best practice.

The SSM reports to the Trust's Decontamination lead. This position is held by the DIPC. The SSM provides an upward report on decontamination at IPCC.

**CRITERION 3:** Ensure appropriate antibiotic use to optimise patient outcomes and to reduce the risk of adverse events and antimicrobial resistance.

### **Antimicrobial Stewardship**

The Trust Antimicrobial Stewardship Group (AMSG) meets quarterly and includes representatives from pharmacy, microbiology, nursing, and medical staff. This group produces and manages policy regarding AMS and responds to concerns in this area. The group produces upward reports and escalates concerns via the Drugs and Therapeutics Committee (DTC) and IPCC. The Trust's Antimicrobial Pharmacist also produces quarterly consumption reports that are reported at DTC and IPCC.

The AMSG produces an annual strategy that outlines key areas of focus for the coming year based on consumption data, audit data and lessons learnt from previous years. A key responsibility of the AMSG is to outline the roles and responsibilities of all members of staff within the Trust in preventing antimicrobial resistance (AMR) and promoting responsible use of antimicrobials.

Consumption of antibiotics is monitored by the Chief Pharmacist and analysed for trends by the Antimicrobial Pharmacist. Several audits have been completed during 2021/22 to assess appropriateness of antimicrobial usage within the Trust.

The action of the AMSG continues to be hampered by the lack of attendance of the medical and nursing representatives. This means that the group meetings are often non-quorate. Actions by the group can therefore be difficult to implement.

The ROH antimicrobial prescribing guidelines are regularly reviewed to ensure they are evidence based. A recent review was undertaken by the Antimicrobial Pharmacist in conjunction with the IPC Doctor. The guidelines are accessible via the Prescribing Information and Communication System (PICS) and the Trust intranet.

The Trust utilise the UKHSA 'Start Smart, then Focus' approach for initiating and reviewing antimicrobial prescriptions which aims to avoid inappropriate antimicrobial prescribing.

#### ROH Antibiotic Consumption (2021/22)

Since 2019 the NHS Stand Contract, set out by NHSE has contained a requirement on trusts to make 1% year-on-year reductions in their rate of total antibiotic usage per 1000 admissions – in accordance with the direction set in the UK's five-year national action plan (NAP) tackling antimicrobial resistance 2019-2024.

The pharmacy team continue to undertake interventions relating to inappropriate antibiotic usage with prescribing teams to maintain good antimicrobial stewardship.

Total antibiotic usage is monitored quarterly and ROH continues to maintain usage below the England average.

Note - DDD = Defined daily doses.

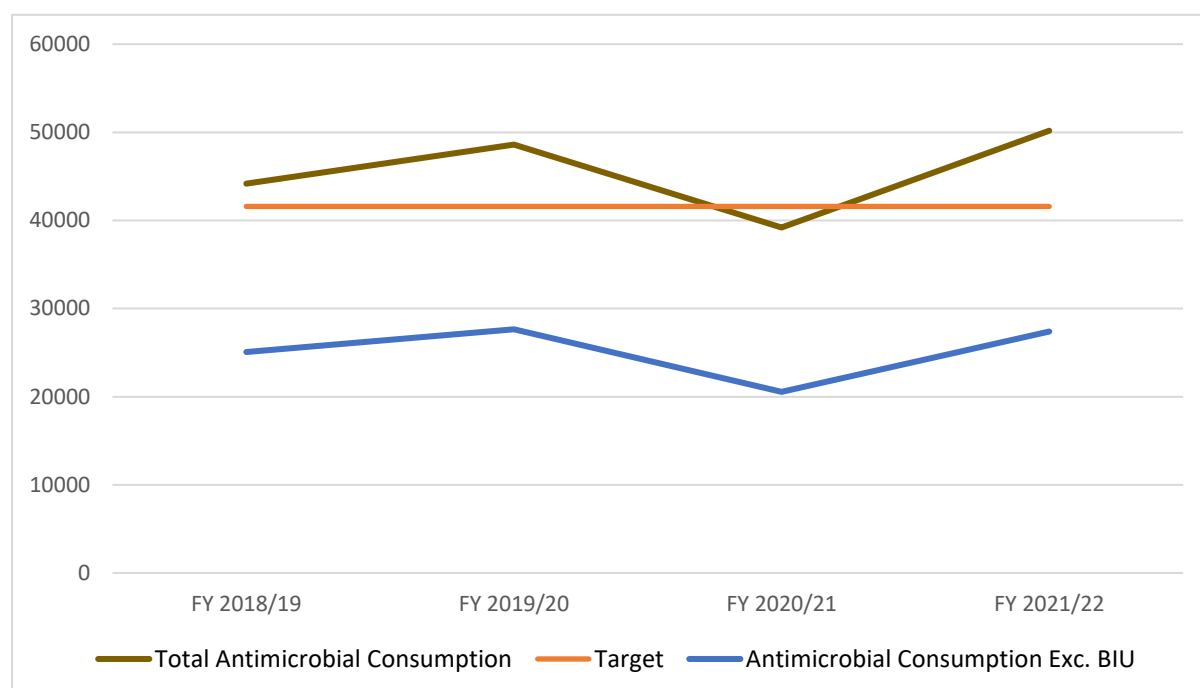
#### Total antibiotic consumption data in DDDs and DDDs per 1000 admissions from March 2019 to March 2022 (including Bone Infection Unit (BIU) data)

Year	2019/20	2020/21	2021/22
Total Antimicrobial consumption (DDD)	48607	39194	50179
Target Total DDD	41587.9	41587.9	41587.9
Antimicrobial consumption/1000 admissions	3719	5520	3953
Target DDD/1000 admissions	3206	3206	3206

#### Total antibiotic consumption data in DDDs and DDDs per 1000 admissions from March 2019 to March 2022 (excluding BIU data)

Year	2019/20	2020/21	2021/22
Total Antimicrobial consumption (DDD)	27647	20549	27408
Target Total DDD	41587.9	41587.9	41587.9
Antimicrobial consumption/1000 admissions	2115	2894	2159
Target DDD/1000 admissions	3206	3206	3206

### Total antimicrobial consumption (DDD) 2019/20 to 2021/22 (April to March)



The tables provide a breakdown of overall antimicrobial consumption for each financial year since 2018. The graph shows we are now back to pre-pandemic consumption levels. They also show that excluding BIU antibiotics we are below the NHSE targets.

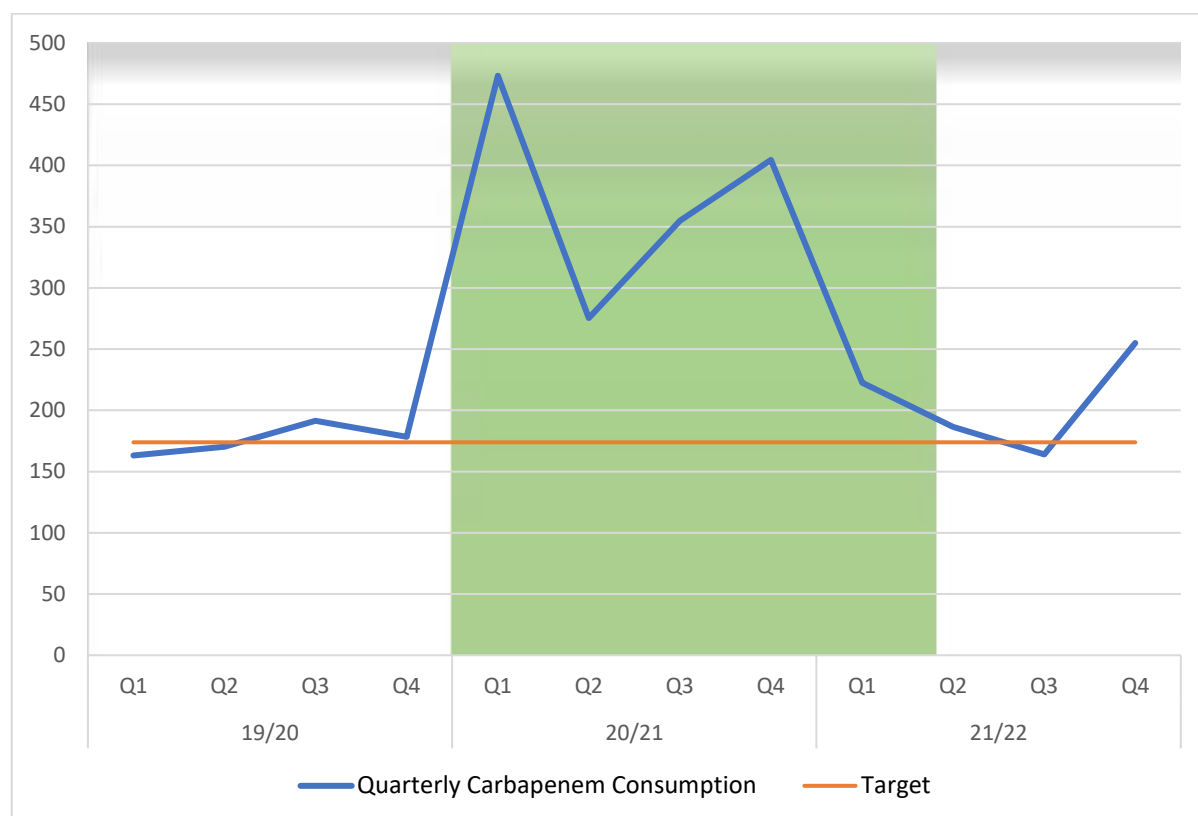
The English surveillance programme for antimicrobial utilisation and resistance (ESPAUR) report 2020/21 acknowledged that the COVID-19 pandemic has had a marked effect on antibiotic prescribing in secondary care. Overall, in secondary care in England, there was a 4.8% increase in total antibiotic prescribing (4,674 to 4,899 DDDs per 1,000 admissions) between 2019 and 2020. This increase in prescribing rate masks a reduction in total DDDs prescribed, and an even greater decrease in hospital admissions between 2019 and 2020 (-18.4% and -22.1% respectively). This reflects the changes in hospital populations since the start of the pandemic; more acutely ill patients were admitted while elective procedures were cancelled.

### Carbapenem Usage

Total Carbapenem consumption data in DDDs and DDDs per 1000 admissions from March 2019 to March 2022.

Year	2019/20	2020/21	2021/22
Carbapenem consumption (DDD)	2300.5	2548.8	2586
Carbapenem consumption (DDD Per 1000 admission)	176.01	358.9	204
Target DDD/ 1000	173.9	173.9	173.9

Quarterly carbapenem consumption (DDD/1000 patients) between 2019/20 and 2021/22 (April to March)



The table and graph above provide a breakdown of carbapenem consumption for each financial year since 2018. It also shows quarterly carbapenem usage has increased in Q4 of 21/22.

Yearly usage of antimicrobials within the WHO “access” category of the AWaRe list financial years 2019/20 – 2021/22.

Antimicrobial Usage	2019/20	2020/21	2021/22
Antibiotic consumption within the “Access” category of the AWaRe list	1847 (52%)	2394 (43%)	2054 (52%)
Antibiotic consumption within the “Watch” category of the AWaRe list	1547 (42%)	2534 (46%)	1546 (39%)
Antibiotic consumption within the “Reserve” category of the AWaRe list	325 (9%)	594 (11%)	335 (9%)

The ‘AWaRe’ Classification of antibiotics was developed in 2017 by the WHO ‘Expert Committee on Selection and Use of Essential Medicines’ as a tool to support antibiotic stewardship efforts at local, national, and global levels. Antibiotics are classified into three groups, Access, Watch and Reserve, taking into account the impact of different antibiotics and antibiotic classes on antimicrobial resistance, to emphasize the importance of their



appropriate use. The 2021 update of the 'AWaRe' classification includes an additional 78 antibiotics not previously classified, bringing the total to 258.

It is a useful tool for monitoring antibiotic consumption, defining targets and monitoring the effects of stewardship policies that aim to optimise antibiotic use and curb antimicrobial resistance. The WHO 13th General Programme of Work 2019–2023 includes a country-level target of at least 60% of total antibiotic consumption being Access group antibiotics.

The percentage of antibiotics used at the ROH that fall within the 'access' group category has remained steady between 43-52% for the past 3 financial years. There was a decrease in proportion of 'access' antibiotics in 2020/21, but this can be attributed to the pandemic and a different cohort of patient to which ROH is usually accustomed.

It is important to note antibiotics routinely used for BIU patients are mostly found within either the 'reserve' or 'watch' categories; therefore, as activity remains high for BIU patients then this impacts on the percentage consumption of 'access' antibiotics. Excluding BIU antibiotics, the Trust comfortably achieves the reduction targets as evidenced below.

Yearly usage of antimicrobials within the WHO "access" category of the AWaRe list financial years 2019/20 – 2021/22 excluding BIU antibiotics

Antimicrobial Usage	2019/20	2020/21	2021/22
Antibiotic consumption within the "Access" category of the AWaRe list	1500 (71%)	1794 (62%)	1534 (71%)
Antibiotic consumption within the "Watch" category of the AWaRe list	438 (21%)	734 (25%)	416 (19%)
Antibiotic consumption within the "Reserve" category of the AWaRe list	177 (8%)	367 (13%)	209 (10%)

The Trust's overall usage of antibiotics is currently lower than the target set by NHS England once BIU has been excluded.

Overall carbapenem usage has increased above the target set by NHS England for Q4. On a per patient basis, patients are receiving longer courses thus increasing the carbapenem usage per 100 patients. Further audit work is being undertaken to further dissect results and to identify if there are any factors contributing to this such as:

- Increasing number of DAIRS / Revisions?
- Increasing use of Meropenem in cement?

Antimicrobial consumption per 1000 patients has decreased compared to Quarter 4 2020/21.

Access antibiotics remain between 45 – 52% with variation most likely due to BIU prescribing which can skew the results. In previous antibiotic consumption reports it was shown BIU prescribing is increasing and thus we would expect a lower percentage of antibiotics in the “access” category.

Overall Q4 antimicrobial prescribing is in line with the Q4 of the last 3 financial years with no unexpected deviations.

**CRITERION 4:** Provide suitable accurate information on infections to service users, their visitors and any person concerned with providing further support or nursing/medical care in a timely fashion.

### Communications

Central to the success of any IPC programme is an effective and dedicated communications plan. Collaborative working between the IPCT, and ROH communications and strategy team helps bring about improvements in care through the appropriate and successful instigation of IPC initiatives, as well as timely and targeted public and patient information to improve safety and awareness of IPC issues and topics.

The Trust’s dedicated communication team have been instrumental in assisting with the execution of the IPC programme throughout 2021/22 and is no different to the excellent support and collaborative working they provide year in year out.

Examples of collaboration during 2021/22:

- Developed information for patients and staff regarding visiting restrictions and updates to COVID-19 specific requirements.
- Developed eye catching, easy to read, clear instructional PPE guidance which has changed as per UKHSA guidance throughout the pandemic.
- Weekly message from the CEO supports and cascades messages from the IPCT across the organisation and gives prominence to Executive leadership and support of IPC activities, supporting “Board to Ward”.
- Planned and delivered IPC roadshows based on IPC ‘focus of the month’ and key dates within the IPC calendar such as World Hand Hygiene Day and World Antimicrobial Awareness Week.
- Utilised social media to support communication internally and externally with the public and other organisations. This has proved beneficial with sharing of best practice and communicating key messages to the wider health economy.
- In cases of HCAI outbreaks where there may be interest from the media, the communications team have been invited to meetings to provide their support and guidance on preparing press statements if required.

- Regular updates of the IPC dedicated resource and information page on the Trust intranet and on the external Trust website.
- Shared updates to IPC policy /SOP development across the Trust.
- Shared IPC improvement news e.g., the introduction of sharing lessons learned from outbreaks, social distancing, and mask adherence communications.
- Supported the annual flu vaccination and COVID-19 vaccination campaigns.

### Trust Website and Information Leaflets

The IPCT have their own dedicated page on the Trust intranet which is used to store useful and relevant information that is required to support clinical practice. This is kept up to date by the IPCT with support from the communications team. From this page, clinical teams can access up-to-date patient information leaflets on topics such as MRSA, *C. difficile*, CPE screening etc. which are printed and provided to patients upon the identification of new infection. It is also a repository for past minutes from IPC link worker meetings as well as links to national guidance relevant to IPC.

In addition to this, a dedicated COVID-19 information page was developed early in the pandemic and continues to be regularly updated with trust wide communications, COVID-19 policy changes and advice for staff on working through the pandemic, including information for patients and visitors.

**CRITERION 5:** Ensure prompt identification of people who have or are at risk of developing an infection so that they receive timely and appropriate treatment to reduce the risk of transmitting infection to other people.

### Screening

Robust screening and testing procedures are in place to identify those most at risk of developing an infection. As an elective orthopaedic hospital, all patients (except for the small number of spinal emergency patients) who attend pre-operative assessments clinics will be tested for MRSA as well as any other infection as deemed necessary based on assessment (this may include CPE screening).

The purpose of pre-operatively screening for MRSA is:

- To minimise the transmission of MRSA within ROH.
- To ensure that patients who are colonised or infected with MRSA are managed appropriately and receive adequate information about their condition.

All admissions to ROH must be tested for MRSA unless they are day case patients undergoing:

- Injections only.

- Biopsy.
- Manipulation under anaesthetic (MUA).

Pre-operative testing for MRSA is valid for 12 weeks from the date of the samples being taken. All 'long stay' inpatients (>4 weeks) are tested for MRSA on a 4-weekly basis to monitor acquisition. If the result is MRSA positive, the patient must be isolated and commenced on decolonisation treatment. All patients not known to be MRSA positive in HDU are tested weekly.

All patients who test positive for MRSA and those who are 'high risk' i.e., multiple invasive devices, flaking skin conditions, open wounds etc. are prescribed decolonisation therapy with the goal of reducing the bacterial load or 'bio-burden' on the skin to a level that is no longer considered a risk – and poses no risk of transmission.

#### Notification of Microbiology Results

The IPCT are notified of all new microbiology results either directly by the UHB Consultant Microbiologist/Consultant in Infection (via telephone or email) or via the daily 'control of infection' (COI) list which is sent via email to the IPCT email inbox each morning. The COI list details all positive microbiology results that have been released from the UHB lab for ROH.

It is the responsibility of the 'duty' IPCN to respond to the results, accordingly, ensuring isolation where required and application of the relevant transmission-based precautions as well as thorough and detailed communication to the relevant clinical teams.

Out of hours, new microbiology results, once authorised are communicated by the on-call Consultant Microbiologist/Consultant in Infection directly to the clinical area listed on the sample form.

#### COVID-19

Prior to the vaccination programme, evidence on the mortality rates of patients contracting COVID-19 in the perioperative period raised very significant concern, and there was an absolute need to ensure that patients are not admitted for surgery with the virus (both asymptomatic in the incubation period or with symptoms) and were protected from the virus in the perioperative and post-operative period.

The Trusts pre-operative COVID-19 process describes what should be followed for the pre-operative management of all patient groups due to undergo any elective surgery, including high risk surgery, during the COVID-19 Pandemic. The protocol has been developed to mitigate the recognised risk of exacerbated respiratory complications and associated mortality when undertaking major surgery on undetected COVID-19 positive patients.

The protocol applies to all patients about to undergo any of the below surgical interventions

- Major oncology surgery lasting >2hrs or patient receiving pre-op chemotherapy.
- Spinal surgery lasting >2hrs.
- Revision arthroplasty lasting >2hrs.
- Any other surgical interventions at the ROH that requires the patient to attend or pass through ADCU or theatres.
- This is inclusive of patients undergoing an injection in these departments.

All inpatients in the Trust are screened daily for symptoms, throughout their stay. If there are any concerns, a PCR test is completed at the time the concerns are raised to the clinical team.

If patients remain asymptomatic for COVID-19, the following protocol is followed:

#### *Elective Cases:*

- PCR test within 72 hours prior to admission.
- PCR test on admission.
- PCR test on day 3 and again on day 7 then every 7 days thereafter for the duration of their stay.
- PCR test completed 48 hours prior to discharge for all patients being discharged to another health or care facility e.g., hospital, nursing home, care home.

#### *Emergency Cases:*

- First PCR test on admission.
- PCR test on day 3 and again on day 7 then every 7 days thereafter for the duration of their stay.
- PCR test completed 48 hours prior to discharge for all patients being discharged to another health or care facility e.g., hospital, nursing home, care home.

#### Surgical Site Infection Surveillance (SSIS)

Infections of the surgical site account for approximately 16% of all hospital acquired infections (HAI), are estimated to double the length of post-operative stay in hospital and significantly increase the cost of care. The Study on the Efficacy of Nosocomial Infection Control (SENIC) showed that well-organised surveillance and infection control programmes that included feedback of infection rates to surgeons were associated with significant reductions in surgical site infection (UKHSA, 2016).

The ROH SSIS service (part of the IPCT) consists of two band 3 SSI coordinators who undertake active, prospective, continuous surveillance. During 2021, one of the coordinators obtained their NMC registration (oversees trained nurse) and was able to undertake a band 5 SSI nurse

role within the team. This change helped to improve the availability of SSI data and the quality of SSI reports produced.

The ROH SSI programme includes surveillance for arthroplasty surgery (hips and knees – mandatory) and spinal surgery (voluntary).

Active surveillance involves designated, trained personnel using a variety of methods to identify cases of infection. In contrast, passive methods rely on infections being reported by staff who do not have designated responsibility for the surveillance programme and such an approach is associated with a lower case-finding sensitivity. Prospective surveillance is the application of methods to detect surgical site infection from the time of exposure (the surgical procedure). This method is more likely to identify cases of infection than retrospective review of case-records after the patient has been discharged from hospital.

For mandatory surveillance categories (orthopaedic surgery) Trusts must participate in a minimum of one surveillance period in at least one category of orthopaedic procedures during a financial year. The financial year runs from 1st April in one year to 31st March in the following year, for example, 1st April 2021 to 31st March 2022. Due to availability of dedicated SSI personnel, ROH undertake continuous surveillance so that more precise rates can be estimated from a larger set of cumulative data.

#### UKHSA SSI Surveillance Periods

<b>Q1</b>	1 <sup>st</sup> January to 31 <sup>st</sup> March
<b>Q2</b>	1 <sup>st</sup> April to 31 <sup>st</sup> June
<b>Q3</b>	1 <sup>st</sup> July 30 <sup>th</sup> September
<b>Q4</b>	1 <sup>st</sup> October to 31 <sup>st</sup> December

Patients eligible to be included in the surveillance programme are identified through the daily admissions and allocations list. Data is collected using UK Health Security Agency's (UKHSA) 'Surveillance Data Sheets' to collect vital information required and is then inputted onto their surgical site infection surveillance service (SSISS) portal.

Patients are given a post discharge questionnaire (PDQ) to complete 30 days post operatively where they are asked specific questions regarding the healing of the wound. If responses on the questionnaire are indicative of a surgical site infection, the patient and GP are contacted to confirm symptoms and to check if antibiotics prescribed were for an SSI or for something else. SSIs that are detected through meeting certain criteria on post discharge questionnaires are recorded as a 'patient reported SSI'. With patient reported SSIs, the type of SSI (superficial/deep and organ/space) is not recorded, as without a clinician review this cannot be determined.

Mandatory and voluntary reportable deep and organ/space SSI are subjected to a post infection review. The definitions for a superficial, deep and organ/space infection are

described in the UKHSA 'Protocol for the Surveillance of SSI' document (see references). Conducting PIRs for deep or organ/space SSI ensures that a robust process is in place for the investigation of incidence of SSI and helps identify where improvements can be made in clinical practice. This aids effective and thorough reporting to UKHSA, as often just one infection can take us above the national benchmark due to relatively low numbers of surgeries per category.

### COVID-19 Pandemic and SSI Data

During March 2020, it was announced by the government that elective surgery was to be postponed due to the global COVID-19 pandemic. Therefore, figures for both surgeries and infections may be lower/higher than normal for the 2020/21 period. However, it is important to add that active surveillance continued to be undertaken at ROH to ensure any patients who were re-admitted for infection purposes were identified and investigated.

### SSI Data for 2021/22

The data presented below is a combination of mandatory surveillance data for SSI identified following total hip and knee replacement surgery and voluntary surveillance data for SSI identified following spinal surgery. In addition to this the SSI team undertake in-house surveillance which looks at several other areas of interest including oncology cases. This enables the team to gain an informed understanding of SSI across all specialities and the potential for them to have longstanding implications for patients and significant financial implications for the Trust.

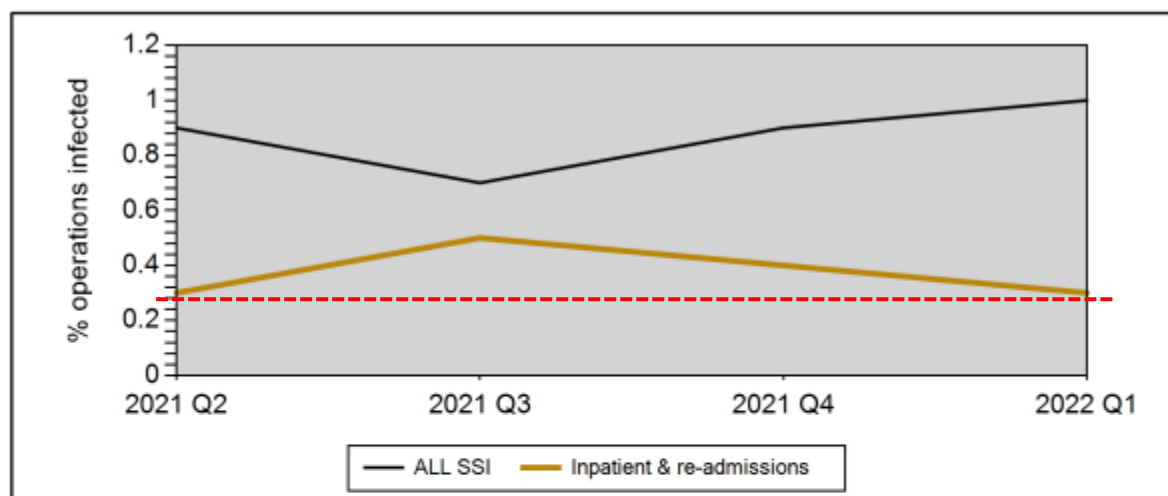
Note: All data on SSI is submitted to UKHSA, however benchmark data (gained from other trusts submitting their rates) only consists of inpatient/readmission figures (orange lines on charts).

### Hips – 2021/22

The national benchmark for hips is based on inpatient/readmission SSIs for the previous 5 years. For April 2021 to March 2022 the ROH inpatient/readmission SSI rate was 0.4%. This is 0.1% above the national benchmark of 0.3%.

During 2018 ROH did not participate in all four quarters, hence the lower number of procedures in comparison to other years.

## Trend in Rate of SSI – Hips April 2021 to March 2022



Trend for the selected period

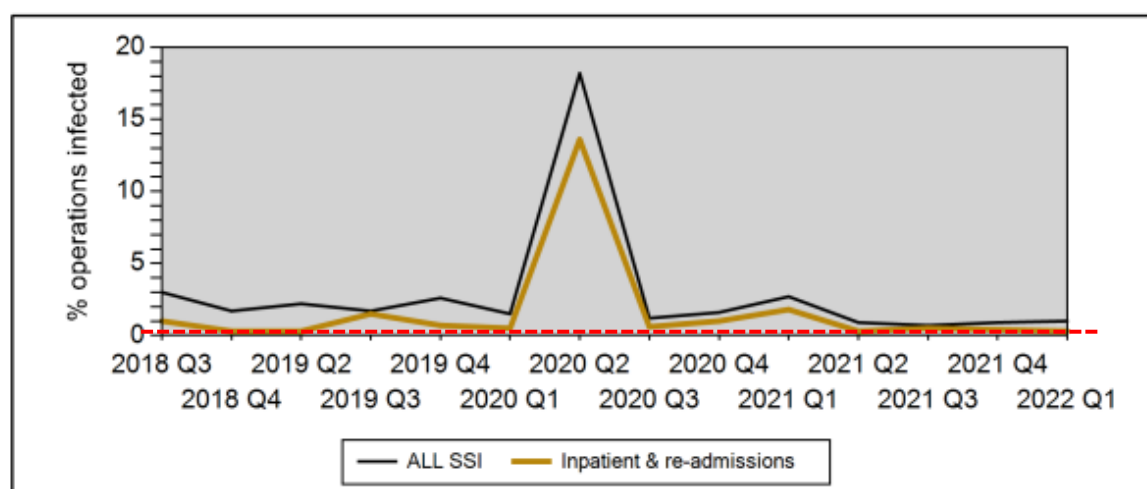
Year and Period	No. operations	Patient questionnaire		Inpatient & readmissions		Post discharge confirmed		Patient reported		All SSI *	
		No. Given	% complete	No.	%	No.	%	No.	%	No.	%
2021 Q2	352	350	61.4	1	0.3	0	0.0	2	0.6	3	0.9
2021 Q3	416	413	55.0	2	0.5	0	0.0	1	0.2	3	0.7
2021 Q4	453	453	61.8	2	0.4	1	0.2	1	0.2	4	0.9
2022 Q1	396	395	56.3	1	0.3	0	0.0	3	0.8	4	1.0

\*All SSI = Inpatient & readmission, post discharge confirmed and patient reported

HIPS		April 2021 to March 2022
Operations	Total No of procedures	1617
	No of successful patients contacted for post discharge surveillance	1611
	% of post discharge surveillance completed	58.8%
SSI	No of inpatient/readmission SSI	6
	% Infected	0.4%
	No of post discharge confirmed SSI	1
	% Infected	0.1%
	No of patient reported SSI	7
	% Infected	0.4%
	All SSI	14
	% Infected	0.9%



## Trend in Rate of SSI – Hips April 2018 to March 2022



Trend for the selected period

Year and Period	No. operations	Patient questionnaire		Inpatient & readmissions		Post discharge confirmed		Patient reported		All SSI *	
		No. Given	% complete	No.	%	No.	%	No.	%	No.	%
2018 Q3	197	197	75.1	2	1.0	1	0.5	3	1.5	6	3.0
2018 Q4	290	290	68.6	1	0.3	3	1.0	1	0.3	5	1.7
2019 Q2	313	311	96.8	1	0.3	3	1.0	3	1.0	7	2.2
2019 Q3	344	342	83.1	5	1.5	1	0.3	0	0.0	6	1.7
2019 Q4	418	414	71.8	3	0.7	0	0.0	8	1.9	11	2.6
2020 Q1	410	409	75.9	2	0.5	0	0.0	4	1.0	6	1.5
2020 Q2	22	21	63.6	3	13.6	0	0.0	1	4.5	4	18.2
2020 Q3	323	323	76.5	2	0.6	0	0.0	2	0.6	4	1.2
2020 Q4	307	305	69.4	3	1.0	0	0.0	2	0.7	5	1.6
2021 Q1	112	109	62.5	2	1.8	0	0.0	1	0.9	3	2.7
2021 Q2	352	350	61.4	1	0.3	0	0.0	2	0.6	3	0.9
2021 Q3	416	413	55.0	2	0.5	0	0.0	1	0.2	3	0.7
2021 Q4	453	453	61.8	2	0.4	1	0.2	1	0.2	4	0.9
2022 Q1	396	395	56.3	1	0.3	0	0.0	3	0.8	4	1.0

\*All SSI = Inpatient & readmission, post discharge confirmed and patient reported

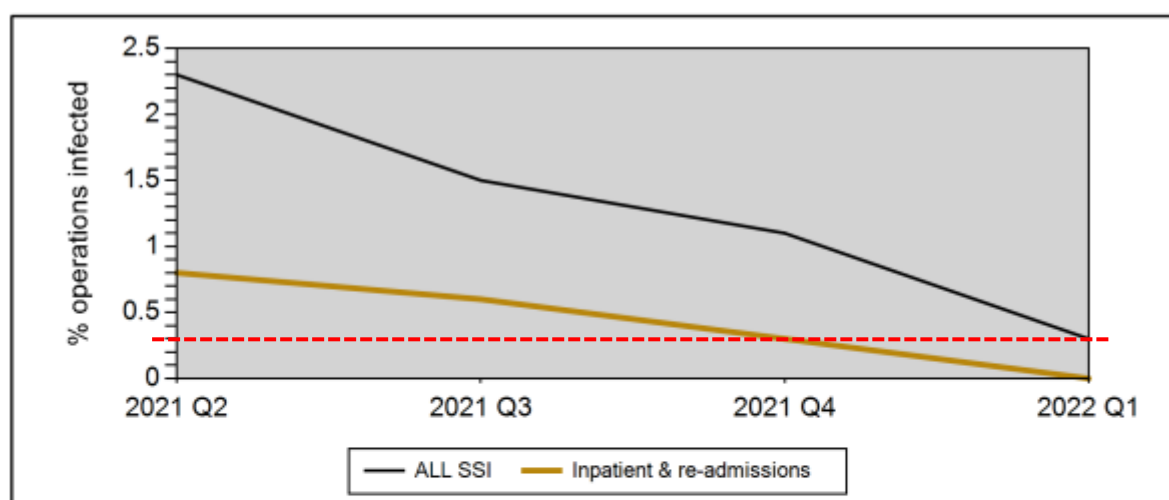
The graph and table above provide a breakdown of the trends in the rates of SSIs for hips from April 2018 to March 2022. The graph reflects the inpatient & readmission SSIs which include organ/space and deep infections. There has been a steady increase and decrease in the rates of infections during this timeframe. The peak during April to June 2020 was due to the very low number of operations performed because of cancelled elective work due to the COVID-19 pandemic. As stated, the benchmark for hips is 0.3% which is reflected by the red dotted line. Looking at the graph and table, rates reported by ROH have been slightly above

this for most quarters. However, overall, when looking at the total number of infections reported over this time frame, the number of inpatient/readmission infections out of the number of operations that were performed is low.

### Knees – 2021/22

The national benchmark for hips is based on inpatient/readmission SSIs for the previous 5 years. For April 2021 to March 2022 the ROH inpatient/readmission SSI rate was 0.4%. This is 0.1% above the national benchmark of 0.3%.

### Trend in Rate of SSI - Arthroplasty – Knees April 2021 to March 2022



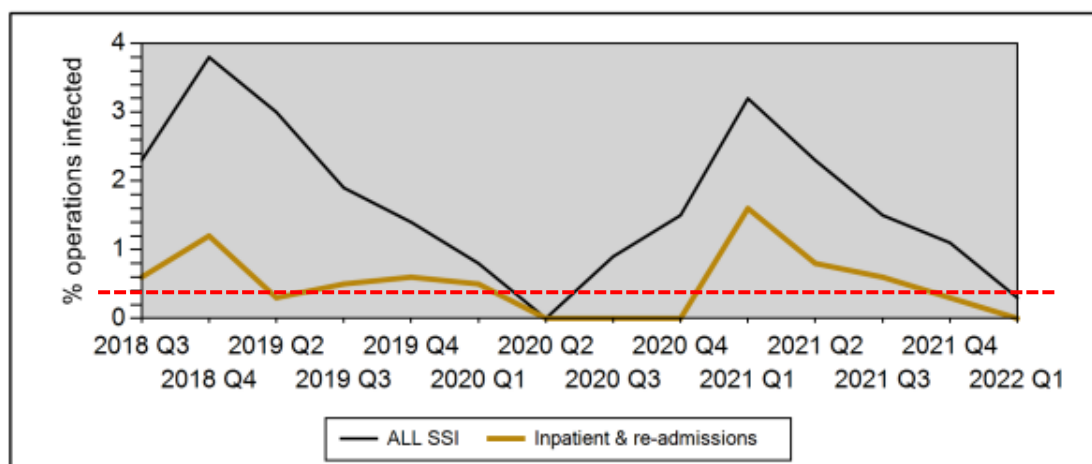
Trend for the selected period											
Year and Period	No. operations	Patient questionnaire		Inpatient & readmissions		Post discharge confirmed		Patient reported		All SSI *	
		No. Given	% complete	No.	%	No.	%	No.	%	No.	%
2021 Q2	266	265	59.8	2	0.8	0	0.0	4	1.5	6	2.3
2021 Q3	327	327	59.0	2	0.6	1	0.3	2	0.6	5	1.5
2021 Q4	349	348	61.3	1	0.3	1	0.3	2	0.6	4	1.1
2022 Q1	323	323	52.0	0	0.0	0	0.0	1	0.3	1	0.3

\*All SSI = Inpatient & readmission, post discharge confirmed and patient reported

KNEES		April 2021 to March 2022
Operations	Total No of procedures	1265
	No of successful patients contacted for post discharge surveillance	1263
	% Of post discharge surveillance completed	58.1%
SSI	No of inpatient/readmission SSI	5
	% Infected	0.4%
	No of post discharge confirmed SSI	2
	% Infected	0.2%

	<b>No of patient reported SSI</b>	9
	% Infected	0.9%
	<b>All SSI</b>	16
	% Infected	1.3%

### Trend in Rate of SSI - Arthroplasty – Knees April 2018 to March 2022



Trend for the selected period

Year and Period	No. operations	Patient questionnaire		Inpatient & readmissions		Post discharge confirmed		Patient reported		All SSI *	
		No. Given	% complete	No.	%	No.	%	No.	%	No.	%
2018 Q3	173	173	67.6	1	0.6	0	0.0	3	1.7	4	2.3
2018 Q4	260	260	63.5	3	1.2	5	1.9	2	0.8	10	3.8
2019 Q2	305	305	96.1	1	0.3	1	0.3	7	2.3	9	3.0
2019 Q3	373	373	80.2	2	0.5	0	0.0	5	1.3	7	1.9
2019 Q4	350	350	70.3	2	0.6	1	0.3	2	0.6	5	1.4
2020 Q1	400	400	71.8	2	0.5	0	0.0	1	0.3	3	0.8
2020 Q2	7	7	71.4	0	0.0	0	0.0	0	0.0	0	0.0
2020 Q3	233	231	76.4	0	0.0	0	0.0	2	0.9	2	0.9
2020 Q4	259	258	65.6	0	0.0	1	0.4	3	1.2	4	1.5
2021 Q1	62	62	54.8	1	1.6	0	0.0	1	1.6	2	3.2
2021 Q2	266	265	59.8	2	0.8	0	0.0	4	1.5	6	2.3
2021 Q3	327	327	59.0	2	0.6	1	0.3	2	0.6	5	1.5
2021 Q4	349	348	61.3	1	0.3	1	0.3	2	0.6	4	1.1
2022 Q1	323	323	52.0	0	0.0	0	0.0	1	0.3	1	0.3

\*All SSI = Inpatient & readmission, post discharge confirmed and patient reported

During 2018 ROH did not participate in all four quarters due to the unavailability of dedicated SSI surveillance staff, hence the lower number of procedures in comparison to other years.

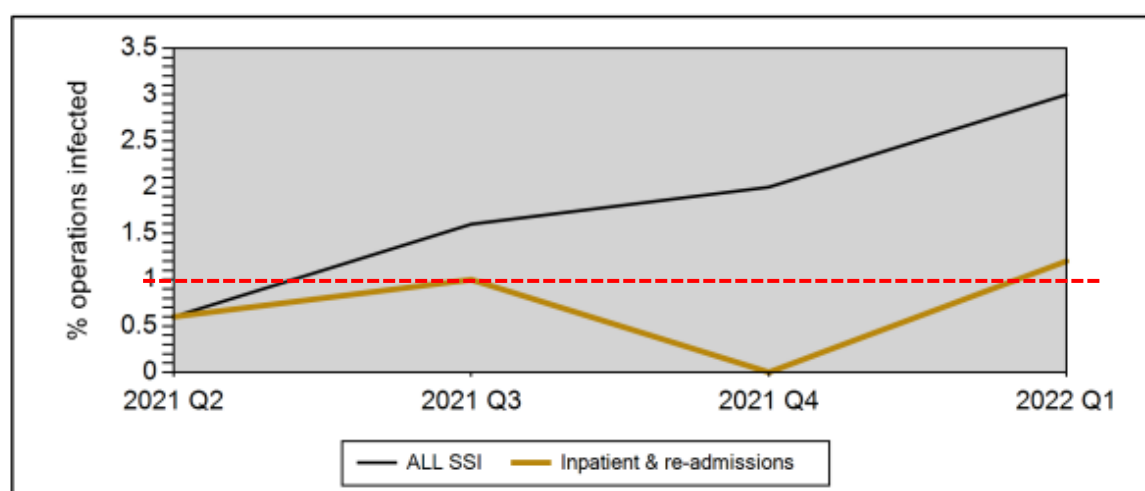
The graph and table above provide a breakdown of the trends in rates of SSIs for knee surgeries from April 2018 to March 2022. Again, the graph reflects the inpatient & readmission SSIs which include organ/space and deep infections. There have been areas of increase and decrease in the rates of infections during this timeframe. The peak during January to March 2021 was due to the very low number of operations performed because of the COVID-19 pandemic. As stated, the benchmark for knees is 0.3% which is reflected by the red dotted line. Looking at the table/graph, rates reported by ROH have been slightly above and below the benchmark for some quarters. However, overall, when looking at the total number of infections reported over this time frame, the number of inpatient/readmission infections out of the number of operations that were performed is low.

### Spines - 2021/22

Spinal surgery was included as part of the ROH surveillance programme from July 2020 onwards.

The national benchmark for spines is based on inpatient/readmission SSIs for the previous 5 years. For April 2021 to March 2022 the ROH inpatient/readmission SSI rate was 0.7%. This is 0.3% below the national benchmark of 1.0%.

### Trend in Rate of SSI – Spines - April 2021 to March 2022



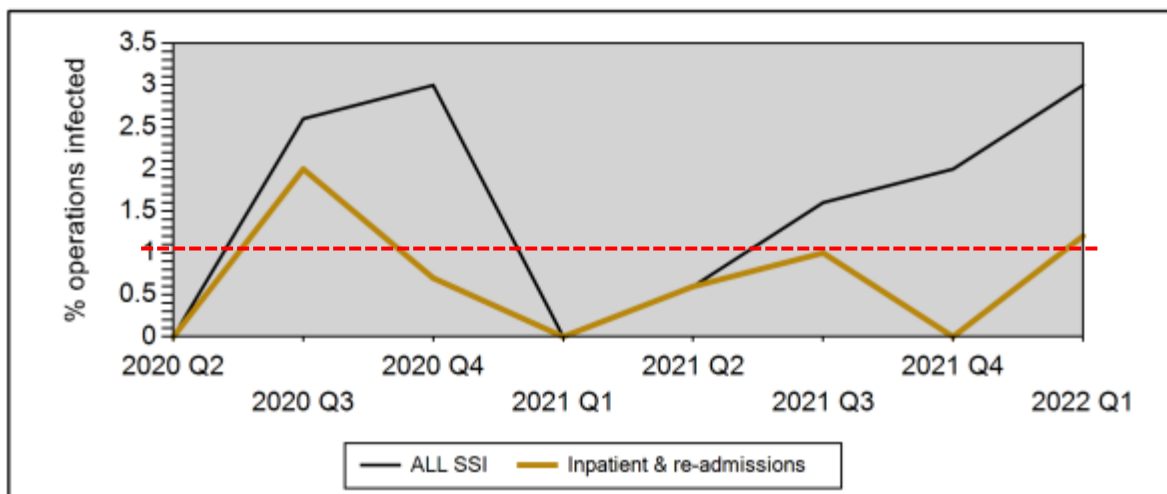
Trend for the selected period

Year and Period	No. operations	Patient questionnaire		Inpatient & readmissions		Post discharge confirmed		Patient reported		All SSI *	
		No. Given	% complete	No.	%	No.	%	No.	%	No.	%
2021 Q2	157	155	46.5	1	0.6	0	0.0	0	0.0	1	0.6
2021 Q3	193	189	42.0	2	1.0	0	0.0	1	0.5	3	1.6
2021 Q4	153	151	43.8	0	0.0	0	0.0	3	2.0	3	2.0
2022 Q1	167	161	46.1	2	1.2	0	0.0	3	1.8	5	3.0

\*All SSI = Inpatient & readmission, post discharge confirmed and patient reported

SPINES		Trust Total (Last 4 periods)
Operations	Total No of procedures	670
	No of successful patients contacted for post discharge surveillance	656
	% Of post discharge surveillance completed	45.4%
SSI	No of inpatient/readmission SSI	5
	% Infected	0.7%
	No of post discharge confirmed SSI	0
	% Infected	0.0%
	No of patient reported SSI	7
	% Infected	1.0%
	All SSI	12
	% Infected	1.8%

#### Trend in Rate of SSI – Spines - April 2020 to March 2022



Trend for the selected period

Year and Period	No. operations	Patient questionnaire		Inpatient & readmissions		Post discharge confirmed		Patient reported		All SSI *	
		No. Given	% complete	No.	%	No.	%	No.	%	No.	%
2020 Q2	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2020 Q3	151	148	62.3	3	2.0	0	0.0	1	0.7	4	2.6
2020 Q4	135	134	51.1	1	0.7	0	0.0	3	2.2	4	3.0
2021 Q1	124	120	40.3	0	0.0	0	0.0	0	0.0	0	0.0
2021 Q2	157	155	46.5	1	0.6	0	0.0	0	0.0	1	0.6
2021 Q3	193	189	42.0	2	1.0	0	0.0	1	0.5	3	1.6
2021 Q4	153	151	43.8	0	0.0	0	0.0	3	2.0	3	2.0
2022 Q1	167	161	46.1	2	1.2	0	0.0	3	1.8	5	3.0

\*All SSI = Inpatient & readmission, post discharge confirmed and patient reported

We began participating in spinal surveillance from July 2020. The graph and table above provide a breakdown of the trends in rates of SSIs for spines from July 2020 to March 2022. The graph reflects the inpatient & readmission SSIs which include organ/space and deep infections. There have been areas of increase and decrease in the rates of infections during this timeframe. As stated, the benchmark for spines is 1.0% which is reflected by the red dotted line. Looking at the table/graph, rates reported have been below national benchmarking for each quarter except for July – September 2020, July – September 2021 and January to March 2022.

### Developments in SSIS

During 2021/22 the SSI team developed a bespoke patient wound information leaflet based on guidance from UKHSA which is distributed to all patients included in surveillance whilst they are an inpatient, prior to discharge. This seeks to inform them of the service, to make them aware of the signs and symptoms of infection and to advise them to contact our dedicated wound care helpline should they have any concerns relating to wound infection once they have been discharged. Educating patients with this information facilitates the prompt notification of any potential infections to us sooner rather than later. Follow up calls are also carried out at 3 months following surgery to assess the patients wound healing and identify if any issues have arisen so that these can be promptly addressed by the Consultant.

The HII relating to SSI prevention are undertaken at ROH which seek to monitor compliance with evidence-based practice and recommendations for the prevention of SSI. Elements of the SSI HII undertaken at ROH are shown below.

Period	Action	Introduced at ROH
Pre-operative	Showering	X
	<i>S. aureus</i> decolonisation	✓
Peri-operative	Antibiotic prophylaxis	✓
	Skin preparation	✓
	No shaving with razors	✓
	Theatre environment/procedures	✓
	Surgical technique	✓
	Maintaining normothermia	✓
	Glucose control	✓
Pos-operative	Wound management	✓
	Surveillance and feedback of rates	✓

**CRITERION 6:** Systems to ensure that all care workers (including contractors and volunteers) are aware of the discharge of and discharge their responsibilities in the process of preventing and controlling infection

At ROH infection prevention is everyone's responsibility and is included in all job descriptions. All staff, clinical and non-clinical receive training and education in optimum infection prevention practices via formal and information teaching session including mandatory training, and ad-hoc department-based teaching sessions.

The IPC team deliver training sessions year-round according to a training needs analysis which aids the population of a training and education calendar which is reviewed before each financial year. This includes sessions tailored towards, nurses, junior doctors, students, administrators, contractors etc. The team have also provided bespoke training sessions within ward and department areas, so staff do not have to leave their working environment to attend sessions.

Engagement and Training undertaken by the IPCT during 2021/22:

- Continued to deliver PPE training covering donning, doffing and PPE selection.
- Created and delivered nurse-led AMS training sessions monthly.
- Continued to deliver mandatory hand hygiene training for all ROH employees through level 1 IPC training and ward-based training.
- Facilitated bi-monthly meetings for IPC link workers (from each ward and department).
- Updated and utilised educational 'grab packs' for hand hygiene, Influenza, MRSA, PPE, and CPE across ROH to support staff with effective application of theory into practice within their areas of work.
- Continued to work collaboratively with suppliers, estates, and facilities teams to ensure that infection risk is considered and managed when commissioning works, new equipment, or processes.
- Worked alongside ROH hand hygiene product supplier DEB UK (SC Johnson) to review product placement, prompts, posters, and dispensers across the Trust and continue to provide training and audit at operational level for all clinical areas.
- Updated the IPC mandatory training package to reflect the requirements as set out in the Core Skills Framework. IPC mandatory training is split into level 1 for clinical and non-clinical staff and level 2 for clinical staff only. These were provided via e-learning modules during the height of the pandemic. Level 1 IPC training was reintroduced face to face for staff who have difficulty in accessing online eLearning packages.
- Continued to facilitate communication of key messages via several media methodologies including social network, newsletters, and emails.

- Delivered bespoke infection prevention training, in line with HBN 00-09, for all preferred contractors coming into ROH.
- Facilitated the national antibiotic awareness and hand hygiene days across ROH.

### IPC monthly focus

Before each new financial year, the IPCT undertake an away day where a review of the previous year's performance is undertaken, and ideas are shared to help formulate the IPC programme for the following year. Included in this is the creation of new 'IPC monthly focus'.

Each month of the year (financial), the IPCT plan a different themed focus. This provides an opportunity to plan a programme of audit activity and quality improvement work specifically focussed on a key issue. The themed focus allows the team to provide support on a range of infection prevention issues throughout the year. Details of the audits and training provided throughout the months is shared within the IPC summary report at the IPCC.

Month (2021/22)	Focus
April 2021	<i>Clostridioides difficile</i>
May 2021	Hand Hygiene and Glove Awareness
June 2021	Urinary Catheters
July 2021	Invasive Devices
August 2021	Isolation Precautions
September 2021	Influenza
October 2021	Gram Negatives
November 2021	Antimicrobial Stewardship
December 2021	Winter Preparation
January 2022	Bone Infection
February 2022	Surgical Site Infections
March 2022	IPC Study Day





The IPCT were unable to hold the annual study day during 2021/22 due to availability of staff and the ongoing COVID-19 pandemic. The team is looking to restart the annual study day during 2022/23.

### IPC Link Workers

All areas (clinical and non-clinical) at the ROH are encouraged to have in place a designated IPC link worker. This role can be undertaken by anyone with a keen interest in IPC and are willing to champion IPC within their area of practice/work. IPC link workers are supported by the IPCT and attend bi-monthly meetings in addition to study days to support them in their role. They provide advice, support, education, and training to operational staff as well as monitoring compliance with the IPC agenda. One of the most important roles of the IPC link workers is to perform hand hygiene training and assessments within their areas utilising the UV glow boxes.

### IPCT Development

Due to the ongoing COVID-19 pandemic the IPCT faced challenges in safeguarding time for team development. However, during 2021/22, the team took part in the following development opportunities:

- Away day to review previous year's performance and plan for the year ahead.
- A band 6 IPCN started their Masters in IPC fully supported by the ROH with dedicated study leave.
- Several Infection Prevention Society study days attended focusing on key topics that benefit service provision at ROH.
- SSI team undertook annual SSI surveillance training refresher provided by UKHSA.

The IPC Matron currently holds the Deputy Education Officer position of the West Midlands Branch of the Infection Prevention Society. This role provides networking and development opportunities for the ROH IPCT and helps to better facilitate system and national working.

**CRITERION 7: Provide or secure adequate isolation facilities.**

Isolation Facilities

Most NHS hospital wards have a mixture of open bays, with multiple beds, and single or double side rooms. Except for some recent new builds, the beds in open bays still predominate.

ROH have a total of 127 inpatient beds. Of these there are:

- 56 single occupancy rooms with en-suite.
- 3 single occupancy rooms without en-suite.

The IPCT work closely with the clinical site team and clinical areas to review the single room usage to ensure it is most efficiently utilised. A local isolation risk assessment tool continues to be utilised to help bed managers to safely allocate beds based on clinical need, factoring in infection status and risk of transmission.

During the pandemic, allocation of designated 'respiratory pathways' continued to be monitored and used as required. ROH have a designated pathway for patients who present with or develop potentially infectious respiratory symptoms which necessitate isolation from the remaining ward/clinical area cohort.

**CRITERION 8: Secure adequate access to laboratory support as appropriate.**

ROH do not have access to an onsite laboratory. Laboratory services are provided by UHB which has purpose-built laboratory's onsite at both The Queen Elizabeth Hospital and Heartlands Hospital where ROH samples are processed. The UHB microbiology laboratory has full (UKAS) accreditation ISO Standard 15189. ROH has electronic access to microbiology results to facilitate prompt identification and response.

**CRITERION 9: Have and adhere to policies, designed for the individual's care and provider organisations that will help to prevent and control infections.**

All IPC policies, guidelines and standard operating procedures are available for staff to view via the Trust intranet. There is a formal governance structure in place for reviewing and ratifying such documents within the Trust and the corporate governance team produce a directory of documents alerting lead authors when policies are due for review. Policies are

also updated prior to review date if national guidance or evidence base is updated/changed. All policies are agreed and approved for use at the IPCC (if minor or no change) or Quality and Safety Committee (if the changes are major or introduction of new policy).

During 2021/22 the IPCT reviewed/updated the following policies:

- Blood and Body Fluid Spillages Policy
- Major Outbreak Policy
- CPE Policy
- *C.difficile* Policy
- MRSA Policy
- Standard Infection Control Precautions Policy
- PPE Policy
- Transfer of Patients with Known or Suspected Infection Policy
- Communicable Diseases and Notification Policy
- Influenza Policy
- Chicken Pox and Shingles Policy

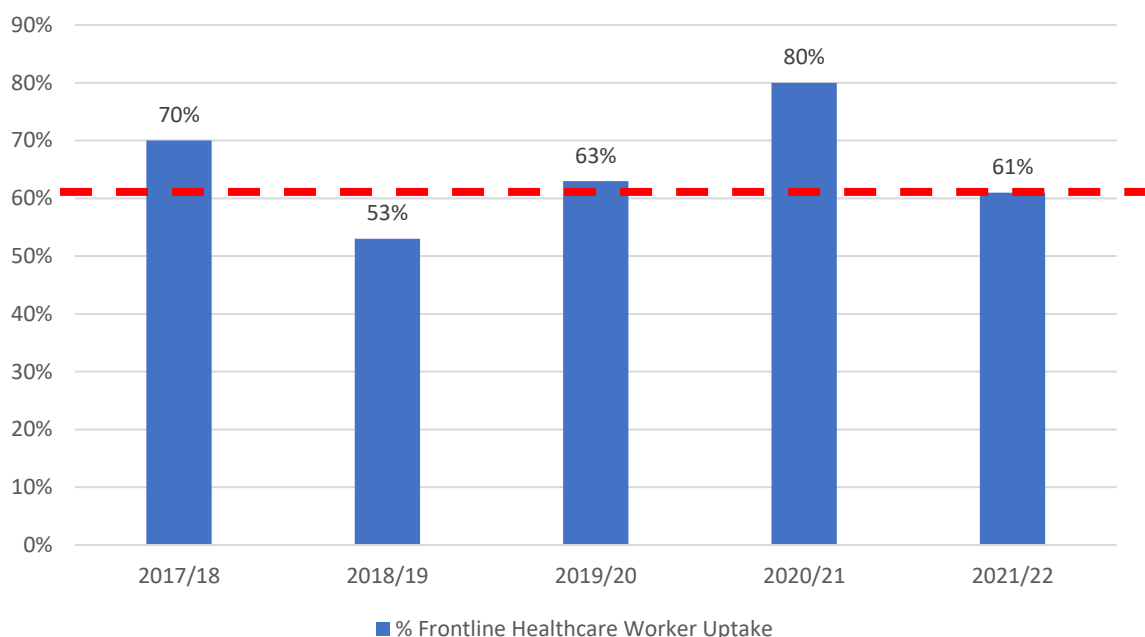
**CRITERION 10:** Providers have a system in place to manage the occupational health needs and obligations of staff in relation to infection.

Occupational Health services are provided via an SLA by UHB. Occupational Health (OH) staff from UHB provide one session (1 day) per week to support the OH requirements of ROH staff. The OH team carry out preplacement health assessment and immunisation needs, skin health surveillance (from referral) and management of inoculation injuries.

A report from the Occupational health service is provided to the IPCC every quarter.

The seasonal influenza staff vaccination campaign is well established at ROH. The 2021/22 campaign officially commenced on 1st October 2021 with a wealth of information available to staff on the Trust intranet, information boards across the site and locally based influenza champions. The uptake for 2021/2022 was 61%. This was significantly lower than the uptake reported for 2020/21, this was believed to be a result of vaccine hesitancy due to the ongoing COVID-19 pandemic and booster vaccination programmes running concurrently. The graph below shows the final uptake percentage for vaccination of frontline healthcare workers for the last 5 years.

### Annual ROH frontline healthcare worker influenza vaccine uptake percentage



Red dotted line shows the minimum CQUIN threshold = 70% of all frontline healthcare workers who have patient contact.

## Section 4: Our Focus in 2022/23

Infection Prevention and Control is a top priority at The Royal Orthopaedic Hospital NHS Foundation Trust. Keeping our patients safe from avoidable harm is everyone's responsibility. The Infection Prevention & Control Team endeavour to support the delivery of continual improvement in order to deliver the best care for everyone and keep our patients at the heart of everything we do.

Our strategic themes for 2021/22 will focus on improving outcomes for our patients and provide a framework for our operational work plan, this includes:

- Continuing to work in partnership with other allied services in the Trust to promote safe practice, in particular Health and Safety, Estates and Facilities.
- Continue to develop and work in partnership with external organisations to strengthen and support the patient pathway across the health economy.
- To review and expand audit capacity within the IPCT and clinical teams to develop and expand hand hygiene practice assessments/audits in inpatient areas.
- To review and plan a multimodal hand hygiene strategy with a focus on preventing inappropriate glove usage and implementing the 'gloves off' campaign.
- Further strengthening the SSI surveillance programme and look to widening categories included.

- To further engage the workforce in antimicrobial stewardship with a focus on the Registered Nurses influence in this.

## Section 5: Conclusion

Overall, our success is measured by our compliance with the Health and Social Care Act 2008 code of practice for the prevention and control of infections, which encompasses all aspects of infection prevention and control, including management systems, environment, cleaning, training, and policies to protect patients and staff.

2021/22 has seen the IPCT continue to lead the Trust response to the COVID-19 pandemic as well as maintain the required ongoing core IPC programme to reduce HCAs, whilst battling ongoing recruitment and full team establishment set-backs. The IPCT have met the challenge well and collaborative working, with divisional colleagues, has continued to ensure IPC practices are supported and maintained across all clinical services.

The focus for the IPCT and the Trust remains on improving and maintaining infection prevention and control practices, supporting patient care pathways across the health economy, and enhancing and improving clinical practice. The IPCT will continue to undertake robust reviews and scrutiny of each case of infection, working with colleagues and clinicians, to identify learning and ensure the continued high standard of patient care.

As we move forwards with the elective recovery plan, It is clear IPC specialists will be front and foremost in ensuring our staff and patients safety. We must continue to evaluate and consider each step to ensure that patient safety remains at the forefront, as well as the wellbeing of our staff, who continue to rise to the challenge.

## Section 6: References

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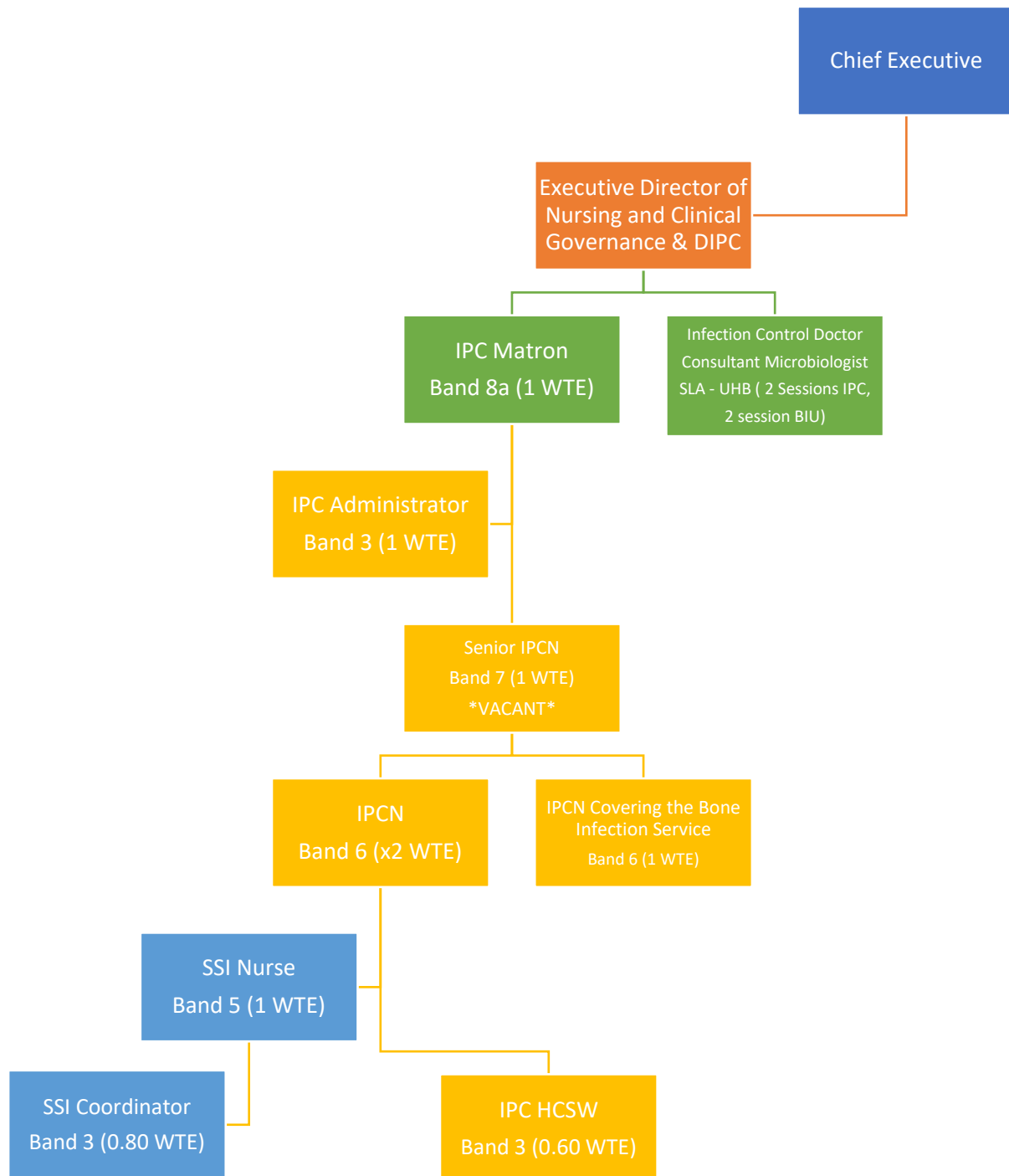
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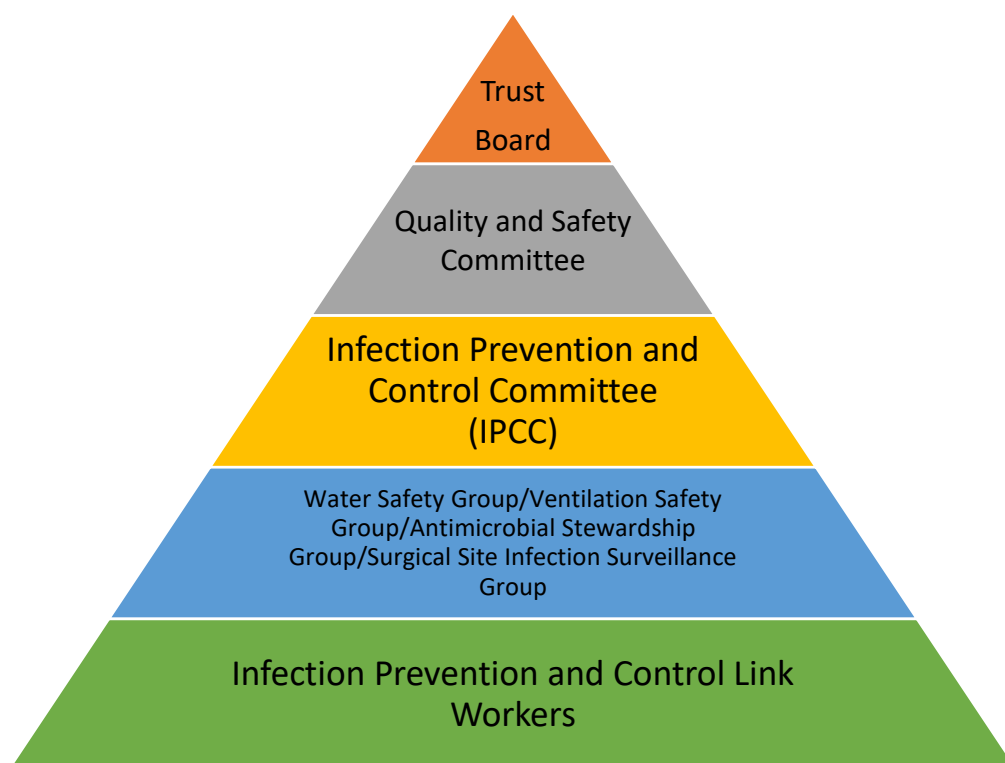
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## Appendix 1: IPC Service Structure



## Appendix 2: IPC Governance Structures





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