Infection Prevention & Control Annual Report 2021/2022

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Contents

1. Introduction

The purpose of this report is to inform patients, public, staff, the Trust Board of Directors, Council of Governors of the infection prevention and control work undertaken in 2021/22 and provide assurance that the Trust remains compliant with the Health and Social Care Act 2008: Code of Practice on the prevention and control of infections and related guidance (Department of Health, 2015). It covers the management arrangements, the state of infection prevention and control within Royal Papworth NHS Foundation Trust (hereafter referred to as 'RPH'), outcomes and progress against performance targets.

All NHS organisations must ensure that they have effective systems in place to control healthcare associated infections in accordance with the Health and Social Care Act 2008 (Appendix 1)

RPH has a pro-active infection prevention and control team that is very clear on the actions necessary to deliver and maintain patient safety. Equally, it is recognised that infection prevention and control is the responsibility of every member of staff and must remain a high priority for all to ensure the best outcome for patients

RPH complies with the "Saving Lives" programme. High impact interventions (HII) were originally published in 2005 as part of 'Saving Lives'. Since then, the tools have been updated in 2007, 2010 and 2017. The latest review was undertaken by a working party commissioned by the Infection Prevention Society (IPS) in 2017 in association with NHS Improvement. The infection prevention and control audit and surveillance programme incorporate this guidance and along with other audits such as the IPS audit tools, allows constant monitoring of all infection, prevention and control policies and procedures.

In February 2016 the National Institute for Health and Care Excellence (NICE) published Quality Standard 113 which covers organisational factors in preventing and controlling healthcare-associated infections in hospital settings.

The annual DIPC report is aligned to the ten compliance criteria as outlined in the Health and Social care act, Code of Practice on the prevention and control of infections and related guidance (Appendix 1). .

The report aims to reassure the public that the minimisation and control of infection is given the highest priority at RPH.

2. Executive Summary – Overview of Infection Control Activities within the Trust

The Director of Infection Prevention and Control (DIPC) Annual Report reports on infection prevention and control activities within Royal Papworth Hospital NHS Foundation Trust (RPH) from April 2021 to March 2022.

RPH continues to take part in mandatory surveillance of Methicillin Resistant *Staphylococcus aureus* (MRSA) bacteraemia, Methicillin-sensitive *Staphylococcus aureus* (MSSA) bacteraemia, *Escherichia.coli* (E. coli) bacteraemia and *Clostridioides difficile (C.difficille)* infection via the national Public Health England healthcare associated infections Data Capture System (HCAI DCS). In addition, mandatory reporting of Carbapenemase-Producing Enterobacteraies (CPE) was introduce in 2016/17 and *Pseudomonas aeruginosa (P. aeruginosa)* and *Klebsiella* species (*Kleb sp.*) was introduced in 2017 which is included in this report.

Royal Papworth Hospital has reported zero MRSA for 2021/22. There has been a reduction in reported MSSA acquisitions (n=12) from previous year, 2020/21.

RPH monitors incidence of *C.difficile* and the ceiling threshold is reset annually. All *C.difficile* incidences that occur three or more days following a patient's admission are counted towards RPH annual threshold. *C.difficile* reporting exceeded the threshold for 2021/22 at 12 cases (against a threshold of 11). It was acknowledged that RPH breached the threshold however, the number of acquired cases of *Clostridium difficile* cases was still low compared to the national and regional benchmarking. Root cause analysis of each case identifies where improvements can be made which are then actioned and monitored.

Overall, the rate of *E. coli* bacteraemia RPH year on year has been very low compared to the national rates. The Trust reported a total of 9 cases for 2021/22.

Further information can be found in this report of all rates that are monitored through the Infection Control and Surgical Site Surveillance team.

The work of the IPC team was significantly impacted by the COVID-19 pandemic throughout 2021/22. RPH is fortunate to provide almost exclusively single room accommodation thereby reducing the risk of transmission of infection. The incidence of COVID nosocomial infections was carefully monitored and reported as nationally mandated throughout 2021/22. The nosocomial infection rate for RPH for 2021/2022 was 8 (5.5%). Enhanced ventilation systems and predominantly single patient rooms allowed the Trust to isolate patients promptly ensuring the spread of the virus was kept to a minimum.

The management of COVID-19 remained high on the Trust's agenda and local policies and procedures are continually updated and reviewed in line with national guidance with maintaining business as usual. Vaccination of health care workers was led by workforce and the clinical education team. A fit testing program for FFP3 masks is on-going with a Monday – Friday service. The seasonal flu vaccination programme continued during 2021/22. RPH uptake for "frontline" staff 2021/22 was 73% and 79%% Trust wide.

The impact of influenza in 2021/2022 both in RPH and nationally was less than in recent years.

3. Description of Infection Control Arrangements

3.1 Corporate Responsibility (Criterion 1)

The Chief Nurse has lead responsibility within the Trust for Infection Prevention and Control and reports to the Chief Executive and the Board of Directors. Following publication, by the Department of Health in December 2003, of the Chief Medical Officer's strategy for infection control (*Winning Ways: working together to reduce healthcare associated infection*) the Chief Nurse post has been designated as Director for Infection Prevention and Control (DIPC) for RPH as outlined in *the Health and Social Care Act (2008) updated in this report in line with revised guidance issued July 2015.*

The Executive Directors engage with patient environment rounds which include Infection Prevention and Control compliance. The Medical Director and the Heads of Clinical Governance and Risk Management, through their respective roles, also exert their influence at a corporate level in areas that have direct impact on infection prevention and control. Infection prevention and control is key to the Matron role at RPH and Matrons play a key role in auditing, monitoring and reporting on compliance with IPC standards and practises.

3.2 Infection Prevention & Control Team (Criterion 1)

Specialist advice is provided to clinicians throughout the hospital by the infection prevention and control team. A Consultant Microbiologist is the designated Infection Prevention and Control Doctor (IPCD), with the weekly allocation of 4.7 programmed activities (18 hours per week for 42 weeks of the year) of infection control doctor time. Cover for leave of absence and out of hours is provided by the microbiologist team. Support for virology is provided through Cambridge University Hospitals NHS Trust.

The specialist infection, prevention and control nursing team provide education, support, and advice to all Trust staff with regard to infection prevention and control matters and liaise regularly with patients and relatives to provide information on alert organisms, offering advice and reassurance when required.

The team liaise with clinicians and divisional managers together with managers who have responsibility for operational support, clinical governance, and risk management. The remit of the team includes:

- To have policies, procedures and guidelines for the prevention, management, and control of infection in place across RPH.
- To communicate information relating to communicable disease to all relevant staff within RPH
- To ensure that training in the principles of infection control is accurate and appropriate to the relevant staff groups.
- To work with other clinicians to improve surveillance and to strengthen prevention and control of infection
- To provide appropriate infection control advice to key RPH 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 RPH through a programme of audits and surveillance.

Full details of the infection prevention and control team are provided in the organisation chart provided in Appendix 2.

3.3 Infection Prevention & Control Committee Structure and Accountability (Criterion 1)

The Infection Control and Pre and Perioperative Care (ICPPC) Committee is the main forum for discussion concerning changes to policy or practice relating to infection prevention and control. The membership of the Committee is multi-disciplinary and includes representation from all clinical divisions, estates and facilities and clinical governance. The Committee is chaired by the Director of Infection Prevention and Control (DIPC) or Deputy Chief Nurse and meets every 8 weeks. The Committee provides an assurance report and items for escalation to the Quality and Risk Management Group (QRMG) and Quality and Risk Committee, (subcommittee of the Board of Directors).

Terms of Reference for the ICPPC were established on recommendations for the composition and conduct of infection control committees contained in Department of Health in December 2003, of the Chief Medical Officer's strategy for infection control (*Winning Ways: working together to reduce healthcare associated infection*).

Additionally, clinical IPC links & champions have been identified in clinical and non-clinical areas and form a “Infection Control Link Group”. This group acts as a forum for education and discussion and helps with embedding best practise across RPH.
Due to the COVID 19 pandemic some ICPPC and Infection Control link group meetings were postponed during 2021/22

3.4.1 Infection Control Team Representation on Committees at Royal Papworth Hospital (Criterion 1)

IPC team provide subject matter expert advice and guidance at RPH internal and external meetings and committees as required.

3.4.2 Infection Control Team Representation on External Committees

- East of England Regional Microbiology Development Group
- East of England Infection Prevention Society Branch Meetings
- Network meetings with Cambridgeshire Commissioning Group and other regional hospital
- DIPC attends the STP IPC Board

3.5 Assurance, internal and external inspections (Criterion 1 & 2)

The assurance process includes internal and external measures. Internally, the accountability exercised via the committee structure described above ensures that there is internal scrutiny of compliance with national standards and local policies and guidelines. Furthermore, external assessments are also used. These include the “Controls Assurance” measures for infection control and decontamination standards, International Standards for Organisation Care Quality Commission standards and the Patient-led assessments of the care environment (PLACE) review. The healthcare hygiene code 2008 template was implemented to complete a gap analysis on compliance across the 10 criterions from the Health & Social Care Act 2008.

Progress in these areas during 2021/22 is summarised below:

Standards for Decontamination

Sterile Services is subcontracted and provided by Nuffield Health. Nuffield Health is independently audited and provides assurance reports to RPH to demonstrate that the requirements of disinfection, assembly, packing, moist heat and gas plasma sterilisation of theatre trays and procedure packs and supplementary instruments in accordance with ISO 13485:2003 and ISO 9001:2008 are met. For moist heat and gas plasma sterilisation of theatre trays, procedure packs and supplementary instruments in accordance with Medical Devices Directive 93/42/EEC Annex V, Article 12 (Sterility Aspects Only). This is managed by the Estates and the Surgical division who should give assurance to ICPPC committee.

Care Quality Commission Standards (Outcome 8)

RPH is registered with the CQC and in accordance with this regulation monitors compliance against the ten criteria as outlined in the Hygiene Code (Health and Social Care Act 2008 doc) A full gap analysis against all ten criteria was completed in May 2022. CQC fundamental regulation15 -Premises & Equipment (including cleanliness & infection Control is reviewed annually under a mock review, which is presented to the wider team for assurance.

UKHSA Data Capture Mandatory reporting (Criterion 1)

The Infection Control Doctor is responsible for mandatory reporting and enters the data onto the UKHSA Data Capture website when the results are available. The Trust then signs this off monthly.

RPH reported the following for 2021/22:
MRSA bacteraemia = 0 cases
C. difficile = 12 cases (against a threshold of 11). It was acknowledged that RPH breached the target however the number of acquired cases of *Clostridium difficile* was still low compared to the national and regional benchmarking.

PLACE Audit Results table inspection (Criterion 1 & 2):

Due to the COVID surge this was not implemented for 2021/22, but will recommence in September 2022

3.6 DIPC Reports to Board of Directors and QRMG (Criterion 1- 10)

A monthly IPC report forms part of the patient safety agenda at Quality and Risk Management Group (QRMG) and reports on mandatory monitored healthcare associated infections (HCAIs) such as *C. difficile* and MRSA, as well as other healthcare associated infections. The report also highlights adverse infection prevention and control issues and incidents or concerns in clinical practice. QRMG provides an assurance report and items for escalation to Quality and Risk and through to Board of Directors as required.

3.7 Infection Control Report & Programme for 2021/22 (Criterion 1 & 4)

Work undertaken by the Infection Prevention and Control Team during 2021//22 covers the following areas:

- Compliance with the Health and Social Care Act 2008 *updated in this report in line with revised guidance issued July 2015.*
- Infection Prevention and Control Committee
- Link Practitioner Network
- Development and maintenance of policies and procedures
- Audit and Surveillance monitoring and reporting
- Education
- Compliance with Department of Health initiatives – High Impact Interventions / WHO 5 Moments for hand hygiene
- Outbreak and incident management
- HII monitoring is reported in the Royal Papworth integrated performance report.
- Infection Prevention and Control inputted significantly into the managing COVID-19 pandemic and living with COVID-19.
- Leading a refreshed fit testing service to ensure staff were protected during the pandemic and ongoing service as supported by Health & Safety Agency (HSA).

3.8 High Impact Interventions

At RPH the designated Infection Prevention and Control link practitioners carry out monthly High Impact Intervention (HII) audits. The HIIs are an evidence-based approach to clinical procedures and care processes. The appropriate use of HII audits help to identify gaps in practise that pose a risk to hospital acquired infection and identify areas for improvement. These audits include HII1 Central Venous Catheter insertion and ongoing care, HII2 Peripheral Intravenous Cannula insertion and ongoing care, HII4 Surgical Site Infection pre-op, HII5 Ventilation-association Pneumonia, HII6

Urinary Catheter insertion and ongoing care and HII8 Cleaning and Decontamination. A monthly audit of aseptic non-touch technique (ANTT) has been introduced as part of RPH approach to reduce surgical site infections. The standard for all HII is > 95%. Clinical areas that fall below this are required to provide evidence of an improvement plan which is overseen by the ICPPC. RPH achieved an overall rating above 96% for each month during 2021/22.

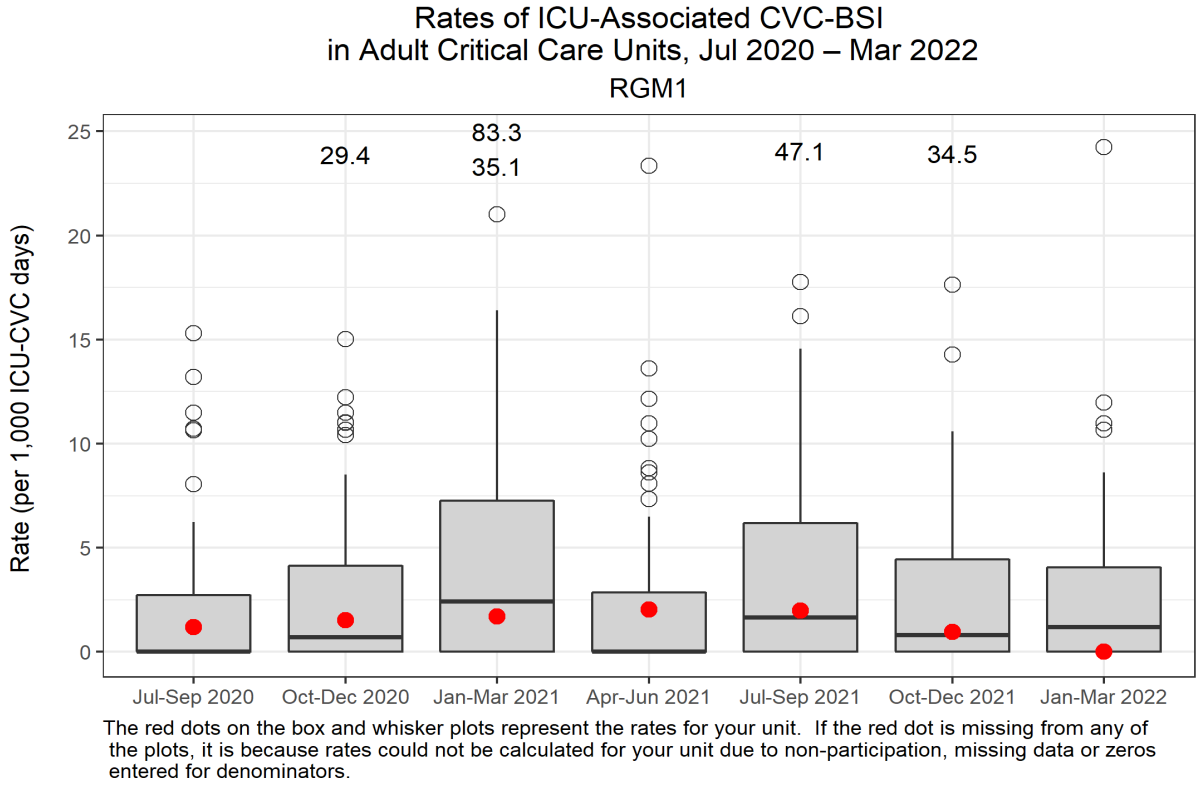
4 HCAI Statistics (Criterion 1, 4 & 9)

4.1 Infection in Critical Care Quality Improvement Programme (ICCQIP)

The ICCQIP board was set up in 2016 to address the concerns of hospital-associated Infections (HAI) in intensive care units (ICU) around central venous catheter in England, following on from the publication of the successful 'Matching Michigan' study.

The ICU surveillance programme aims to characterise and monitor all ICU and central venous catheter (CVC) associated blood stream infections to identify concerns and support actions to reduce the infection rates. Data is collected and analysed on a quarterly basis and unit level reports are generated and sent to respective units.

The latest results for 2021/22 year are presented in the form of a graph as below



RPH is indicated by the red dot and indicates the rate of ICU-associated CVC-SSI is within the interquartile range in all periods.

4.2 Mandatory Reports (Criterion 1, 2, 4, 5, 7 & 9)

4.2.1 MRSA

MRSA bacteraemia figures for the past 14 complete years are represented in the table below.

Papworth Annual MRSA bacteraemia rates

01.04.08 to 31.03.09	01.04.09 to 31.03.10	01.04.10 to 31.03.11	01.04.11 To 31.03.12	01.04.12 To 31.03.13	01.04.13 To 31.03.14	01.04.14 To 31.03.15	01.04.15 To 31.03.16	01.04.16 to 31.03.17	01.04/17 to 31.03.18	01.04.18 to 31.03.19	01.04.19 to 31.03.20	01.04.20 to 31.03.21	01.04.2021 to 31.03.2022
1	2	1	1	2	0	1	0	0	5 (3 on trajectory)	2 (1 on trajectory)	0	2 (1 on trajectory)	0

The ceiling for MRSA bacteraemia's set for Royal Papworth for 2021/22 by the UKHSA was zero avoidable infections and this was achieved. Compliance with MRSA screening in 2021/22 was 98.6%. The introduction of universal MRSA screening allows early identification and treatment of patients colonised with MRSA which has considerably reduced

4.2.2 *C. difficile*

C. difficile figures for the last seven years are represented in the table below. Following updated guidance from UKHSA all *C. difficile* cases that occur three or more days into the patients' admission are counted towards RPH annual threshold, regardless of whether the scrutiny panel has found any learning outcomes. Scrutiny panel meetings are held for each case to identify learning

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
C. difficile >65 yrs	5	2	4	6	6	5	8
C. difficile < 65 yrs	4	0	3	5	5	3	4
Total	9 (3 attributable)	2 (0 attributable)	7 (3 attributable)	11 (2 attributable)	11	8	12

The ceiling threshold set for Royal Papworth by the CCG for 2021/22 was 10 cases. All *C. difficile* cases had a root cause analysis carried out and were reported to the Infection Prevention and Control Committee and via the UKHSA healthcare associated infections Data Capture System (HCAI DCS).

4.2.3 MSSA bacteraemia

Reporting of Methicillin Sensitive Staphylococcus aureus (MSSA) bacteraemia to the UKHSA Health through the MESS system has been compulsory since January 2011. There is no ceiling threshold set by external regulators for MSSA. The numbers given below include cases where the blood cultures were taken within 48 hours of admission to the hospital which could indicate community acquired infection.

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Methicillin sensitive *Staphylcoccus aureus* bacteraemias (MSSA)	10	18	9	16	21	17	14	22	9	16	17	12

4.2.4 E. coli bacteraemia

Reporting of E. coli bacteraemia to the Department of Health through the HCAI DCS system has been compulsory since June 2011. These infections are reported to the Infection Prevention and Control Committee. There is no ceiling threshold set by external regulators for these infections at present. Reporting of klebsiella and P. aeruginosa bacteraemia's have become mandatory since 2017.

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
***E. coli* bacteraemias**	10	6	11	12	11	9	9	14	9
***Klebsiella* sp. bacteraemia**					7	12	13	28	13
***P. aeruginosa* bacteraemia**					3	6	4	9	5

4.3 Other Surveillance Reports

4.3.1 GRE/VRE and ESBL bacteraemia

	2012/13	2013/14	2014/15	2015/6	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Glycopeptide (or Vancomycin)-Resistant *Enterococcus* (GRE/VRE) bacteraemias	8	2	4	3	8	11	8	3	14	12
Extended spectrum B-lactamase producers (ESBL) bacteraemias	3	0	0	3	5	3	1	2	6	1
CPE					1	5	5	6	7	1

VRE bacteremia's and ESBL bacteremia's are reported to the Infection Prevention and Control Committee and to UKHSA quarterly. There are no ceilings set by external regulators for these healthcare associated infections. There was an increase in all bacteremia's during the COVID 19 surge in 2021/22

4.4 Surgical Site Surveillance (Criterion 1, 2, 3, 4, 5, 6, & 9)

Since April 2009 RPH have been undertaking continuous surgical site surveillance of Coronary Artery Bypass Graft (CABG) patients to monitor infections post-surgery using the UKHSA (formerly known as Public Health England (PHE) surveillance protocol.

Surgical Site Surveillance at RPH involve identifying CABG and valve surgery patients that develop a surgical wound infection. To be classified as having a surgical site infection (SSI) the patient must meet the SSI criteria set by the UK Health Security Agency (UKHSA). RPH reports CABG infection rates to UKHSA quarterly. Valve infection rates are for internal monitoring only.

Surgical Site Surveillance monitors patients for one year post surgery. This means that identification of SSIs can still occur quite some time after the original operation. Consequently, figures reported are subject to change

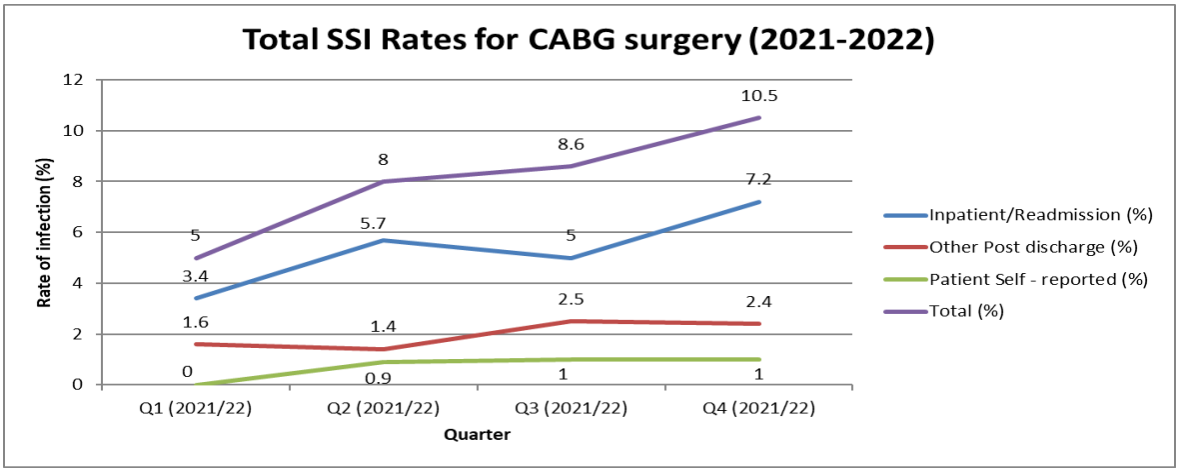
SSI Rates 2021-2022

The period 2021-22 saw a significant increase in surgical site wound infections at RPH. Since reporting recommenced post COVID-19 surges, higher numbers of patients are being identified with wound infections. This is being reflected in the number of patients requiring referral and treatment from the Wound Care Tissue Viability team. SSI rates show that following CABG surgery the rate of surgical wound infection is 8.2% (69 infections out of 856 surgeries) and for valve surgery it is 3% (16 infections out of 537 operations).
As part of CABG reporting, SSI patients are grouped in terms of how they are identified:

- Inpatient (during current surgical admission) or readmission due to wound infection
- Other post discharge follow-up e.g. outpatients/ community team
- Or patient reported themselves

All data on SSI is submitted to UKHSA, however benchmark data (gained from other trusts submitting their rates) only consists of inpatient/readmission figures.
Graph 1 shows the annual CABG rates for inpatients/readmission, post discharge and self-reported. group. As can be seen overall infection rate has gone from 5% in Q1 to 10.5% by Q4.

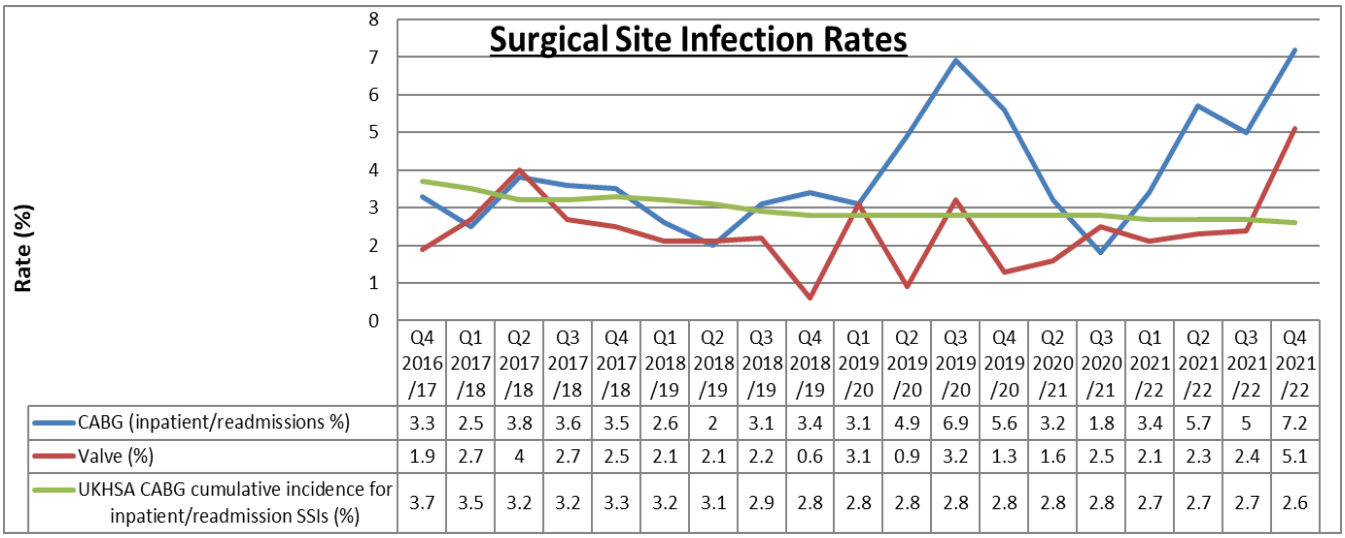
Graph 1



Reporting to UKHSA and subsequent benchmarking is confined to CABG patients only (inpatients and readmissions). Inpatient/readmission CABG infection rate has increased over the year from 3.4% to 7.2% (annual national benchmark is 2.6%).
Graph 2 represents the inpatient/readmission CABG rates from 2016 to 2022 with UKHSA benchmarks. This graph also shows valve infection rates for the same period. Valve infection rates

have historically remained around 2 – 3%, with peaks at times, however in quarter 4 2021/22 this increased to 5.1%. Valve rates are for internal reporting only.

Graph 2

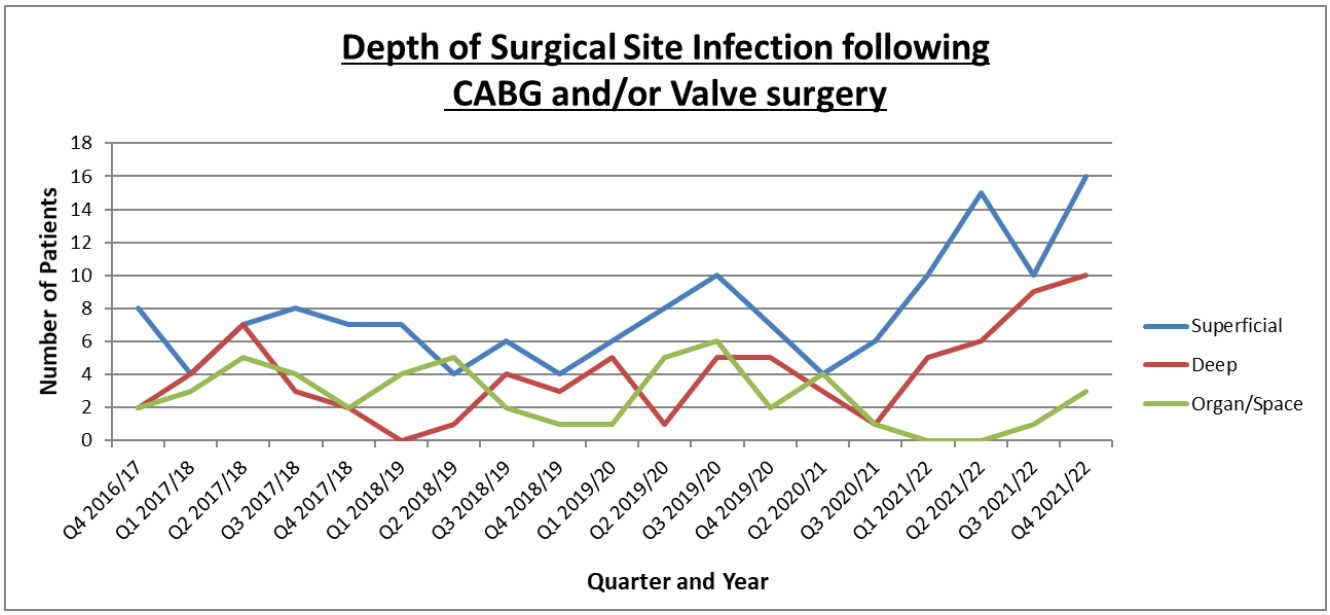


	Q4 2016/17	Q1 2017/18	Q2 2017/18	Q3 2017/18	Q4 2017/18	Q1 2018/19	Q2 2018/19	Q3 2018/19	Q4 2018/19	Q1 2019/20	Q2 2019/20	Q3 2019/20	Q4 2019/20	Q2 2020/21	Q3 2020/21	Q1 2021/22	Q2 2021/22	Q3 2021/22	Q4 2021/22
CABG (inpatient/readmissions %)	3.3	2.5	3.8	3.6	3.5	2.6	2	3.1	3.4	3.1	4.9	6.9	5.6	3.2	1.8	3.4	5.7	5	7.2
Valve (%)	1.9	2.7	4	2.7	2.5	2.1	2.1	2.2	0.6	3.1	0.9	3.2	1.3	1.6	2.5	2.1	2.3	2.4	5.1
UKHSA CABG cumulative incidence for inpatient/readmission SSIs (%)	3.7	3.5	3.2	3.2	3.3	3.2	3.1	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.7	2.7	2.7	2.6

Data Breakdown

Graph 3 presents depth of infection data from 2016-2022.
For 2021-2022 there has been an upward trend in superficial, deep and organ space infections.

Graph 3



SSI Stakeholder Group

The SSI stakeholder group was established in 2019 in response to a rise in SSI following the relocation of RPH. The stakeholder group has clinical representation from the multi-disciplinary team involved in the patient's surgical pathway.

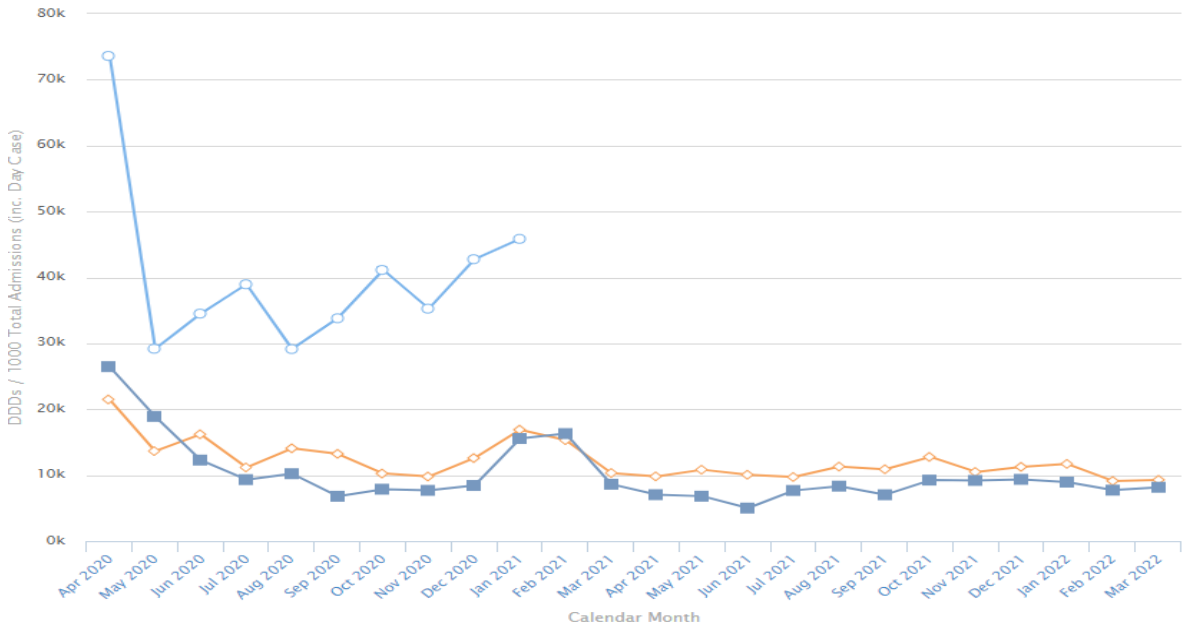
Due to the increase in surgical site infections the SSI stakeholder group now meet fortnightly to ensure improvement actions in respect to clinical practise are being continually improved, embedded and monitored. The governance in respect to SSI has been further enhanced by an executive led SSI response group which takes assurance and escalation from the stakeholder group as well as ensuring environment, training and education aspects are being adhered to. Early indications for 2022/23 is indicating some improvement in rates of SSI.

4.5 Antimicrobial Stewardship (Criterion 1, 3, 5 & 8)

Antimicrobial Stewardship (AMS) 2021-22

Antibiotic use (expressed as WHO Defined Daily Doses/ 1000 Admissions FY 2020/21 through to FY 2021/22).

Royal Papworth Hospital = **Dark Blue Line**
Liverpool Heart and Chest = Orange Line
Royal Brompton = Light Blue Line (prior to merger with Guy's and St Thomas Hospital)



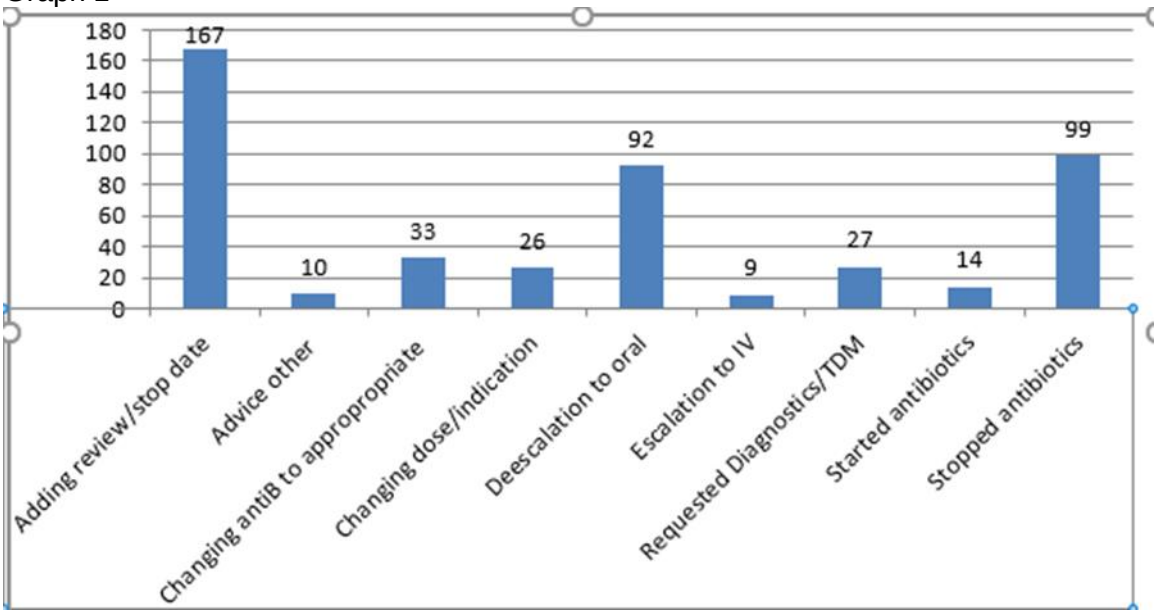
Total DDD's 2020/21	Total DDD's 2021/22	% Difference
148,532	95,708	43.25%

The English surveillance programme for antimicrobial utilisation and resistance (ESPAUR) report 2020 to 2021 acknowledged that the COVID-19 pandemic has had a marked effect on antibiotic prescribing in secondary care in 2020. 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.

In 2021/22, the AMS team continued to support our colleagues throughout the COVID-19 pandemic with daily Microbiology ward rounds in Critical Care and twice weekly ward rounds in the surgical division. The multidisciplinary surgical microbiology ward rounds have been introduced to the Trust as a service and cost improvement with the support of the Service Improvement Department and the surgical division. The aims of the ward rounds were to:

- Improve patient safety by optimising the use of antimicrobials through the introduction of regular, twice weekly multidisciplinary AMS ward rounds demonstrated through reduction in Defined Daily Doses/1000 bed admissions
- Empower medical staff and non-medical prescribers on appropriate antimicrobial prescribing decision making through bite-sized educational “on-the-job” training sessions.
- Demonstrate a financial saving through reduction in inappropriate antimicrobial prescribing.
- Build a business case to demonstrate the need for a permanent 0.8WTE Band 7 Antimicrobial Pharmacist within the AMS Team (replacing the 0.5WTE fixed term CQUIN funded pharmacist)

Quantitative data was gathered between 1/12/20 and 20/8/21 which demonstrated that 509 antimicrobial prescriptions were reviewed in 440 patients during this time. Of these 35 prescriptions did not require any interventions but 477 required an AMS intervention (Graph1)
Graph 1



The number of of Datix AMS incidents reported fell from 44 to 20 in the surgical division. The AMS teaching programme was re-instated alongside “bite-sized” “on-the-job” training and funding was secured for an additional permanent 0.8WTE AMS pharmacist to the AMS Team.
This AMS project has been short listed for a patient safety award by the Health Service Journal.

Other AMS work carried out in 2021/22 includes:

- Antimicrobial Guidelines: 6 guidelines updated and reviewed
- Audits: Monthly AMS Documentation standards audit (fed back to division leads), 2 high-cost antibiotic appropriateness audits (Cefidericol and Imipenem-Relebactam), Surgical Antibiotic Prophylaxis Audit and Azole use in the Thoracic Division.
- Supporting Cambridge Global Health Partnership with an AMS project in Kenya
- Supporting National Antibiotic Awareness Week in November 2021 with a variety of interactive AMS events.
- Contributing to Alert Nurse, Advanced Nurse Practitioners, and doctor teaching programmes
- Engaging with the and contributing to theRegional Antimicrobial Stewardship Group and the East of England AMS Pharmacist Network
- Development of a patient safety azole checklist with Lorenzo®
- Building a fungal diagnostic algorithm within the Critical Care Antimicrobial guidelines
- Reviewed all AMS Datix® and worked with divisions to put remedial action plans in place.

4.6 Incidents and Outbreaks (Criterion 1-10)

Incident and outbreak investigations occurring in 2020/21 were managed and reported to the ICPPC throughout the year.

Influenza

The total number of flu cases within Royal Papworth was zero and subsequently there were no influenza outbreaks for 2021/22.

Norovirus

Norovirus cases remained low for 2021/2022 with no outbreaks or ward closures reported.

Clostridioidies difficile (*C. difficile*)

There were no outbreak incidents relating to *Clostridioidies difficile* infection in 2021/22. It was noted an increase cluster of C.difficile in May/June 2021 on the same ward which was investigated but no relatedness to any of the cases were identified.

MRSA

There were zero cases of MRSA bacteraemia in 2021/22.

Mycobacterium abscessus (*M. abscessus*)

In 2019, following some routine testing, we launched an investigation into some cases of *M. abscessus* infection, a rare infection which can cause problems for people with specific underlying respiratory conditions or who are immunosuppressed as a result of their condition.
Immediate measures to act, including putting in enhanced 'point of use' filters, providing bottled water to our most susceptible patients, doing extra tests and taking more water samples, installing a dosing plant (called a hydrogen peroxide dosing plant) and an ultra-violet treatment unit on site, and putting in specialist shower heads and hoses in patient areas, among other interventions. Through our regular testing, we know that these measures have greatly reduced the counts of mycobacteria at the Trust. Since implementing our stringent and additional water safety measures, we have significantly reduced the counts of mycobacteria at the Trust.

The newly formed Oversight Committee established in January 2021, now with developed working groups namely: Estates and Facilities, Clinical and Research, and Governance and Communication. An executive led external Stakeholder Group meets bimonthly and reports to RPH Quality and Risk Committee. In 2021/22, 5 new cases have been identified with 3 classed as moderate harm which have all been investigated and duty of candour has been carried out.

Mycobacterium tuberculosis

There was one incident during 2020/21 and learning from the incident has led to a "hard stop" principle being introduced by occupational health and human resources to ensure no new employee can commence working until satisfactory TB checks are complete

Vancomycin Resistant *Enterococcus* VRE and Extended Spectrum Beta-Lactamases (ESBL)

Routine screening no longer takes place for VRE and ESBL, however all positive clinical site samples are monitored to enable RPH to identify increases in these organisms and act accordingly.

There was an increase in VRE acquisition and bacteraemia's which was related to the COVID-19 surge response and long-term patient in critical care. This was identified as an increase in infection but not an incident or outbreak.

Carbapenemase Producing *Enterobacteriacae* (CPE)

Over the past decade large increases in Carbapenemase-producing *Enterobacteriaceae* (CPE) infections have been reported globally. Unless action is taken, and lessons are learnt from experiences elsewhere in the world rapid spread of CPE will pose an increasing threat to public health and medical treatment pathways in the UK. As CPE infections are susceptible to only a small number of antimicrobials this situation compromises a major public health problem and priority. In March 2014 Public Health England (now known as UKHSA) launched the acute Trust toolkit to promote the early detection, management, and control of CPE colonisation, which was updated in 2021. In response to this the IPCT developed a procedure to manage diagnosis, isolation, and treatment of patients with these organisms and updated this in 2021.

In 2021/22 CPE was isolated from 1 patient at RPH, from routine screening. The patient was isolated appropriately and there was no ongoing spread of CPE. There has been no evidence Of CPE transmission or outbreaks during 2022/23

COVID-19 Pandemic

COVID-19 is a new coronavirus disease, which causes respiratory symptoms. It was first identified in December 2019 in China and quickly spread around the world. The COVID-19 pandemic was officially declared on the 11th March 2020. During the early stages of the outbreak the Trust put together surge plans to prepare for the expected upturn in demand of patients who would be admitted or transferred to us. This was managed with the regional cell group and a command & control approach.

RPH continued to be a registered ECMO (extra corporeal membrane oxygenation) centre. ECMO is a treatment used for patients who have severe acute respiratory distress as a result of e.g. H1N1, COVID-19, influenza or other respiratory infections.

The national guidance changed throughout the year which Infection Prevention and control team adapted accordingly and presented and communicated across the trust.

All staff were highly recommended to receive the COVID 19 vaccine when it became available. Uptake of the vaccine by staff in 2022/23 can be seen in the table below

	1st Covid Dose	2nd Covid Dose	Covid Booster
% of RPH staff vaccinated – Clinical Roles	97.1%	95.2%	89.4% *
% of RPH staff vaccinated – Non-Clinical Roles	97.0%	94.6%	85.7% *

RPH saw an increase in COVID19 cases admitted in July, August, and September 2021 and again in January, February, and March 2022. Nosocomial cases in 2021/22; 2 cases in November and 6 nosocomial in March making it 5.5% total for the year. There were 3 staff outbreaks relating to COVID 19 which were related to shared staff rest facilities All were fully investigated, and information shared externally to NHSE and commissioners consistent with mandatory reporting compliance. The COVID-19 pandemic continues to be managed within RPH through the Command-and-Control centre for 2021/22 and until the national alert would reduce to an adequate safe level.

5. Environment

5.1 Cleaning Services (Criterion 1, 2, 6 & 9)

OCS provides cleaning services to Royal Papworth Hospital, through a PFI contract arrangement.

- Within each department/ward of the hospital there are *"commitment to cleaning"* boards that display the roles, responsibilities, and cleaning routines of that department; these also incorporate the required SLA for that specific department/ward
- As an output spec contract there are no specific staffing number requirements aligned to the cleaning contract, the service level that OCS are monitored against is the frequency of work.
- The PFI contract is a self-monitoring contract which enables the contractor to take a lead in all cleaning audits in addition to this we have organised joint audits that take place weekly. In the event of an audit failing, OCS will rectify the failings immediately and the area will be audited again on completion.
- Any failures in cleaning audits are reported in the monthly performance report and managed through the PFI contractual management process.
- OCS & E&F are continuing to work to ensure sufficient staffing levels are maintained within the agreed contract.
- The Trust and OCS are jointly working on the introduction of NHS cleaning standards 2021 by the autumn of 2022.

5.2 Deep Cleaning Programme

The Trust continues to work closely with OCS to devise a robust deep cleaning programme in line with the PFI contract that is carried out through-out the year. The progress against this is reported back to the infection control committee group. The NHS National Cleaning standards 2021 was shared and RHP and OCS are working closely together to make sure all actions are met to comply with these standards. This is on target to be met by the recommended requirement of November 2022.

5.3 Management Arrangements

OCS is overseen by the Senior General Manager from Project Co, the Director of Trust Estates and Operations Manager from the Trust, the OCS Regional Contracts Manager who visits the site regularly; together they oversee management of the cleaning contract. This management structure also supports the cleaning supervisors on a day-to-day basis.

5.4 Monitoring Arrangements

The contract is set up to be self-monitoring. OCS have implemented an audit system called iAuditor which uses the NHS 49 elements template to track and score audit scores. Trust Estates have access to the system which allows transparency in the data. The employment of OCS supervisors alongside Trust Estates monitoring Officers ensures consistent focus on both quality-of-service delivery and effective communication on monitoring results. The results of all cleans across the Trust are sent to the IPC team and Senior Nurses/Department Heads weekly, and any discrepancies are discussed at the ICPPC. OCS utilise the National Standards for Cleanliness audit tools and follow the recommendations as laid down by this national body. Out of hours cleaning provision is available from 22:00 – 06:00, by contacting the Helpdesk

QCs are undertaken at the following frequencies, and QC teams consist of a matron or nursing representative, OCS and Estates and Facilities; all results are captured on to the iAuditor system and are reported weekly and monthly.

Area	Frequency
Very High Risk	Weekly
High Risk	Two-weekly
Significant Risk	Monthly
Low Risk	6-monthly

5.5 Decontamination

The Trust has appointed two external leads for decontamination from Sheilen Consulting, Decontamination Expert and AVM as Authorising Engineer for Decontamination.

The only items decontaminated on site at RPH are endoscopes. There are two endoscope washing machines, one in theatres and one in radiology, as well as a contingency process through Cambridge University Hospitals, if for any reason both scope washers are out of action.
Room decontamination is carried out by OCS using the method most appropriate for the situation and in accordance with policy. They can use a chemical solution of Tristel or Actichlor, or if required an HPV machine. RPH also has a UV machine which is used in strategic areas to assist with the decontamination of rooms

5.6 Linen Service

The linen service is provided by Ellis, TBT and Saffron laundry; their contract is for clean linen to be delivered to site daily consisting of the following: sheets, draw sheets, pillowcases, towels, blankets, scrubs, and patient gowns. These are stored in the linen room and dispatched to the wards by the porter team. Dirty linen is collected from the wards by porters and then collected by Ellis/Saffron for cleaning. TBT launder and maintain our reusable patient gowns. The linen is cleaned in accordance with NHS standards. There is an annual linen audit which the trust complete and is fed back to the ICPPC committee and if there are any concerns raised this is fed back to the company. The audit completed for 2021/22 found some stained linen on arrival back from the linen service provider which was addressed immediately.

5.7 Water Safety

The Trust has a Water Safety Group, which reports to the Infection Prevention and Control Committee. The Water Safety Group meets regularly to review any issues relating to water systems and control.

The Water Safety Group is the working group whose duties are to advise on and monitor the implementation and efficacy of all Legionellosis and Pseudomonas Management & Controls as well as temperature control and safe hot water management programmes across all sites constituting the Trust Estate. The group consists of the Trust Responsible Person and Deputies, Infection Control Doctor and/or deputy (IPC lead nurse), Matrons or Ward Based Representative, Risk Manager, Estates Operation Manager and the Trust Legionellosis Management & Control Consultants and Skanska team. Details of the Trust's water safety procedures are documented in DN654 Water Safety Plan available on the Intranet which is due for renewal. Any concerns raised regarding water management are escalated through the ICPPC committee.

6 Training Activities (Criterion 1, 4, 6, 9 &10)

Infection Prevention and Control training mandatory sessions were delivered as outlined in the table below:

Teaching sessions	Frequency	Delivered by
Induction session for **all** new starters	Monthly	Presentation provided and reviewed by IPC team; supervised by education team. 100% attendance as it is mandatory to complete.
Training for Foundation and Core Medical Trainees	Three times yearly	Education manage this with IPC supporting updates.
Update for qualified nurses in cardiac and thoracic directorate via e-learning	Annually	Standard e-learning package Mandatory requirement
Update for non-qualified nurses in cardiac and thoracic directorate via e-learning	Annually	Standard e-learning package Mandatory requirement
Hand hygiene update for all other clinical staff via Hand Hygiene week for practical plus e-learning	Annually	IPCT to complete- Hand hygiene awareness week and clinical education team complete session quarterly.
Training session for Housekeepers via e-learning	Annually	IPC team review and update training pack.
M. abcsessus essential training	Annually	Standard e-learning package. Updated by IPC team. Ad hoc teaching session via teams supported by IPC team.

Summary

The trust achieved 100% compliance for IPC training on induction for all new starters in 2021/22. Compliance with Infection Prevention and Control annual updates is a requirement for all staff for completion of their annual appraisals. All mandatory training data is shared to the management teams for them to manage and support is provided to increase training compliance.

M. abscessus training was implemented in May 2021 for staff to complete via online training. This was to encourage all staff to have more awareness and education in respect to *M. abscessus*. The ANTT refresher training programme will continue through to 2022/23 and further develop on the annual programme.

7. Annual Programmes (Criterion 1-10)

IPC Annual Audit Programme and result 2021/2022 (Criterion 1-10)

Title	Frequency	Results 2021/22
Hand Hygiene	Monthly	97.5%
HII*	Monthly	98%
ANTT	Monthly	98%
MRSA Screening	Yearly	98.6%
Isolation	Monthly	75%-92%
Covid Passport	Monthly	Individual results to wards
Vulnerable group and POU filter (*M. abscessus*)	Monthly	95%
Commodes	Quarterly	Individual results to wards
Raised Toilet Seats	Quarterly	Individual results to wards
Sharps	Annual	93%
Linen	Annual	88%
Environment	Annual	99%
Alcohol Gel	Annual	71% (re-audited and shared)
Hand Hygiene technique	Annual	97%
The Spinal Hospital	Annual	IPC support
Waste	Annual	93%
CVC BSI	Quarterly	See comments above
Scrubbing and Gowning	Rolling	Pending results
Skin Prep	Rolling	Pending results
National Surgical Audit	Rolling	See comment under SSI.

*High Impact Interventions
HII1 – CVC insertion and ongoing care
HII2 – PIV insertion and ongoing care
HII4 – Prevention of surgical site infection
HII5 – Ventilated patients
HII6 – Urinary catheter insertion and ongoing care
HII8 – Cleaning and decontamination of clinical equipment

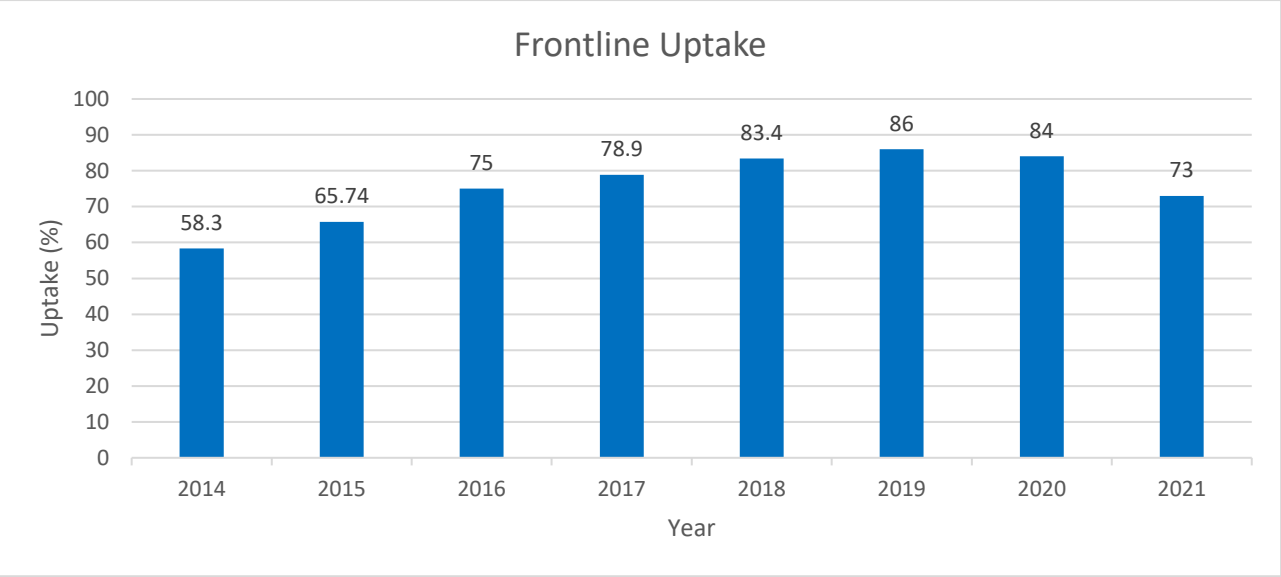
Summary: All audits are taken to the ICPPC for review and robust action plans completed so everyone has an overall insight. IPC and audit team work closely and share monthly reports to the clinical team.

8. Influenza and COVID-19 Vaccine uptake for 2020/21 Season (Criterion 1, 10)

Headline for 2021/22	1st Covid Dose	2nd Covid Dose	Covid Booster	Flu Vaccination
Number of vaccinations administered to recognised RPH staff	2306	2259	1794	1666
RPH staff that have received their vaccination in settings which do not upload to NIVS	675	563	149	79
% of RPH staff vaccinated (including those elsewhere)	97.1%	95.1%	88.6% *	74.5%

	1st Covid Dose	2nd Covid Dose	Covid Booster	Flu Vaccination
% of RPH staff vaccinated – Clinical Roles	97.1%	95.2%	89.4% *	73.1%
% of RPH staff vaccinated – Non-Clinical Roles	97.0%	94.6%	85.7% *	79.1%

* = percentage of **eligible** staff i.e. where the due date of their covid booster has gone by (as at the date of this report). Staff due a covid booster at a future date have not been included. For all other columns this is a percentage of total RPH staff.



Immunisation of frontline staff against influenza and COVID-19 reduces the transmission of infection to vulnerable patients. This year's flu programme was run by the Royal Papworth team and delivered from October 2021 to January 2022 in combination with the COVID vaccine programme. The flu data is uploaded to UKHSA via the ImmForm system. There has been a decline in staff uptake from previous years. It is not clear why this is but may be due to Covid 19 and staff shielding and so not attending site for vaccination.

9. Inoculation injuries 2021/22

9.1 Annual quarterly figures

This year has seen the update of the Policy for Sharps injuries Incidents involving Blood or Body Fluids which has streamlined the process for managing blood exposures with high-risk sharps requiring HIV post exposure prophylaxis accessing it via the CUH emergency department.

Total number of sharps/splash injuries for year 2021/2022 is **48** compared to 2020/21 which was **31**

9.2 Areas reporting Incidents

Types of sharp injury:

	20/21 Q1	20/21 Q2	20/21 Q3	20/21 Q4	21/22 Q1	21/22 Q2	21/22 Q3	21/22 Q4
Contact with sharps – clean needlestick	2	0	2	1	1	1	0	0
Contact with sharps – dirty needlestick	2	5	9	7	11	7	12	11
Safe injections/sharps disposal not followed	1	1	0	1	0	2	2	1
Total	5	6	11	9	12	10	14	12

Incidents of sharps incident:

7Y	20/21 Q1	20/21 Q2	20/21 Q3	20/21 Q4	21/22 Q1	21/22 Q2	21/22 Q3	21/22 Q4
Near Miss	1	0	0	2	0	1	1	1
No harm	0	2	1	1	2	3	2	5
Low harm	4	4	10	6	10	6	11	5
Moderate harm	0	0	0	0	0	0	0	1
Total	5	6	11	9	12	10	14	12

Data per month and including new sharps 48 and splash injuries 28 that were followed up by appointments; these figures are including the DNA numbers are presented below; Occupational health team are to work closely with the RPH team to reduce these incidents.

MONTH	TOTAL	NEW	FOLLOW UP	DNA
TOTAL	76	45	31	6

Numbering Additional Occupational Health COVID-19 activities

In 2021/22 the Occupational Health department provided considerable additional support for COVID-19 work including the Version 7 individual risk assessment process and guidance for staff with individual health vulnerabilities, advice for staff on reactions with personal protective equipment and skin assessments. The new and expectant mother's risk assessment has recently been updated and is now available for staff. There has also been an increase in general management referrals to occupational health and self-referrals since the COVID-19 pandemic arrived.

Immunisation and Infection Screening Policy

Occupational Health have implemented enhanced screening for Tuberculosis screening with a hard stop process, so staff have tuberculosis screening completed prior to commencement.
The department has also put in place monkey pox screening and vaccinating in order to mitigate any potential outbreak at RPH.

10. Summary of key areas for this coming year

The IPC team are committed to work with all departments and services to maintain a safe environment for patients, staff and visitors. As 2021/22 end we look forwards to 2022/23 and areas that the IPC team will continue to focus attention on are:

- Continue work streams regarding the reported increase in surgical site infections.
- Management and oversight of the *M. abscessus* incident and maintain safety mitigation throughout RPH.
- Enhance assurance reports to the ICPPC committee for water safety, imbed ventilation safety and to work closely with the Estates team.
- Work with the audit team and gain clinical engagement to maintain an IPC robust audit cycle with action plans that are followed up and completed.
- Complete the gap analysis of the Hygiene code and share at the ICPPC.

11. References and resources

IPS & NHS Improvement (Nov 2017) 4th Ed of Saving Lives: High Impact Interventions,

Department of Health (2015), Health and Social Care Act 2008, Code of practice on the prevention and control of infections and related guidance

Department of Health (2003), of the Chief Medical Officer's strategy for infection control (*Winning Ways: working together to reduce healthcare associated infection*)

NHS Improvement & Infection Prevention Society (2017) High Impact Interventions: Care processes to prevent infection. 4th Ed

Public Health England 2017. Guidance, Health matters: preventing infection and reducing antimicrobial resistance. [ONLINE] Available at: https://www.gov.uk/government/publications/health-matters-preventing-infections-and-reducing-amr/health-matters-preventing-infections-and-reducing-antimicrobial-resistance [Accessed May 2018]

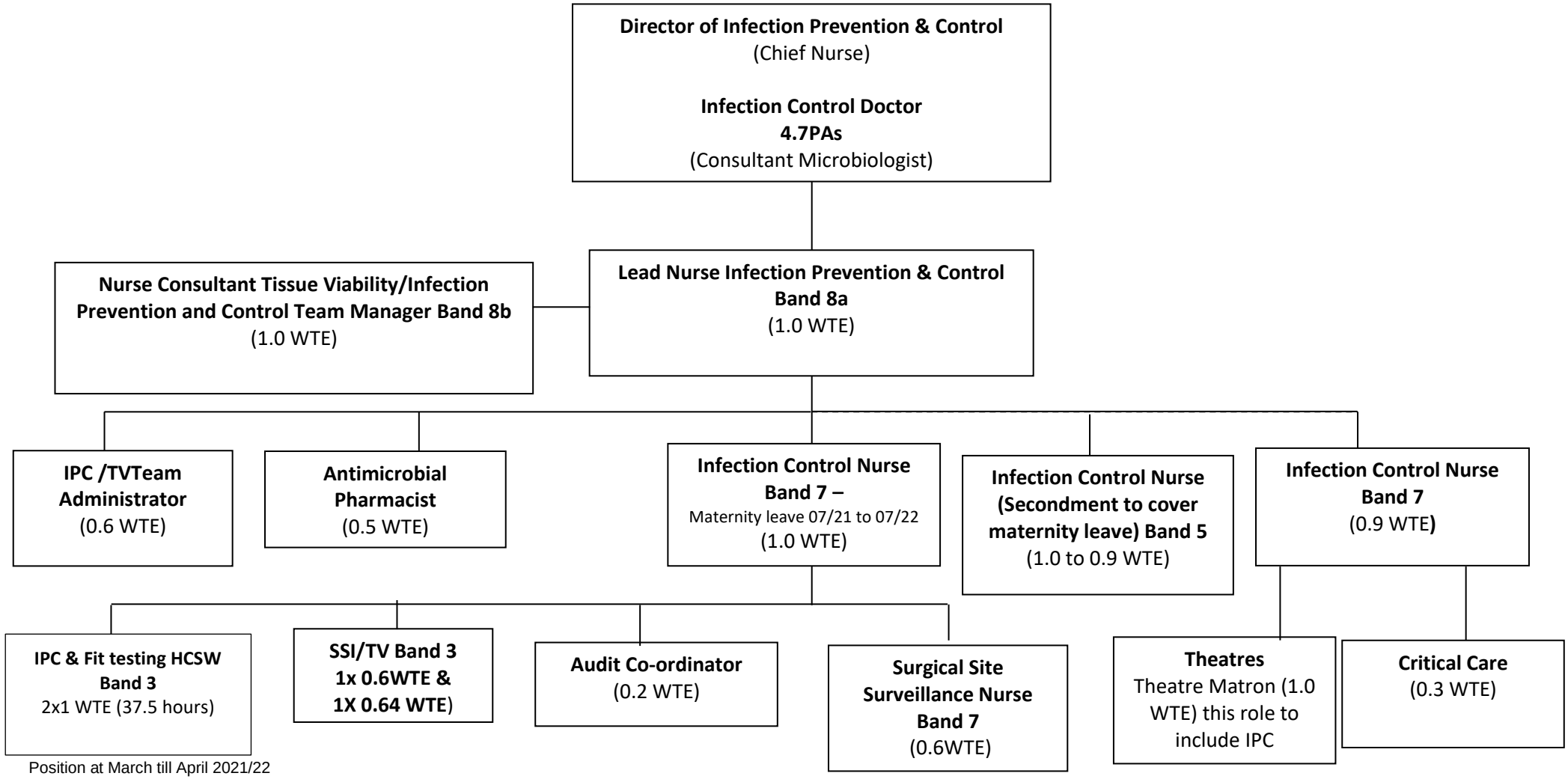
Appendix 1

Appendix 1: The requirements of the Health and Social Care Act (2008) updated in this report in line with revised guidance issued July 2015.

Compliance criterion	What the registered provider will need to demonstrate
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.
2	Provide and maintain a clean and appropriate environment in managed premises that facilitates the prevention and control of infections.
3	Ensure appropriate antimicrobial use to optimise patient outcomes and to reduce the risk of adverse events and antimicrobial resistance.
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.
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.
6	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.
7	Provide or secure adequate isolation facilities.
8	Secure adequate access to laboratory support as appropriate.
9	Have and adhere to policies, designed for individual's care and provider organisations that will help to prevent and control infections.
10	Providers have a system in place to manage the occupational health needs and obligations of staff in relation to infection.

Appendix 2

Infection Prevention & Control Team (Criterion 1)



Position at March till April 2021/22
WTE = whole time equivalent.