Oxford University Hospitals
NHS Foundation Trust

Cover Sheet

Public Trust Board Meeting: Wednesday 08 September 2021

TB2021.77

Title:	**Infection Prevention and Control Annual Report 2020/2021**

Status:	**For Information**
History:	**TME26 August**

Board Lead:	**Chief Medical Officer**
Author:	**Lisa Butcher, Lead Nurse & Manager for Infection Prevention & Control; Dr Katie Jeffery, Director of Infection Prevention & Control**
Confidential:	**No**
Key Purpose:	**Assurance, Policy, Performance.**

Executive Summary

1. The Director of Infection Prevention and Control (DIPC) Annual Report reports on infection prevention and control activities within the Oxford University Hospitals (OUH) NHS Foundation Trust for April 2020 to March 2021. The report covers Infection Prevention and Control (IPC) for the four main sites: John Radcliffe Hospital, Churchill Hospital, Nuffield Orthopaedic Centre and Horton General Hospital, and a number of sites across the region for example satellite dialysis units and midwife led units. The publication of the IPC Annual Report is a requirement to demonstrate good governance, adherence to Trust values and public accountability.
2. The following organisms are subject to mandatory reporting: Methicillin-resistant *Staphylococcus aureus* bacteraemia (MRSA), Methicillin-sensitive *Staphylococcus aureus* bacteraemia (MSSA), *Clostridiodes difficile*, and Gram-negative bloodstream infections (*Escherichia coli,* Klebsiella species*, Pseudomonas aeruginosa*).
3. **Methicillin-resistant *Staphylococcus aureus* (MRSA) Bacteraemia**: For the financial year 2020/21 there have been 8 Trust assigned episodes of MRSA bacteraemia against zero tolerance. Root cause analysis identified all were unavoidable. The majority of the cases were in Q4 2021 and were in COVID-19 intensive care units. The national epidemiology shows a 76.7% increase in hospital onset cases in Q4 2021 compared with Q4 2019.
4. **Methicillin-sensitive *Staphylococcus aureus* (MSSA) Bacteraemia**: There were 46 hospital-onset (post 48 hour) cases during the year, a small increase on last year's number of 43 cases. The national epidemiology shows an 18.0% increase in hospital onset cases in Q4 2021 compared with Q4 2019.
5. ***Clostridiodes difficile***: NHS England/Improvement (NHSE/I) did not set targets for 2020/21. The Trust set its own internal limit of 89 (objective for the 2019/20 financial year) which was not achieved. The number of cases for 2020/21 was 114.
6. **Gram negative blood stream Infections (GNBSI)**: NHS England/Improvement has set a national target of halving of healthcare associated Gram-negative blood stream infections by 2023/24.
7. **COVID-19**: the COVID-19 clinical forum ran throughout the pandemic to provide information to staff on IPC guidance, and staff and patient testing. The IPC team followed up all cases of COVID-19 admitted to the hospital to prevent nosocomial acquisition. The rate of nosocomial infection in the second wave of the pandemic was significantly lower than in the first wave. A number of publications arising from data collected via staff and patient testing have influenced national COVID-19 outbreak management.

   NHSE/I developed a board assurance framework to enable a self-assessment of compliance with PHE COVID-19 related infection prevention and control guidance, to identify risks, to act as an improvement tool and to assure trust boards. The IPC

team has completed this framework document, and kept it up to date with key developments and implementation of new guidelines through-out the pandemic.

8. **Investigation of Infection Prevention and Control Incidents and Outbreaks**: A number of investigations were undertaken during the year, including outbreaks of *C.difficile* and COVID-19, and incidents in sterile services, linen, and bronchoscopy.
9. **Audits**: reduced number this year due to pandemic. Carbapenemase-Producing Enterobacterales (CPE) screening audit undertaken.
10. **Surgical Site Infection**: two surgical specialities (fractured neck of femur and cardiac services) report rates to Public Health England (PHE) SSI Surveillance system.
11. **Trust wide Central Line Associated Blood Stream Infections (CLABSI) surveillance**: During the financial year 2020-21, the IPC team identified 31 post-48-hour (hospital-acquired) non-Intensive Care Unit (ICU) CLABSI. CLABSI rates in the adult ICUs caring for COVID-19 patients were increased in quarter 4, leading to an overall increase in ICU related CLABSI infections.
12. Alongside the increase in MRSA and MSSA bacteraemia in the intensive care setting, there was also an increase in Coagulase Negative Staphylococcus (CoNS) bacteraemia rates during Jan – Feb 2021 compared to the same time period in the previous year.
13. **Water Safety at the Churchill Cancer and Haematology Hospital**: All water outlets (with the exception of 2 laboratory taps) in the Churchill PFI Cancer and Haematology hospital have had point of use filters (POUF) since 10 October 2019. Sampling continues to yield positive legionella samples around the hospital. A pilot scheme to address the engineering issue is due to begin at the Churchill cancer centre in August 2021.
14. **Antimicrobial Stewardship**: Antimicrobial and antifungal stewardship CQUINs and KPIs were suspended for 2020/21. However despite the pandemic, the total antibiotic consumption, and consumption of Carbapenem antibiotics was below the national average (corrected for admissions). Throughout the year the stewardship team continued to deliver stewardship activities including guideline review and monitoring of antibiotic consumption.

Recommendation

15. The Trust Board is asked to receive this report and note the content for information.

Contents

Infection Prevention and Control Annual Report 2020/2021

1. Purpose

1.1. This report provides the Trust Board with an annual review of the mandatory reporting and activities undertaken by the Infection Prevention and Control Team. The publication of the IPC Annual Report is a requirement to demonstrate good governance, adherence to Trust values and public accountability.

2. Background

2.1. The Director of Infection Prevention and Control (DIPC) Annual Report reports on infection prevention and control activities within the Oxford University Hospitals (OUH) NHS Foundation Trust for April 2020 to March 2021. The report covers Infection Prevention and Control (IPC) for the four main sites: John Radcliffe Hospital, Churchill Hospital, Nuffield Orthopaedic Centre and Horton General Hospital, and a number of sites across the region for example satellite dialysis units and midwife led units.

2.2. A zero-tolerance approach continues to be taken by the Trust towards all avoidable Healthcare associated infections (HCAIs). We ensure that good IPC practices are applied consistently and are part of our everyday practice meaning that people who use OUH services receive safe and effective care.

2.3. This report acknowledges the hard work and diligence of all grades of staff, clinical and non-clinical, who play a vital role in improving the quality of patient and stakeholders experience as well as helping to reduce the risk of infections. Additionally, the Trust continues to work collaboratively with a number of outside agencies as part of its IPC and governance arrangements including:

- Oxfordshire Clinical Commissioning Group (CCG)
- Oxford Health NHS Foundation Trust
- Thames Valley Health Protection Team
- NHSE/I

2.4. The Hospital Infection Prevention and Control Committee (HIPCC) meets monthly and reports to the Clinical Governance Committee (CGC), which in turn reports to Trust Board and to the Integrated Assurance Committee (IAC).

2.5. Committees reporting to HIPCC are:

- Decontamination Committee

- Intravascular (IV) Steering Forum
- VIP (Visual Infusion Phlebitis) Action Group (on hold during pandemic).

2.6. Regular reports to HIPCC are detailed in the Business Cycle (Appendix 1) and include:

- PHE/local Health Protection Team
- Oxfordshire Clinical Commissioning Group (CCG)
- Antimicrobial Stewardship team (AMST)
- OUH Estates and Facilities
- Soft Facilities Management
- Centre for Occupational Health & Wellbeing (COHWB)
- Cardio-thoracic surgical site infection report

Key Points of Note for 2020-21

2.7. Given the pandemic demands on all clinical areas, the IPC team completed root cause analysis (RCA) on C.diff or MSSA cases.

2.8. For MRSA bacteraemias, RCA was undertaken jointly by the clinical area and the IPC team.

2.9. From February 2021 clinical directorates became responsible for recording their own incidents via the Ulysses reporting system, and for identifying any learning.

2.10. The monthly Health Economy meeting was moved to a quarterly virtual meeting.

2.11. Some additional elements of the IPC workload were placed on hold to enable the team to focus on and support the OUH response to the COVID-19 pandemic.

2.12. 2020/21 Annual Plan activities (appendix 3) placed on hold due to the pandemic have been carried over to the 2021/22 Annual Plan (appendix4).

2.13. The IPC team played a central role in the Trust response to the Covid-19 pandemic, working flexibly and providing a 7-day week service.

2.14. A review of the IPC establishment and requirements of the service has been undertaken and benchmarked against the Shelford Group. A business case will be submitted in 2021 to increase the establishment across infection prevention nursing, antimicrobial stewardship, continence, decontamination, and sepsis.

2.15. A 7 Key Steps Checklist for preventing HCAI during COVID-19 (Appendix 2) was created and launched in March 2021 to address the challenges presented in managing healthcare acquired infections (HCAI)

during the pandemic. The checklist is embedded in clinical care alongside the quality priority to ensure a reduction of HCAI in 2021/22. Progress against the 7 Key Steps now features as part of Divisional Performance review with the Chief Executive.

3. Infection Prevention and Control Staffing

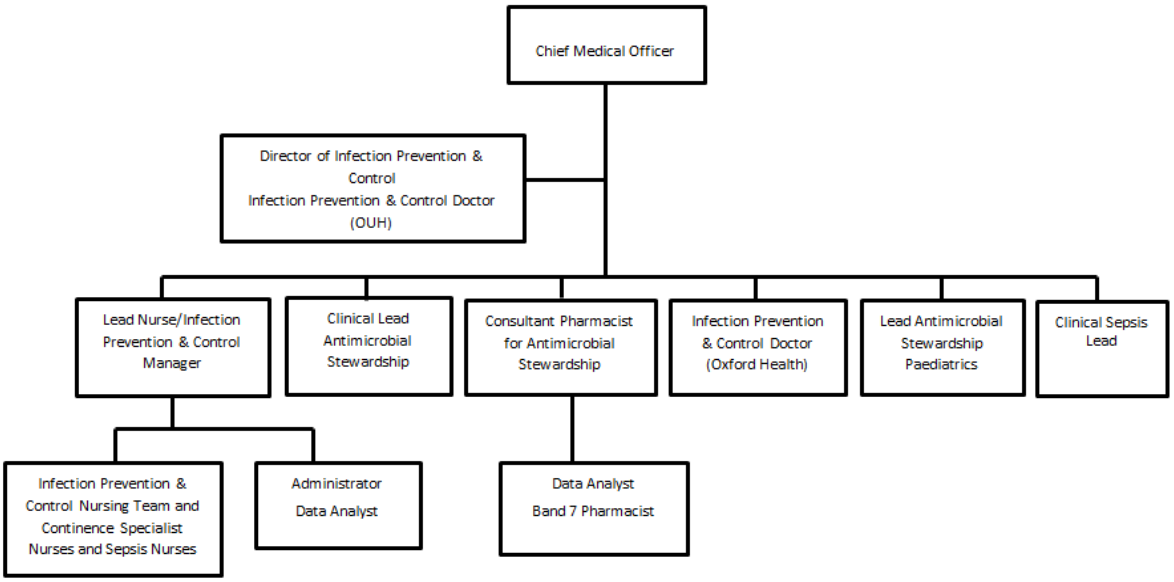
3.1. The IPC team staffing at the end of March 2021 within the Infection Prevention and Control Team is as follows:

- Infection Control Doctor (OUH) / DIPC
- Infection Control Doctor (Oxford Health NHS Foundation Trust)
- Infection Prevention and Control Manager (band 8C) 1.0 WTE
- Antimicrobial Stewardship Medical Lead
- Antimicrobial Stewardship Medical Lead Paediatrics
- Infection Prevention and Control Senior Nurse (band 8A) 0.8 WTE (has been working full time during the pandemic)
- Infection Prevention and Control Nursing staff (band 7) 5.0 WTE
- Infection Prevention and Control Nursing staff (band 6) 2.0 WTE
- Infection Prevention and Control Administrator 1.0 WTE
- Data Analyst 1.0 WTE
- Antimicrobial Stewardship team: Pharmacists 1.38 WTE (0.88 x band 8c and 0.5 x band 7), Information analyst: 1.0 WTE and Audit assistant 0.6 WTE.
- Sepsis Specialist Nurses (band 7 1.0 WTE and one vacant but recruited to, band 6 1.0 WTE)
- Continence Nurse (band 6 0.6 WTE)
- 1x vacant Continence Nurse band 7 post - removed from the budget at month 7 as post unfilled at year-end

3.2. The role of Deputy DIPC remains unassigned.

3.3. The organisational structure chart (Table 1) illustrates the line management for the Infection Prevention and Control team.

Table 1: Organisational Structure of Infection Prevention Services



3.4. To deliver a safe service, there is a close working relationship with all teams across the Trust, including the Microbiology Laboratory, Estates and Facilities, Health and Safety team, procurement, COHWB, Communications team, clinical and managerial staff, and across the PFI structure.

3.5. The IPC Manager chairs the Water Safety Group, is the Trust Decontamination Lead and is a member of the Ventilation Safety Group. There have been several projects throughout the year that have required the expertise of the IPC team on planning and opening of new wards and clinical areas.

3.6. As necessary, members of the wider microbiology/infectious diseases team are co-opted on to the team.

4. Organisms subject to mandatory reporting

Methicillin-resistant *Staphylococcus aureus* (MRSA Bacteraemia) at the OUH

4.1. For the financial year 2020/21 a total of 8 MRSA bacteraemia was apportioned to the OUH (Table 2) compared to 4 in 2019/20. All 8 cases have undergone a root cause analysis (RCA) and been reviewed at the Health

Economy meeting with the CCG. All 8 cases were deemed unavoidable due to the complexity of the patients' health.

4.2. Seven of the patients were in intensive care, of which, five had COVID- 19. In all seven ICU cases, ventilator associated pneumonia (VAP) was considered to be the source of the infection.

4.3. Learning points identified from the RCAs included:

- Missed MRSA screening on admission
- Delayed and inconsistent administration of MRSA decolonisation
- Mouth care was not reliably recorded
- Usual VAP bundles being compromised due to patient proning, heavier sedation, mouth care carried out by less experienced staff during the pandemic, patients receiving high dose steroids

4.4. Other contributory factors identified included:

- Reduced nurse: patient ratio during pandemic
- Non-compliant bed spacing due to increased number of patients in intensive care, including mutual aid patients
- Long length of stay in intensive care and hospital for COVID-19 patients

4.5. The following actions were put in place to address the learning points identified:

- Task and Finish group set up in intensive care to conduct audit of VAP, implement interventions and review
- Seven Key Steps (Appendix 2) developed for reducing Healthcare acquired infection during COVID-19
- An audit of compliance to MRSA screening and decolonisation in intensive care settings.

4.6. Five MRSA bacteraemia occurred in the last quarter of 2020/21 during the second wave of the pandemic. Progress against the actions is ongoing and will be monitored via IPC monthly reports to the Clinical Governance Committee and via performance reports.

Table 2 Number of MRSA (post 48 hours) cases April 2020 -March 2021

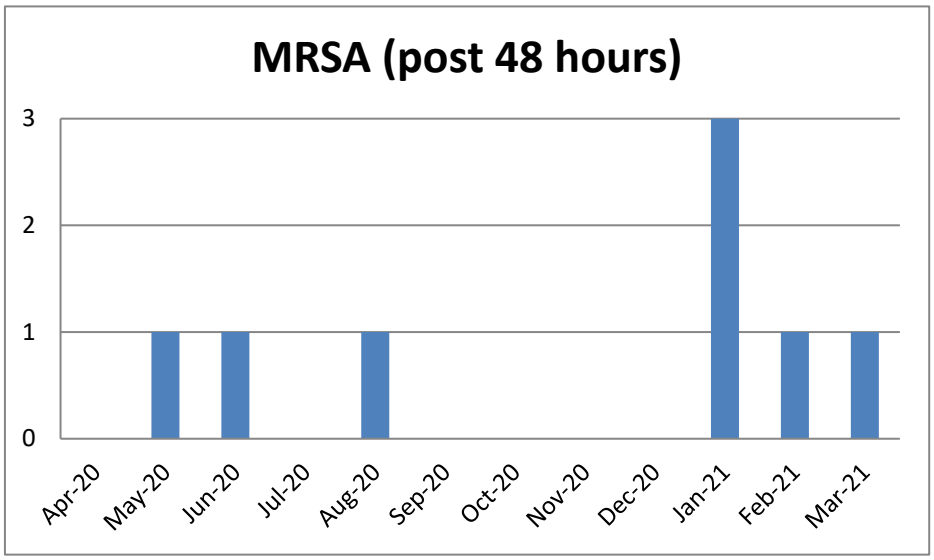
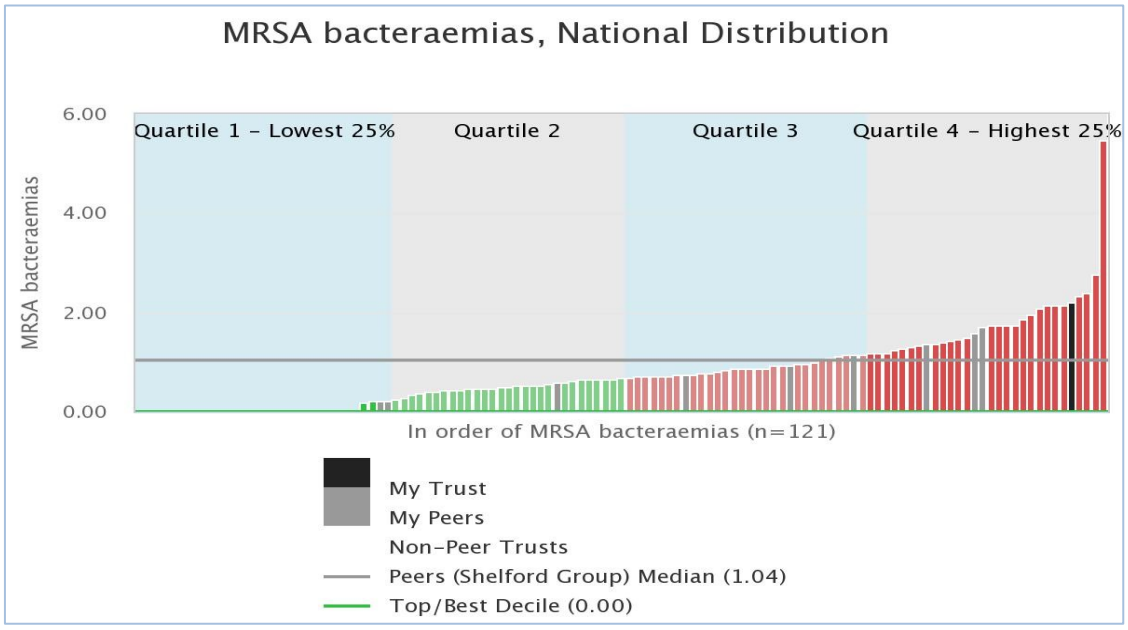


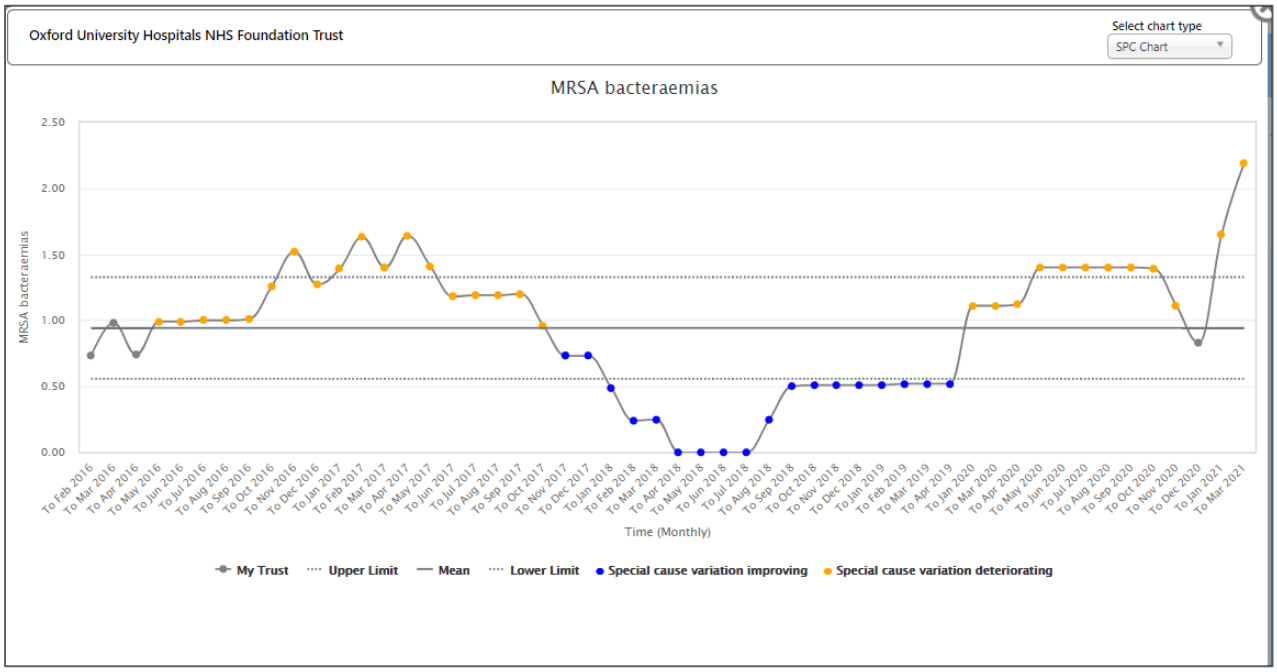
Table 3 MRSA Bacteraemia's Shelford Group (source Model Hospital June 2021 Monthly 12 month rolling) to March 21 Month Average per Occupied bed days per 100,000 beds



4.7. For comparison the values for Trust apportioned cases are as follows:

- Trust value 2.19
- Peer median 1.04
- National median 0.68

Table 4 OUH apportioned MRSA Bacteraemia rolling rate/100000 bed days



National Commentary on Trust Apportioned MRSA rates

4.8. The effect of the COVID-19 pandemic on MRSA incidence is evident when comparing the most recent quarter (January to March 2021) to the same period in the previous year (January to March 2020). Counts of hospital-onset MRSA bacteraemia cases increased 55.9% from 68 to 106 with a corresponding increase in the incidence rate of 77.6% from 0.8 to 1.4 per 100,000 bed-days.

4.9. This is a large increase in hospital-onset cases, both in terms of total numbers of hospital-onset cases and in comparison, to community-onset clearly correlating with the second wave of COVID-19 cases in England. The reasons for this are being investigated by Public Health England (PHE) but are likely to reflect OUH learning points from the RCAs undertaken.

MRSA Policy

4.10. The scheduled 2020/21 review of the MRSA policy has been completed. The policy has been discussed with the CCG and the changes made will bring the Trust in line with trusts nationally. One key change is the move to using Mupirocin for first line nasal decolonisation (previously Naseptin). Work is underway to implement the changes and the policy will be approved at Clinical Policy Group following trust wide consultation. Once approved a Safety Notice will be shared with the key learning points from previous MRSA cases.

Methicillin-sensitive *Staphylococcus aureus* (MSSA) Bacteraemia (Hospital onset)

4.11. The Trust reported 46 cases for 2020/21, three more cases than the previous year. RCA was conducted on all post-48-hour MSSA bacteraemia cases and pre-48 hour cases associated with recent admission/instrumentation.

4.12. The main recorded infection sources are documented in Table4 with figures compared to 2019/20. Prior to October 2020 there had been no cases of 'chest' recorded as a source. There were 3 cases recorded as VAP (1 Neonatal ICU, 1 Neuro ICU, 1 Cardiothoracic ICU)

Table 5 Breakdown of Sources of Infection

Recorded Source	Number of cases 2020/21	Number of cases 2019/20
Lines/devices	12	12
Chest	8 (3 VAP)	6
Unknown	16	11
Skin or soft tissue	2	9

Table 6 SPC post 48-hour MSSA bacteraemia data

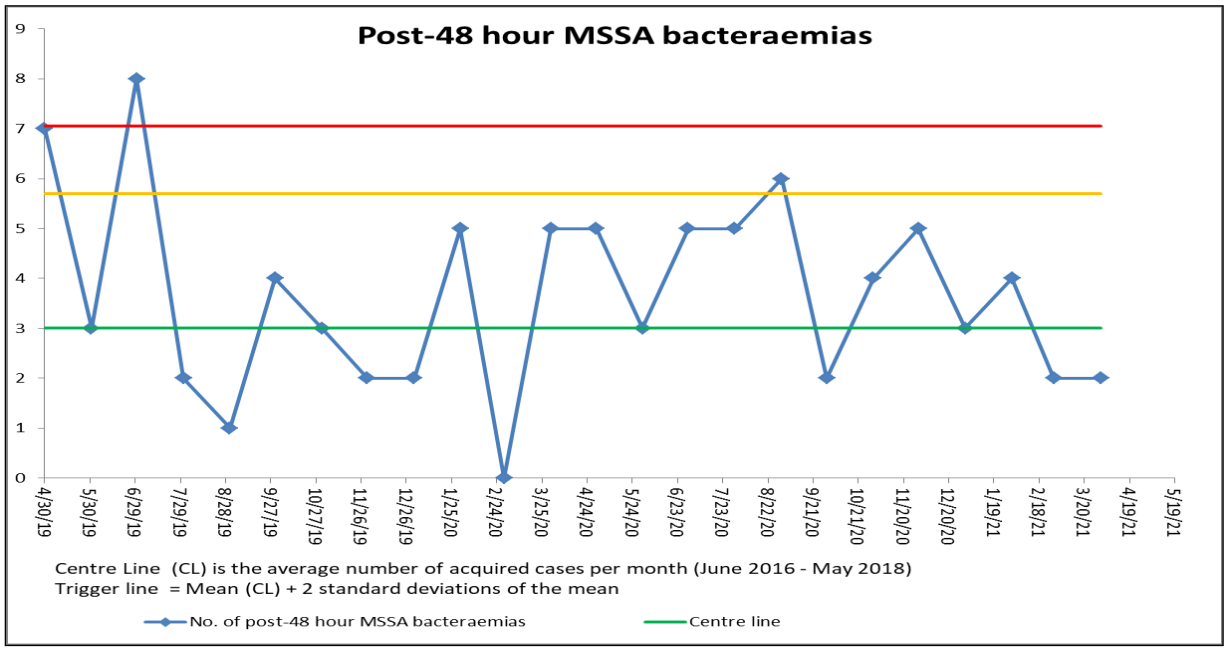
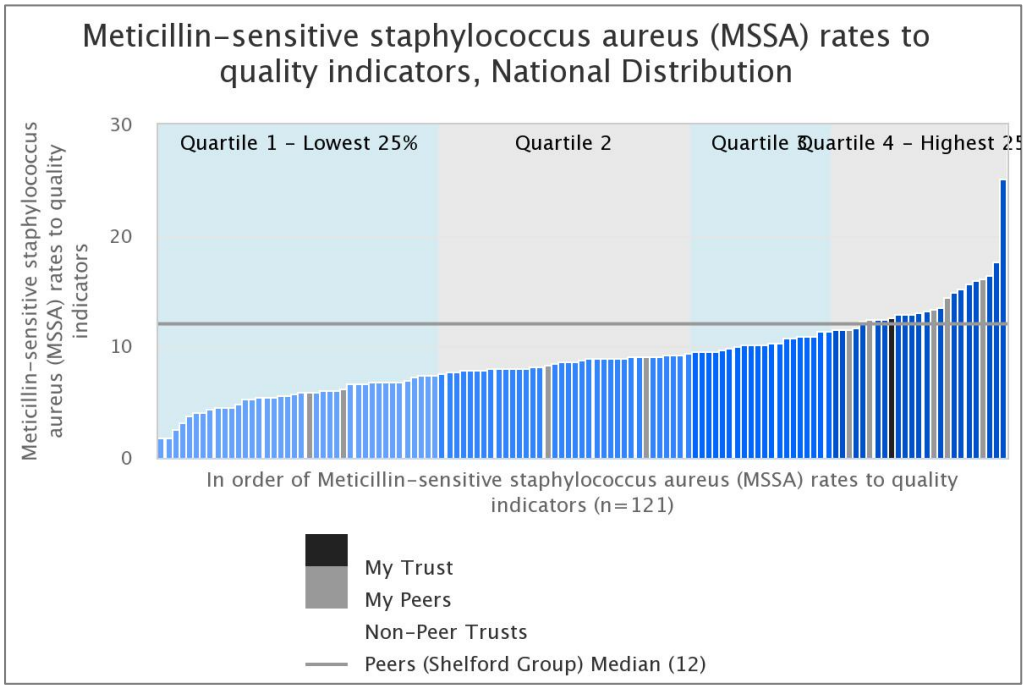


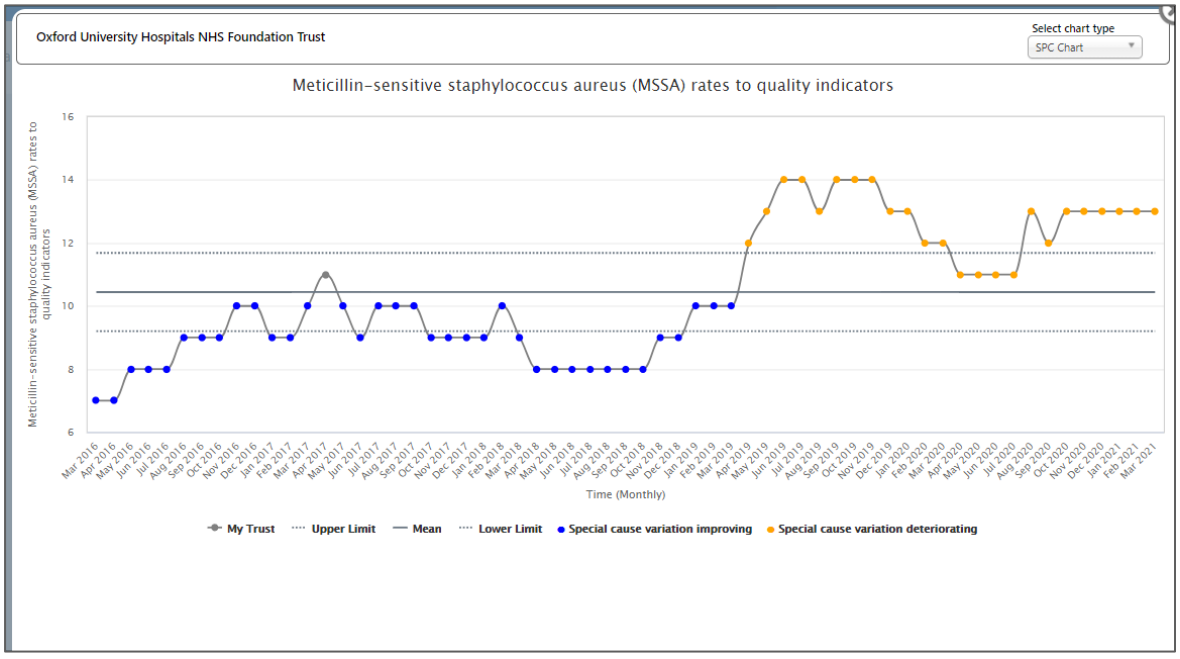
Table 7 MSSA Bacteraemia's Shelford Group (source Model Hospital June 2021 Monthly 12 months rolling) to March 21 Month Average Occupied bed days per 100,000 beds



4.13. For comparison the values for Trust apportioned cases are as follows:

- Trust value 13
- Peer median 12
- National median 9

Table 8 OUH apportioned MSSA Bacteraemia rolling rate/100000 bed days



National Commentary on MSSA

4.14. Since the mandatory reporting of MSSA bacteraemia began in January 2011 there has been a general trend of increasing counts and incidence rates of cases, primarily driven by the increase in community-onset cases.

4.15. Since the beginning of the COVID-19 pandemic there has been a decrease in all reported cases and a contrasting increase in hospital-onset cases. The overall reduction is, in part, a result of reduced hospital activity, although the exact cause of the increase in hospital-onset cases is still under investigation.

4.16. The reduction in hospital activity at the start of the pandemic makes a comparison with January to March 2020 data complicated. Comparing the most recent data (January to March 2021) to January to March 2019 shows a 3.1% increase in total cases, with a 18.0% increase within hospital-onset cases. Community-onset counts, and rates decreased 2.7% compared to the same period.

Clostridiodes difficile (C.difficile)

4.17. *C.difficile* is reported to PHE in line with below definitions.

- hospital onset healthcare associated: cases that are detected in the hospital two or more days after admission (HOHA)
- community onset healthcare associated: cases that occur in the community (or within two days of admission) when the patient has been an inpatient in the trust reporting the case in the previous four weeks (COHA)

4.18. NHSE/I did not set an objective for *C.difficile*, for 2020/21. This was not formally communicated to the OUH at the beginning of the year. A Trust decision was made to continue to follow the 2019/20 target of 89 cases.

4.19. At the end of the 2020/21 financial year the Trust reported 114 cases, 25 cases over the internally set limit.

Table 9 Breakdown HOHA v COHA (April 2019- March 2021)

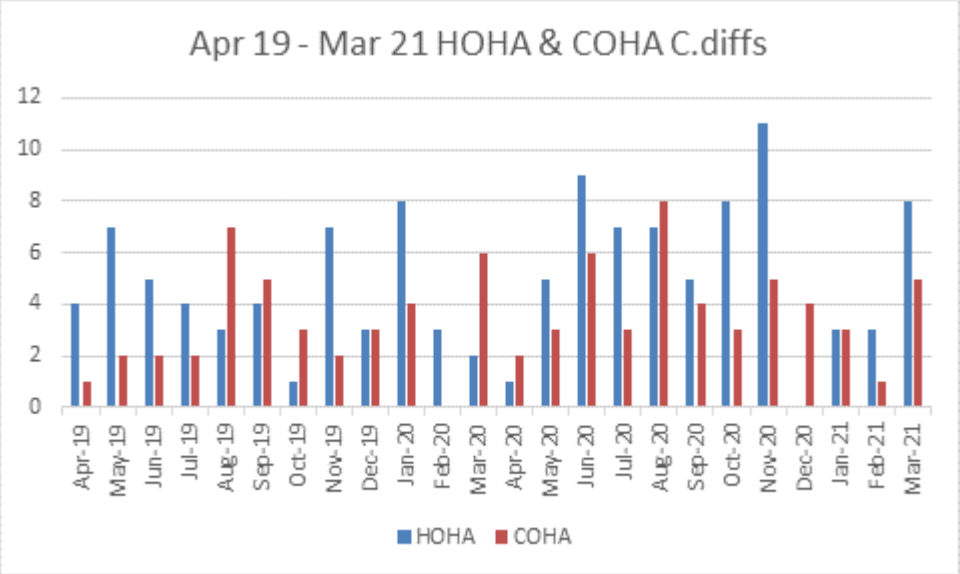
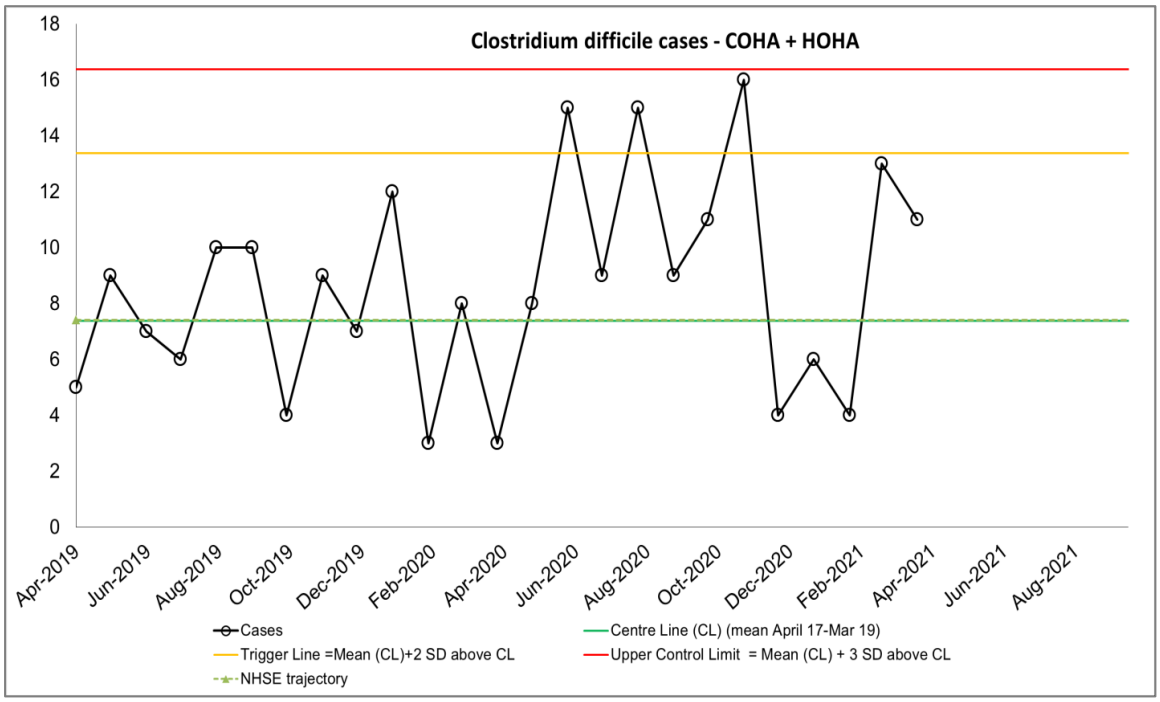


Table 10 SPC chart of OUH C. *difficile* infection counts



High Outlier Reports

4.20. Notification was received from the Thames Valley Health Protection Team that the OUH had flagged with PHE as having high *C.difficile* counts on the Health Care Associated Infection (HCAI) data.

4.21. Fingertips (data source from PHE of HCAI and antimicrobial indicators) (https://fingertips.phe.org.uk/) shows OUH HOHA rates have been slightly

above the England average for Q2-4 2020/21, but COHA rates are increasing rapidly above the England average (Table and Table).

4.22. Following this increase the CQC wrote to the Trust for assurance on the management of *C.difficile*. The Trust responded with a report which was also presented at the OUH HIPCC and Clinical Governance Committee. A Trust-wide *C.difficile*-focused antimicrobial stewardship review was also completed (detailed at paragraph 4.24) . The CQC confirmed they had no further questions on *C.difficile* rates.

Table 11 HOHA and 12 month rolling rates OUH compared to England

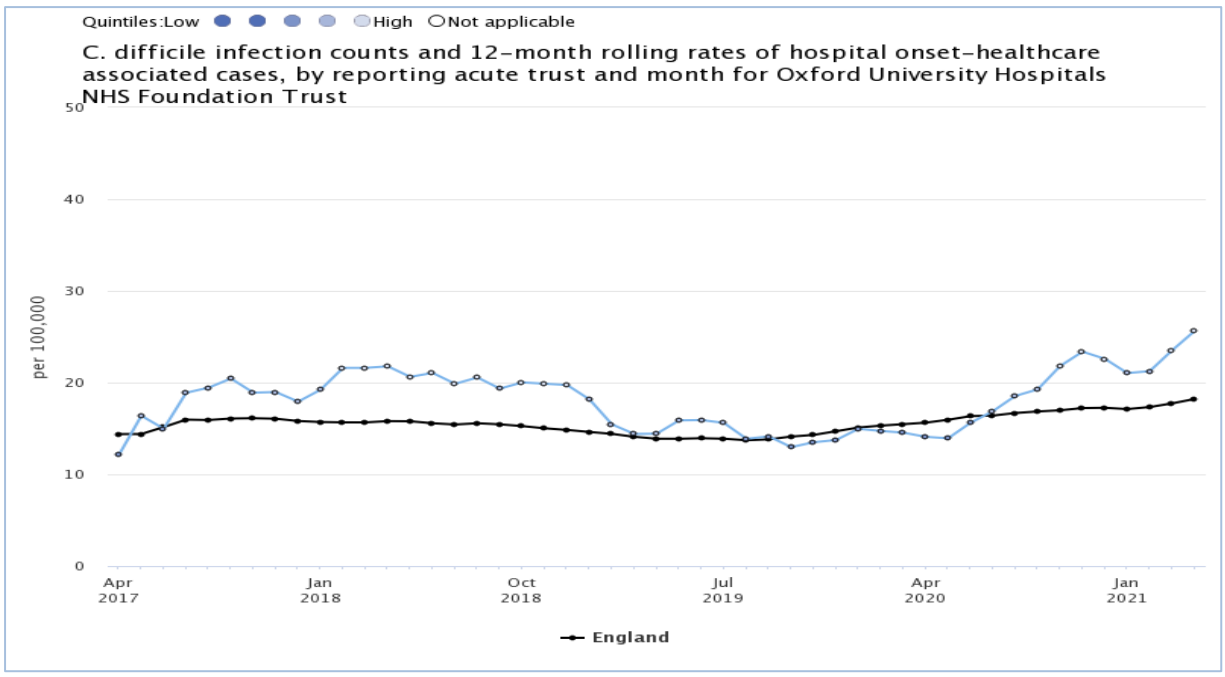
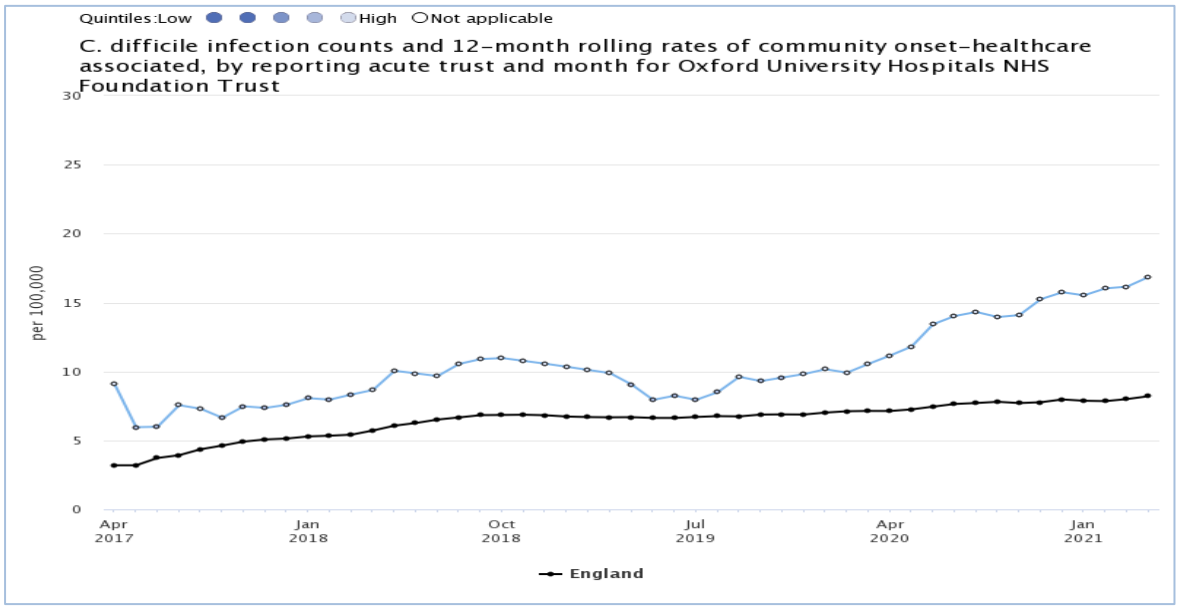


Table 12 COHA and 12 month rolling rates OUH compared to England



C.difficile outbreak on Gastroenterology Ward June 2020

4.23. There was an outbreak of *C.difficile* on the gastroenterology ward in June 2020. Five cases were linked by time and ward. RCA was conducted for all cases and an outbreak meeting held. Several actions were undertaken and included:

- Hand hygiene audit conducted by IPC, scored 93%
- Environmental audit undertaken; two commodes were immediately condemned because of disrepair.
- Standard of terminal cleans reviewed
- Antimicrobial stewardship audit undertaken.

4.24. Samples were sent for ribotyping confirming that all five cases were common community strains. A data review was conducted to look at antibiotic use and increased use of Ceftriaxone and Ciprofloxacin was noted.

4.25. As a result of the ward then being closed due to the reallocation of clinical services,a full terminal clean was undertaken before it was reopened.

Trustwide *C.difficile* focused Antimicrobial Stewardship Reviews

4.26. At the end of September 2020, the *C.difficile* position was 15 cases over the cumulative limit . The Antimicrobial stewardship team analysed pharmacy data to look at antibiotic usage during the first COVID-19 pandemic wave compared with 2019/20 to identify feedback for the Divisions, but this proved challenging because of ward moves, and establishing good denominator data. The change in case mix of admissions over the COVID-19 pandemic was predicted to impact on the incidence of *C. difficile*, as antibiotic usage is higher in emergency admissions compared with elective admissions. Additionally, the OUH ambulates a large number of patients in comparison with other Trusts, and this also has an impact on antimicrobial prescribing.

4.27. It was noted that while overall antibiotic consumption had gone down there was however an increase in ciprofloxacin and ceftriaxone prescriptions. The use of conservative management with antibiotics as treatment instead of surgery, for example conservative management of appendicitis in the current COVID-19 pandemic is likely to have contributed to some of these increases. A review of ciprofloxacin prescribing and a focus on reducing it was identified as an action. Ceftriaxone is commonly used to facilitate ambulation of patients for care in their own homes – but may be a significant contribution to OUH high COHA rates (see below).

C.diff Reporting Structure

7.11. *C.difficile* root cause analysis has now been linked with Ulysses incident reporting. This new reporting structure was launched in February 2021 with the objective of clinical directorates being responsible for recording their own HOHA and COHA incidents and learning identified.

National Picture of *C.difficile*

7.12. Comparing the most recent quarter (January to March 2021) to the same period in the previous year (January to March 2020) shows a decrease in hospital-onset *C.difficile* cases of 4.5% from 1,146 to 1,095 which when corrected for bed days corresponds to an incidence rate increase of 8.9% from 13.5 cases per 100,000 bed-days to 14.7 (because of the reduction in hospital activity at the start of the COVID-19 pandemic Jan-March 2020). Community-onset *C.difficile* cases and incidence rates decreased 1.6% from 1,928 to 1,897 and from 13.9 to 13.7 per 100,000 population.

7.13. A comparison to January to March 2019 shows an 14.9% increase in total cases, with a 15.3% increase within hospital-onset cases. Community-onset counts increased 14.7% compared to the same period.

7.14. A comparison with other Shelford Trusts shows that we are an outlier with our rate of COHA cases (Table 13 and Table 14).

Table 13 *C. difficile* infection counts and 12-month rolling rates of hospital onset-healthcare associated cases, by Shelford Trust and month (April 2021)

Area	Count	Value	95% Lower CI	95% Upper CI
England	5,031	18.2	-	-
Shelford Group	850	22.9*	21.4	24.5
University College London Hospitals	72	40.3	-	-
Manchester University NHS Foundation Trust	138	28.5*	-	-
Sheffield Teaching Hospitals	106	27.5	-	-
The Newcastle Upon Tyne Hospitals	95	26.7	-	-
Oxford University Hospitals	73	25.6	-	-
University Hospital Birmingham	156	21.1*	-	-
Cambridge University Hospitals	57	20.0	-	-
Kings College Hospital	75	17.8	-	-
Imperial College Healthcare	43	15.3	-	-
Guys and St Thomas	35	11.9	-	-

Table 14 *C. difficile* infection counts and 12-month rolling rates of community onset-healthcare associated cases, by Shelford Trust and month (April 2021)

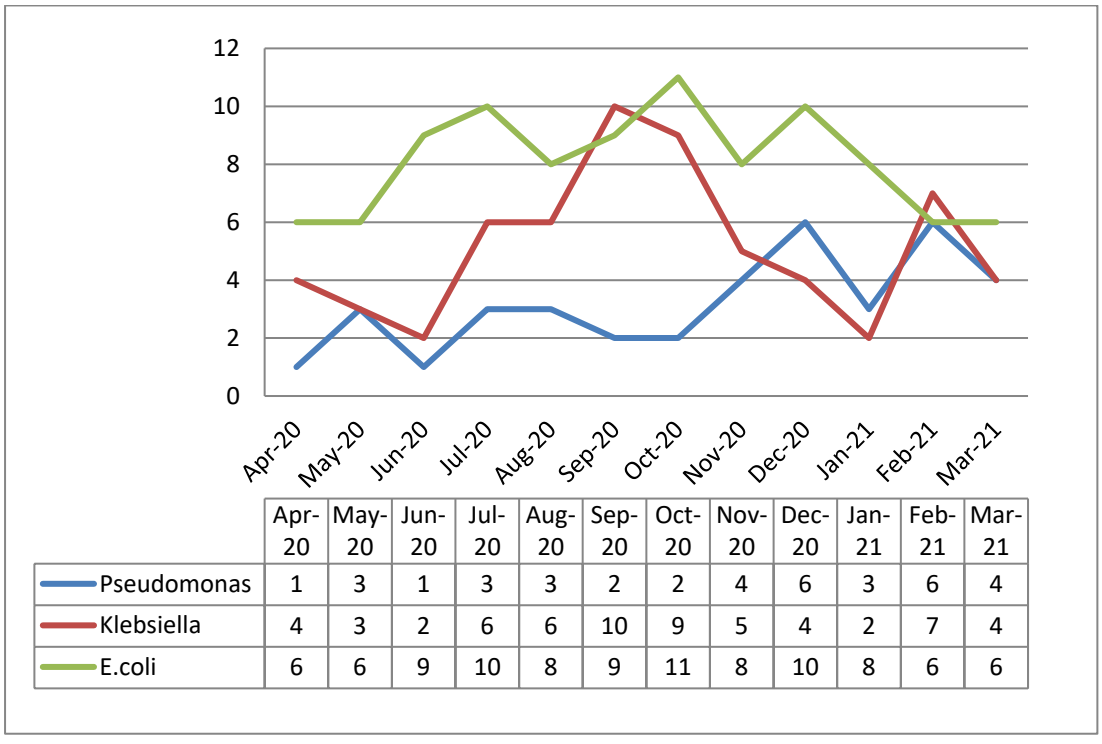
Area	Count	Value	95% Lower CI	95% Upper CI
England	2,267	8.2	-	-
Shelford Group	285	7.7*	6.8	8.6
Oxford University Hospitals	48	16.9	-	-
Sheffield Teaching Hospitals	46	11.9	-	-
University Hospital Birmingham	64	8.6*	-	-
The Newcastle Upon Tyne Hospitals	26	7.3	-	-
Kings College Hospital	27	6.4	-	-
Cambridge University Hospitals	17	6.0	-	-
Manchester University NHS Foundation Trust	28	5.8*	-	-
University College London Hospitals	10	5.6	-	-
Imperial College Healthcare	11	3.9	-	-
Guys and St Thomas	8	2.7	-	-

Gram Negative Bloodstream Infections

4.28. NHS Improvement has set a national target of halving healthcare-associated Gram-negative bloodstream infections (GNBSI) by March 2023/4. A decision is awaited from NHSE on whether this target will be revised to consider the impact of the COVID-19 pandemic. The target will be extremely challenging for OUH. _ why – what are we doing?

4.29. Table 15 details the number of monthly cases of GNBSI in 2020-21 with Table 16 detailing a comparison of the number of annual cases over the last 4 years.

Table 15 Post – 48-hour Gram Negative Bloodstream Infections (April 2020-March 2021)



	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
Pseudomonas	1	3	1	3	3	2	2	4	6	3	6	4
Klebsiella	4	3	2	6	6	10	9	5	4	2	7	4
E.coli	6	6	9	10	8	9	11	8	10	8	6	6

Table 16GNBSI Rates 2017- 2021 (post 48 hours)

	2020/21	2019/20	2018/19	2017/18
E. coli	97	110	81	108
Klebsiella sp.	62	70	56	47
P. aeruginosa	38	54	29	42

4.30. Although there has been a reduction in absolute case numbers, when this is corrected by bed-days, this reduction is not maintained as demonstrated for *E.coli* in the table below (Table 16). Nationally the rate of *E.coli*, Klebsiella sp. and *Pseudomonas aeruginosa* hospital-onset cases is at an all-time high.

Table 17 E.*coli* Hospital Onset Cases and 12 month rolling rates for OUH compared to England

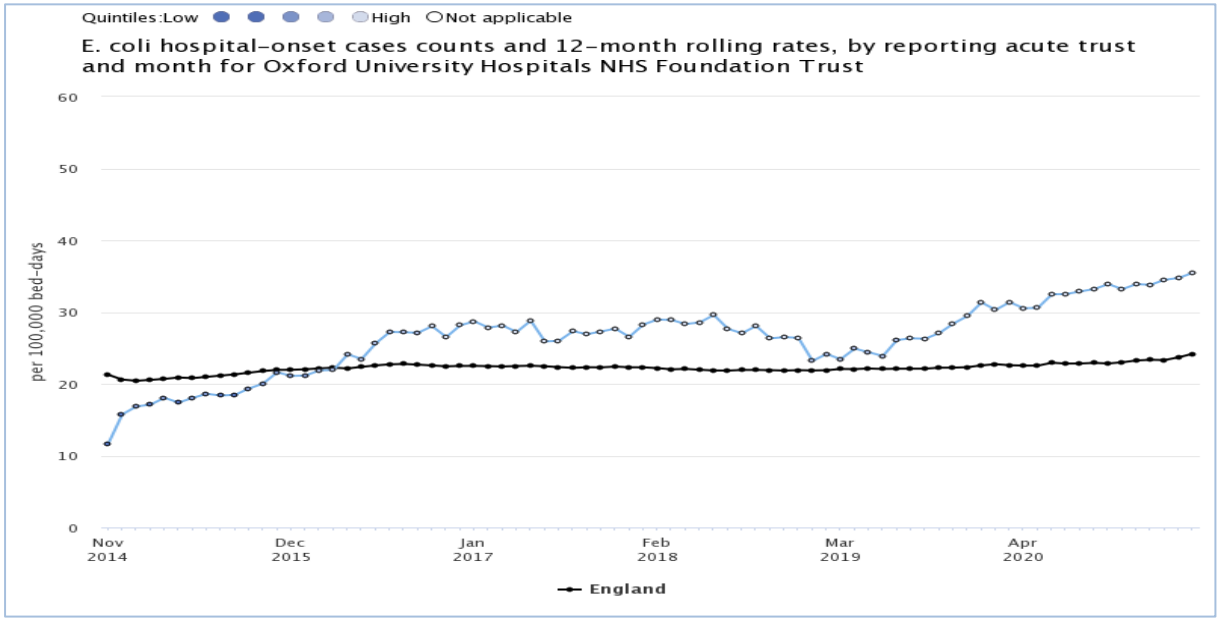


Table 18 Breakdown of main sources

Klebsiella	**Pseudomonas**	**E. coli**
• 17 recorded as unknown • 12 hepato-biliary • 9 gastro • 7 Chest	• 12 Chest (includes VAP) • 9 recorded as unknown • 4 intravascular devices • 4 gastro	• 25 recorded as unknown • 23 urinary • 22 gastro • 12 hepato-biliary

4.31. The figures in Table 17 detail blood cultures taken 48 hours after admission to hospital and therefore will not capture the community onset, healthcare acquired (COHA) infections. For the report next year, data will include COHA infections.

Catheter Associated Bloodstream Infections (CLABSI) and Potential Consequence of COVID-19

Central Line Associated Bloodstream Infection (CLABSI) surveillance in the Intensive Care Units of Oxford University Hospitals

4.32. Central Line Associated Bloodstream Infections (CLABSIs) are serious infections typically causing a prolongation of hospital stay, increased cost and risk of mortality. CLABSIs can be prevented through proper insertion techniques and management of the central line, using evidence based central venous line care bundles.

4.33. Prior to 2018 the OUH did not have an on-going formal programme in place for CLABSI surveillance according to strict definitions, although data submitted to ICNARC (Intensive Care National Audit and Research Centre) by adult ICUs has provided important on-going feedback.

4.34. Benchmarking data for the UK comes from the Public Health England (PHE) ICCQIP (Infection in Critical Care Quality Improvement Programme). ICCQIP data is available for the period up to September 2020 and in the previous 12 months reports rates between 1.7 and 4.1 cases per 1,000 central-line-days in adult ICUs, 0 -1.4 cases per 1,000 central-line-days in neonatal ICUs and 0.9- 2.6 cases per 1,000 central-line-days in Paediatric ICUs. Note this is an increase in national reported rates in adult ICU, likely to reflect the impact of the first wave of the COVID-19 pandemic in the first 6 months of 2020.

4.35. A quarterly download of all positive blood cultures from Adult ICU (AICU), Churchill ICU (CICU), New-born ICU (NBICU), Neurological ICU (NICU), Cardiac ICU (CTVCC) and Paediatric ICU (PITU) was obtained from the Microbiology laboratory information management system. Each positive blood culture was classified according to CDC guidelines (https://www.cdc.gov/nhsn/pdfs/pscmanual/4psc_clabscurrent.pdf). All cases were classified by 2 Consultant Infection Specialists. For cases where attribution was unclear, the cases were reviewed with the Clinical or Governance leads for each ICU.

4.36. Denominator data (number of catheter days/quarter) was obtained from IT or governance leads on each ICU.

4.37. All units reported in a timely manner with CLABSI classification and establishment of rates performed quarterly whenever possible.

Table 19 CLABSI ICU Data

	NBICU	CICU	AICU	Neuro ICU	CTVCC	PITU/HDU
No of quarters in 2020/21 with data	4	4	4	4	4	4
No of CLABSIs	11	1	20	9	23	3
Central line days	4241	1520	4496	2499	4196	1015
CLABSI/1000 central line days	2.6	0.7	4.4	3.6	5.5	3
Benchmark (ICCQIP) Oct'19- Sept 20	0-1.4	1.7-4.1	1.7-4.1	1.7-4.1	1.7-4.1	0.9-2.6
Trend from 2019-2020	↑	↓	↑	↓	↑	↑

4.38. It is important to note the impact of the COVID-19 pandemic, especially in the last quarter of the financial year (Jan-Mar 2021). AICU and CTVCC led the ICU COVID-19 surge response and saw a large increase in COVID-19 positive patients which impacted on many facets of care. AICU increased capacity from 24 to 38 beds and there was an increased length of stay from an average 4-5 day to 8-9 days which resulted in 812 bed days being recorded for the month of February 2021.

4.39. As a result, AICU and CTVCC saw a marked increase in both blood culture contamination (with Coagulase negative staphylococci) and CLABSI with a variety of pathogens during the first quarter of 2021. For example, 10 out of the 20 AICU CLABSI recorded for the 12 months were seen in the 4th quarter, and similarly 15 out of the 23 in CTVCC. An increase in BSI associated with ventilator associated pneumonia was also noted in that same quarter.

4.40. The Neuro-ICU CLABSI rate was within ICCQIP benchmark despite 4 out of the 9 CLABSI seen in the 4th quarter. In this Quarter 4 the case-mix on Neuro-ICU changed to being comparable with a general ICU, to support ACIU during the COVID-19 surge.

4.41. CICU performance is commended as it is better than the national average with only one CLABSI recorded all year.

4.42. PITU/HDU recorded only 3 CLABSI/1000 central venous line (CVL) days for the financial year putting the unit above the ICCQIP benchmark (0.9-2.6). It should be noted that a small variation in numbers of CLABSI has a greater impact for this unit in view of the small number of CVL days.

4.43. NBICU reported a rate for the year which was markedly above the national benchmark. These have been secondary to a variety of pathogens including Coagulase negative staphylococci, Staphylococcus *aureus, Serratia spp.* and *Pseudomonas aeruginosa*. In addition, the NICU has seen increased colonisation of babies and possible blood stream infections

related to *Staphylococcus capitis* which is an object of a national alert concerning neonatal units.

4.44. Following the review of ICU CLABSI rates the following actions have been put in place:

- units to continue to apply central venous line (CVL) insertion and maintenance care bundles.
- For CVL maintenance: aseptic access technique, daily site review, and remove CVLs at earliest opportunity (i.e. daily review of the need for CVL)

4.45. The increase in CLABSI rates in AICU and CTVCC appears to be directly related to COVID-19 pressures. No national benchmark data is available for the same period (Q4). Work has been done by the IPC team in both units regarding line sampling, line care and implementation of bundles to prevent VAP. CLABSI rates will continue to be monitored by the IPC Team..

4.46. The neonatal unit has reviewed line care and line sampling guidance and implemented teaching of junior staff. A working group, led by IPC has also been established to review procedures including environmental cleaning, and addressing a shortage of incubators

Trust wide non-Intensive Care Units (ICU) Central Line Associated Blood Stream Infections (CLABSI) surveillance

4.47. Every suspected CLABSI case is reviewed and classified against the Centres for Disease Control and Prevention (CDC) CLABSI definition. The data is validated with oversight by the Infection Consultant.

4.48. During the financial year 2020-21, the IPC team identified 31 post-48-hour (hospital-acquired) CLABSI. The electronic extraction of a denominator (line/days) from EPR to enable the calculation of rates can be done through a script created by the IM&T team. However, due to the inconsistencies in clinical staff use of the EPR section ‘Interactive view – line tube and devices’ in some clinical areas, and the issues in the reliability of the script, the data is currently not considered robust. Therefore, CLABSI rates have not been calculated for this financial year as a suitable denominator is not available.

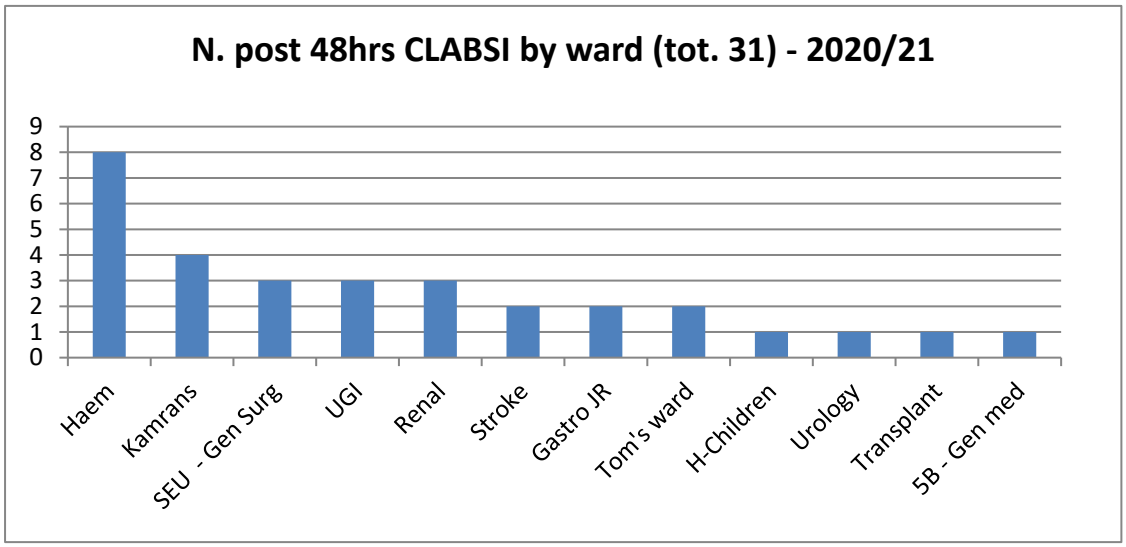
4.49. In quarter 4 2020-21, the Haematology Team were involved in the identification, validation, active feedback, and review of post-48-hrs cases in a collaborative QI project.

4.50. Overall, the majority of the CLABSI cases in the Trust were noted in immunosuppressed patients. Immunosuppression is a known major risk

factor for developing line infection, along with Parenteral Nutrition (PN) administration.

4.51. Paediatric CLABSI cases reported with positive blood cultures within the first week of line insertion are closely investigated as this suggests a possible problem during the insertion procedure. However, the investigation has not highlighted any specific IPC issues.

Table 20 Number of post 48hrs CLABSI (April 2020-March 2021)



4.52. Most post 48-hrs CLABSI have been caused by skin commensals such as *S.* epidermidis, other Coagulase negative Staphylococcus species and *S. aureus*.

Pre-48-hrs CLABSI

4.53. IPC has identified 39 pre-48-hrs CLABSI for 2020-21.

4.54. The pre-48-hrs CLABSI cases reported are for patients with an existing central venous line who had positive blood cultures collected at OUH and were consequently admitted to hospital for CLABSI acquired either in the community or in another hospital or at OUH out-patient departments or within the first 48 hrs from admission.

4.55. The pre-48 hrs CLABSI cases review show that Renal dialysis patients are at higher risk of developing CLABSI than other outpatients and the most common organism causing pre-48-hrs CLABSI is *S. aureus.*

4.56. A number of recommendations have been presented to HIPCC including:

- raising staff awareness of CLABSI incidence
- clinical teams proactively undertaking QI interventions in areas with a high incidence of CLABSI,

- improving documentation of lines, tubes, and devices in EPR
- audit/refresher training of ANTT.

Coagulase Negative Staphylococcus (CoNS) and Adult Intensive Care

4.57. Blood cultures (BC) are an important tool in the identification of bacteraemia in unwell patients. Guidelines recommend no more than a 2-3% contamination rate. BC contamination is a patient safety issue resulting in unnecessary antimicrobial treatment, an extended length of stay and an increase in the laboratory workload, with additional cost to the NHS. The rate of CoNS in BCs can be used as a surrogate for BC contamination rate.

4.58. The majority of patients in the ICU setting will have central venous access. Not all BCs positive for CoNS will represent contamination – some will meet the definition for CLABSI, an additional reason for the careful monitoring of CoNS rates.

4.59. Increased levels of CoNS in BCs in all the Trust adult intensive care (Adult ICU) areas were noted during the months of January and February 2021. This included the 2 Adult ICUs which were predominantly dedicated to COVID-19 patients (AICU and CTVCC), and the Churchill ICU. Rates in the Neuro-ICU which became a general Adult ICU in 2021 remained constant. Adult ICU bed capacity in the 2 COVID-19 ICU areas was increased, without an increase in specialist nursing provision. By March 2021 the additional bed capacity was no longer required.

4.60. A comparison between BC CoNS rates from the Adult ICU areas for January to March 2021 with the same time period in 2020 was undertaken.

4.61. The results showed CoNS positive BCs rates (% of total) in Adult ICU areas were 4.0% Jan-Feb 2020 vs.10.9% Jan-Feb 2021 ($P<0.001$). In comparison, the rates in March 2020 and 2021 were 7.8% and 3.3%. The reduction in proportion of CoNS in BCs between Jan/Feb 2021 and March 2021 was also significant at $p<0.001$.

4.62. Rates in the 2 Paediatric intensive care areas, rates were static

4.63. It can be hypothesised, through observations in Adult ICUs, that COVID-19 pressures contributed to the increase in BC contamination/CLABSI rates. The root cause is likely to be multifactorial, including bed capacity, reduced nurse to patient ratio, proning of patients, sessional wearing of long sleeve gowns, and a reluctance to not double glove compromising hand hygiene and aseptic non touch technique. In March 2021, once the nurse: patient ratio and unit capacity returned to normal, BC contamination/CLABSI rate returned to pre-COVID-19 rates. The number of CoNS positive cultures attributed to CLABSI has been reviewed as part of routine ICU CLABSI surveillance.

Table 21 Percentage of all positive BCs that were Coagulase negative Staphylococcus across all ICU areas (CICU = Churchill ICU, CTVCC = Cardiac ICU, AICU = Adult ICU, NBICU = neonatal ICU, PICU = Paediatric ICU)

	CICU		CTVCC		AICU		NBICU		Neuro ICU		PICU	
%	**2020**	**2021**	**2020**	**2021**	**2020**	**2021**	**2020**	**2021**	**2020**	**2021**	**2020**	**2021**
Jan	0.0	7.7	1.8	13.0	3.0	11.0	6.6	4.2	7.0	7.9	0.0	0.0
Feb	0.0	12.5	16.3	16.2	0.0	8.0	2.7	4.6	6.3	4.2	0.0	9.1
March	0.0	0.0	12.5	2.6	9.1	6.5	5.9	5.6	2.6	1.9	0.0	0.0

5. Audit

Repeat point prevalence audit of screening compliance for Carbapenemase-Producing Enterobacterales (CPE)

5.1. A point prevalence audit was undertaken in June 2020 to measure compliance with screening for CPE in line with Trust CPE Guidelines.

5.2. In total 541 inpatient episodes were identified for inclusion (excluding movements of patients between wards). 518 individual patients were eligible. In a significant number of patients 477 (86.3%) a screen was not required.

Table 22 CPE screening compliance-June 2020

June 2020	Total	Percent	Screened?		Percent screened
			Yes	No	
Screen not required	447	86.3%			
Overseas hospital transfer	1	0.2%	0	1	0.0%
UK hospital transfer	68	15.2%	45	23	66.2%
Inpatient abroad (12 months)	2	0.4%	1	1	50.0%
Previous positive	0	0.0%			
Overall	**518**		**46**	**25**	**64.8%**

5.3. In summary, since the last audit in November 2019, improvements have been seen in Neurology and Cardiac, but there remained a small number of clinical areas with zero to low levels of compliance with CPE screening requirements. Divisions were informed of their compliance rate and asked to devise improvement plans. A reaudit is planned for June 2021.

5.4. Following updates to national guidelines, the Trust guidelines will be updated to reflect the changes and relaunched in the summer of 2021.

Sharps Audit

5.5. The annual audit of sharp safety conducted by Daniels Healthcare did not take place in 2020-21 due to COVID-19.

5.6. The audit was instead completed in June 2021 and showed improved results. This will be included in the next annual report. –Surgical Site Infection

5.7. Focus on SSI surveillance and reduction in 2020/21 by the IPC Team was severely impacted by Covid-19 pressures however the continuous surveillance and reporting to PHE in two specialties – Fractured Neck of Femur and Cardiac Surgery continued.

Cardiac Surgery

5.8. Surgical site surveillance of all cardiac surgery is continuously submitted to Public Health England.

Table 23 Non-CABG SSI Rates - April 2020 to March 2021

Non-CABG Sternal wound infections				
Period	**Superficial wound infections**	**Deep incisional wound infections**	**Organ / Space infections**	**Total**
Quarter 1 Apr-Jun 2020	(0/42) = 0%	(0/42) = 0%	(0/42) = 0%	(0/42) = 0%
Quarter 2 Jul-Sep 2020	(0/90) = 0%	(0/90) = 0%	(1/90) = 1.1%	(1/90) = 1.1**%**
Quarter 3 Oct-Dec 2020	(0/87) =0%	(0/87) =0%	(0/87) =0%	(0/87) = 0%
Quarter 4 Jan-Mar 2021	(0/60) = 0%	(0/60) =0%	(1/60) =1.7%	(1/60) = 1.7%

Table 24 Coronary Artery Bypass Grafts for April 2020 to March 2021

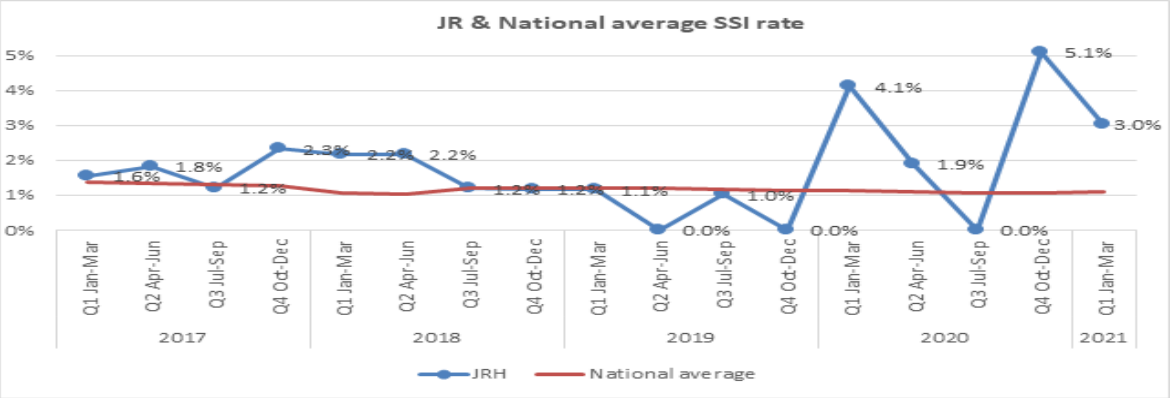
CABG Sternal wound infections				
Period	**Superficial wound infections**	**Deep incisional wound infections**	**Organ / Space infections**	**Total**
Quarter 1 Apr-Jun 2020	(1/26) =3.8%	(0/26) =0%	(0/26) =0%	(1/26) =3.8%
Quarter 2 Jul-Sep 2020	(0/78) = 0%	(0/78) = 0%	(0/78) = 0%	(0/78) = 0%
Quarter 3 Oct-Dec 2020	(1/96) =1%	(0/96) =0%	(1/96) =1%	(2/96) =2.1%
Quarter 4 Jan-Mar 2021	(1/55) = 1.8%	(1/55) =1.8%	(0/55) =0%	(2/55) = 3.6%

Table 25 Fractured Neck of Femur SSI Rates 2019-2021

Date		JRH			
		All #NOF Operations	No. SSI cases	SSI rate (%)	Outlier status
2019	Q1 Jan-Mar	87	1	1.1%	
	Q2 Apr-Jun	90	0	0.0%	
	Q3 Jul-Sep	98	1	1.0%	
	Q4 Oct-Dec	96	0	0.0%	
2020	Q1 Jan-Mar	73	3	4.1%	High outlier
	Q2 Apr-Jun	106	2	1.9%	High outlier
	Q3 Jul-Sep	72	0	0.0%	
	Q4 Oct-Dec	59	3	5.1%	High outlier
2021	Q1 Jan-Mar	66	2	3.0%	High outlier

5.9. The Orthopaedic directorate received high outlier letters from PHE in 2020-21. Denominator numbers have predominantly been low during these times. For 2021-2022 the directorate will agree a key performance indicator with the CCG.

Table 26 JRH & National average SSI rate



6. COVID-19

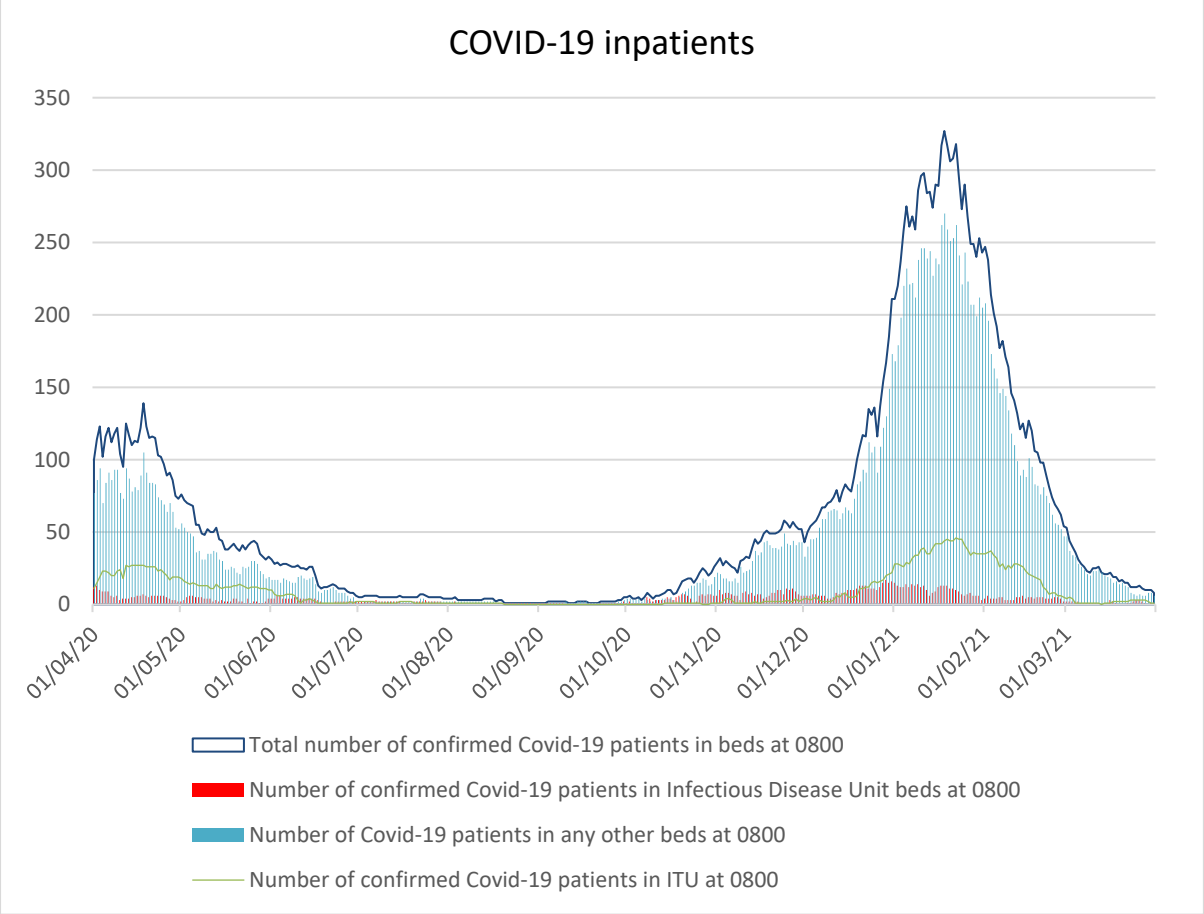
6.1. The OUH had its first COVID-19 positive patients in February 2020. Throughout the year the COVID-19 Clinical Forum, chaired by the DIPC, met at least weekly and at times during the pandemic this increased to 5 times a week. This forum was used to communicate operational guidance and issues relating to infection prevention and control, including staff and patient testing, and occupational health. It was attended by medical and nursing leads, communications, pharmacy, procurement, waste management, security, resuscitation, operational managers, and other Trust leads. Information shared was taken forward into staff safety huddles for onward communication.

Infection Prevention and Control Board Assurance Framework.

6.2. NHSE/I developed a board assurance framework to enable a self-assessment of compliance with PHE COVID-19 related infection prevention and control guidance, to identify risks, to act as an improvement tool and to assure trust boards. The IPC team has completed this framework document, and kept it up to date with key developments and implementation of new guidelines through-out the pandemic (Appendix 5).

6.3. Table 27 details numbers of inpatients with Covid-19 during 2020-21.

Table 27 COVID-19 inpatient numbers April 2020- March 2021



PPE

6.4. Prior to the pandemic, the IPC team managed high consequence infectious disease training for donning and doffing and the face fit testing of FFP3 masks. The team had trained a number of staff to become train the trainers, but it quickly became evident that the scale of this training outstripped the resources of the IPC team. The PPE training was devolved to the Divisional Educational leads and IPC worked closely with them and

OxSTaR. In addition, the Trust brought in an external accredited company to deliver face fit testing and a project manager. This service has continued throughout the year with over 8000 clinical staff now face fit tested.

6.5. The Trust always followed the PHE PPE guidelines. At the start of the pandemic there was great anxiety around PPE supplies and the Trust moved to securing reusable FFP3 masks and gowns. Staff wearing this PPE have voiced gratitude for being provided with reusable PPE as they found it more comfortable and felt supported by the Trust.

Nosocomial Cases

6.6. The national definition of nosocomial COVID-19 infection is as below.

- hospital-onset indeterminate healthcare-associated – first positive specimen date 3–7 days after admission to the Trust
- hospital-onset probable healthcare-associated – first positive specimen date 8–14 days after admission to the Trust
- Hospital onset definite healthcare-associated – first positive specimen date 15 or more days after admission to trust.

Table 28 COVID-19 cases by classification (April 2020- March 2021)

	Mar-21	Feb-21	Jan-21	Dec-20	Nov-20	Oct-20	Sep-20	Aug-20	Jul-20	Jun-20	May-20	Apr-20	Totals
Total Number of COVID-19	69	323	1081	601	180	95	11	11	7	26	121	354	2879
Total Number of definite	0	11	38	33	14	0	2	1	0	2	7	24	132
Total Number of definite deaths	0	1	9	1	2	0	0	0	0	0	2	6	21
Total number of probables	0	17	50	35	11	0	1	0	0	2	9	16	141
Total Number of probable deaths	0	4	19	8	3	0	0	0	0	0	4	8	46
Total Number of Indeterminates	0	19	62	33	9	1	1	0	0	2	15	36	178
Total Number of Indeterminates deaths	0	1	18	6	2	0	0	0	0	1	3	8	39
Total number of non-nosocomial cases	69	275	930	500	146	94	7	10	7	20	90	278	2426
Total number of non-nosocomial deaths	4	26	132	65	14	6	1	0	0	1	6	69	324

6.7. There are very clear differences between wave 1 (March-September 2020) and wave 2 (October 2020 -March 2021). The percentage of cases defined as being nosocomial (definite plus probable cases) in the 1st wave of the pandemic (March-September 2020) was 12.8%. In the second wave

(October 2020- March 2021) the percentage was 8.9% - this is a significant reduction (p= 0.0034).

6.8. A greater proportion of patients survived COVID-19 infection in wave 2. This is likely to be multi-factorial and will include improvements in treatment in line with the data from clinical trials.

6.9. This shows that learning from the first wave, together with the implementation of IPC measures, in particular 7 day a week contact tracing and cohorting, nosocomial cases were prevented, and lives were saved.

Investigation of Nosocomial Cases and Nosocomial Deaths

6.10. All definite and probable nosocomial cases have an incident report completed and mandatory set of data reported on. All nosocomial deaths are investigated and this workstream is led by the patient Safety Team with IPC input.

COVID-19 Outbreaks

6.11. Two or more cases identified in one area within a certain period of time meets the criteria for declaring an outbreak and are investigated by the IPC team. All outbreaks require reporting via the NHSE/I online reporting outbreak tool. Since November 2020 a total of 26 outbreaks were declared. Outbreak meetings were held with appropriate stakeholders.

6.12. 803 patients had their samples sequenced from 17th Nov 2020 to 5th Jan 2021. 20/21 epidemiologically identified outbreaks during that time period contained multiple genomic introductions rather than being a single outbreak strain. One of the most important finding of this study is that current surveillance definitions underestimate nosocomial acquisition. Most nosocomial transmission occurs from a relatively limited number of highly infectious individuals.

Ref: Lumley S et al, Epidemiological data and genome sequencing reveals that nosocomial transmission of SARS-CoV-2 is underestimated and mostly mediated by a small number of highly infectious individuals. J Infect. 2021 Jul 28: S0163-4453(21)00377-7.

Staff testing

6.13. The Trust implemented a comprehensive staff screening service for both symptomatic (from the end of March 2020) and asymptomatic staff (from the end of April 2020). Twice weekly lateral flow testing for staff commenced in November 2020.

Symptomatic staff testing

6.14. The symptomatic COVID-19 testing service commenced on 27/03/2020, initially screening OUH staff but extending to include household members within the first 7 days and then all individuals working

within the OUH (including PFI contracts) by mid-April. The service operates 5-7 days per week according to demand and at the peak, 70-80 tests were offered per day by a team of 6-7 staff. The service has been staffed by the Hepatology Community Team, medical and nursing students, NHSP administration, and Centre for Occupational Health & Wellbeing (COHWB) Manager with senior cover from the Lead Occupational Health Consultant and Infection Control Doctor.

6.15. This service has provided essential reassurance and easy access to testing for symptomatic staff and their households and provides the Trust with oversight of testing results to identify possible areas of concern for increasing infection rates within the Trust.

6.16. The same service also supports IPC by providing contact tracing for all staff, and whole ward/area testing in the event of an outbreak.

6.17. In January 2021 OUH took part in a DHSC/Test and Trace pilot of daily contact testing to keep essential staff who were contacts at work. This allowed over 25 staff to remain at work in the 1st phase of the study with no evidence of any onward transmission of COVID-19.

6.18. As can be seen in Table 28 below, significant numbers of staff tested positive during the second wave in November 2020 – February 2021.

Table 29 Symptomatic staff/household swab/PCR testing results by month

Month	PCR positive results	PCR negative results
October 2020	**10**	**86**
November 2020	**61**	**376**
December 2020	**251**	**526**
January 2021	**269**	**767**
February 2021	**51**	**319**
March 2021	**14**	**117**

6.19. This does not include results for staff who tested via Pillar 2 (community). These results are collected by the Staff Testing team who are responsible for contact tracing within the workplace for all staff.

6.20. Staff attending for testing in Spring 2020 kindly consented to an additional swab as part of the validation process for the DNA nudge, a point of care (POCT) COVID-19 PCR

Ref: Gibani MM et al. Assessing a novel, lab-free, point-of-care test for SARS-CoV-2 (COVID-19Nudge): a diagnostic accuracy study. Lancet Microbe. 2020 Nov;1(7).

Asymptomatic testing

Oxford University Hospitals Staff COVID-19 testing cohort

6.21. A proposal to Matt Hancock, Secretary of State for Health in April 2020, supported by the OUH, resulted in a request from DHSC to set up an asymptomatic staff testing cohort, with the remit of understanding infection in healthcare workers (HCWs) to inform IPC in health care settings, and in the wider community. A staff testing group was established, consisting of clinicians from the Infection service including the HPRU (Health Protection Research Unit), staff seconded from the hepatology research team, staff health, and volunteer medical students. Testing commenced on 23April2020, and by the end of May almost 10,000 individual staff members had signed up and been tested. Asymptomatic HCWs were offered voluntary nasal and oropharyngeal swab PCR testing every two weeks and serological testing every two months. A bespoke website to support appointments and result communication was built. The EPR team responded rapidly to support the testing process. Once registered on the system, symptomatic testing results from Pillar 1 and Pillar 2 (if provided) were also incorporated into the data set. The database was used by occupational health and IPC teams to manage cases and contacts. Subsequently a national study - SIREN (SARS-COV2 immunity and reinfection) – was set up led by PHE along very similar lines, and the two studies were aligned using anonymised data from IORD (Infection in Oxfordshire Research Database).

- Data fields recorded include ethnicity, job role, usual place of work, details of prior symptoms, contacts, current symptoms, PCR and antibody results, vaccination dates
- 8-December-2020: staff vaccination programme began (Pfizer-BioNTech BNT162b2)
- 4-January-2021: Oxford-AstraZeneca ChAdOx1 nCoV-19 added – mainly provided to all staff at one acute hospital.
- Staff were encouraged to attend for serological testing prior to first and second vaccination, and additionally around 4 weeks post-first vaccination where the second vaccine dose was due to be given after 12 weeks.

Ethics statement

- Deidentified data were obtained from the Infections in Oxfordshire Research Database which has generic Research Ethics Committee, Health Research Authority and Confidentiality Advisory Group approvals (19/SC/0403, 19/CAG/0144).

Table 30 Asymptomatic staff swab/PCR testing results by month

Month	Tests done	Unique staff tested	Negative	Positive	New staff diagnoses
April 2020	697	695	680 (97.6%)	13 (1.9%)	11
May 2020	10773	9108	10443 (96.9%)	319 (3.0%)	236
June 2020	6007	4130	5969 (99.4%)	36 (0.6%)	15
July 2020	5496	3762	5481 (99.7%)	12 (0.2%)	9
August 2020	3332	2677	3294 (98.9%)	2 (0.1%)	2
September 2020	4585	3672	4556 (99.4%)	7 (0.2%)	6
October 2020	5070	3970	5049 (99.6%)	18 (0.4%)	16
November 2020	6195	4879	6124 (98.9%)	56 (0.9%)	47
December 2020	5516	4407	5391 (97.7%)	90 (1.6%)	67
January 2021	6043	4627	5867 (97.1%)	100 (1.7%)	70
February 2021	5497	4383	5364 (97.6%)	42 (0.8%)	29
March 2021	4538	3558	4522 (99.6%)	4 (0.1%)	2

6.22. Several key findings have emerged from results from the staff testing cohort, which are described and referenced below:

Lumley SF et al. An observational cohort study on the incidence of SARS-CoV-2 infection and B.1.1.7 variant infection in healthcare workers by antibody and vaccination status. Clin Infect Dis. 2021 Jul 3

Conclusion: Natural infection resulting in detectable anti-spike antibodies and two vaccine doses both provide robust protection against SARS-CoV-2 infection, including against the B.1.1.7 variant.

Eyre DW et al Quantitative SARS-CoV-2 anti-spike responses to Pfizer-BioNTech and Oxford-AstraZeneca vaccines by previous infection status. Clin Microbiol Infect. 2021 Jun 7

Conclusions: SARS-CoV-2 vaccination leads to detectable anti-spike antibodies in nearly all adult HCWs. Whether differences in response impact vaccine efficacy needs further study.

Eyre DW et al. Stringent thresholds in SARS-CoV-2 IgG assays lead to under-detection of mild infections. BMC Infect Dis. 2021 Feb 18;21(1)

Downs LO, Eyre DW, O'Donnell D, Jeffery K. Home-based SARS-CoV-2 lateral flow antigen testing in hospital workers. J Infect. 2021 Feb;82(2)

Lumley SF et al The duration, dynamics, and determinants of SARS-CoV-2 antibody responses in individual healthcare workers. Clin Infect Dis. 2021 Jan 6

Conclusion: SARS-CoV-2 anti-nucleocapsid antibodies wane within months, and faster in younger adults and those without symptoms. However, anti-spike IgG remains stably detected.

Lumley SF et al. Oxford University Hospitals Staff Testing Group. Antibody Status and Incidence of SARS-CoV-2 Infection in Health Care Workers.
N Engl J Med. 2021 Feb 11;384(6)

Conclusions: The presence of anti-spike or anti-nucleocapsid IgG antibodies was associated with a substantially reduced risk of SARS-CoV-2 reinfection in the ensuing 6 months.

Eyre DW et al. Differential occupational risks to healthcare workers from SARS-CoV-2 observed during a prospective observational study. Elife. 2020 Aug 21

- 1128/10,034 (11.2%) staff had evidence of COVID-19 at some time in the first wave of SARS-CoV-2
- Greatest risk in staff with a confirmed household contact (adjusted odds ratio [aOR] 4.82 [95%CI 3.45-6.72]).
- Higher rates of COVID-19 were seen in staff working in COVID-19-facing areas (22.6% vs. 8.6% elsewhere) (aOR 2.47 [1.99-3.08]).
- Controlling for COVID-19-facing status, risks were heterogenous across the hospital, with higher rates in acute medicine (1.52 [1.07-2.16]) and sporadic outbreaks in areas with few or no COVID--19 patients.
- COVID-19 intensive care unit staff were relatively protected (0.44 [0.28-0.69]).

- Positive results were more likely in black (1.66 [1.25-2.21]) and asian (1.51 [1.28-1.77]) staff, independent of role or working location, and in porters and cleaners (2.06 [1.34-3.15]).

6.23. Based on these results the IPC team made a recommendation to the Trust Board to protect both staff and patients during the on-going COVID-19 pandemic in July 2020:

- Continue universal level 1 PPE for all patient contacts, unless level 2 indicated, in line with government guidelines
- Continue to triage all acute patients according to symptoms of possible COVID-19, with correct patient placement. Include the possibility of atypical presentations in the elderly.
- Establish social distancing wherever feasible for all patients (in-patients, day cases, out-patients).
- All visitors and out-patients to be given a face mask if they arrive on site without a face covering
- Re-invigorate training and safety huddles focused on PPE. Introduce PPE safety team (PPEST).
- Await Government recommendations regarding BAME staff working in acute settings
- Ensure risk assessments have been completed and appropriate actions taken for all vulnerable staff including BAME staff.
- Re-enforce the requirement for social distancing between staff at all times.
- Implement universal mask wearing as per Government guidelines 15/06/2020 in order to reduce staff to staff transmission.
- Establish ‘COVID-19-secure’ areas for all staff in order to allow periods of rest, and the ability to eat and drink. This will require the identification of additional suitable space, in close proximity to work areas. This also applies to PFI employees.
- Re-enforce the importance of social distancing between staff and their contacts outside the workplace, in line with government guidelines.
- Contact trace and require to self-isolate all contacts of newly identified COVID-19 positive staff.
- In line with Government advice, promote home working
- Distribute hand sanitiser and Clinell wipes to all office areas if hand washing facilities not accessible within the office.

- Maximise the use of rapid diagnostics and lab capacity
- Continue to offer the asymptomatic staff testing programme
- Continue admission and weekly patient COVID-19 screening in all areas
- Review cleaning procedures - frequency and areas cleaning (focus on high touch points etc)

6.24. These recommendations were accepted by the Trust Board and implemented across the Trust.

Lateral Flow testing (up to April 2021)

6.25. NHSE/I asked all Trusts to set up distribution of Lateral flow (LFD) kits (COVID-19 antigen) to all staff, and to establish a way of collecting and reporting results. This was undertaken by the asymptomatic testing team, either as a mass distribution event, or alongside attendance for PCR testing. A google form was set up to allow staff to enter their results onto the staff testing database. If testing positive, the staff member is immediately invited to attend for a confirmatory PCR test.

6.26. All staff working within the NHS are expected to access and report lateral flow device test results twice weekly. Nationally the rate of result return has been low. OUH has been one of the best performing Trusts in the Southeast with a rate of return between 52 and 61% of expected (2 results/week). Staff are not expected to test if positive for COVID-19 within 90 days or if on leave/not working. This is not accounted for in the data.

6.27. NHSE/I use the number of frontline staff who are eligible for an influenza vaccine as the denominator, which for OUH in 2020/21 was 10420. The programme is not compulsory, but having performed a test, there is a legal requirement to report it.

Table 31: Lateral Flow Testing

Month	Total results	Unique individuals	Positive results	Negative results	Invalid results	% submitting required results/month
Dec-20	33653	6944	236 (0.7%)	33055 (98.2%)	362 (1.08%)	54.7
Jan-21	42125	7886	289 (0.69%)	41476 (98.5%)	360 (0.85%)	60.3
Feb-21	32025	7060	60 (0.19%)	31759 (99.2%)	206 (0.64%)	56.7
Mar-21	29287	6344	22 (0.08%)	29123 (99.4%)	142 (0.48%)	52.1

Patient LFD testing

6.28. Testing of emergency admissions in ED commenced on Christmas Day 2020 following a change in guidance and advice to implement on Christmas Eve. This was then rolled out over the next few days to all sites running emergency triage areas and Maternity.

6.29. Data collected from the early implementation phase showed a 62% sensitivity of LFD when compared with PCR, but importantly excellent specificity, and a good correlation with infectivity as estimated by the PCR cycle threshold (Ct). (Ref Young BC, Eyre DW, Jeffery K. Use of lateral flow devices allows rapid triage of patients with SARS-CoV-2 on admission to hospital. J Infect. 2021 Mar 1). LFD performed at level very similar to the DNA nudge (POCT PCR), which had a high failure rate and took 1 hour to perform. We therefore switched to LFD for emergency patient triage where it has proved very useful for IPC purposes. The EPR team gave support with rapid implementation of a data entry form allowing the results to be seen in the patient record.

7. Investigation of Infection Prevention and Control Incidents

Sterile Services

7.1. During the early part of 2020-21, there was an increase in the number of incidents being reported of tears and rips to the wraps for sterile instrument trays. The Head of Sterile Services advised this is because the departments at the JR and the Horton had moved to using a paper wrap rather than linen. Some adjustments to the storage of these trays needs to be made to ensure they do not rip when being moved. Sterile Services are working with the theatre departments to resolve issues.

7.2. In early November 2020 an incident was identified involving 2 unsterile batches of instruments released from Horton TSSU. A review identified two separate incidents of unsterile instruments being released in May and October, involving 38 instruments. The risk to the patients was assessed to be low as the items had all passed through washer-disinfection processes and subjected to thermal disinfection. The purpose of sterilisation and wrapping is so that instrument sterility can be maintained to the point of use. The materials and techniques used for packaging must allow the sterilant to contact the device during the sterilisation process to protect the device from contamination during storage and handling before it is used and permit the device to be removed aseptically.

7.3. Further work is underway to assess the workflow to ensure segregation of products within TSSU and product release procedures. In addition, there is to be installation of dispatch scanning module to record items being

released after sterilisation to provide further traceability. This incident was subject to a serious incident requiring investigation (SIRI).

Bronchoscopy Incidents

7.4. There were four incidents reported around decontamination concerns with bronchoscopes. The first incident was in December 2019 and was investigated at the time, including some additional patient testing, before this was recognised as a recurrent issue. Investigation identified concerns around the water flow/pressure from the lancer endoscopy washers in the West Wing, training requirements, and lack of flushing of the auxiliary channel at the bedside. Action plans were put into place and no further incidents reported.

Bacillus cereus in Laundry

7.5. The Trust was informed by Public Health England that the offsite laundry that provides the JR with linen had reported an increase in *B. cereus* levels. *B. cereus* is a Gram-positive bacterium that is commonly found in soil and food and has been reported to contaminate linen particularly in hot weather. This contamination is thought to result from replicating Bacillus species to high numbers on soiled linen and the incomplete removal of heat-resistant bacterial spores by water-economic processes such as continuous tunnel washers used for hospital laundry.

7.6. A number of actions were taken including changing the supplier of linen to vulnerable patients (neonates, theatres, and haem-oncology services) and laboratory surveillance for B. cereus infections. No infections in our patients were identified.

7.7. The Trust was informed in mid-September 2020 by PHE that following 4 clear results from the laundry, normal service could be resumed.

Water Safety at the Churchill Cancer and Haematology Hospital

7.8. An ongoing issue with Legionella positive water samples at the PFI Cancer and Haematology Hospital on the Churchill site has been reported annually since 2018/9.. This was first identified in 2015 when the Legionella risk assessment indicated hot water system circulation issues that are likely to date from construction (2009) and recognised to be a systemic problem in 2019 following a Serious Incident Requiring Investigation (SIRI).

7.9. All water outlets in the Churchill PFI Cancer and Haematology hospital have had point of use filters (POUF) in place since 10 October 2019 (with the exception of 2 laboratory taps) because the increased surveillance in September 2019 showed continued presence of legionella widely within the water system. POUFs ensure that water is safe at the point of use for both patients and staff.

7.10. Water sampling continues to yield positive legionella samples around the hospital. The root cause is thought to be a failure to maintain the flow of hot water, with cooler temperatures supporting growth of Legionella. An engineering solution is being sought. HIPCC is provided with a monthly report by the Soft Facilities Manager for the Client Contract Team.

7.11. No engineering solution was reached in 2020/21 to address the failings of the water system however a pilot scheme is due to begin in August 2021. OUH IPC has raised concern over the lack of apparent solutions.

7.12. An Extraordinary water safety group is in place, chaired by the Acting Director of Estates, to monitor and progress completion of the SIRI action plan.

8. Committees

Decontamination Committee

8.1. The Decontamination Committee meets quarterly and covers decontamination in Sterile Services, endoscopy, decontamination of medical devices and patient equipment cleaning. This committee reports to the Hospital Infection Prevention and Control Committee.

Hospital Infection Prevention and Control Committee (HIPCC)

8.2. The HIPCC is chaired by the Director of Infection Prevention and Control and continues to meet monthly. An exception report is included within the IPC Clinical Governance paper to the Trust Clinical Governance Committee.

8.3. HIPCC membership includes patient/public representation. The previous representative left in 2019 and a new appointment will be sought in 2021. Divisional representation will also be reviewed in 2021.

9. Antimicrobial Stewardship

9.1. During 20/21 the Antimicrobial stewardship (AMS) CQUINs were deferred due to the COVID-19 pandemic. The local AMS Key Performance indicators were also deferred during this period. The band 7 antimicrobial stewardship pharmacist and the audit assistant were required to support the broader pharmacy response to COVID-19 during this year, and unable to provide full-time focus on AMS activity.

9.2. The antibiotic consumption remained an element of the National Standard contract for 20/21. Oxford University Hospitals NHS Foundation Trust's (OUH) ambition was to have a 1% reduction in antibiotic consumption on baseline year. The data collection mechanism was extraction of the data by

Public Health England from the Define program within RX-info software program. We are currently awaiting information from NHS England/improvement (NHS E/I) about our success with this target because we have been advised that attainment by all Trusts is being reviewed by NHSE/I.

9.3. The OUH AMS team continues to monitor total antibiotic consumption and consumption of specific broad-spectrum antibiotics (e.g. ceftriaxone, ciprofloxacin, carbapenems) using a combination of data from the pharmacy dispensing system, electronic prescribing systems and the Define program within RX-info software program. This data is being used to inform discussions about antibiotic consumption and stewardship with local clinical teams e.g. Ambulatory Care and Specialist Surgery.

9.4. Assessment of the appropriateness of antibiotic use is one of the Trust's Antimicrobial Stewardship Key Performance Indicators for 2021/22 and this is being undertaken for Q1 2021/22 using a point prevalence tool with focus on appropriateness of antibiotic use.

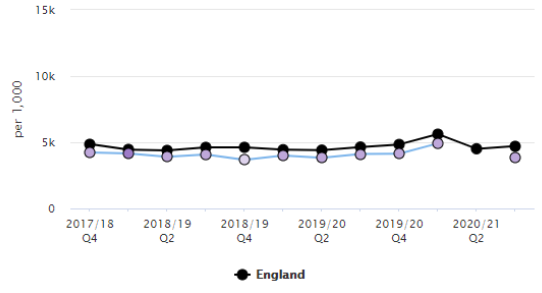
9.5. Public Health England Fingertips continues to be utilised as the reporting tool viewed nationally for metrics for antimicrobial consumption. The figures below present the data within the Fingertips platform. The most recent data is Q3 21/21. PHE have not been able to explain why our data for Q2 is not available on the Fingertips database.

Table 32 shows Defined daily dose (DDD) of total antibiotic consumption for OUH (includes inpatient and outpatients) per 1000 admissions. This data shows that OUH prescribing of antibiotics is consistently lower than the England average.

Total antibiotic prescribing DDDs per 1000 admissions; by quarter and trust

Crude rate - per 1,000

Export chart as image | Show confidence intervals | Show 99.8% CI values | Export table as CSV file



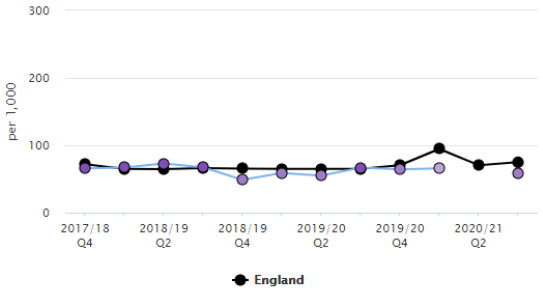
Period		Oxford University Hospitals NHS Foundation Trust Count	Value	95% Lower CI	95% Upper CI		England
2017/18 Q4		208,940	4,221.4	-	-	5,038.8*	4,872.4
2018/19 Q1		208,332	4,155.8	-	-	4,671.6*	4,439.5
2018/19 Q2		191,296	3,894.8	-	-	4,703.4*	4,381.0
2018/19 Q3		210,459	4,068.7	-	-	4,939.8*	4,614.9
2018/19 Q4		191,915	3,671.2	-	-	4,863.7*	4,617.1
2019/20 Q1		202,654	4,007.2	-	-	4,717.0*	4,436.4
2019/20 Q2		198,228	3,833.3	-	-	4,683.4*	4,406.8
2019/20 Q3		211,896	4,108.7	-	-	4,790.2*	4,639.7
2019/20 Q4		201,931	4,129.0	-	-	5,148.0*	4,834.3
2020/21 Q1		143,507	4,915.1	-	-	5,832.7*	5,611.3
2020/21 Q2		-	*	-	-	4,803.7	4,508.6
2020/21 Q3		175,102	3,864.9	-	-	4,861.8	4,706.3

Source: DDDs were provided by RxInfo © 2019 to support NHS England CQUINs. Prescribing rates were calculated using HES admissions data provided by NHS Digital.

Table 33 shows Defined daily dose (DDD) of carbapenems for OUH (includes inpatient and outpatients) per 1000 admissions. This data shows that for the past year, prescribing of carbapenems in the OUH has been lower than England average.

Carbapenem prescribing DDDs per 1000 admissions; by quarter and acute trust Crude rate - per 1,000

Export chart as image | Show confidence intervals | Show 99.8% CI values | Export table as CSV file



Period	Oxford University Hospitals NHS Foundation Trust					England
		Count	Value	95% Lower CI	95% Upper CI	
2017/18 Q4		3,255	65.8	-	-	87.6*	71.8
2018/19 Q1		3,362	67.1	-	-	80.6*	65.1
2018/19 Q2		3,588	73.1	-	-	80.8*	64.8
2018/19 Q3		3,486	67.4	-	-	81.2*	66.3
2018/19 Q4		2,555	48.9	-	-	79.2*	65.5
2019/20 Q1		2,984	59.0	-	-	80.9*	65.0
2019/20 Q2		2,842	55.0	-	-	82.1*	64.9
2019/20 Q3		3,443	66.8	-	-	79.0*	65.1
2019/20 Q4		3,142	64.2	-	-	87.6*	70.4
2020/21 Q1		1,920	65.8	-	-	113.7*	94.7
2020/21 Q2		-	*	-	-	87.3	70.6
2020/21 Q3		2,641	58.3	-	-	89.2	74.8

Source: DDDs were provided by RxInfo © 2019 to support NHS England CQUINs. Prescribing rates were calculated using HES admissions data provided by NHS Digital.

9.6. Tables 34, 35, 36 and 37 compare OUH data to other Trusts within the Shelford group for Q3 20/21. OUH is towards the lower end of usage for both indicators, and considerably below the Shelford average. This was also the case in the 19/20 report.

Table 34 shows Defined daily dose (DDD) of total antibiotic consumption for OUH (includes inpatient and outpatients) per 1000 admissions compared to other Shelford Trusts.

Indicator
Total antibiotic prescribing DDDs per 1000 admissions; by quarter and trust 2020/21 Q3 Crude rate - per 1,000

Quintiles: Best | Worst | Not applicable

* a note is attached to the value, hover over to see more details

Areas: All in your area list | All in England | Display: Table | Table and chart | Export table as image | Export table as CSV file

Area	Count	Value	95% Lower CI	95% Upper CI
England	16,294,570	4,706.3	-	-
shelford	2,208,199	4,739.7*	4,733.5	4,746.0
University Hospital Birmingham	399,817	5,798.5*	-	-
Manchester University NHS Foundation Trust	306,801	4,869.8*	-	-
Kings College Hospital	272,239	5,901.6	-	-
Imperial College Healthcare	226,988	4,820.6	-	-
Sheffield Teaching Hospitals	218,711	4,267.4	-	-
Guys and St Thomas	212,665	5,513.9	-	-
Oxford University Hospitals	175,102	3,864.9	-	-
Cambridge University Hospitals	162,006	4,831.0	-	-
University College London Hospitals	131,961	3,349.7	-	-
Northumbria Healthcare	101,910	3,119.8	-	-

Source: DDDs were provided by RxInfo © 2019 to support NHS England CQUINs. Prescribing rates were calculated using HES admissions data provided by NHS Digital.

Table 35 shows Graphical representation of defined daily dose (DDD) of total antibiotic consumption for OUH (includes inpatient and outpatients) per 1000 admissions compared to other Shelford Trusts.
OUH is shown in green and average for England as red line.

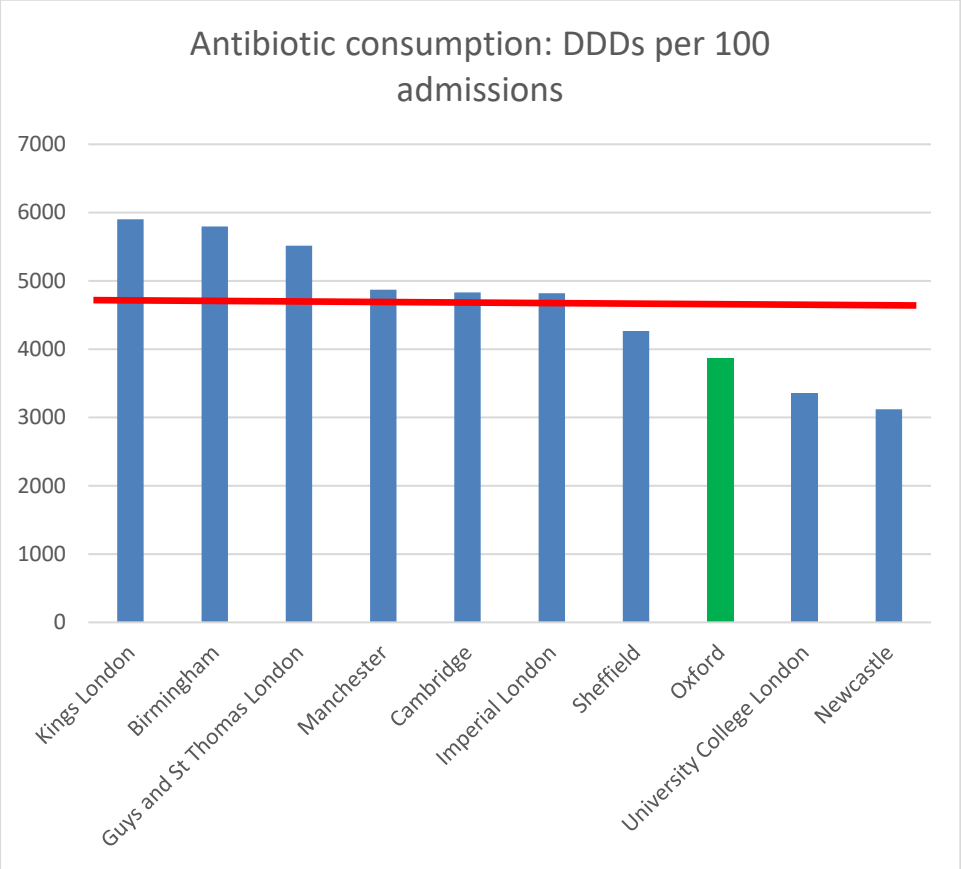


Table 36 shows Defined daily dose (DDD) of carbapenem consumption for OUH (includes inpatient and outpatients) per 1000 admissions compared to other Shelford Trusts.

Carbapenem prescribing DDDs per 1000 admissions; by quarter and acute trust 2020/21 Q3 Crude rate - per 1,000

Quintiles: Best Worst Not applicable

* a note is attached to the value, hover over to see more details

Areas: All in your area list | All in England

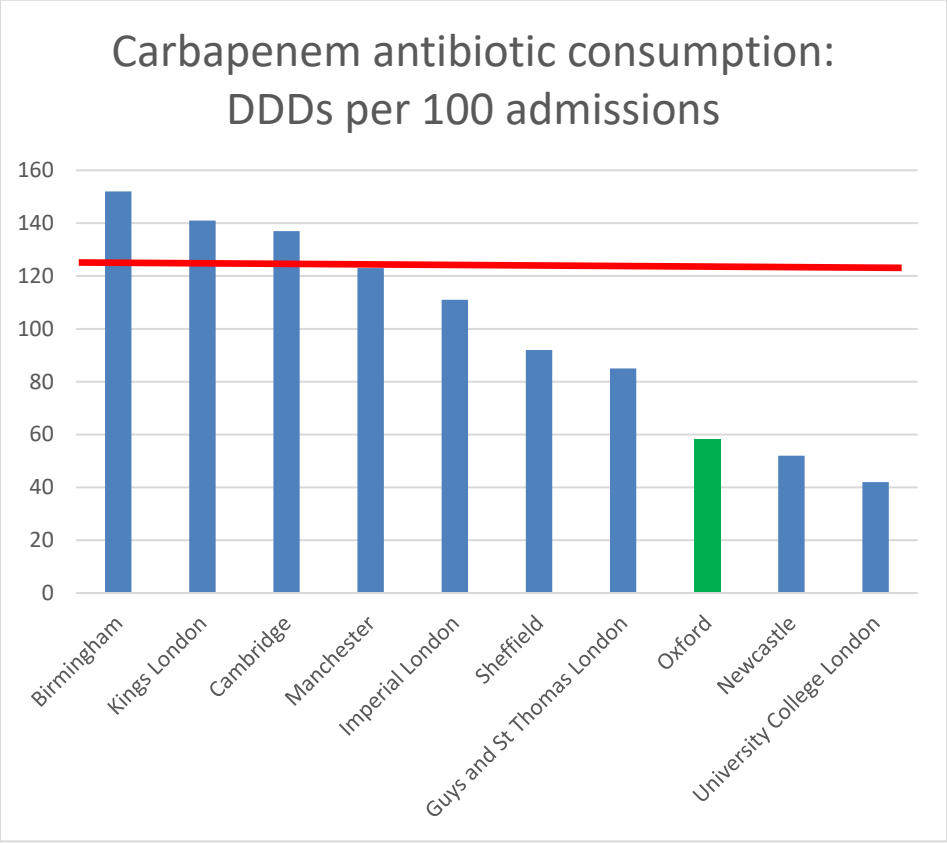
Display: Table | Table and chart

Export table as image | Export table as CSV file

Area	Count	Value	95% Lower CI	95% Upper CI
England	259,032	74.8	-	-
shelford	48,592	104.3*	103.4	105.2
University Hospital Birmingham	10,496	152.2*	-	-
Manchester University NHS Foundation Trust	7,770	123.3*	-	-
Kings College Hospital	6,521	141.4	-	-
Imperial College Healthcare	5,246	111.4	-	-
Sheffield Teaching Hospitals	4,696	91.6	-	-
Cambridge University Hospitals	4,596	137.1	-	-
Guys and St Thomas	3,268	84.7	-	-
Oxford University Hospitals	2,641	58.3	-	-
Northumbria Healthcare	1,704	52.2	-	-
University College London Hospitals	1,653	42.0	-	-

Source: DDDs were provided by RxInfo © 2019 to support NHS England CQUINs. Prescribing rates were calculated using HES admissions data provided by NHS Digital.

Table 37 shows Graphical representation of defined daily dose (DDD) of carbapenem consumption for OUH (includes inpatient and outpatients) per 1000 admissions compared to other Shelford Trusts. OUH is shown in green and average for England as red line.



10. Recommendation

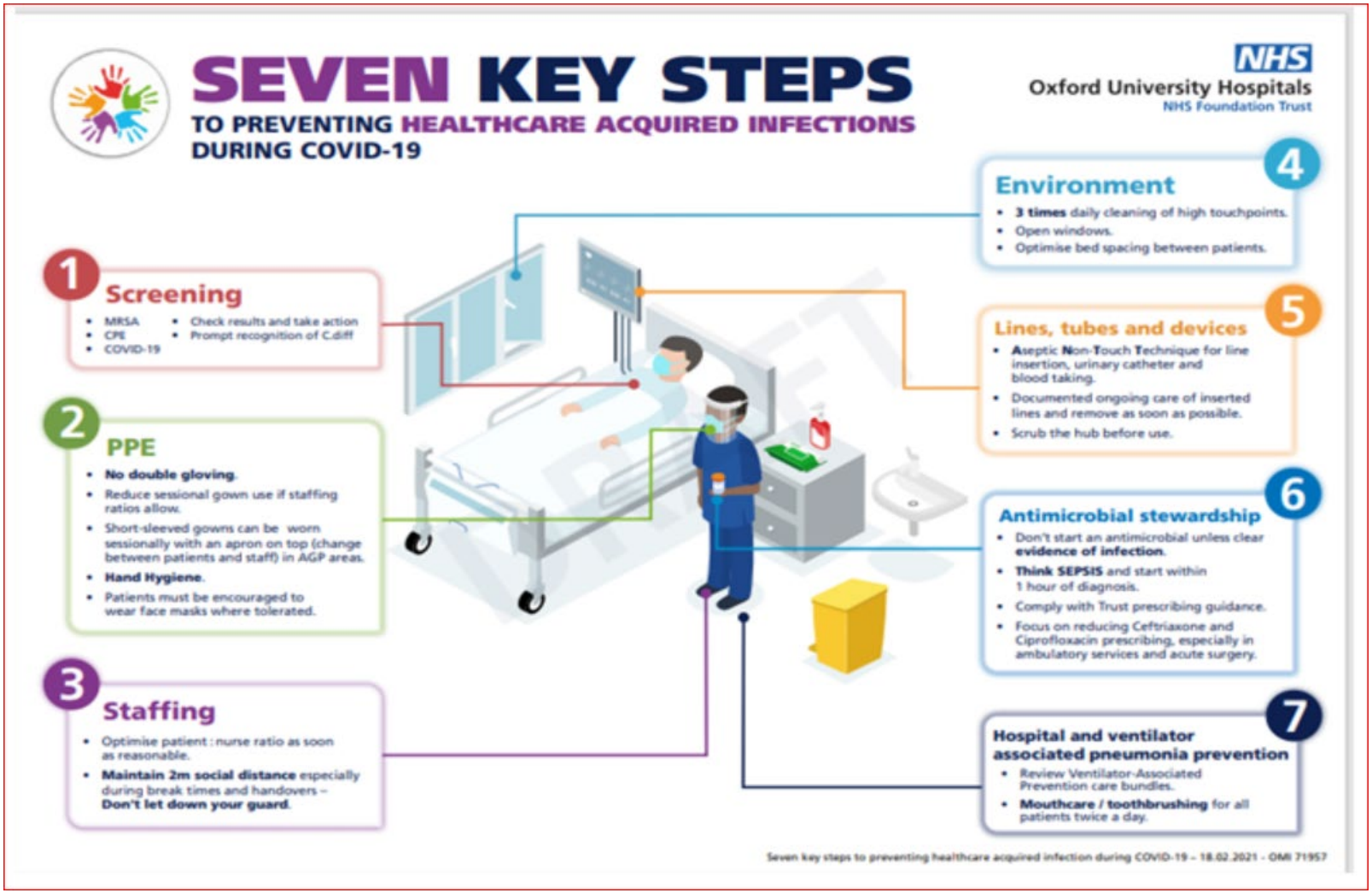
10.1. The Trust Board is asked to receive this report and note the content for information.

Appendix 1: Hospital Infection Prevention & Control Committee Business Cycle 2020/21

			Q1			Q2			Q3			Q4	
	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	Sept 2020	Oct 2020	Nov 2020	Dec 2020	Jan 2021	Feb 2021	Mar 2021	
Standing Agenda Items													**Lead**
Occupational Health & Wellbeing						Meeting cancelled in September	x						**FW**
Estates & Facilities	x	x	x	x	x		x		x		x		**GC/JM**
OCCG Briefing paper	x		x	x			x			x	x		**HM**
PHE Briefing paper	x								x		x		**CH/DR**
Contracts Team	x	x	x	x	x			x		x	x	x	**WR**
Antimicrobial Stewardship		x			x				x			x	**LD**
IPC Risk Register	x		x		x		x		x		x		**IPC**
IPC Clinical Governance Report	x	x	x	x	x		x	x	x	x	x	x	**IPC**
SSI Cardiac	x		x				x			x		x	**SH**
Committee Reports													
Decontamination Committee					x		x		x			x	**IPC**
IV Steering Group	x						x						**IPC**
VIP Action Group													**IPC**
Reports/Policies													
IPC Annual Plan			x	x			x			x	x		**IPC**
IPC Annual Report													**IPC**
IPC Board Assurance Framework			x										**IPC**
IPC Recommendations for OUH based on results of staff COVD-19 testing				x									**IPC**
Healthcare Associated COVID-19 Infections - protocol				x									**IPC**
Repeat point prevalence audit of screening compliance for Carbapenemase-producing Enterobacteriaceae (CPE)					x								**IPC**
Reducing the risk of transmission of Creutzfeldt-Jakob disease (CJD)					x			x					**IPC**

from surgical instruments used for interventional procedures in high-risk tissues													
Central Line Associated Blood Stream Infection (CLABSI) surveillance in the Intensive Care Units of Oxford University Hospitals					**x**								**IPC**
Infection Prevention & Control Policy							**x**						**IPC**
Infection Prevention & Control Guidelines COVID-19							**x**						**IPC**
Infection Prevention & Control Annual Report 2020/2021							**x**						**IPC**
MRSA Protocol								**x**			**x** verbal update		**IPC**
JRH SSI NOF Outlier Report								**x**					**IPC**
Procedures for Decontamination of Reusable Medical Devices								**x**					**IPC**
Action Plan for NICE Guidance IPG666 - Reducing the risk of transmission of Creutzfeldt–Jakob disease (CJD) from surgical instruments used for interventional procedures on high-risk tissues									**x**				**DC**
Procedures for Decontamination of Healthcare Equipment											**x**		**IPC**
Seven Key Steps to preventing healthcare acquired infections during COVID-19											**x**		**IPC**
Review of increased numbers of C.difficile cases											**x**		**IPC**

Appendix 2 – 7 Key Steps to Preventing Healthcare Acquired Infections During COVID-19



Appendix 3 - Infection Prevention and Control Annual Plan 2020/2021 - Summary

Topic	
Surgical Site Infection (1) To ensure all surgical specialities are undertaking surgical site surveillance **(**2) For all specialities to report rates of SSI to HIPCC and through own Clinical Governance structure **(3)** To work with specialities that have higher rates than national benchmarks to reduce their rates. Complete GIRFT 5-point action plan and provide formal feed-back **(4)** To investigate and consider the use of adjuncts (e.g. antimicrobial coated sutures) (5) To encourage and support additional clinical units to take part in GIRFT.(6) Using GIRFT 2019.20 as a baseline, introduce an SSI prevention bundle to reduce risk of EVD infection	• Antimicrobial suture trial commenced at the NOC; outcome of results delayed due to suspension of elective services during COVID-19 • Retrospective c-section audit completed- 14% SSI rate • Working with Johnson & Johnson on SSI app • Proactive SSI surveillance work on-hold due to COVID-19 pandemic and resource directed at minimising nosocomial infection to ensure staff and patient safety. • Actions to be carried over to 2021-22.
Lines, Tubes & Device Related Infection (1) To establish rates of CAUTI **(2)** Delivery of CAUTI and continence education programme, validation of safety thermometer data. Hydration Campaign to be launched. To introduce meatus cleaning with 0.1% chlorhexidine (Hexicath)**(3)** To have a robust mechanism in place for the monitoring of incidence and rate of CLABSI in all OUH intensive care settings using the CDC definition**. (5)** To reduce the number of vascular access related bacteraemia and to develop a system for monitoring areas outside of ICU settings	• Timer Tag study complete and results submitted- study on hold • Hexicath training rolled out in a number of areas CAUTI awareness week planned for May • ICU data undergoing review and validation with ICU Governance teams • Trust wide CLABSI surveillance for inpatients has recommenced and raw data validated • quality improvement project to improve non-ICU CLABSI surveillance and feedback to clinical areas with Microbiology team and Haematology • Q4 audit in progress. Additional surveillance of Coagulase negative Staph undertaken on ICUs as rise in % of positive blood cultures noted during Q4 COVID-19 pandemic. Rates back to acceptable levels March 2021 • Frontline staff in haematology team receives monthly feedback online infections and is testing a new RCA tool for CLABSI • Actions will continue next year
Hand Hygiene 'Gloves Off' campaign to reduce plastic waste withdrawn as a Quality Priority for 2020/21 due to COVID-19 pandemic **(1)** Development of a Dermatitis	• Delayed progress of Gloves Off campaign due to pandemic • Hand hygiene and appropriate use of gloves are included in the 7 key steps to prevent HCAI.

Action Group by Occupational Health **(2)**Promotion of Hand Hygiene in patients	
Gram Negative Bloodstream Infections (GNBSIs) mandate to reduce the number of healthcare associated GNBSI by 50%, by financial year 2023 to 2024 **(1)** to review patients where the source is considered to be unknown **(2**) **Participate in CQUIN CCG1: Appropriate antibiotic prescribing for UTIU in adults aged 16+** (3) Undertake prospective audit of haematology patients to consider the NICE recommendation of prophylaxis with a fluoroquinolone during neutropenia	• Delays at present to 'hot' gall bladder service which may well impact rates of GNBSI. Vacant B7 continence post has been withdrawn from budget, leaves 0.6WTE B6 to manage service for the Trust • CQUINs remained on hold through-out 2020/21 (3) Given concerns with C. diff rates in Q2/3, this is on hold for reasons of antimicrobial stewardship. • To be carried over next year
1) **Information & Education** To develop and improve IPC Information & Education available for staff, patients and visitors (2) Investigate the functionality and potential advantages of the Infection Prevention and Control Cerner module.	• Delayed progress due to pandemic • To be carried over next year
Screening- to ensure all areas that are required to undertake screening are compliant. **(1) MRSA-** ensure that MRSA screening tool is triggering correctly (2) **CPE-** to improve compliance from 50% to 80% (3) COVID-19- on emergency admission and weekly inpatient screening	• CPE point prevalence audit undertaken end June 2020,data analysis under way, results to Divisions end July , report to HIPCC August 2020. • Issues of MRSA triggers discussed with Informatics Team, r/v of 'Usual Place of Residence' required to ensure correctly triggers • Repeat CPE point prevalence audit compliance 64.8% further work to improve completion/correct completion of KIPI recommended. • To be carried over next year
Resilience/Preparedness for COVID-19 and Emerging Pathogens and Winter pressures (Influenza) (1) Staff preparedness John Warin Ward, maternity ED & ITU(adult and children's services) (2)Continue to roll out FIT testing to individuals that require this as part of their job.	• COVID--19 PPE training rolled out in the whole Trust. Educational resources updated in line with PHE guidance and ongoing work on sessional use of PPE. FIT testing on-going on all sites. • update of HCID protocol. • Fit testing now delivered by in-house fit testing team with support of third party to include training and maintenance for re-usable masks. Positive feedback from HSE 'COVID-19-safe' inspection.
Antimicrobial stewardship targets (1) Lower UTI - see GNBSI target (2) CCG13: Treatment of community acquired pneumonia (CAP) in line with BTS care bundle (3) antifungal stewardship	• All CQUINs currently on pause due to COVID-19 outbreak. All AMS CQUINS are paused until end of March 2021 • Daily antimicrobial stewardship ward rounds (including antifungals) on COVID-19 ICUs undertaken by Microbiology consultants during

	COVID-19 2nd/3rd wave (increase from usual 4x/week). Stewardship MDTs with Haematology and solid-organ transplant maintained.
Hospital Acquired Pneumonia (1) To gain an understanding of what rates of HAP are within medicine and introduce interventions to reduce HAP- launch Mouth care Matters	• Project suspended due to COVID-19, next year focus will be on VAP reduction.
Environmental Issues (1) To have accurate list of off-site services **(2)** For all clinical areas to have annual environmental audit undertaken	• Use of the formal environmental audit tool has been limited due to COVID-19. Any environment concerns picked up as part of the day-to-day IPC workload have been escalated • To be carried over next year
(1)Reduction in nosocomial COVID-19 rates (2) Continued staff engagement with COVID-19 testing	• Creation of a Nosocomial outbreak protocol and RCA tool. • Regular monitoring of data undertaken and reporting to CGC. Rates reported in daily sitrep • Infection Prevention and Control Board Assurance Framework completed. • Staff testing paper published as a preprint • Process set up for collaborative working with Patient Safety team for reporting and investigation of definite or probable nosocomial cases. RCAs added to Ulysses, robust process in place for investigation of nosocomial deaths. End of Jan nosocomial rates decreased since Dec. reported through HIPCC and Clinical Governance.

Appendix 4 - Infection Prevention and Control Annual Plan 2021/2022

Topic	Metric of Assurance
Surgical Site Infection **(1)** To encourage all surgical specialities to undertake surgical site surveillance and to report rates of SSI to HIPCC and through own Clinical Governance structure **(2)** To work with specialities that have higher rates than national benchmarks to reduce their rates **(3)** Agree KPI with the CCG for reduction from 14% SSI rate to 10% in C-sections ? **(4)** Continue to work with Johnson & Johnson in development of app, planned pilot of SEU **(5)**Submit business case to increase IPC nursing team to assist with SSI **(6)** Review effect of antimicrobial coated sutures in orthopaedics, HPB and emergency surgery **(7)** Continue EVD SSI prevention **(8)** Review GIRFT data from 2021 and progress on SSI reduction in breast, hip and knee	**(1 & 2)**Rates presented to HIPCC and CG, and benchmark OUH SSI rates against national rates **(3)**SSI rates **(4)** Pilot of app and outcome results **(5)** Outcome of business case **(6)** Comparison of SSI rates from pre and post implementation **(7)** EVD infection rates declining **(8)** Reduction in SSI rates
Lines, Tubes & Device Related Infection **(1)** Continue to monitor CLABSI rates across intensive care areas **(2)** Continue with QIP in haematology and oncology to establish process for monitoring CLABSI rates **(3)** Audit use of chlorhexidine wipes in ICU's **(4)** QIP for introduction of chlorhexidine impregnated line dressings	**(1 &2)** Audit outcome data and CLABSI rates declining **(3)** Evidence of data collection **(4)** introduction of a product
Gram Negative Bloodstream Infections (GNBSIs) mandate to reduce the number of healthcare associated GNBSI by 50%, by financial year 2023 to 2024 **(1)** Audit use of Hexicath across the Trust **(2)**Submit business case to increase IPC nursing team to enable support in CAUTI reduction	**(1)** Audit outcome data **(2)** Outcome of business case
Information & Education **(1)** Improve internet information for visitors	**(1)** Create a more user friendly internet for external use

Screening- to ensure all areas that are required to undertake screening are compliant**. (1)** MRSA- ensure that MRSA screening tool is triggering correctly **(2)** CPE- to improve compliance to 80% **(3)** COVID-19 screening	**(1) & (2)** EPR compliance rates and point prevalence audit
COVID--19 - learning from previous waves, adhere to PHE infection Prevention & Control guidance, preparedness for third wave. Review of documentation, debriefing sessions, operational management and environmental issues	(1) Nosocomial COVID-19 rates in staff and patients (2) Up to date resources available (3) Work with Estates teams to review environment
Implementation of the 7 Key Reminders to reducing HCAI during COVID-19l **(1)** increase seen in rates of C.diff and MRSA during COVID-19, 2021-22 quality priority to reduce rates **(2)**To gain an understanding of what rates of Ventilator Acquired Pneumonia (VAP) are within intensive care settings and establish task and finish group to audit and implement identified actions or interventions	**(1)** C.diff and MRSA rates return to pre-pandemic levels(2) Baseline data of VAP rates and interventions monitored to demonstrate improvement
Environment (1) Resume annual environmental audit**s (2)** Work with Estates to review ventilation issues identified during COVID-19	**(1)** Completed audits **(2)** Ventilation issues addressed
Team - (1) submission of business plan for expansion, succession and development, individual objectives within annual plan	(1) Submission of business case and increase in establishment (2) Individual team objectives met

Appendix 5: Board Assurance Framework

Infection Prevention and Control Board Assurance Framework

1. Systems are in place 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 posed by the environment and other service users.			
Key Lines of Enquiry	**Evidence**	**Gaps in Assurance**	**Mitigating Actions**
Systems and processes are in place to ensure:			
• Infection risk is assessed at the from door and this is documented in patient notes	Standard operating procedure Patient Placement in place for streaming at the front door into low, medium and high risk pathways. Self -presenting patients are screened at the front door and then asked to wait in designated areas. Patient pathway is documented in the EPR record.	Divisions should undertake audits to assure themselves that this is adhered to.	Point of care testing (POCT) available to assist with patient streaming • DNA Nudge in place in ED and EAU at the JR and Horton, AAU (for access also by SEU) and in Churchill theatres. Delivery of further machines expected Dec '20/Jan '21 • Labouring women have access to lateral flow testing. • Lateral flow testing in place for safe placement of ambulance arrivals.

			• Lateral flow testing available in all acute admission areas (ED/EAU/AAU). Social distancing for medium risk and high risk patients, in outpatient areas and emergency settings, if not able to place in side rooms Audit results and actions will be reported to Hospital Infection Control Committee and then to Clinical Governance Committee
• patients with possible or confirmed COVID-19 are not moved unless this is essential to their care or reduces the risk of transmission	The Trust Patient Placement guidance states; Following receipt of the SARS-CoV-2 PCR result (usually within 6 -12 hours): a. **COVID DIAGNOSIS (RED) patients remain where they are** (even if PCR is negative, since the definition of COVID SYNDROME means there is a high confidence the patient has COVID).	Needs to be audited to review compliance. Divisions will undertake audits	Audit results and actions will be reported to Hospital Infection Control Committee and then to Clinical Governance Committee

	b. **POSSIBLE COVID (AMBER)** patients with a positive SARS-CoV-2 PCR then become **COVID DIAGNOSIS (RED)** and should be moved to a COVID cohort ward or to a side room if there is no COVID cohort ward capacity. c. **POSSIBLE COVID (AMBER)** patients with a negative SARS-CoV-2 PCR should be managed in a side room unless: i. on review they clearly now fit into the COVID Syndrome* group in which case they can be moved to a COVID cohort ward, or ii. they are re-classified as GREEN by a senior clinician December guidance issued advising not to move patients unless clinically required.		
• compliance with the national guidance around discharge or transfer of COVID-19 positive patients	National guidance followed by Trust, Staff able to access relevant information via a range of sources Local guidance based on national guidance available.	No gaps	
• monitoring of IPC practices, ensuring resources are in	PPE audit tool has been available for many months	No gaps	Divisions should undertake audits and report back

place to enable compliance with IPC practice	Mask audits undertaken regularly by IPC team Divisions continue to report through their monthly clinical Governance papers IPC metrics such as hand hygiene, VIP and cleaning audits. COVID Safety audit tool developed in December for staff to monitor PPE compliance, social distancing, risk assessments, cleaning, ventilation etc		through the clinical governance structure
• monitoring of compliance with PPE, consider implementing the role of PPE guardians/safety	The Infection Prevention and Control team have formed the PPE Support Team. Job description developed, rotas set up.	Additional support for the IPC team in rolling this out required	
• staff testing and self-isolation strategies are in place and a process to respond if transmission rates of COVID-19 increase	Occupational Health undertakes screening of symptomatic staff. Asymptomatic staff screening programme in place, staff encouraged to undertake twice weekly lateral flow tests and attend fortnightly PCR screening. Staff swab testing (and household member testing) is available on JR and Horton sites. Community testing via Government testing site.	No gaps	

	Staff swabbed in outbreak situations. Staff testing database provides automated updates on numbers of positive staff, and by clinical area and job role for review by the occupational health and IPC teams.		
• training in IPC standard infection control and transmission-based precautions are provided to all staff	E learning IPC training mandatory for all non-clinical and clinical staff, refreshed during pandemic. COVID e-learning and video package on donning and doffing. Adhoc training sessions to areas as required Refresher training sessions by IPC for porters, domestic and hostess staff planned for January 2021	No gaps	Divisions should monitor compliance to learning
• IPC measures in relation to COVID-19 should be included in all staff Induction and mandatory training	As above	No gaps	
• regularly reminded of the importance of wearing face masks, hand hygiene and maintaining physical distance both in and out of work	Regular communications sent to staff. Mask audits regularly undertaken and staff challenged if not complying. Staff briefing and huddles, learning shared from outbreaks	Episodes of non-compliance are robustly challenged	
• all staff (clinical and non-clinical) are trained in putting	PPE updates sent to all staff end of November, and regular	No gaps	

on and removing PPE; know what PPE they should wear for each setting and context; and have access to the PPE that protects them for the appropriate setting and context as per national guidance	reminders as part of all staff 'COVID Key messages' Training continues as required New PPE videos on donning and doffing New e-learning package All in line with current PHE guidance		
• national IPC guidance is regularly checked for updates and any changes are effectively communicated to staff in a timely way	Checked twice weekly, any changes identified are reflected in our guidance. Changes are communicates to the organisation. Link to PHE guidance available on Trust IPC website. Weekly IPC meeting with IPC NHSE/I lead Good supply of PPE available in the Trust as described above.	No gaps	
• changes to guidance are brought to the attention of boards and any risks and mitigating actions are highlighted	Yes, changes highlighted to CMO via regular communication with IPC. All new COVID related guidance is flagged to the COVID Steering Group. PPE guidance on Trust IPC website reflects any PHE guidance.	No gaps	

• risks are reflected in risk registers and the board assurance framework where appropriate	Close working relationship with Health & Safety team around risks entered on the risk register. COVID and non-COVID risk registers maintained	No gaps	
• robust IPC risk assessment processes and practices are in place for non COVID-19 infections and pathogens	Processes and risk assessments remain in place as per prior to COVID-19. Detailed root cause analysis for HCAI have been paused with consent of Oxfordshire Clinical Governance Committee, with exception of selected cases where concern is raised.eg colectomy following C.diff infection. Health economy meetings continue quarterly with review of cases for themes and learning points.	No gaps	
• that Trust CEOs or the executive responsible for IPC approve and personally signs off, all data submissions via the daily nosocomial sitrep. This will ensure the correct and accurate measurement and testing of patient protocols are activated in a timely manner.	Sitrep signed by the COO Nosocomial cases are verified by the IPC team Data reported through monthly IPC Clinical Governance paper	No gaps	

• ensure Trust Board has oversight of on-going outbreaks and action plans.	Monthly DIPC meetings with CMO IPC produce monthly paper for clinical governance, report to the Integrated Assurance Committee Robust governance process now established for probable and definite nosocomial cases. Reviewed weekly at SIG	No gaps	
2. Provide and maintain a clean and appropriate environment in managed premises that facilitates the prevention and control of infections			
Key Lines of Enquiry	**Evidence**	**Gaps in Assurance**	**Mitigating Actions**
Systems and processes are in place to ensure:			
• designated teams with appropriate training are assigned to care for and treat patients in COVID-19 isolation or cohort areas	Training for PPE being delivered by Divisions following train the trainer sessions, also by OXSTAR and the IPC team. Electronic training records held. External accredited fit testers currently employed and on site. Training resources available via Trust IPC website and OXSTAR website for external access, and updated with new electronic learning package in Nov 2020 and communicated to the Trust	No gaps	
• designated cleaning teams with appropriate training in required techniques and use of	Each area has its dedicated team of regular domestic staff; there are regular team talks to ensure	No gaps	

PPE, are assigned to COVID-19 isolation or cohort areas	all the staff understands the evolving situation. All domestic staff fully trained and competent in daily cleaning, enhanced cleaning and terminal cleaning. Training records available. Each site has full individual training records and PPE has been added to mandatory training for reporting each month in the formal PFI Monthly Reports. These are reviewed each month by the performance team. Additionally failure to undertake any cleaning correctly would result in a helpdesk call been logged and failure to rectify is a contractual failure. The performance team also regularly undertake random audits to ensure standards are being maintained and these audits are reported to HIPCC. There is a dedicated training manager who monitors and arranges timely refresher training Staff had a talk from DIPC to understand exactly what COVID -		

	19 on transmission and managing anxieties. Refresher training for porters and domestics, and ward hosts has occurred. PPE training and retraining happened regularly throughout the weeks. Training records available. Teams have access to the OXSTAR resources Weekly meetings now established with Bouygues		
• decontamination and terminal decontamination of isolation rooms or cohort areas is carried out in line with PHE and other national guidance	Cleaning resources are available for Trust staff on IPC website. The domestics undertake two cleans a day of all isolation rooms or cohort areas using a combined hypochlorite detergent tablet Each area has a cleaning specification displayed and the training records show each member of staff has been adequately trained, refresher trained and assessed.	No gaps	
• increased frequency at least twice daily of cleaning in areas that have higher environmental contamination rates as set	All communal areas, in all wards, have had the frequencies of cleaning increased and all touch points are cleaned three times a day. This extended outside of the	No gaps	

out in the PHE and other national guidance	wards to public areas also. Soft FM manager aware of updated guidance from PHE regarding increased frequency of cleaning. Evidence: reported to HIPCC by Soft FM manager The Trust cleaning standard had been up dated to reflect this and when new cleaning schedules are produced in the next six months they will reflect the addition cleaning of high touch points throughout the hospital. The Strategic Cleaning Policy was due to be updated in September and will also reflect these changes		
• cleaning is carried out with neutral detergent, a chlorine-based disinfectant, in the form of a solution at a minimum strength of 1,000ppm available chlorine as per national guidance. If an alternative disinfectant is used, the local infection prevention and control team (IPCT) should be consulted on this to ensure that this is effective against enveloped viruses.	Actichlor plus is used by the cleaning teams Patient equipment cleaned using Clinell Universal wipes	No gaps	

• Manufacturers' guidance and recommended product 'contact time' must be followed for all cleaning/disinfectant solutions/products as per national guidance	Cleaners trained IPC training advises on contact time Soft FM manager reports that all domestic staff fully trained and competent in daily clean, enhanced cleaning and terminal cleaning. There is a dedicated training manager who monitors and arranges timely refresher training	No gaps	
• 'frequently touched' surfaces e.g. door/toilet handles, patient call bells, over bed tables and bed rails should be decontaminated more than twice daily and when known to be contaminated with secretions, excretions or body fluids	All communal areas, in all wards, have had the frequencies of cleaning increased and all touch points are cleaned three times a day. This extended outside of the wards to public areas also. Soft FM manager aware of update guidance from PHE regarding increased frequency of cleaning. Evidence: reported to HIPCC by Soft FM manager	No gaps	
• electronic equipment e.g. mobile phones, desk phones, tablets, desktops & keyboards should be cleaned a minimum of twice daily	Staff encouraged and reminded on the importance of this in clinical and non-clinical areas.	No gaps	
• rooms/areas where PPE is removed must be	Included as part of the regular scheduling	No gaps	

decontaminated, ideally timed to coincide with periods immediately after PPE removal by groups of staff (at least twice daily)			
• linen from possible and confirmed COVID-19 patients is managed in line with PHE and other national guidance and the appropriate precautions are taken	Linen from these areas is managed as infectious linen. Linen bagged in alginate bags and then bagged in appropriate linen bags. Linen collections were increased to ensure that all linen is removed as quickly as possible. Reusable gowns are collected on a separate round	No gaps	
• single use items are used where possible and according to single use policy	Single use items are used where possible and as per policy. Statutory IPC training includes this guidance. Single use PPE is not being reused. Staff have been informed that single use PPE is not to be reused. Disposable hand towels are used throughout all clinical areas. Cleaning equipment is either disposable or where reusable mops are used they are all thermally disinfected on site; this	No gaps	

	is regularly randomly monitored by the performance team.		
• reusable equipment is appropriately decontaminated in line with local and PHE and other national guidance	Reusable equipment is decontaminated in line with manufacturers and PHE guidance. Cleaning advice on IPC website. No incident reports to suggest issues	No gaps	
• ensure cleaning standards and frequencies are monitored in non-clinical areas with actions in place to resolve issues in maintaining a clean environment	The Trust cleaning standard had been up dated to reflect this and when new cleaning schedules are produced in the next six months they will reflect the addition cleaning of touch points throughout the hospital. Audits conducted by the Performance team as well as the Soft FM providers, Ward sisters have access to the Myassure app to record patient equipment cleaning scores Cleaning scores presented monthly to HIPCC	No gaps	
• ensure the dilution of air with good ventilation e.g. open windows, in admission and waiting areas to assist the dilution of air	Communications sent to all about the importance of opening windows and having a regular window opening programme in place.	Number of areas in the Trust where there is no mechanical ventilation and not known how efficient natural ventilation is	Risk assessment on ventilation has been developed and engineering solutions been reviewed. External agency commissioned to undertake ventilation reviews.

			Staff wear PPE Patients encouraged to wear PPE AGP's only undertaken in appropriately ventilated areas Window opening programmes
• there is evidence organisations have reviewed the low risk COVID-19 pathway, before choosing and decision made to revert to general purpose detergents for cleaning, as opposed to widespread use of disinfectants	All COVID cohort areas/bed spaces undergo bleach clean. Discharge and terminal cleans undertaken	No gaps	
3. Ensure appropriate antimicrobial use to optimise patient outcomes and to reduce the risk of adverse events and antimicrobial resistance			
Key Lines of Enquiry	**Evidence**	**Gaps In Assurance**	**Mitigating Actions**
Systems and processes are in place to ensure:			
• arrangements around antimicrobial stewardship is maintained	Mandatory completion of indication and duration fields on EPR prescriptions for antimicrobials demonstrated in the monthly ORBIT+ antimicrobial indication and duration report. Review of incident reports including antimicrobials by	One third of Pharmacy anti-microbial stewardship (AMS) resource has been redeployed to support critical care. Ward based pharmacists are spread over a greater bed-base and therefore no longer prioritising stewardship or	Data reported to Antimicrobial Steering Group and HIPCC. Any themes and actions will be followed up by AMS team

	Antimicrobial Stewardship management team and themes presented at ASG as a standing agenda item. Point prevalence survey of antimicrobial use conducted quarterly on a rotating site basis. Aim 90% of prescriptions appropriate (in-line with guidelines or Micro/ID advice) reported in 19/20 as Key Performance Indicator and JR continuing as KPI for 20/21 New formulary additions are reviewed by Antimicrobial Stewardship Group (ASG) prior to ratification by MMTC. Evidenced by ASG minutes	other pro-active medicines management activities.	
• mandatory reporting requirements are adhered to and boards continue to maintain oversight	Monthly reporting on national HCAI database of C diff, MSSA, MRSA and GNBSI continues Quarterly report to Hospital Infection Prevention and Control with update related to antimicrobial stewardship, point prevalence, Key Performance Indicators and additions to the Trust antimicrobial formulary.	No gaps	

	The operation of CQUIN (both CCG and specialised) will remain suspended for all providers until 31 March 2021 Quarterly update of progress with the antimicrobial management subsection of the Infection Control Annual Programme		
• **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**			
Key Lines of Enquiry	**Evidence**	**Gaps In Assurance**	**Mitigating Actions**
Systems and processes are in place to ensure:			
• implementation of national guidance on visiting patients in a care setting	The Trust is compliant with the national guidance. Internal and external communications provided Visiting ceased except for exceptional circumstances on 22nd Dec 2020.	No gaps	
• areas in which suspected or confirmed COVID-19 patients are being treated in areas clearly marked with appropriate signage and have restricted access	Signage on entry and appropriate PPE available at the door Will be monitored by the PPE Support Team	No gaps	
• information and guidance on COVID-19 is available	Information and guidance is provided and links to national	No gaps	

on all trust websites with easy read versions	guidance on both internal and external facing websites. Easy read link and different languages available. https://www.ouh.nhs.uk/covid-19/		
• infection status is communicated to the receiving organisation or department when a possible or confirmed COVID-19 patient needs to be moved	Staff aware of the need to communicate infection risks to receiving organisations and departments. Intra hospital transfer form completed on transfer of patients which includes infectious status. Biohazard flag added to patient record.	Incident reports should be completed when infectious status is not reported	
• there is clearly displayed and written information available to prompt patients' visitors and staff to comply with hands, face and space advice.	Posters and TV screens remind visitors of hands/face/space This is regularly reviewed to be in line with current government guidance.	No gaps	
4. 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			
Key Lines of Enquiry	**Evidence**	**Gaps In Assurance**	**Mitigating Actions**
Systems and processes are in place to ensure:			
• screening and triaging of all patients as per IPC and NICE Guidance within all health and other care facilities must be undertaken to enable	Processes in place at the front doors, including DNA Nudge, use of lateral flow in maternity and emergency admission areas	No gaps	

early recognition of COVID-19 cases.			
• front door areas have appropriate triaging arrangements in place to cohort patients with possible or confirmed COVID-19 symptoms and to segregate from Non Covid-19 cases to minimise the risk of cross-infection as per national guidance	Standard operating procedure in place for streaming at the front door into low/medium/high risk pathway patients (red/green/amber patients)	No gaps	
• staff are aware of agreed template for triage questions to ask	Agreed template on the electronic patients record	No gaps	
• triage undertaken by clinical staff who are trained and competent in the clinical case definition and patient is allocated appropriate pathway as soon as possible	Front door triage undertaken by experienced staff in emergency and general medicine. POCT in place, with routine laboratory confirmation. Inpatients are screened on day 3, weekly, and if symptoms develop. Mean laboratory turnaround time for COVID-19 PCR results reduced to less than 12 hours November 2020	Plan to audit and present data on dashboard. IM& T currently developing tool, dashboard metrics available via Orbit	
• face coverings are used by all outpatients and visitors	Face coverings or masks are worn For those not arriving in masks, stock is available on each site	No gaps	

• face masks are available for patients with respiratory symptoms	Masks available	No gaps	
• provide clear advice to patients on use of face masks to encourage use of surgical facemasks by all inpatients in the medium and high-risk pathways if this can be tolerated and does not compromise their clinical care	Staff have been asked to encourage patients to wear masks if their condition allows	To continue to encourage mask wearing in patients	
• ideally segregation should be with separate spaces, but there is potential to use screens, e.g. to protect reception staff.	Perspex screens have been erected to protect reception staff	No gaps	
• for patients with new-onset symptoms, isolation, testing and instigation of contact tracing is achieved until proven negative	IPC undertake contact tracing and work with the operational management team to ensure appropriate placement.	No gaps	
• patients that test negative but display or go on to develop symptoms of COVID-19 are segregated and promptly re-tested and contacts traced promptly	Patients that develop symptoms are screened and placed in appropriate location COVID guideline in place	No gaps	
• patients that attend for routine appointments who display symptoms of	Patients discouraged from attending hospital if symptomatic. Those with symptoms are	No gaps	

COVID-19 are managed appropriately	managed in single rooms away from others. Clinics held by telemedicine if possible. Texts and outpatients letter include advice. Information on external OUH website		
5. 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			
Key Lines of Enquiry	**Evidence**	**Gaps in Assurance**	**Mitigating Actions**
Systems and processes are in place to ensure:			
• separation of patient pathways and staff flow to minimise contact between pathways. For example, this could include provision of separate entrances/exits (if available) or use of one-way entrance/exit systems, clear signage, and restricted access to communal areas	Front door screening in ED for self-presenters and those booking on line. Dedicated area in ED for known COVID positive patients	Not possible to have one way systems due to layout of most departments	Staff, visitors and patients asked to keep to the left in the hospitals
• all staff (clinical and non-clinical) have appropriate training, in line with latest national guidance to ensure their personal safety and working environment is safe	Training for PPE being delivered by Divisions following train the trainer sessions, also by OXSTAR and the IPC team. Accredited external fit testers currently on site.	No gaps	

	Training resources available via Trust IPC website/COVID-19 intranet site Attendance centrally recorded and available via the Trusts electronic system (eLMS) Soft FM manager reports that all domestic staff fully trained and competent in daily clean, enhanced cleaning and terminal cleaning. There is a dedicated training manager who monitors and arranges timely refresher training Refresher training provided for porters, ward hosts and domestics		
• all staff providing patient care are trained in the selection and use of PPE appropriate for the clinical situation and on how to Don and Doff it safely	Training in PPE provided to staff. Training carried out by the Divisions, Corporate Education Team and OXSTAR and IPC team. https://www.oxstar.ox.ac.uk/covid-19 mirrors the OUH IPC information	No gaps	

	Wide range of training resources available on IPC website and OXSTAR IPC website hosts donning/doffing/cleaning guides for powered respirators and reusable respirators Videos on donning and doffing		
• a record of staff training is maintained	Yes, records maintained on elms.	No gaps	
• appropriate arrangements are in place that any reuse of PPE in line with the MHRA CAS Alert is properly monitored and managed	The Trust secured reusable respirators and washable long sleeved gowns. PPE audits being undertaken by wards and will be reported via clinical governance routes	No gaps	
• any incidents relating to the re-use of PPE are monitored and appropriate action taken	Single use PPE is not reused. Visors may be worn for the duration of a shift. However, we take any incident reports about PPE issues seriously The Trust H&S team review any incidents alongside the Patient Safety Response Team. Thematic analysis undertaken. Incidents reviewed for RIDDOR reporting.	No gaps	H&S review a monthly log of COVID related incidents from Patient Safety and investigate any with RIDDOR potential. The Ulysses team flag these potential incidents on a daily basis and IPC assist in determining the COVID status of the patient H&S continue to attend SIG where required to discuss any potential RIDDORS or

			trends and have identified and produced a Trust rationale for COVID reporting aligned to HSE guidance which we shared with Deputy CMO and Patient Safety Group
• adherence to PHE national guidance on the use of PPE is regularly audited	PPE audit developed for staff to monitor that PPE is being safely used. PPE Safety Team in place.	PPE audits have not yet been published in Clinical Governance papers but Divisional Nurses have been advised.	Audit results and actions will be reported to Hospital Infection Control Committee and then to Clinical Governance Committee
• hygiene facilities (IPC measures) and messaging are available for all patients/individuals, staff and visitors to minimise COVID-19 transmission such as:	PPE/ sanitisers available, posters updated regularly	No gaps	
• hand hygiene facilities including instructional posters	Soap and gel dispensers have the steps for good hand hygiene printed on the dispenser cases	No gaps	
• good respiratory hygiene measures	Catch it, bin it, kill it posters on site	No gaps	
• maintaining physical distancing of 2 metres wherever possible unless wearing PPE as part of direct care	Yes, guidance followed.	Staff challenged if not maintaining. Restaurants seating areas reviewed in order to maintain distancing	

		Social distancing group in place	
• frequent decontamination of equipment and environment in both clinical and non-clinical areas	Cleaning providers undertaking regular cleaning of high touch points Enhanced cleans requested for COVID cohort areas/bed spaces. Terminal cleans of bed spaces	No gaps	
• clear advice on use of face coverings and facemasks by patients/individuals, visitors and by staff in non-patient facing areas	The Trusted was issued a limited supply of clear masks for use with patients who are hearing impaired. These masks are not suitable for use in areas of potential high risk of splash. Therefore careful selection of places that can use them. IPC leading on usage.	No gaps	
• staff regularly undertake hand hygiene and observe standard infection control precautions	Hand Hygiene audits and standard infection control precautions continue to be undertaken and are part of the PPE audit.	Results need to be reported in Divisions Clinical Governance papers	Audit results and actions will be reported to Hospital Infection Control Committee and then to Clinical Governance Committee
• the use of hand air dryers should be avoided in all clinical areas. Hands should be dried with soft, absorbent, disposable paper towels from a dispenser which is located close to the sink but beyond the risk of splash	No clinical areas have hand dryers	No gaps	

contamination as per national guidance			
• guidance on hand hygiene, including drying should be clearly displayed in all public toilet areas as well as staff areas	Pictorials on soap dispensers	Need to review posters in public toilets	
• staff understand the requirements for uniform laundering where this is not provided for on site	PHE Guidance followed, comms have been provided to staff on washing of uniforms and appears in FAQ https://www.ouh.nhs.uk/working-for-us/staff/covid-staff-faqs-ppe.aspx#what	No gaps	
• all staff understand the symptoms of COVID-19 and take appropriate action (even if experiencing mild symptoms) in line with PHE national guidance and other if they or a member of their household display any of the symptoms	Staff have been notified and made aware of when to remain off work. Messaging reinforced in weekly comms and staff briefings Internet, intranet, some hard copy comms The use of huddles for sharing key messages encouraged Poster campaigns and information in a range of different languages Staff have access to regular asymptomatic COVID-19 swab and antibody testing	Staff occasionally presenting to Occupational Health or the Asymptomatic screening clinic with symptoms whilst still working	On-going communications with staff

	Staff have access to secure on-site testing for COVID-19 if symptomatic Staff are taking part in a programme of regular testing with Lateral Flow devices		
• a rapid and continued response through on-going surveillance of rates of infection transmission within the local population and for hospital/organisation onset cases (staff and patients/individuals)	IPC continue to monitor all cases of COVID in patients and work closely with Occupational Health to understand staff outbreaks All cases of probable and definite acquired cases have incident report completed with RCA developed	No gaps	
• positive cases identified after admission who fit the criteria for investigation should trigger a case investigation. Two or more positive cases linked in time and place trigger an outbreak investigation and are reported.	2 more linked cases are reported as an outbreak	No gaps	
• robust policies and procedures are in place for the identification of and management of outbreaks of infection	Appropriate policies and guidelines are in place	No gaps	
6. Provide or secure adequate isolation facilities			
Key Lines of Enquiry	**Evidence**	**Gaps in Assurance**	**Mitigating Actions**

Systems and processes are in place to ensure:			
• restricted access between pathways if possible, (depending on size of the facility, prevalence/incidence rate low/high) by other patients/individuals, visitors or staff	It is difficult to always restrict access between pathways because of the design of the buildings. Visitors policy regularly reviewed	No gaps	
• areas/wards are clearly signposted, using physical barriers as appropriate to patients/individuals and staff understand the different risk areas	Signage on entry or on patient side room doors if COVID positive in non COVID cohort area		
• patients with suspected or confirmed COVID-19 are isolated in appropriate facilities or designated areas where appropriate	As numbers of COVID patients rise it is not feasible to manage in side-rooms. Patients are managed in cohort bays on wards. Where possible patients on non-invasive ventilation are managed in side-rooms. Daily sit-reps for number of patients in the Trust and location provided by operational team	Cannot always have dedicated facilities as not enough side rooms with the JR main building and insufficient dedicated bathroom facilities. Cohort areas are in parts of the estate with no mechanical ventilation and unclear in naturally ventilated areas that 6 air changes/hour occur	Patients cohorted together with dedicated bathrooms where possible. Dedicated green wards Side rooms used flexibly depending on daily requirements Window opening programme in place Discussed at COVID steering group, SBAR and risk assessment developed, awaiting ventilation review of wards by external company Comms via email to staff

• areas used to cohort patients with suspected or confirmed COVID-19 are compliant with the environmental requirements set out in the current PHE national guidance	Non-ICU patients undergoing AGPs are cared for in single rooms with own bathroom on one single ward. ICU facilities have had ventilation modified to increase extract performance. Authorised Engineer for Ventilation involved in advising Trust	Insufficient single rooms to isolate all COVID-19 patients unless existing clinical areas are moved. Quality Impact Assessment	Side rooms used flexibly as above to either protect vulnerable patients are protected in siderooms
• patients with resistant/alert organisms are managed according to local IPC guidance, including ensuring appropriate patient placement	Continues as per pre-COVID-19. IPC team continue to monitor this and advise on placement. Guidance on resistant organisms available in IPC intranet	No gaps	
7. Secure adequate access to laboratory support as appropriate			
Key Lines of Enquiry	**Evidence**	**Gaps in Assurance**	**Mitigating Actions**
There are systems and processes in place to ensure:			
• ensure screens taken on admission given priority and reported within 24hrs	System in place for identifying priority swabs, turnaround is approximately 8 hours for most swabs now	No gaps	
• regular monitoring and reporting of the testing turnaround times with focus on the time taken from the patient to time result is available	Yes, daily monitoring occurs, with national data returns	No gaps	

• testing is undertaken by competent and trained individuals	Competency Records as per requirement for ISO15189 controlled by the lab manager.	No gaps	
• patient and staff COVID-19 testing is undertaken promptly and in line with PHE and other national guidance	Occupational Health undertakes screening of symptomatic staff. Asymptomatic staff screening in place. Lateral flow testing launched Nov 2020 Screening of non-elective patients, day 3 and weekly screening of inpatients, screening of cancer elective patients in place. Other elective pathway screening being established as per Operating Framework. Trust follows NICE guidance on screening of patients	In order to measure compliance with patient screening, audit will take place. Systems being developed for this now.	Incident reports completed where screening has not occurred at the front door IM&T developing tool for monitoring of compliance to admission and weekly screening
• regular monitoring and reporting that identified cases have been tested and reported in line with the testing protocols (correctly recorded data)	Yes		
• that identified cases have been tested and reported in line with the testing protocols (correctly recorded data)	Yes		

• screening for other potential infections takes place	Routine MRSA and CPE screening continues. Twice yearly audit's undertaken for CPE screening compliance	No gaps	
8. Have and adhere to policies designed for the individual's care and provider organisations that will help to prevent and control infections			
Key Lines of Enquiry	**Evidence**	**Gaps in Assurance**	**Mitigating Actions**
Systems and processes are in place to ensure that:			
• staff are supported in adhering to all IPC policies, including those for other alert organisms	User friendly IPC intranet for guidance on management of other alert organisms. IPC nursing team continue to undertake surveillance of alert organisms Yearly hand hygiene audit reported to Clinical Effectiveness Committee. Clinical areas report monthly cleaning, hand hygiene, VIP and ANTT through Clinical Governance systems.	No gaps	
• any changes to the PHE national guidance on PPE are quickly identified and effectively communicated to staff	Trust guidance reflects PHE and is quickly updated to match PHE.	No gaps	
• all clinical waste and linen/laundry related to confirmed or suspected COVID-19 cases is handled, stored and	National Guidance followed, support provided by the Trust Estates Waste manager.	Incident reports have been completed where incorrect disposal of PPE has been identified. AICU double	Estates waste manager working with departments

managed in accordance with current national guidance	Guidance on correct disposal provided on IPC intranet. Communications sent out via COVID comms on safe disposal of waste Offensive waste stream introduced to hospital exit's	bagging waste but single bag only required	
• PPE stock is appropriately stored and accessible to staff who require it	PPE stock stored securely and accessible	No gaps	
9. Have a system in place to manage the occupational health needs and obligations of staff in relation to infection			
Key Lines of Enquiry	**Evidence**	**Gaps in Assurance**	**Mitigating Actions**
Appropriate systems and processes are in place to ensure:			
• staff in 'at-risk' groups are identified using an appropriate risk assessment tool and managed appropriately including ensuring their physical and wellbeing is supported	Managers have been requested to offer risk assessments to all staff, with particular emphasis on those in high risk categories and for staff in BAME group Employees have been offered the opportunity to provide a risk assessment directly to COHWB if uncomfortable sharing health details with line management Individual risks assessments are being undertaken by COHWB for staff identified as having vulnerabilities	Relies on managers and employees to undertake risk assessment in timely manner No central reporting system to identify risks and confirm RA have been completed and that measures are in place according to the assigned risk category Managers are not completing the work aspects of the RA and OH are having to contact the employee to do this which	Regular corporate communications to reiterate updated risk assessment details and encourage completion COHWB currently updating risk assessments to include more stratification in line with changing government guidance – will need to continue to be a dynamic process The Trust needs to develop a system to identify areas where social distancing is not being practiced so these

	Management referral and self-referral system in place for psychological wellbeing – support from Psychological Medicine to assist with triage of this group for onward referral	has increased the time these take to process Managers are contacting COHWB to say that they are not able to support social distancing in roles such as admin or common meeting rooms. No central assurance that national guidelines re appropriate workplace social distancing are being followed and vulnerable staff may be put at risk by managers not implementing this Insufficient staff in OH leaves a backlog of risk assessments	can be tackled. Staff comms have been sent out Managers need to understand what the next phase entails again for clinical and non-clinical staff Managers need more training re identifying risks in work and what is expected in a Covid-19 facing vs. non Covid-19 facing clinical area vs. non clinical area The Trust needs to standardise its assurance of national accepted social distancing and infection control practices to reduce possibility of poor social distancing practice/ PPE fit etc. OH may need to employ temporary experienced staff to assist with this process whilst business case developed and considered

• that risk assessment(s) is (are) undertaken and documented for any staff members in an at risk or shielding groups, including Black, Asian and Minority Ethnic (BAME) and pregnant staff	All staff should have a risk assessment undertaken by their manager		
• staff required to wear FFP reusable respirators undergo training that is compliant with PHE national guidance and a record of this training is maintained and held centrally	Fit testing required for all staff requiring FFP3 level protection External company in undertaking fit testing. Records maintained of passes and fails Staff reminded that fi t check needs to occur every time FFP3 mask put on	Unclear what denominator figure is Those who fail are referred for reusable masks	Risk assessment shared by CNO with Divisional Directors and Nurses
• staff who carry out fit test training are trained and competent to do so	Yes, the trust have commissioned external accredited fit testers and internal staff offer training for Force 8 and 10 masks	No gaps	
• all staff required to wear an FFP respirator have been fit tested for the model being used and this should be repeated each time a different model is used	Yes, this is happening	No gaps	
• a record of the fit test and result is given to and kept by the trainee and centrally within the	Yes, this is happening and recorded on eLMS	No gaps	

organisation on alternative respirators and hoods			
• for those who fail a fit test, there is a record given to and held by trainee and centrally within the organisation of repeated testing	Yes, this is happening	No gaps	
• for members of staff who fail to be adequately fit tested a discussion should be had, regarding re deployment opportunities and options commensurate with the staff members skills and experience and in line with nationally agreed algorithm	Yes, this happens within the individuals area Fail data is recorded on eLMS. Those that fail on disposable masks are recommended to book Force Mask Training through eLMS once they have gained manager support. If they fail on a Force mask (very rare) then they are asked to speak to their manager about the use of powered respirators.	No gaps	
• a documented record of this discussion should be available for the staff member and held centrally within the organisation, as part of employment record including Occupational Health	Managers are required to undertake this and keep a record of conversation		
• following consideration of reasonable adjustments e.g. respiratory hoods, personal re-usable FFP3, staff who are unable to	There is a process in place for allocation of respiratory hoods and reusable FFP3 masks, this includes training,	The records are not held by Occupational health but are held on the individual's electronic training record.	

pass a fit test for an FFP respirator are redeployed using the nationally agreed algorithm and a record kept in staff members personal record and Occupational Health service record	decontamination and donning and doffing guidance. Records are held.		
• boards have a system in place that demonstrates how, regarding fit testing, the organisation maintains staff safety and provides safe care across all care settings. This system should include a centrally held record of results which is regularly reviewed by the board	The Trust since May has had external professional fit testers on site. There is a dedicated Fit Test lead who manages this service which includes recording of records. The lead provides a written report to the Health and Safety team.	No gaps	
• consistency in staff allocation should be maintained, reducing movement of staff and the crossover of care pathways between planned/elective care pathways and urgent/emergency care pathways as per national guidance	This is the aim but not always possible.		
• all staff should adhere to national guidance on social distancing (2 metres) if not wearing a	Staff are asked to adhere, COVID safety audit checklist available for department managers to undertake regular checks		Areas not complying with this requirement are asked to alter practice.

facemask and in non-clinical areas			
• health and care settings are COVID-19 secure workplaces as far as practical, that is, that any workplace risk(s) are mitigated maximally for everyone	COVID secure workplace risk assessments are undertaken by department managers and appropriate mitigations put in place.		
• staff are aware of the need to wear facemask when moving through COVID-19 secure areas.	Staff wear facemask universally		
• staff absence and well-being are monitored and staff who are self-isolating are supported and able to access testing	Welfare checks are being completed by divisional HR teams for staff with Covid-19 absences reported via FirstCare and forms part of the COVID dashboard Staff swab testing (and household member testing) is available on JR and Horton sites. Community testing via Government testing site.	COHWB does not have capacity to review the mental health of all staff who are off work at this time Staff and household testing in the community not always possible due to large geographical areas that OUH staff live across. Geographical difficulties are mitigated by national testing schemes if well enough to travel and community testing where capacity allows. If not possible then self-isolation until recovery	Managers are encouraged to keep in touch with all staff who are off and offer sources of support eg EAP Managers should have easy access to summary of support available (raised at staff questions) Supported through telephone and email contact via swab team and COHWB

• staff who test positive have adequate information and support to aid their recovery and return to work.	All individuals attending symptomatic testing receive results by email with those testing positive contacted by telephone to follow up to remind regarding isolation requirements and to establish contacts in the workplace COHWB also available for contact (8-4 Monday – Friday) in relation to any recovery or return questions or concerns Test and trace likely to have significant impact for the Trust if staff do not follow Trust advice on social isolation as significant contacts will be required to self-isolate for 10 days.	COHWB have reported symptomatic staff have attended work Staff submitting forms for symptomatic testing have been found to be at work when contacted and have been sent home immediately. Also had staff attending asymptomatic testing who have arrived with symptoms and have had to be sent home. Contact tracing in symptomatic and asymptomatic streams have been conducted but elicited less than background positives. 'Test and trace' undertake contact tracing of community contacts Language difficulties causing barriers to understanding of advice	On-going staff reassurance that absence is supported and paid Clear communications (regularly repeated) regarding symptoms of COVID – some resources will be available in differing languages Possible sanctions/actions for staff presenting to work if not fit / reminder of duty of care