Oxford University Hospitals NHS
NHS Trust

Trust Board Meeting: Wednesday 8th July 2015

TB2015.95

Title	**Director of Infection Prevention and Control (DIPC) Annual Report**

Status	This report was taken to the Hospital Infection Control Committee in May 2015
History	This is an annual report to the Board

Board Lead(s)	Dr Tony Berendt, Medical Director and Director of Infection Prevention and Control (DIPC)			
Key purpose	Strategy	**Assurance**	Policy	**Performance**

Executive Summary

1	The Director of Infection Prevention and Control (DIPC) Annual Report gives an account of infection control activities within the Oxford University Hospitals (OUH) NHS Trust for April 2014 to March 2015.
2	These activities include guideline development, incident investigation and management, an annual audit programme, oversight of decontamination, outbreak investigation and management, surgical site surveillance, and mandatory reporting.
3	There were 7 MRSA Bacteraemias apportioned (i.e. taken >48 hrs after admission) to the OUH Trust during 2014 /2015. Of the 7 bacteraemias, 3 were deemed as avoidable. The OUH objective for 2014/2015 was 0 avoidable MRSA Bacteraemia. The Trust therefore did not meet its MRSA objective in 2014-15.
4	The OUH was set an upper limit of 67 cases of *Clostridium difficile,* identified after three days or more of admission, for 2014/2015. The OUH Trust had 61 cases of *Clostridium difficile* identified during this time period and therefore met this objective.
5	Empirical antimicrobial prescribing guidelines were reviewed and modified in response to local resistance rates, and the Trust antimicrobial mobile phone application and website was updated (version 3) to facilitate easy access to prescribing guidelines. There have been >3500 downloads of the "app" containing these guidelines and over 30,000 "reads" of the guidelines.
6	Electronic prescribing has been introduced during 2014-15 across the Trust. This has affected some metrics related to prescribing of antimicrobials during the period of having a hybrid paper and electronic system. The electronic system mandates 100% compliance with indication and duration entry as a prerequisite for prescribing.
7	Monitoring of surgical site infections continued, with encouraging rates that all exceeded agreed targets with commissioners: a. Cardiac surgery 0.25% b. Primary hip replacement 0.55% c. Primary knee replacement 0.77% d. Fixation of hip fracture 1.88%
8	The service managed two alert organism incidents (tuberculosis in a staff member, and cases of Carbapenamase-producing Enterobacteriaciae in a ward environment) and four Norovirus outbreaks.
9	The service was also involved in Trust wide work to respond to the Ebola outbreak in Africa by ensuring robust protocols were in place to support clinicians assessing returning travellers from Africa with possible Ebola infection.

Recommendations

The Trust Board is asked to

- Note the achievements and work undertaken by the Infection Control service in 2014-15.

DIPC annual report

Introduction

1. The Director of Infection Prevention and Control (DIPC) Annual Report gives an account of infection control activities within the Oxford University Hospitals (OUH) NHS Trust for April 2014 to March 2015.

2. The Report covers Infection Control for the four sites, John Radcliffe Hospital, Churchill Hospital, Nuffield Orthopaedic Centre and Horton General Hospital.

Overview

3. The Hospital Infection Control Committee (HICC) reports to the Clinical Governance Committee which reports monthly to Trust Management Executive and bi-monthly to the Quality Committee. The Decontamination Committee reports to HICC which meets every two months.

4. The Antimicrobial Management Team update antimicrobial guidelines, audit antimicrobial prescribing and monitors antimicrobial usage.

5. The departmental reports cover Sterile Services, Endoscopy and Estates in relation to cleaning audits and the annual validation of air handling units and water supply testing.

6. The Annual Audit Programme includes antimicrobial prescribing, audit of appropriate urinary catheter usage and the management of sharps.

7. The OUH Trust did not meet the objective for avoidable Meticillin Resistant *Staphylococcus aureus* (MRSA) blood stream infections in 2014-2015; however the Trust was within the upper limit for *Clostridium difficile* infection for 2014/2015.

Description of infection prevention activities

8. The team is multidisciplinary and consists of a Director of Infection Prevention and Control (DIPC), Infection Control Doctor, Infection Control Nurse Manager, Infection Control nursing team, Antimicrobial Pharmacists, Antimicrobial Audit Assistant, Infection Control Administrator, Consultant Infectious Disease/General Physician lead for Antimicrobial Management/training and audit, Scientists, Statistician and PhD students. As necessary, members of the wider microbiology/infectious diseases team are co-opted on to the team.

9. Dr Tony Berendt (Medical Director) is the Director of Infection Prevention and Control (DIPC) who reports directly to the Chief Executive and Trust Board. The Infection Control Doctor and Infection Control Manager report to the DIPC and hold fortnightly meetings with the Infection Control team.

10. The role of Decontamination Lead was previously devolved to the Infection Control Manager, though with the interim infection control management arrangement currently in place, a decision as to who within the Trust will be leading in this role has not yet formally been agreed.

11. The Infection Control nursing team, microbiology/infectious diseases medical staff

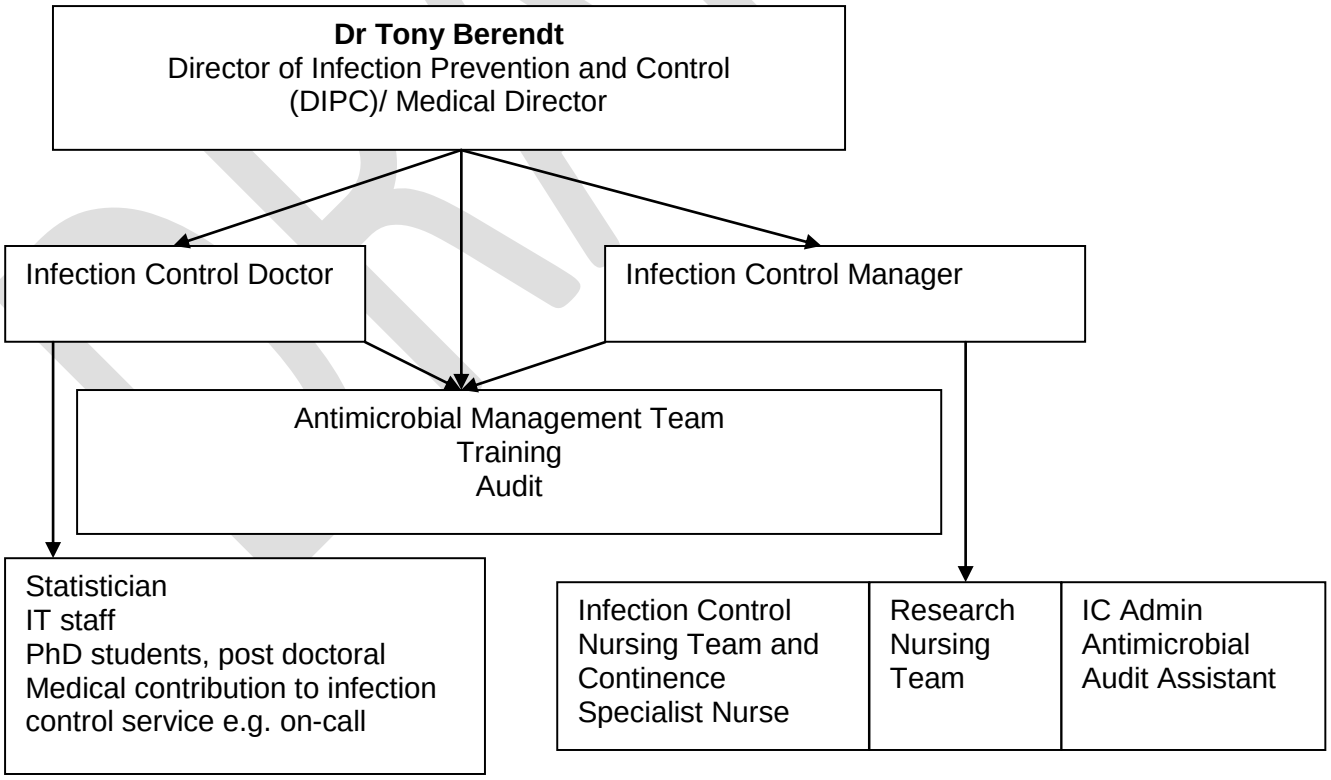
and staff from pharmacy all contribute to delivering the infection control service at the OUH Trust. In order to deliver a safe service, there is a close working relationship with the microbiology laboratory, Estates and Facilities, clinical and managerial staff within the trust.

Staffing within the infection control team

12. The current staff within the Infection Control Team for 2014/2015 are as follows:

- Infection Control Doctor (funded by biomedical research)
- Infection Control Manager/Senior Nurse 1.0 WTE (50% funded by biomedical research) 01/04/14 – 30/06/14.
- Interim Infection Control Manager / Senior Nurse 0.9 WTE 01/07/14 - Current
- Infection Control Nursing staff 6.83 WTE
- Infection Control Administrator 1.0 WTE
- Antimicrobial Audit Assistant 1.0 WTE
- General Physician/Microbiology service for the Horton 1.0 WTE
- Antimicrobial Pharmacist 2.0 WTE (vacant posts from October 2014)

Figure 1.0
The flow diagram below illustrates the line management for the Infection Control team.



Director of Infection Prevention and Control (DIPC) reports

13. The Trust produces a monthly Quality Report, provided alternately to the Trust Board and to Quality Committee. The Quality Report includes details of MRSA bacteraemia, cases of *Clostridium Difficile* and summaries of infection related

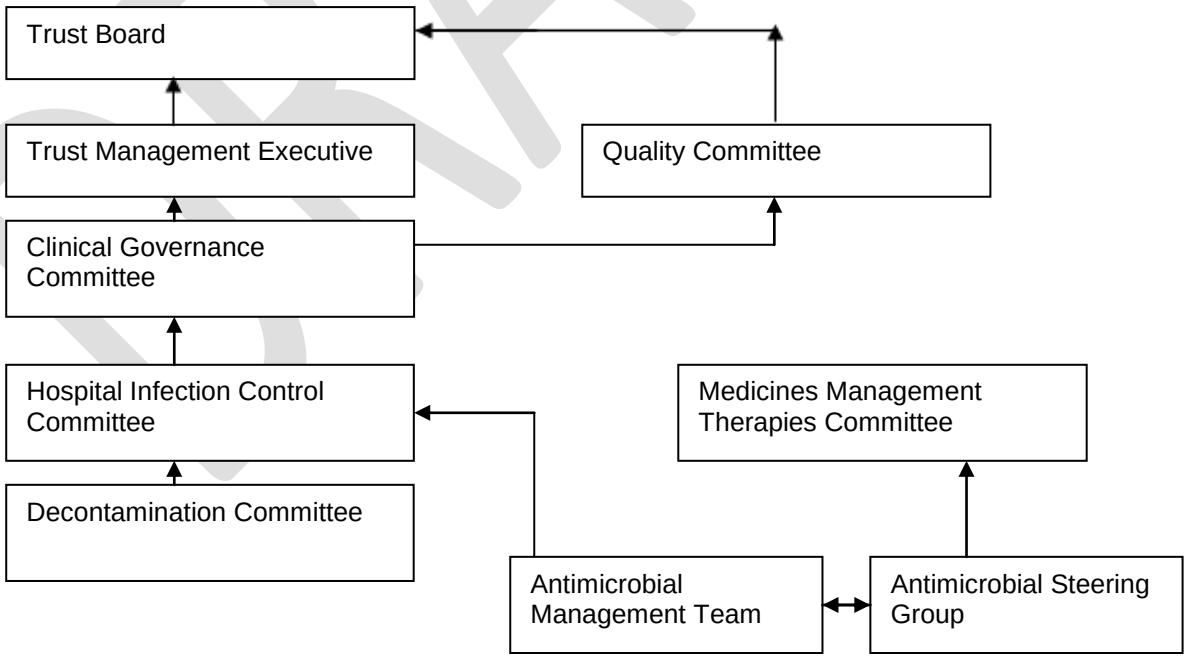
incidents requiring investigation. The Clinical Governance Committee receives a monthly infection control report which covers the same content as described above but reports on HCAI data and incidents from the preceding month.

Hospital Infection Control Committee (HICC)

14. The Hospital Infection Control Committee (HICC) is held every two months and consists of representation from Estates and Facilities, Contracts Team, local unit for Public Health England (PHE), Infection Lead Oxfordshire Clinical Commissioning Group (OCCG), Oxford Health, Public representation, Divisional representation, Occupational Health, Microbiology, Pharmacy and Infection Control. The Terms of Reference for HICC are in Appendix 1.

15. The agenda items include the following: reports from Infection Control related incidents from clinical areas, Infection Control policies/guidelines, Antimicrobial Management, Decontamination Committee feedback, reports from Estates and Facilities and IC outbreak reports. The links to other committees are outlined below in Figure 2.

Figure 2.
Committee structure for Infection Control



MRSA Bacteraemia

16. There were 7 MRSA Bacteraemia apportioned (i.e. taken >48 hrs after admission) to the OUH Trust during 2014 /2015. All OUH apportioned MRSA bacteraemia undergo a Post Infective Review (PIR) with OCCG and PHE.

17. Of the 7 bacteraemia, 3 were deemed as avoidable (the OUH objective for 2014/2015 was 0 avoidable MRSA Bacteraemia). Table 1 provides a summary of the cases deemed avoidable

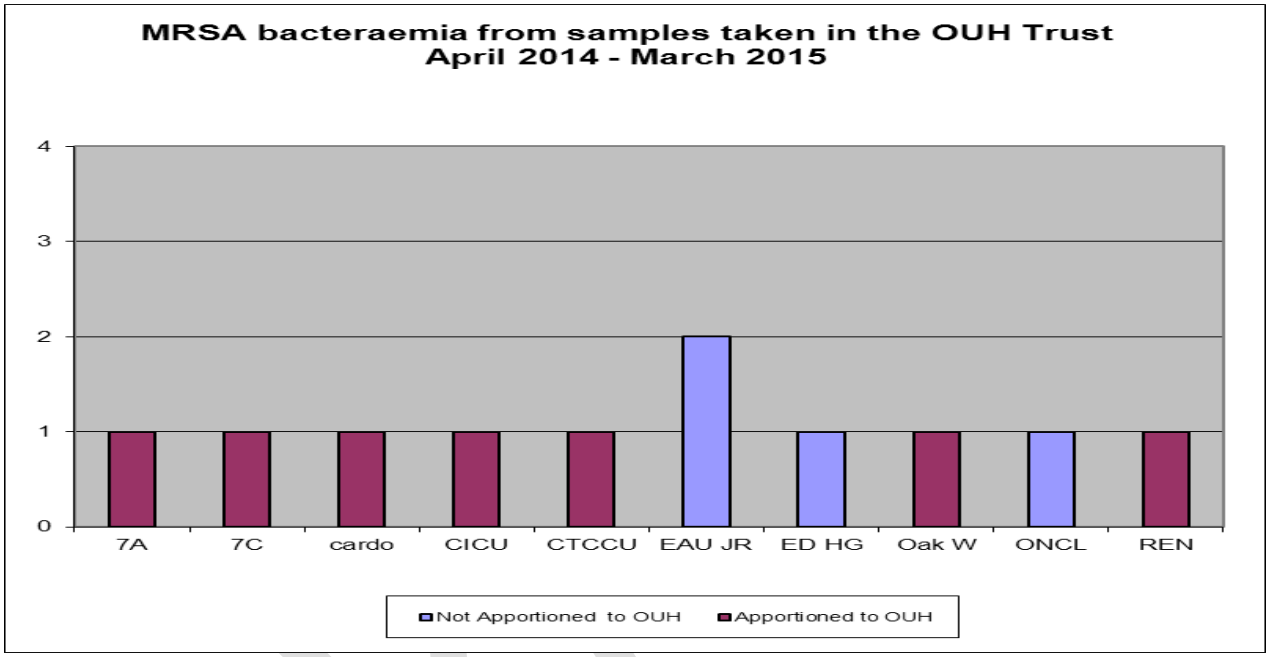


Table 1

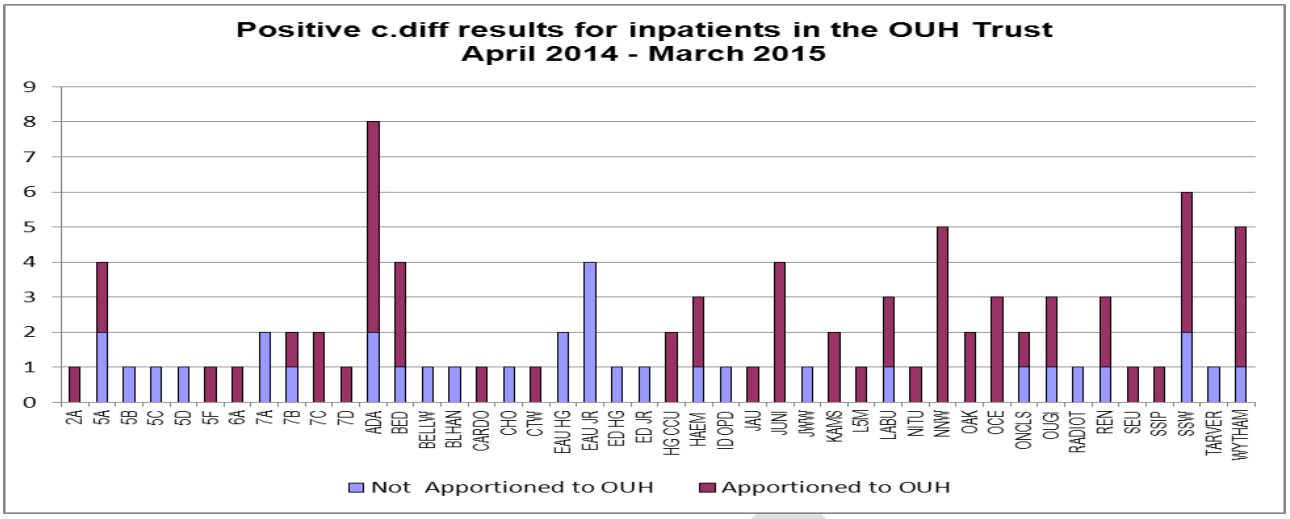
Speciality	Lessons learned
Haematology	The PIR identified issues around some elements of cannula insertion and VIP scoring documentation and this was recorded as an action that required addressing on the ward with the Clinical service and this will be taken forward by the Clinical service and Infection Control.

Cardiology	The risk of infection was increased due to the patient's lengthy hospital stay. However this was unavoidable because the patient became acutely unwell before the intended earlier cardiac intervention of a balloon Valvuloplasty. Prior to subsequent cardiac intervention of a pacemaker insertion the patient was given the routine antimicrobial prophylaxis of Flucloxacillin and Gentamicin. This was sub-optimal because MRSA is not sensitive to Flucloxacillin. The prescribing doctor should have followed OUH Trust guidelines and sought further advice from a microbiologist. Due to lack of documentation it was unclear if adequate skin preparation was given prior to insertion of the permanent pacemaker. It was agreed that this will be followed up with the Sister managing the cardiac angiography suite.
Medicine	Prior to bilateral Angioplasty procedure undertaken in interventional radiology, skin preparation was performed using povidone iodine aqueous. This is not in line with Trust guidelines which recommends the use of Chlorhexidine 2% in alcohol for skin preparation (povidone iodine alcohol is recommended as an alternative to Chlorhexidine 2% for patients allergic/contraindicated) The scheduled Angioplasty was cancelled on > 3 occasions, delaying treatment of chronic MRSA colonised leg ulcers. The patient was receiving long term oral Clindamycin suppression therapy for chronic MRSA osteomyelitis. However although the MRSA was confirmed to be resistant to Clindamycin, microbiology advised the medical team no change in antibiotics was necessary.

Clostridium Difficile

18. The OUH was set an upper limit of 67 cases of *Clostridium difficile,* identified after three days or more of admission, for 2014/2015

19. The OUH Trust had 61 cases of *Clostridium difficile* identified during this time period and therefore met this objective.



20. All cases of *Clostridium difficile* identified in the microbiology department of the OUH Trust are investigated and discussed at a monthly meeting where there are representatives from PHE, OCCG, Oxford Health Foundation Trust and the OUH Infection Control service.

21. Each case is presented individually and discussed. Agreement is then reached as to whether the case is avoidable or unavoidable. Any actions are agreed and lessons learnt for the Health Economy.

22. The findings are communicated back to the Antimicrobial Management Team and antimicrobial guidelines where indicated are reviewed.

Decontamination

Decontamination Committee

23. The Decontamination Committee meets every two months and covers decontamination in Sterile Services, Endoscopy, decontamination of medical devices and patient equipment and environmental cleaning. This committee reports to the Hospital Infection Control Committee.

24. Because of Committee member workload and annual leave, the October 2014 meeting was cancelled as it was non-quorate.

Central Sterile Services Departments (CSSD)

25. The Central Sterile Services departments (CSSD) are located at the John Radcliffe (JR), Churchill (CH), and Nuffield Orthopaedic Centre (NOC) and Horton Hospital (HH) sites. They supply sterile instrumentation for the theatres in the West Wing, JR 1 and 2, CH, NOC and HH.

26. All the units met the standards for external compliance audits, though there were some immediate and urgent actions identified in the Ventilation Validation reports for JR, CH and HH. Information as to the actions undertaken by Operational Estates has not as yet been received at the time of the writing of this report.

27. As part of future planning, the following CSSD options are being considered:

a. New build sterile services unit located in Oxford serving JR, CH, NOC & HH,
b. New build sterile services unit located in Oxford serving JR, CH & NOC,
c. New build sterile services unit & automatic endoscopy reprocessing facility located in Banbury serving HH.

Endoscopy

28. Endoscopy is undertaken on the John Radcliffe, Horton and Churchill Hospital sites on both an inpatient and out-patient basis. Intubating fibrescopes are also used within NOC Theatres when required.

John Radcliffe Hospital

29. The largest Endoscopy Department within the OUH is located on Level 2 of the JR Hospital. It provides an inpatient and outpatient service to approximately 12,000 - 13000 patients per year undergoing Gastrointestinal Endoscopy. There are 4 Automatic Endoscope Reprocessors (AER's) situated within the unit and it manages a further 2 AER's on level 3 of the West Wing.

30. The department have experienced issues with reliability of both the AERs and RO plants that feed the main JR Unit.

West Wing ENT

31. Flexible Nasendoscopes are decontaminated using two AERClens machines in the ENT OPD, West Wing. However, when there is a Head and Neck clinic running the AER's are not used as they cannot meet the turnaround time for decontaminating scopes to support this clinic. As a result of this a separate system for decontamination of nasal endoscopes was set up using the three stage Tristel wipes process. Flexible nasal endoscopes are decontaminated in the AERs at the end of the day and the Tristel wipe system is used to decontaminate the scopes between patients.

32. The department have experienced reliability and operational issues with the AER's which has resulted in the loss of one or both machines throughout the year. This has meant that the department has been using the Tristel wipe system as the predominant means of nasendoscope decontamination.

33. Advice has been sought from the OUH Authorising Engineer for Decontamination (AED) and Infection Control as to whether the AER's can be removed completely from the department and the manual (Tristel Wipe) method utilised as the sole means of decontamination.

34. The AED advised that as per CFPP 01-06, an automated decontamination process should be used wherever possible, as this can be validated and therefore a suitable replacement AER has been identified and will be installed during the 2015-2016 year.

Churchill Theatres

35. The Churchill Hospital uses 3 CISA AER's (each with 2 "slots") that are used to decontaminate endoscopes used by clinical teams within Churchill Theatres, the

Churchill site and units external to the Churchill, such as NOC theatres and a Urology Clinic held in Bicester. This system differs from other AER's used within the OUH in that the scopes are reprocessed and stored within a "cassette" which can then be transported to wherever the scope is needed, rather than being reprocessed through an AER and then being placed into a drying cabinet at point of use.

Blenheim Head and Neck, Churchill Hospital

36. The department has also experienced reliability and operational issues with the AERClens and service supply (such as the RO) installed within this department, which has resulted in the loss of all 3 machines throughout the year. This has also meant that the department had to use the "Tristel Trio" wipe system to decontaminate their nasendoscopes (as agreed at Trust Clinical Governance, December 2013), rather than using an automated process. A tracking system is in place to enable patient look-backs for assurance and tracing purposes.

37. As per paragraph 20, advice has been sought from the OUH AED and Infection Control as to whether the AER's can be removed completely from the department and the manual (Tristel Wipe) method utilised as the sole means of decontamination.

38. The advice provided has stated that an automated decontamination process should be used wherever possible and discussions regarding AER replacement and removal of the RO are still on-going at the time this report was drafted.

Horton Hospital

39. The Horton Hospital has 2 AER's located within Day Surgery and an ENT outpatient service with one AER.

Horton Main Endoscopy

40. The department has experienced operational and reliability problems with both the 2 AER's and RO system throughout the year and this has resulted in the loss of both the existing AER'S as they have reached the end of their working lives.

41. Therefore in order to allow the department to remain operational, replacement AERs have been leased. Whilst awaiting installation and confirmation of test results, certain patients requiring procedures such as bronchoscopy have been transferred to Oxford for treatment. Discussions as to the permanent replacement of the AER's are being undertaken as part of a wider programme to refurbish / replace the existing Endoscopy department and this is on-going at the time of the drafting of this report.

Horton ENT

42. Flexible nasendoscopes are decontaminated using one AERClens machine in the OPD. The department have experienced reliability and operational issues with the AER which has resulted in the loss of the machine since August 2014. This has meant that the department has been using the "Tristel Trio" wipe system to decontaminate their nasendoscopes (as agreed at Trust Clinical Governance December 2013), rather than using an automated process. A tracking system is in place to enable patient look-backs for assurance and tracing purposes.

43. Advice has been sought from the OUH Authorising Engineer for Decontamination (AED) and Infection Control as to whether the AER can be removed completely from

the department and a the manual (Tristel Wipe) method utilised as the sole means of decontamination.

44. The advice provided has stated that an automated decontamination process should be used wherever possible and discussions regarding AER replacement are still on-going at the time this report was drafted.

Nuffield Orthopaedic Centre

45. The operating theatres within the Nuffield Orthopaedic Centre have access to Fibre-optic intubating scopes for use on patients during difficult intubations. There is no dedicated AER situated at the NOC and therefore Intubating Fiberscope decontamination is undertaken using the Churchill Theatre AERs.

Final Rinse Water Results 2014 - 2015

46. **Introduction**
As per CFFP 01-06, a weekly Final Rinse Water Total Viable Count (TVC) test is undertaken on all AERs to provide assurance that the rinse water used after the disinfection cycle is free from microbial contamination and therefore would not pose an infection risk during subsequent patient use.

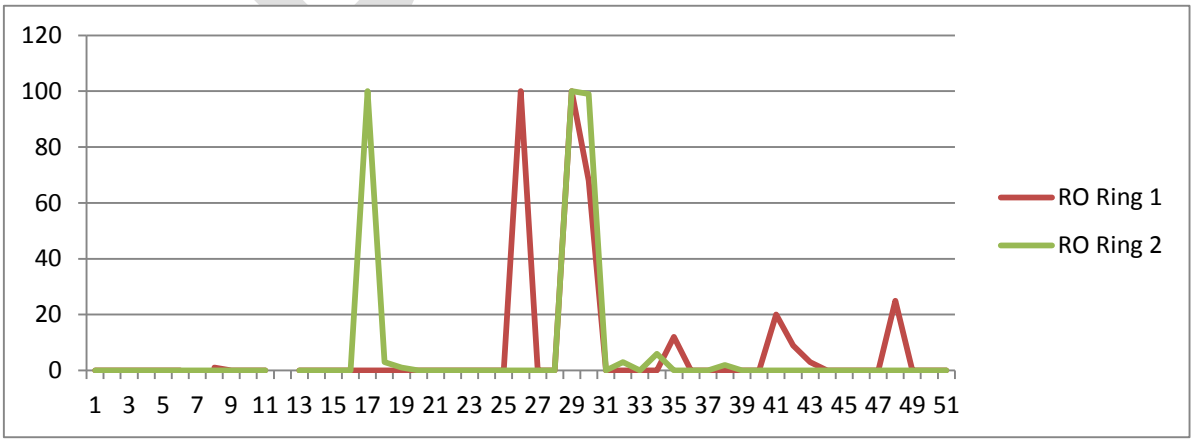
47. To ensure that the water used for final rinsing is of sufficient quality, the OUH Endoscopy departments either use a two stage filtration or Reverse Osmosis (RO) system; with the aim of providing a TVC count of < 10 colony forming units (cfu) and ideally 0 cfu.

48. A number of water test failures were reported during 2014-2015, resulting in operational restrictions being placed on the affected clinical services. These were as follows:

JR2 Main Endoscopy

49. Table 2.0 details TVCs reported from the final Rinse water samples obtained from R.O rings 1 and 2.

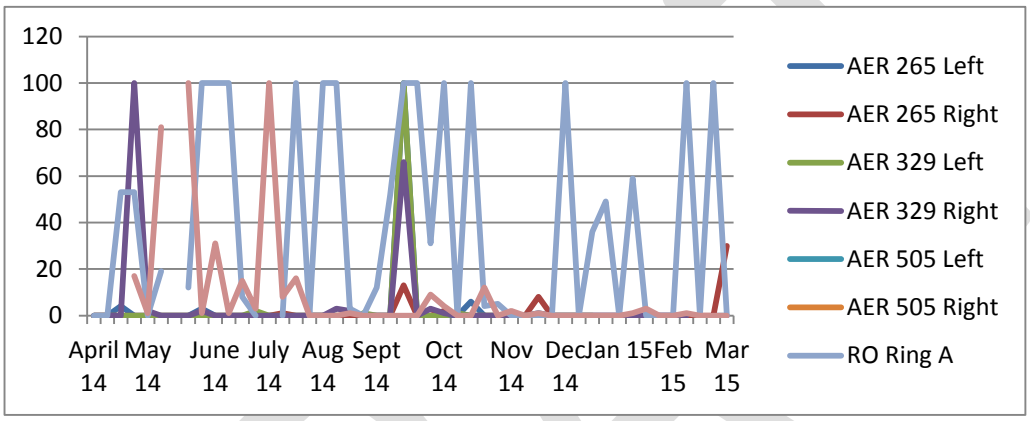
Table 2.0



50. Final Rinse Water is supplied to the AER's via 2 RO loops (1 and 2). Sporadic TVC counts of greater than (>) 0 cfu were reported from both RO loops over the year and as a consequence of the results, operational restrictions were placed on the service in terms of High Risk endoscope decontamination i.e. Cystoscopy, Bronchoscope and endoscopes used for Endoscopic Retrograde Cholangio-Pancreatography (ERCP). The respective RO systems underwent full pasteurisations when these counts were reported and subsequent TVCs have been < 1 cfu indicating resolution of the problem.

51. **Horton Main Endoscopy**
Table 3.0 details TVCs reported from the final Rinse Water samples obtained from RO rings A and B and AER's 329, 265 and 505 (lease AER).

Table 3.0



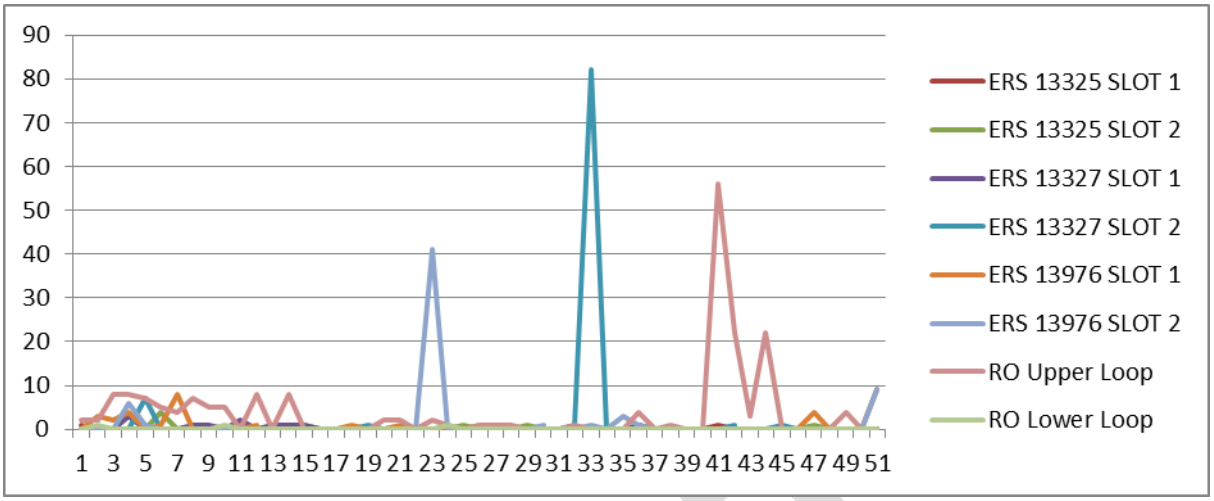
52. Persistent TVC counts of > 100 cfu from AER's 265 and 329 illustrate the operational issues being experienced by the department, which have resulted in operational restrictions being placed on the service and the subsequent requirement for a leased AER until a permanent solution is in place.

53. Persistent TVC's of > 100 cfu have also been reported from samples taken from RO A, which has had a subsequent effect on the water quality supplied to the AER's.

Churchill Theatres

54. Table 4.0 details TVCs reported from the final Rinse water samples obtained from RO upper and lower loops and Endoscope Reprocessor Systems' (ERS) 13976, 13327 and 13325.

Table 4.0

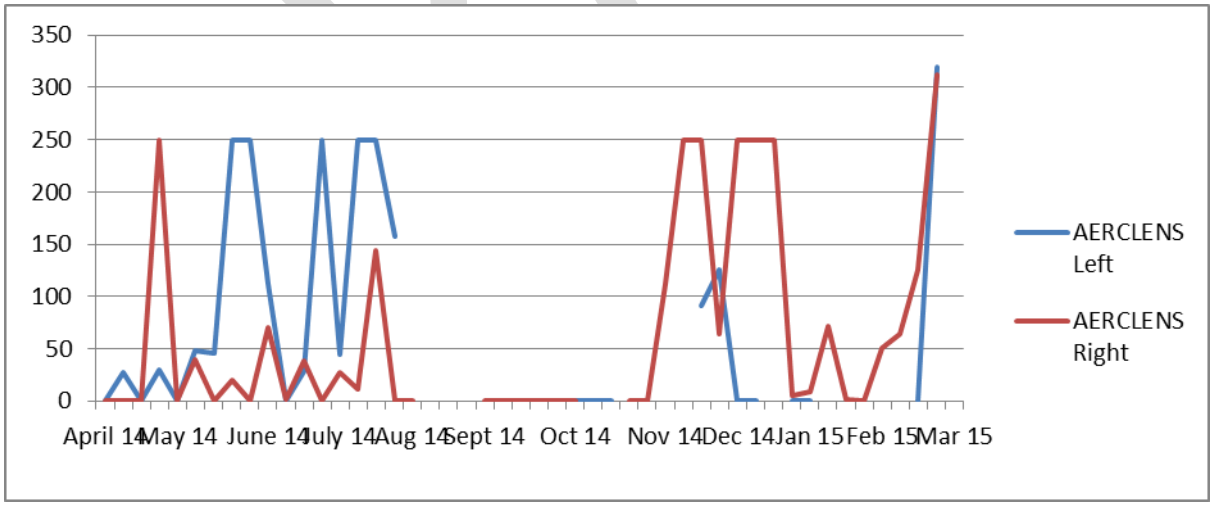


55. Sporadic results of > 10 cfu have been reported from both the upper RO loop supplying the CISA system, as well as from slots 1 to 6 during 2014 - 2015. Consequently there have been periods of time where Infection Control has had to place operational restrictions on this department, with obvious service implications for the Churchill site.

West Wing ENT

56. Table 5.0 details TVCs reported from the final Rinse Water Samples obtained from the Left and Right AERClens.

Table 5.0



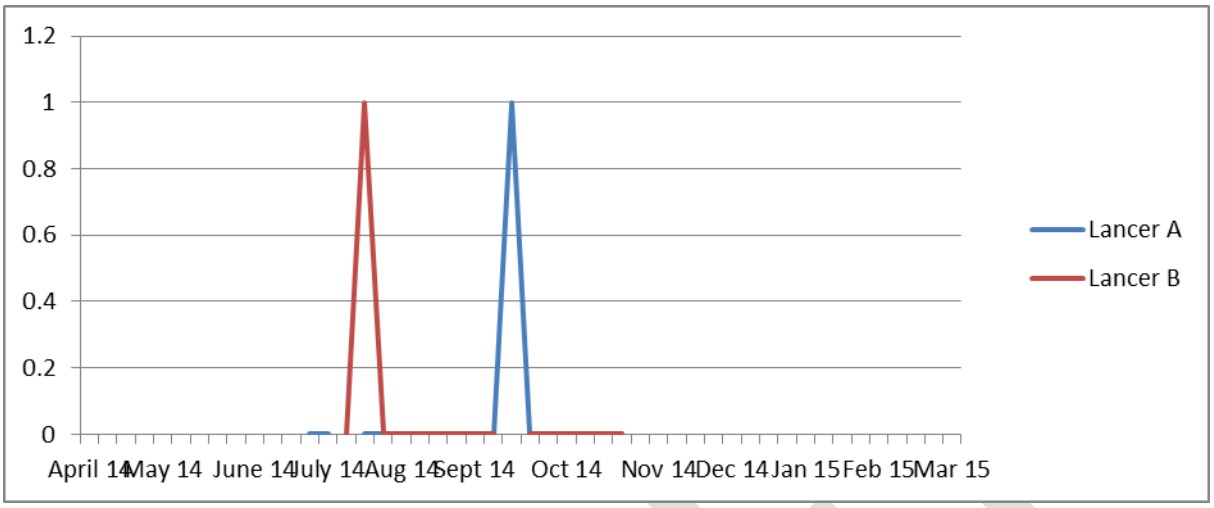
57. As previously documented, there have been problems with the reliability of the AERClens machines in this department and an appropriate replacement AER has been identified.

58. It is thought that the installation of the replacement AER and an RO system will result in acceptable cfu counts and water quality.

West Wing, Level 3 Lancer

59. Table 6.0 details TVCs reported from the final Rinse water samples obtained from the Lancer A and B

Table 6.0



Horton ENT

60. Due to the AER becoming unserviceable in August 2014, no water testing has been undertaken subsequent to this date. Water testing before this date regularly reported a cfu count of 0.

Investigation of Freego™ pump damage (update 2014-2015)

61. During the 2013 - 2014 year, the OUH reported that damage had been observed to the printing on the buttons used to alter settings on the Abbott Nutrition “Freego” pumps. These were used throughout the OUH for feed administration. There was concern that this potentially due to an inappropriate decontamination process using Clinell wipes (as used Trust-wide).

62. Following an investigation by both the OUH and Abbott Nutrition, it was subsequently recognised than an issue with the manufacturing process was the cause for this damage, rather than the decontamination process used by the OUH, and that the manufacturing process had been modified to prevent further instances of removal of the printing on the pump buttons occurring during routine decontamination.

63. As a consequence of this damage, a pump replacement programme was introduced and no further instances of damage to the replacement pumps has been reported to date.

ACCUSCREEN™ Damage

64. During the 2013-2014 year, the OUH reported that damage had been observed on the casing of a number of Accuscreens (a device used for new-born hearing screening) and that this was due potentially to an inappropriate decontamination process.

65. Following a review of the process, and after discussion with other NHS Trusts using this device who had also experienced issues with Accuscreen casing damage, it was thought likely that the damage was likely due to the over tightening of screws during the construction process and therefore a manufacturer issue, rather than OUH process failure. Medical Devices will continue to monitor for signs of damage.

Churchill Equipment Library - Environmental Review, August 2014

66. The Equipment Library is based within Ward 14 on the Churchill Hospital site and its purpose is to ensure that medical equipment is evenly distributed throughout the trust and available for all wards and departments who participate in the service. Equipment is available 24hrs a day either through the Equipment Libraries or via the porters.

67. Infection Control undertook an environmental review of the Equipment Library in August 2014, following the raising of concerns that the environment was not suitable for the decontamination of, and subsequent storage of, reusable medical devices provided by the Equipment Library service. The concerns expressed were as follows :

- The general condition of the fabric of the space used for the Equipment Library
- The suitability from an Infection Control perspective of the environment in which equipment decontamination was being undertaken
- Poor domestic cleaning provision
- Temperature issues

Summary of review findings

68. The clinical environment in which the Churchill Equipment Library is currently based has a number of Infection Control issues that makes it an inappropriate environment for reusable patient equipment decontamination and storage.

69. These issues include the lack of a defined dirty-to-clean flow for equipment entering the department and the lack of a definable decontamination area. In addition the general condition of the fabric of the building is poor in most of the rooms and the cleaning process is inhibited because of this.

70. If the Equipment Library is to remain in its current location, a project of refurbishment will have to be undertaken if the identified issues are to be addressed. If this is not seen as financially viable, an alternative location for the clinic should be sourced.

Recommendations following review

71. **Refurbishment of the existing clinical area**

The rectification of the issues such as flooring, the provision of an appropriate decontamination area and rectification of the issues with the general fabric of the building will require extensive rectification work. A decision by the Surgery and Oncology Division may therefore be needed as to whether refurbishment is a viable option.

72. **Relocation of the service to a more appropriate environment**

If refurbishment is seen as an un-viable option, an alternative site for the Churchill Equipment Library should be sourced.

Legionella

73. Legionella testing of the water supply system is monitored continuously to identify problems with controlling *Legionella*.
74. Water mists from cooling towers, humidifiers and showers can be contaminated with it and if inhaled or aspirated into the lungs can cause disease.
75. Water identified with *Legionella* from drinking water is not thought to cause disease however if the person chokes whilst drinking it and it accidently goes into the lungs then it is possible that in this situation it may cause disease.

Prevention

76. Water is not free from bacteria or organisms but measures can be put in place to reduce the risk of organisms multiplying. *Legionella* is present in 60% of artificial water systems.
77. All four sites within the OUH Trust carry out an annual risk assessment and any identified problems are documented in an associated action plan with measures put in place to rectify them.
78. In addition to this there is routine testing of water samples and monitoring and recording of temperatures, routine descaling of outlets and associated equipment and maintaining records of all of the above.
79. Water temperatures are maintained below 20 degrees and above 60 degrees.
80. Chemical disinfection prevents the growth of *Legionella* e.g. daily dosing with chlorine dioxide at a maximum of 0.5 ppm.
81. Audit of monitoring and maintenance records carried out quarterly by the Trust and validated by the external authorising engineer for water.

Factors that lead to elevated *Legionella* counts

82. To prevent scalding, Thermostatic Valves are fitted near outlets. However, these are now thought to encourage *Legionella* growth, especially if they are placed a distance from the outlet.
83. Water stagnation as a result of long runs of pipework, redundant pipework and having showers with no returns all provide an environment for the growth of Legionella.
84. Low water volumes with high water temperatures make it difficult to maintain disinfectant levels needed to kill *Legionella* e.g. little used outlets.
85. Materials that encourage *Legionella* growth e.g. taps and wash hand basins that are no longer compliant but remain in use as the clinical area has being refurbished.

Legionella Improvement Works

86. **John Radcliffe Site**

86.1 **JR1 Women's centre:**
59 of 62 showers modified. Of the 3 remaining showers, 2 have been removed from the system and 1 is in a room to be upgraded.

86.2 All 356 basins and sinks will be modified. This programme will start on level 7. All basin pipework will be changed to remove 'dead-legs' and replace current mixer taps to Trust approved mixer taps. All the basin support units will be modified to allow access to pipework.

86.3 Small hand wash basins with built-in mixer taps for public use will be fitted.

86.4 Mixing valves will be removed from wash hand basins in staff area. Hot taps will revert to 60^0C with warning notices.

87. **JR2 Main Block**
Review of pipework has been completed and an action implementation plan of remedial work is yet to be agreed.

88. **Churchill**

88.1 **John Warin Ward**
All 11 showers have been modified

89. **Head and Neck**
All 9 showers have been modified

90. **OUH Cleaning audit process**

From July 2013, the OUH Cleaning audit was changed to the following system:

a. Monthly audit of domestic cleaning carried out by the domestic audit team.

b. Monthly audit of the standard of cleaning for equipment that comes in direct/indirect contact with patients carried out nursing staff.

c. Validation audits carried out by the Performance and Quality team, which will also include cleaning carried out by estates i.e. ventilation grilles. The majority of clinical areas will be audited once within a quarter.

91. All clinical areas are expected to achieve compliance at 92%, although the Trust should be moving to a National rate of 98%. The audit results are reported monthly on to ORBIT as three different metrics i.e. domestic, nursing and validation audits and the results are also presented at the monthly OUH Clinical Governance meeting.

92. The contracts team are introducing a new auditing system, weighted according to risk. It will aid in the production of realistic cleaning audit scores. G4S and Carillion are to go on the same system, for monitoring and technical audits. The system is fully

automated; when the audit is finished it will send an email to the ward/department and will also generate a coloured dashboard.

Antimicrobial Management Team (AMT)

93. The Antimicrobial Management Team (AMT) is responsible for the operational side of antimicrobial management, e.g. ensuring the introduction of procedures to promote prudent antimicrobial usage, the monitoring of antimicrobial usage, the dissemination of information and the updating of health care professionals. The AMT meets weekly and reports to the HICC.

94. The AMT members are also members of the Antimicrobial Steering Group (ASG). ASG is a subgroup of the Medicines Management and Therapeutics Committee (MMTC) that meets every two months. ASG advises MMTC regarding antimicrobial formulary applications and checks antimicrobial guidelines. A Consultant ID physician attends the MMTC.

95. The AMT consists of the following:
    - Consultant Lead (Antimicrobials);
    - Lead Antimicrobials Pharmacist; (vacant post since October 2014)
    - Deputy Antimicrobials Pharmacist; (vacant post since October 2014)
    - Infection Control Doctor;
    - Infection Control Manager (unfilled post)
    - Antimicrobial Audit Assistant

96. The AMT is responsible for antimicrobial stewardship. An antimicrobial stewardship programme is essential to minimise healthcare associated *C. difficile* infections, to preserve effectiveness of existing antibiotics and to limit emergence of resistant organisms including MRSA, extended spectrum beta lactamase (ESBL) producing organisms and Carbapenem resistant organisms.

97. An audit plan for the financial year 2014-5 was agreed which was as follows :

    97.1 Prescribing data (indication-duration) was fed back to divisional leads quarterly. Prevalence data of Trust wide antimicrobial usage (point prevalence) was recorded quarterly (table 7).

    97.2 Indication duration rates of prescribed antimicrobials. Data is only available for 2 points of the year due to constraints referred to in point 102). Table 8 indicates prevalence and adherence to antibiotic guidelines amongst prescribers.

98. The Trust antimicrobial mobile phone application and website was updated (version 3) to facilitate easy access to prescribing guidelines. (Horizon Strategic Software). Table 9 shows take up of guidelines amongst users.

99. Empirical antimicrobial prescribing guidelines were reviewed and modified in response to local resistance rates, and to maximise use of lower risk antimicrobials with regards to *C.difficile* infection and selection of resistant organisms.

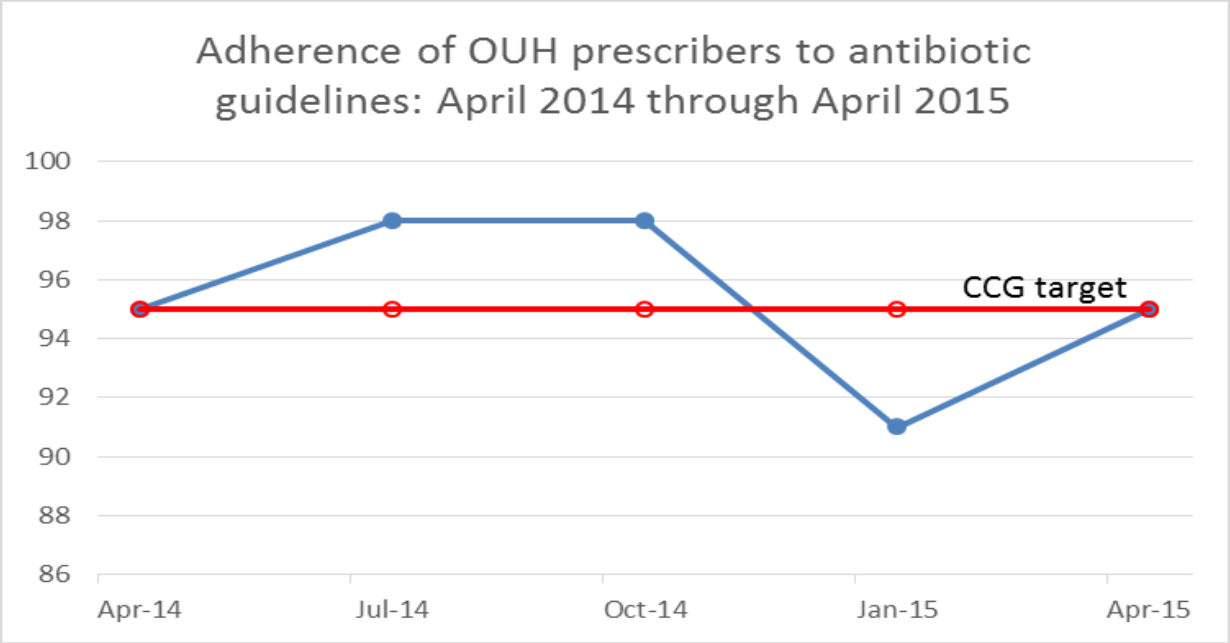
100. The electronic incident reporting system (Datix) has a facility to identify incidents that involve antimicrobials. These are reviewed monthly by the ASG to identify risks and inform stewardship decisions/ actions.

101. Enhanced stewardship activities included:- IMPACT meetings (Multidisciplinary Team Meetings with Infection control, Pharmacy, Microbiology, Antimicrobial Chemotherapy Team) taking place biweekly; ward based stewardship activity in acute general medicine and general surgery units.

102. **Particular challenges of 2014-5:** During this year there was a change from the use of paper based drug charts to e-prescribing. This has been a complex and time-consuming undertaking which has meant pharmacist support has not been available for regular audit in the usual way. Because the change-over occurred gradually over several months and is not yet complete, the lack of a universal Trust wide drug chart (i.e. some areas being paper based and others using e-prescribing) has hindered the reporting of Trust wide audits.

103. A new system of Trust wide audit of antimicrobials is currently under development. Further challenges have been the introduction of a mobile phone app and antibiotic website and a gradual phasing out of the more familiar paper based guidelines. Lastly, there have been staff shortages with the unfilled posts of antimicrobial pharmacist/ consultant and infection control manager.

104. Table 7: Adherence to antibiotic guidelines in OUH prescribers



105. Table 8: Indication duration data

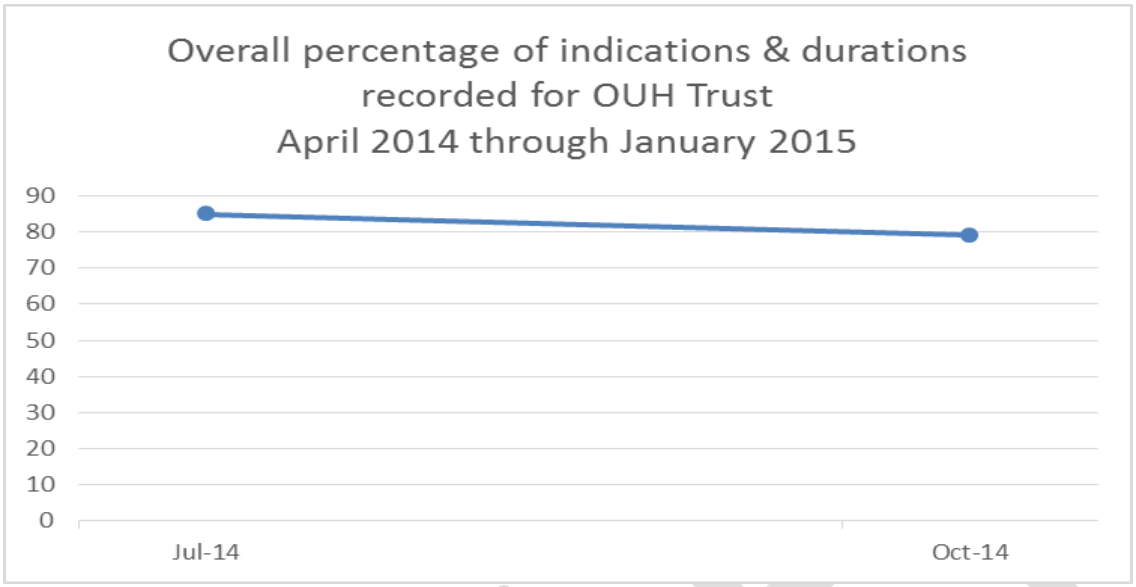


Table 9: Summary of registered users and use of Microguide "app" (adult and Paeds) to end April 2015.

	Jan-15	Mar-15	May-15
Guide Downloads - Adult	**2684**	**3276**	**3921**
Guide Downloads - Paeds	**0**	**242**	**387**
Guide Opens -App - Adult	**7719**	**9344**	**11089**
Guide Opens - Viewer - Adult	**68**	**15706**	**19189**
Guide Opens -App - Adult	**0**	**215**	**379**
Guide Opens - Viewer - Paeds	**0**	**15**	**31**

Infection prevention

Hand Hygiene

93. Compliance with hand hygiene remains a priority for the infection control service. It is monitored regularly in each clinical area and reported through the nursing metrics. Infection control training is carried out at Trust induction, during mandatory update sessions and through the use of e-learning resources. The infection control

team continue to provide additional hand hygiene training to clinical areas who achieve poor hand hygiene audit results or if they have requested it.

Continence service

94. The continence service for the OUH Trust established a nurse led continence service comprising of 1.6 WTE.

Aims of the service

95. The team for Continence believes that all patients referred, will receive high quality, evidence based care of both bladder and bowel. The aims of the service are as follows:

    95.1 Reduce catheter associated Urinary Tract infections.

    95.2 Supporting patients with continence issues for early discharge.

    95.3 Standardising catheter related and containment products

Achievements in 2014/2015

96. Advisory service to all Trust staff on bladder, bowel continence and urinary catheter issues. Written Trust guidelines for catheter maintenance.

97. Continuation of extensive training of staff at local level to promote continence care and reduce urinary catheter insertion. Training staff at all levels including medical student on Aseptic Non-Touch Technique urinary catheter insertion and on-going care. These include :-

    - Continuing regular Male Catheterisation training throughout the Trust.
    - Regular session for Acute General Medicine lunchtime teaching.
    - Teaching session for Neurosciences induction programme
    - Band 5 Foundation Programme
    - CSW induction and advanced programmes and help to write competencies in line with the care certificate.

98. Worked with procurement to standardise continence and catheter products across the Trust. Also involved with the Shelford Group reviewing and assessing continence products.

99. Involved in the OUH and Oxford AHSN CAUTI (catheter associated urinary tract infection) project

100. Working with Oxford Health NHS Foundation Trust to update their product formulary which is strengthening communication across the Oxfordshire Health Economy

101. Inpatient teaching of Intermittent Self Catheterization (ISC), therefore patients moving from permanent indwelling urinary catheter, improving their dignity and reducing the risk of CAUTI.

102. Joint ANP clinic for patients with Multiple Sclerosis (MS) at the Horton General Hospital, OCE and West Wing.

103. Early assessment of patients with continence issues to ensure that continence issues do not delay their discharge.

104. Reducing Catheter Associated Urinary Tract Infections (CAUTI) by carrying out the following;

    a. Preventing the insertion of inappropriate urinary catheters through the use of ward based bladder scanners
    b. Regularly reviewing all patients with an indwelling urinary catheter with a view to removal
    c. Training staff how to assess patients before a urinary catheter is inserted and the correct standards one is required.

Infection Control

Investigation of Infection control incidents

Introduction

105. Previous guidance relating to investigating incidents relating to Infection Control has been replaced by the NPSA information resource to support the reporting of serious incidents (2010) and South of England process of reporting of Serious Incidents Requiring Investigation (March 2012).

Overview

106. Based on this guidance the following incidents require investigation with an initial case review meeting, following which a decision is made as to whether further investigation is required i.e. upgraded to a SIRI;

    a. Outbreaks, where there is evidence of transmission i.e. identical genome sequence type (1-2 SNPs apart), or closure of premises to new patients affecting the operational management of the Trust.

    b. MRSA positive blood cultures taken after 48hrs of admission.

    c. Infection in a Healthcare worker that necessitates a look back exercise i.e. TB/BBV.

    d. Infection in a patient that necessitates a look back exercise e.g. TB/vCJD.

e. Confirmed death of a patient from hospital acquired infection including *C. diff* or MRSA

f. Un-sterilised surgical instruments (where the standard is that they are sterile) equipment used on a patient

Churchill Hospital Theatres - Infectious Pulmonary TB exposure, December 2014 - January 2015.

107. Infection control were notified on the 11/02/15 by the Churchill Theatres Sister that a member of staff working in the Churchill Theatres, Churchill Overnight recovery Unit (CORU) had been diagnosed with a likely Drug Sensitive Infectious Pulmonary Tuberculosis (TB) by their Respiratory Consultant at another hospital.

108. Occupational Health (OH) had been initially made aware of the TB diagnosis by the staff member themselves and then made the initial call to the Churchill Theatre Sister to inform them of the potential exposure incident.

109. Infection control (IC) was notified that both staff and patients had been exposed from the beginning of December (01/12/14) and as per OUH Infection Control protocol (in line with NPSA Guidance) an Infection Control Incident investigation was commenced.

Immediate Actions

110. With the assistance of the Churchill Theatres, a look back exercise was commenced to draw up a list of likely exposed patient and staff contacts.

111. Patient contacts were defined as those patients nursed in CORU and main recovery in excess of 8 hours and receiving 1:1 or 1:2 nursing with the index case and were at an increased risk of acquisition i.e. immunosuppressed, oncology, transplant etc. A total of 27 patients were identified as exposed between 08/01/15 and 28/01/15 (this was the period of time when the index case was working within CORU, rather than in Anaesthetics or Theatres).

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112. A total of 51 staff contacts were initially identified, with a further 99 staff being identified later. The staff contact details were made available to Occupational Health and it was identified that of the initial 51 contacts, 49 were known to have BCG or natural immunity. The remaining 2 staff required further follow up.

113. Infection Control then sent a communication to Senior Staff, including the DIPC, Chief Nurse and Divisional Managers informing them of the potential exposure and the actions taken to date and the CEO was informed.

114. It was agreed that the Oxford Infectious Diseases and TB Nursing Service should be informed and the potential incident reported externally to the following Health bodies:

- Public Health England (PHE)

- Trust Development Authority (TDA)
- NHS England
- The Oxford Clinical Commissioning Group (OCCG)
- The Care Quality Commission (CQC).

115. A teleconference incident meeting was arranged for the 18/02/15, which was to involve key OUH clinical and non-clinical teams, PHE and the OCCG

116. Patient, GP and Consultant notification letters were then drafted in preparation for the notification exercise and a Media Holding Statement was drafted with OUH Communications in case of any media enquiries in relation to the incident.

Teleconference 18/02/15

117. An incident teleconference meeting was held on the 18/02/15 with representatives from the following services:

OUH Acting DIPC (Chair)
OUH Infection Control
Churchill Theatres
OUH Communications
Infectious Diseases / OUH TB Lead
OUH Occupational Health
PHE
OCCG

118. An update on the actions taken to date was provided and it was confirmed that the incident had been reported externally to the relevant bodies. It was highlighted that the index case likely acquired the infection whilst abroad, rather than it being a Hospital Acquired Infection.

119. Patient contact tracing had identified a number of patients who resided outside of the OCCG and therefore it was agreed that the relevant CCG's would be informed by the OCCG.

120. Further staff tracing had identified a number of agency staff who would not be covered by the OUH Occupational Health Service. It was agreed that depending on the outcome of the risk stratification, notification letters would be given to the agencies and agency staff.

121. Clarification was requested as to whether the index case had been notified to PHE. PHE confirmed that as the index case was not an Oxfordshire resident, Avon / Gloucester and Wiltshire PHE had been made aware of the case and that the TB nursing team for these areas were following up the relevant contact tracing.

122. OCCG asked for confirmation that the index case had been subject to the appropriate pre-employment screening checks: Occupational Health confirmed that full and appropriate screening had been undertaken

123. It was agreed that pending final wording, the GP notification would commence on the 23/02/15 (initial phone call by Infection Control, then posting of the letter), with

patient notification by post commencing on the 25/02/15. Staff notification in Churchill Theatres was to commence on the 19/02/15.

124. Final wording for the GP, Consultant and Patient letters was agreed (Appendix 1) and electronically signed by the OUH Infection Control Doctor and OUH TB Lead respectively.

Patient and GP notification

125. Difficulties in being able to contact all 26 GP's of the 27 patients resulted in a delay in the GP notification letters being sent out on the 23/02/15 as per the agreed actions, however all GP's that could be contacted had been notified by the 24/02/15 and the letters, as well as the patient letters were sent out on the 25/02/15.

126. It was identified that 1 of the patient contacts was still a Churchill Hospital inpatient and therefore this patient was notified in person by the Infection Control Service on the 02/03/15 and has also been seen by the Oxford TB service.

Teleconference 27/02/15

127. A follow up incident teleconference meeting was held on the 27/02/15 and it was highlighted that contact notification by the OUH had been completed (apart from the 1 identified inpatient) and that the relevant CCG's were aware of the incident. No other outstanding actions from the previous teleconference were identified.

Current position

128. The Oxford TB service and OUH Infection Control have received some enquiries from patients, concerned relatives and GPs since the notification was undertaken. To date no adverse media publicity has been reported and no GP or Patient concerns have been expressed or received in regards to being notified of this incident.

129. Staff contact review by OUH Occupational Health continues and at present only staff members identified as having no evidence of immunity, or who are immune-compromised are receiving further follow up; this will be reviewed should evidence of staff or patient acquisition become apparent.

Carbapenamase Producing Enterobacteriaceae: Haematology ward, July – August 2014

130. Between the 25th July and 12th August 2014, OUH Microbiology reported 3 Klebsiella Oxytoca positive Blood Cultures from inpatients on the Haematology ward at the Churchill Hospital which were positive for the blaOXA 48 like metallo Carbapenemase gene.

131. This finding indicated the presence and potential transmission of a Carbapenamase Producing Enterobacteriaceae (CPE) within the ward and Infection Control were

notified. The findings were escalated by Infection Control and table 10 demonstrates the immediate actions that were put in place:

Table 10

	Action	Responsible
1	Isolation of the 3 identified cases in side rooms	Ward staff
2	Implementation of strict barrier precautions with dedicated equipment/ single use	Ward staff
3	Ops manager / Senior Management and Trust Duty Manager informed	Infection Control
4	Terminal clean of Haematology ward	Matron, Haematology
5	Haematology ward patients informed of "enhanced surveillance activity" and screened (rectal swab) for CRE. This will be requested on EPR as an "Acinetobacter Screen"	Ward staff / Infection Control
6	Haematology ward to send OUH Microbiology Laboratory a list of the patients who have been screened	Ward staff
6	Screening swabs to be fast tracked by microbiology. Results of screens available by Friday 20/08/14	Infection Control / ID Microbiology
7	Labelling of ward entry doors informing relatives of "enhanced surveillance activity" on ward requiring all visitors to perform hand hygiene	Ward staff
8	Relatives of identified cases to be advised to perform hand hygiene and remain in isolation cubicle when on ward	Ward staff/ Infection Control
9	Inform Media office OUH	Infection Control
10	Infection control tagging of EPR record of identified cases	Infection Control
11	Updating of EPR notes for identified cases	Infection Control / ID Microbiology
12	Infection Control Nurses informed	Infection Control

132. Subsequent screening (either by a Rectal swab or from a stool sample) of all patients who were inpatients on the ward from the 11th July 2014 until the 12th August identified 2 further patients with a presumptive CPE, though in 2 of these cases different organisms identified (*Klebsiella pneumoniae*, rather than *Klebsiella oxytoca*), which may have indicated pre-existing colonisation rather than acquisition on the ward.

133. Bed mapping took place to identify whether there had been any likely transmission and acquisition between the 3 patients identified with the *Klebsiella pneumoniae* positive blood cultures and there was evidence to suggest that 1 transmission event may have occurred when 2 patients were being nursed within the same bay, though this could not be formally confirmed.

134. The ward remained opened to admissions during this period of enhanced surveillance and no further new CPE positive patient s were identified subsequently.

Surgical site surveillance

Cardiac surgery

135. Surgical site surveillance of all patients undergoing all cardiac surgery has been undertaken locally since 5th November 2012.

136. The Oxford Heart Centre continuously participates in the Public Health England Surgical Site Surveillance program for non-CABG and the CABG.

137. Transcatheter Aortic Valve Implantation (TAVI) surgical site commenced in October.

148. The rates of infection are presented monthly to the Clinical Service Users meetings and Hospital Infection Control Committee and reported in the directorate Quality and Performance Reports.

149. The target set for organ space infections following cardiac surgery via the sternum by Oxfordshire Clinical Commissioning Group (CCG), for the financial year April 2015-March 2016 is less than 1%. The total organ/space infections from April 2014 – March 2015 were 0.248% (2/808).

150. The 'drop in' wound review clinic continues. This allows patients that have concerns over their wounds to be reviewed by the ANP and/or the registrar or the consultant.

151. Aim is to achieve 100% compliance with documented and administered skin decontamination for patients before surgery.

152. Compliance with the monitoring of blood sugars for diabetics. A working group for the care of diabetics undergoing cardiothoracic surgery has been established. The guidelines are currently being developed.

153. All red blood cell transfusions given intra-operatively and post-operatively are identified to assess compliance with the "Blood Management in Cardiothoracic Guidelines". This is presented on a monthly basis to the Clinical Service Users meetings for cardiac and thoracic surgery and the anaesthesia and Critical Care.

154. The Oxford Heart Centre with The Royal Brompton & Harefields and Papworth Hospital have formed a cardiac surgical site infection Network Group. This now has ten cardiothoracic centres participating and allows benchmarking and shared learning. There is now also a plan to move into surveillance of cardiac device related infection prevention and surveillance.

Surgical site surveillance elective and emergency (trauma) orthopaedics

155. In line with Public Health England guidance and as part of the Oxford University Hospitals (OUH) NHS Trust Annual Infection Control Programme, the Infection Control Service undertake the monitoring and subsequent investigation of

significant Deep (soft tissue-muscle and fascia) and Organ / Space infections within the Neurosciences, Orthopaedics, Trauma and Specialist Surgery (NOTSS) Division.

156. The primary objective of this monitoring is to identify why and how these infections may have occurred, and what the organisation can learn from the event in order to minimise the risk of similar occurrences. It must be noted that this monitoring is a separate activity to the quarterly mandatory surveillance of hip replacement and hip fracture.

157. Organ/space surgical site infection (SSI) must meet the following criteria;

Trauma

158. Infection occurs within 30 days after the operative procedure if no implant is left in place or within 1 year if the implant is in place and the infection appears to be related to the operative procedure.

Orthopaedics

159. Significant SSI identified within 1 year of Primary Surgery from for all Orthopaedic (NOC) surgical teams.

160. Significant *Primary Total Hip replacement* SSI identified within 12 weeks of Surgery.

161. Significant *Primary Total Knee replacement,* including *Uni-Compartmental Knee Replacement* SSI identified within 12 weeks of Surgery.

162. In addition to the above criteria, the patient has to have at least one of the following;

162.1 Purulent drainage from a drain that is placed through a stab wound into the organ/space.

162.2 Organisms isolated from an aseptically obtained culture of fluid or tissue in the organ/space.

162.3 An abscess or other evidence of infection involving the organ/space that is found on direct examination, during reoperation, or by histopathology or radiologic examination.

162.4 Diagnosis of an organ/space surgical site infection by a surgeon or attending physician

162.5 Patients with a potential significant infection are identified to Infection Control either directly by the clinical team, or through a positive microbiology result related to a post primary surgical procedure, in which sterile site sampling has been undertaken for diagnostic purposes.

162.6 Patients with reported positive microbiology who are subsequently identified as having their Primary Surgery within the OUH and who fulfil the criteria as described above, are then investigated using Root Cause Analysis (RCA) involving

an initial review of the notes, documented time line of the patient, followed by a review of the case with the clinical teams involved undertaken during the relevant clinical service Mortality and Morbidity (M&M) meeting.

162.7 The review focuses on the events relating to the patient, preoperative management, antibiotic prophylaxis, preparation in theatre and after care on the ward. Actions are agreed with achievable timescale for completion.

162.8 Table 11 details all significant Primary Total Hip replacement SSI identified to date within 12 weeks of surgery undertaken at the NOC 01/04/14 – 31/03/15. It should be noted that the final SSI rate for 2014 -2015 will not be available until after 12 weeks have passed from the 31/03/15 and this will be reported at HICC in July 2015.

Table 11

Quarter	Q1	Q2	Q3	Q4	**Total**
No. of Procedures	254	259	216	186	**915**
No. SSI	2	1	2	0	**5**
SSI rate	0.79%	0.39%	0.93 %	0%	**0.55%**

163. The upper acceptable SSI rate for 2014-2015 was set at **1.0%** for Primary Total Hip Replacement and it is expected that the OUH will be below this upper limit.

164. Table 12 details the total number of Significant *Primary Total Knee replacement* SSI identified within 12 weeks of Surgery undertaken at the NOC 01/04/14 – 31/03/15. It should be noted that the final SSI rate for 2015-2015 will not be available until 12 weeks after the 31/03/15 and this will be reported at HICC in July 2015.

Table 12

Quarter	Q1	Q2	Q3	Q4	**Total**
No. Procedures	199	209	186	187	**781**
No. SSI	1	5	0	0	**6**
SSI rate	0.5 %	2.4%	0%	0%	**0.77%**

165. The upper acceptable SSI rate for 2014-2015 was set at **2.5**% for Primary Total Knee Replacement and it is expected that the OUH will be below this upper limit.

166. Table 13 details organ/space infections acquired following emergency admission for hip fracture in Trauma. Denominator data is gathered by reporting from Bluespier for the John Radcliffe site. The Horton denominator data is provided by OxTrauma

administration and John Radcliffe denominator data is also cross checked with OxTrauma administration.

Table 13 Emergency admission hip fracture (not risk adjusted); Year 2014 -2015

Quarter	Q1	Q2	Q3	Q4	**Total**
No. Procedures	178	171	180	160	**689**
No. SSI	0	7	4	2	**13**
SSI rate	0%	4.09%	2.22%	1.25%	1.88%

Orthopaedic Mandatory Surgical Site Infection Surveillance Data Appeal

167. In line with Public Health England (PHE) guidance, The Nuffield Orthopaedic Centre (NOC) undertakes the PHE quarterly mandatory surveillance of Total Hip Replacement Surgical Site Infection surveillance (SSIS) on a yearly basis.

168. The NOC is required to undertake the surveillance in at least one quarter per calendar year. In 2014 the NOC undertook the surveillance in Q3 (July – September 2014).

169. SSIS data reported for Q3 2014 placed the NOC above the 90th percentile amongst participating hospitals, with an SSI rate of 4.5%. This places the NOC as a national outlier.

170. In view of these data, PHE contacted the OUH to highlight this issue and to suggest that the OUH examined the results carefully as action might be needed to reduce the rate of SSI in this category.

171. PHE indicated that the NOC reported 242 patients had undergone Hip Replacement surgery in Q3 2014 and that of these 242 patients, 11 SSI had been reported. This therefore equated to the 4.5% SSI rate.

NOC SSI Data Review

172. The NOC SSI Surveillance Supervisor, and the OUH Infection Control Nurse responsible for overseeing the NOC, undertook a review of all cases from Q3 2014 reported by the NOC as having a post-operative SSI to PHE.

173. The initial review identified 7 patients that had been reported as having a post-operative SSI, who would not have met the criteria for reporting. One patient (case 8) was appropriately identified as fulfilling the criteria for reporting.

174. As a means of validating the review and outcome of the 8 identified patients, the OUH Senior Infection Control Nurse responsible for overseeing the NOC and the Infection Control Doctor also reviewed the patient information and were in

agreement with the conclusion that 7 of the patients should not have been reported, as they would not fulfil the criteria for having a post-operative SSI.

175. The initial review could not however identify why PHE had stated that 11 SSI had been reported, therefore it was agreed that clarification would be sought from PHE as to how this number of SSI had been derived.

OUH Data Appeal to PHE

176. PHE were contacted on 02/02/15 in order to formally commence the SSI appeal process of the 7 (of 8) identified cases that should not have been inputted as post-operative SSI by the NOC. The 7 cases were discussed with the PHE SSI Supervisor and the rationale for their possible exclusion was highlighted.

177. PHE requested that the patient data were forwarded to them for review by the SSI Supervisor and Lead SSI Scientist. Because the national SSI data currently highlighting the NOC as a "national outlier" for Hip SSI has been formally published by PHE, the appeal to PHE for the removal of cases and subsequent alteration of SSI rate data would then have to be taken by PHE to the Department of Health for final approval.

178. During the discussion with PHE, clarification was sought by Infection Control as to why PHE were stating that 11, rather than 8 SSI's had been reported by the NOC for Q3 2014. A review of the data inputted by the NOC highlighted that 3 of the 8 total reported cases had been inputted as having 2 "infective episodes", as different organisms identified at the time of sampling intra-operatively were recorded as being separate causative SSI organisms. This was therefore recorded on the PHE database as being separate "infective episodes", rather than there being one infection with multiple organisms identified.

179. This multiple reporting was also appealed against by the OUH and was considered by PHE as part of the review process.

PHE Review Outcome

180. PHE inspected all seven appealed cases (3 cases had been double entered, therefore meaning a total of 10 SSI's) by cross-checking with their SSI database and agreed that those cases entered following 'Revision due to Infection' were likely to be non-valid (i.e. over-reporting due to a misunderstanding) so could therefore be excluded.

181. It was noted however that in some of these cases the "onset date of infection" was entered as being is mostly one day after surgery, which was inconsistent with the appeal data sent by the OUH which stated that the samples had been taken on the day of surgery. Clarification was sought from the Infection Control Service by PHE as to the reasons for this and it was accepted that this discrepancy was likely due to data inputting error.

182. PHE declined the appeal to remove both reported SSI's for one of the double entered cases though there was agreement that one of the SSI entries would be removed due to duplication.

183. PHE's rationale for retaining the remaining OUH reported SSI was again appealed by the Infection Control Service, as it was reinforced that the case should not have been entered as it would not fit the criteria for a post-operative SSI. PHE however declined this further appeal as it was stated that there was no justification for removal on the basis that the revision was not due to infection and that the OUH should ensure that an assurance process is in place to validate future surveillance data before it is entered

184. It was agreed that 9 SSIs would be removed from the Q3 2014 Surveillance period data, therefore leaving the NOC with 2 recorded SSI for the period.

185. Following the success of the appeal, the national report will subsequently be updated to reflect the NOC's amended SSI rate of **0.83%,** rather than the 4.5% previously reported. This should remove the NOC as being a National Outlier for SSI and is a similar SSI rate to that previously reported by the NOC in Q1 and Q3 2013 (0.8%).

Norovirus

186. Norovirus is the most common cause of gastroenteritis in England and Wales. It is also known as 'winter vomiting viruses', 'small round structured viruses' or 'Norwalk-like viruses'. Outbreaks usually affect both patients and staff of all ages. Outbreaks of Norovirus gastroenteritis are common in semi-closed environments such as hospitals, nursing homes, schools and cruise ships. Norovirus may be spread from person to person by the faecal–oral route, aerosol from vomiting, and environmental contamination.

Norovirus outbreak, Trauma 3A April 2014

187. On the 14/04/14, ward 3A JR2 reported a number of patients and staff members with symptoms indicative of a Norovirus type illness since the 12/04/15. Following a review by Infection Control, restrictions on patient transfer and movement were put in place on the ward as per OUH Outbreak policy.

188. A total of 9 patients and 3 staff members reported symptoms. A positive Norovirus sample was reported by OUH Microbiology.

189. Restrictions on the ward were formally removed on the 19/04/14 and no beds were closed during the outbreak.

Norovirus outbreak, ward 5A JR2, December 2014.

190. On the 06/12/14, ward 5A JR2 reported 4 patients and 1 staff member with symptoms indicative of a Norovirus type illness. Following a review by Infection

Control on the 08/12/14, restrictions on patient transfer and movement were put in place on the ward as per OUH Outbreak policy.

191. A total of 6 patients and 1 staff member reported symptoms. A positive Norovirus sample was reported by OUH Microbiology.

192. Restrictions on the ward were formally removed on the 15/12/14 and no beds were closed during the outbreak.

Norovirus outbreak, Oak Ward, Horton February 2015

189. On the 16/02/15, Oak Ward at the Horton reported 3 patients and 0 staff members with symptoms indicative of a Norovirus type illness. Following a review by Infection Control on the 17/02/15, restrictions on patient transfer and movement were put in place on the ward as per OUH Outbreak policy.

190. A total of 5 patients and 2 staff members reported symptoms. A positive Norovirus sample was reported by OUH Microbiology.

191. Restrictions on the ward were formally removed on the 27/02/15 and no beds were closed during the outbreak.

Norovirus outbreak, Oak and Laburnum Wards, Horton March 2015

192. On the 21/03/15, Oak and Laburnum Wards at the Horton reported a number of patients and staff members with symptoms indicative of a Norovirus type illness.

193. Following a review by Infection Control on the 23/03/15, restrictions on patient transfer and movement were put in place on the wards as per OUH Outbreak policy.

194. A positive Norovirus sample was reported by OUH Microbiology (no further testing is undertaken once a positive sample has been reported) and the following total numbers of patient and staff affected by ward was as follows :

194.1 Oak ward: 7 patients, 0 staff

194.2 Laburnum ward: 12 patients, 3 staff.

195. Restrictions on both wards were formally removed on the 26/03/15 and a total of 4 beds were closed during the period of the outbreak, though it must be noted that these were opened as soon as it was appropriate to do so.

Norovirus summary

- Norovirus outbreaks affected 2 wards on the JR2 site and 2 wards at the Horton during 2014 -2015.

- 40 patients were affected in total
- 9 members of staff reported symptoms
- 4 beds were closed on Laburnum Ward in March 2015, though these were opened as soon as operationally possible.

Conclusion

196. The OUH Trust did not meet its annual objective for zero avoidable MRSA bacteraemia, but was below its upper limit for *Clostridium difficile.*

197. The infection service focussed on investigations relating to SSI for elective/ emergency orthopaedics and cardiac surgery. This also included the validation and reporting of significant infection rates back to the clinical areas and to OCCG

198. The Trust Board is asked to note the achievements and work undertaken by the Infection Control service in 2014-15

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