Trust Board Meeting in Public: Wednesday 14 September 2016
TB2016.90

<table>
<thead>
<tr>
<th>Title</th>
<th>Director of Infection Prevention and Control (DIPC) Annual Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>For information</td>
</tr>
<tr>
<td>History</td>
<td>This is an annual report to the Board</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Board Lead(s)</th>
<th>Dr Tony Berendt, Medical Director and Director of Infection Prevention and Control (DIPC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key purpose</td>
<td>Strategy</td>
</tr>
</tbody>
</table>
## Executive Summary

1. The purpose of this paper is report on infection prevention and control activities within the Oxford University Hospitals (OUH) NHS Foundation Trust for the period April 2015 to March 2016.

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

3. The OUH Trust did not meet its annual objective for zero avoidable MRSA bacteraemia, but was below its upper limit for *Clostridium difficile*. Rates of surgical site infection (in cardiac, orthopaedics and trauma) are all at acceptably low levels. Audits of cleaning and hand hygiene indicated need for improvements, and these are being addressed in the next year’s action plans.

4. Programmes of work to manage risks associated with decontamination and the estate are in place and making progress against plans.

5. **Recommendation**
   The Trust Board is asked to receive and discuss this Annual DIPC Report.
DIPC annual report

Introduction

1. The purpose of this paper is to report on infection prevention and control activities within the Oxford University Hospitals (OUH) NHS Foundation Trust for the period April 2015 to March 2016.

2. The Report covers the four main 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 bi-monthly to the Board Quality Committee. The Decontamination Committee reports to HICC which meets every two months.

4. The Antimicrobial Management Team updates antimicrobial guidelines, audits antimicrobial prescribing and monitors antimicrobial usage.

5. The HICC reviews reports covering Sterile Services, Endoscopy and Estates, including cleaning audits and the annual validation of air handling units and water results.

6. The Annual Audit Programme includes antimicrobial prescribing, audit of appropriate urinary catheter usage, management of sharps hand hygiene and surgical site infection.

7. The OUH Trust did not meet its challenging objective (zero cases) for avoidable Meticillin Resistant Staphylococcus aureus (MRSA) blood stream infections in 2015-2016; however the Trust was within the upper limit for Clostridium difficile infection for 2015/2016.

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 in Infectious Disease/General Physician who acts as medical lead for Antimicrobial Management/training and audit, Scientists, a 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) and reports directly to the Chief Executive and Trust Board. The Infection Control Doctor and Infection Control Manager report to the DIPC and hold regular meetings with the Infection Control team.

10. During 2015/2016 the role of Decontamination Lead was undertaken by the Infection Control Manager.

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 staff within the Infection Control Team for 2015/2016 were:

- Infection Control Doctor
- Interim Infection Control Manager / Senior Nurse 0.9 WTE
- 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

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

Director of Infection Prevention and Control (DIPC) reporting arrangements

13. The DIPC reports to Trust Board and the Quality Committee through the Board Quality Report. This paper 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 also reports on HCAI data and incidents from the preceding month.

Hospital Infection Control Committee (HICC)

14. The Hospital Infection Control Committee (HICC) meets 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, lay member representation, the clinical Divisions, Occupational Health, Microbiology, Pharmacy and Infection Control. The links to other committees are outlined below in Figure 2.

Figure 2

Committee reporting structure for Infection Control (simplified)
MRSA Bacteraemia

15. There were 4 MRSA Bacteraemias apportioned to the OUH Trust during 2015/2016, having been identified >48 hrs after admission. All OUH apportioned MRSA bacteraemias undergo a Post Infective Review (PIR) with OCCG and PHE.

16. Of the 4 bacteraemias, 3 were deemed as avoidable due to an inability to demonstrate best practice in the management of the patients prior to development of the bacteraemia. The ceiling set for 2015/2016 was 0 avoidable MRSA Bacteraemias. The OUH therefore failed to meet this objective for 2015/2016. Table 1 provides a summary of the cases deemed avoidable. As the table demonstrates, cases deemed “avoidable” are perhaps best described as “potentially not unavoidable”. In two of the three cases, it was considered most likely that there had in fact been no clinical bacteraemia at all, but that as a result of sub-optimal blood culture technique, a culture of sterile blood was contaminated by MRSA living harmlessly on the skin of the patient. The rules determining judgements of avoidability or unavoidability are nationally specified.

Table 1

<table>
<thead>
<tr>
<th>Speciality</th>
<th>Lessons learned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haematology</td>
<td>An MRSA bacteraemia was deemed avoidable due to lapses in care which include; MRSA screening not undertaken on admission in accordance with Trust MRSA guidance, VIP scoring of Femoral line was not recorded every shift in accordance with Trust Guidelines, Femoral line was in situ for 1 day longer than the recommended duration of (8-10 days) set out in Trust Guidelines, and choice of Antibiotic to treat psoriatic skin infection was not within Trust Antimicrobial guidance.</td>
</tr>
</tbody>
</table>
It was agreed the likely source of this MRSA bacteraemia was the femoral line which had been accessed by the Therapeutic Apheresis Service for administration of plasma exchange.

Paediatrics

An MRSA bacteraemia was deemed avoidable in a child who presented with a possible musculoskeletal infection. The child became well without specific treatment for MRSA bacteraemia with no identified focus for infection. Although antibiotics were continued on the basis that there may have been some soft tissue infection, it was agreed that the culture result was likely to be a contaminant rather than a transient bacteraemia.

It was agreed that this was an avoidable bacteraemia as good practice should eliminate the risk of contamination. Further improvements focused on updating the Trust Blood culture Guidelines to include the use of EPR, development of paediatric guidelines for blood culture taking, audit of ANTT practice for cannulation and blood culture taking practice and refresher training.

General Medicine

A Pre-48 hour MRSA bacteraemia was reported in a patient admitted to with breathlessness who was found to have metastatic cancer and heart failure. Following the Post Infection Review it was agreed that the MRSA culture was likely to be a contaminant rather than a clinically significant bacteraemia. It was agreed that this was an avoidable bacteraemia as good practice should eliminate the risk of contamination. Further improvements focused on updating the Trust Blood culture Guidelines to include the use of EPR, audit of ANTT practice for cannulation and blood culture taking practice and refresher training.

**Clostridium difficile**

17. For 2015/2016, the OUH was set an upper limit of 69 cases of *Clostridium difficile* identified after three or more days of admission.

18. The OUH had a total of 57 apportioned cases for 2015 / 2016, well below the upper ceiling for cases 2015 / 2016. This was a significant achievement.

**Figure 3: Distribution of C. difficile cases across the Trust**
19. 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. Each case is presented individually and discussed. Agreement is then reached as to whether the case is avoidable or unavoidable. Any actions are agreed.

20. Over a period of seven months (October 2015-April 2016) there were a total of 8 post 72 hour *C. difficile* cases reported in 7 patients admitted to a General Medical Ward (7A) at the John Radcliffe Hospital. Of the 8 cases reported, 3 cases were deemed avoidable, with common themes related to care. This was highlighted as a concern by the Oxford Clinical Commissioning Group and was reviewed in the Clinical Governance Committee and by the Division.

21. An additional review was undertaken by the clinical Division to drive improvements in compliance with the Trust *C. difficile* Guideline, with a focus on prompt isolation, clinical review, *C. difficile* testing and treatment on clinical suspicion of *C. difficile* diarrhoea. Samples were sent to research colleagues for typing to establish if there was any link between any of the cases.

**Decontamination**

22. **Decontamination Committee.** 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.

22.1 **Sterile Services Departments (SSD).** The sterile services departments (SSD) are located at the John Radcliffe (JR), Churchill, NOC and Horton sites and they supply the West Wing, John Radcliffe, Churchill, Nuffield Orthopaedic Centre and Horton Theatres. The external compliance audits for sterile service were passed for all units.
22.2 **Endoscopy.** Endoscopy is carried on the John Radcliffe site, Horton General Hospital and Churchill hospital.

22.2.1 **John Radcliffe hospital.** The largest Endoscopy Department is located on Level 2 of the JR Hospital. It provides an inpatient and outpatient service to approximately 18,000 patients per year undergoing Gastrointestinal Endoscopy. There are 4 Automatic Endoscope Reprocessors (AER's) situated within the unit with a further 2 AER’s on level 3 of the West Wing.

22.2.2 **Churchill Theatres.** 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 where the scope is needed, rather than being reprocessed through an AER at the point of use.

22.2.3 **Horton Hospital.** The Horton hospital Endoscopy Unit is currently being refurbished and will have 3 Wasserburg AERs which will each reprocess 2 scopes at a time, available from October 2016. There is also an ENT outpatient service with one AER.

22.2.4 **Nuffield Orthopaedic Centre.** 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 Fibrescope decontamination is undertaken using the Churchill Theatre AERs’.

22.3 **Final Rinse Water Results 2015 – 2016**

22.3.1 As per regulatory requirements, 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.

22.3.2 A number of water test failures were reported during 2015 - 2016, resulting in operational restrictions being placed on the affected clinical services until satisfactory repeat counts were obtained after additional treatment. At the JR2, operational restrictions were temporarily placed on the service for high risk endoscope decontamination. At the Horton, repeated positive counts led to closure of the unit in October 2015 to undergo refurbishment including the installation of 3 new AER's and a Reverse Osmosis system. At the Churchill, there have been multiple periods of time where Infection Control has had to place operational restrictions on this department, with obvious service implications for the Churchill site. The issue of persistent TVCs has been raised to the PFI provider (G4S) and is currently being reviewed.

22.4 **ENT nasendoscope decontamination.** At ENT OPD in the West Wing, Flexible Nasendoscopes are currently decontaminated using the Tristel wipe system. This is in part due to the high turnover of scopes. At the Horton and at the Blenheim Head and Neck ward at the Churchill Hospital, similar processes are in place. These processes have been fully risk assessed and agreed by Infection Control.
Legionella

23. Water mists from cooling towers, humidifiers and showers can be contaminated with it and if inhaled or aspirated into the lungs can cause Legionnaire’s disease. Drinking water contaminated with *Legionella* is not thought to cause disease unless it is inhaled by accident.

24. There have been no patients identified with a Hospital acquired legionnaire’s disease during the time period discussed in this report.

**Legionella Prevention**

25. 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 man-made water systems.

26. All four sites within the OUH Trust carry out an independent risk assessment every two years and any identified problems are documented in an associated action plan with measures put in place to rectify them.

27. 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.

28. Water temperatures are maintained below 20 degrees and above 60 degrees.

29. Chemical disinfection prevents the growth of *legionella* e.g. daily dosing with chlorine dioxide at a maximum of 0.5 ppm.

30. Audit of monitoring and maintenance records carried out quarterly by the Trust and validated by the external Authorising Engineer for water.

**Legionella Improvement Works**

31. The tendering process for procuring an ionisation water treatment system at the JR site has been completed. The first phase is now complete and the system is operational serving the whole of the Women’s Centre building (JR1). The second phase is underway and expected to be completed by September 2016. This is a larger scheme for the main block (JR2). The chlorine dioxide system has been removed from JR1 and upon completion of JR2 works the use of chlorine dioxide dosing will no longer be required on the retained estate at the JR site.

32. A study of the existing pipework system installation at the JR2 has been completed and an action/implementation plan will include refurbishment of multiple wards and shower valves.

33. In addition, the original bulk cold water storage tanks serving a large range of outlets in the main block and elsewhere (Cardiac, MRI) are nearing the end of their useful life, and will be replaced. This work in conjunction with the ionisation treatment works is seen as a major improvement in water quality control for the main block building.

34. Work is also underway in the JR1, Cardiac Block, Churchill and Horton sites.

**Antimicrobial Management Team (AMT)**

35. The AMST 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 AMST meets biweekly and reports to the HICC, Clinical Risk Management Committee and works closely with Infection control and OXMID.
36. The AMST advises the Antimicrobial Steering Group (ASG). The 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 and the Lead Pharmacist for Antimicrobial Stewardship attends the MMTC.

37. The AMST consists of the following:
- Consultant Lead (Antimicrobials);
- Lead Antimicrobials Pharmacist; (vacant during 2015/2016 despite multiple attempts to recruit)
- Anti-infectives Pharmacist
- Rotational Specialist Pharmacist (50% time)
- Infectious Diseases Consultant
- Infection Control Manager (interim during 2015/2016)
- Data Analyst Infection Control

38. The AMST is responsible for antimicrobial stewardship. An antimicrobial stewardship programme is essential to minimise healthcare associated \textit{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.

39. An audit plan for the financial year 2015-6 reviewed:

39.1 Prevalence data of Trust wide antimicrobial usage (point prevalence) quarterly (table 3).

<table>
<thead>
<tr>
<th>Month</th>
<th>% of patients prescribed one or more antimicrobials (includes prophylaxis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2015</td>
<td>40%</td>
</tr>
<tr>
<td>July 2015</td>
<td>37%</td>
</tr>
<tr>
<td>October 2015</td>
<td>41%</td>
</tr>
<tr>
<td>January 2016</td>
<td>42%</td>
</tr>
</tbody>
</table>

39.2 Prescribing data (indication) quarterly. (Table 4).

<table>
<thead>
<tr>
<th>Month</th>
<th>% of patients with indication completed on EPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2015</td>
<td>77%</td>
</tr>
<tr>
<td>July 2015</td>
<td>77%</td>
</tr>
<tr>
<td>October 2015</td>
<td>93%</td>
</tr>
<tr>
<td>January 2016</td>
<td>98%</td>
</tr>
</tbody>
</table>

39.3 Adherence to antibiotic guidelines amongst prescribers quarterly (Table 5).

<table>
<thead>
<tr>
<th>Month</th>
<th>% of patients with indication completed on EPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2015</td>
<td>77%</td>
</tr>
<tr>
<td>July 2015</td>
<td>77%</td>
</tr>
<tr>
<td>October 2015</td>
<td>93%</td>
</tr>
<tr>
<td>January 2016</td>
<td>98%</td>
</tr>
</tbody>
</table>

Table 3: Prevalence data of Trust wide antimicrobial use

Table 4: Indication data

Table 5: Adherence to antibiotic guidelines in OUH prescribers
<table>
<thead>
<tr>
<th>Month</th>
<th>% adherence to antibiotic guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2015</td>
<td>95%</td>
</tr>
<tr>
<td>July 2015</td>
<td>94%</td>
</tr>
<tr>
<td>October 2015</td>
<td>93%</td>
</tr>
<tr>
<td>January 2016</td>
<td>94%</td>
</tr>
</tbody>
</table>

40 The Trust antimicrobial mobile phone application and website was updated (version 3) to facilitate easy access to prescribing guidelines. (Horizon Strategic Software). Table 6 shows take up of guidelines amongst users.

41 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.

42 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.

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

Table 6: Summary of registered users and use of Microguide (adult and Paeds) to end March 2016.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Guide Downloads - Paeds</td>
<td>0</td>
<td>242</td>
<td>387</td>
<td>537</td>
<td>1.063</td>
<td>1.152</td>
<td>1.299</td>
<td>1.527</td>
<td>1.889</td>
</tr>
<tr>
<td>Guide Opens -App - Paeds</td>
<td>0</td>
<td>215</td>
<td>379</td>
<td>574</td>
<td>1.235</td>
<td>1.254</td>
<td>1.645</td>
<td>1.965</td>
<td>2.165</td>
</tr>
<tr>
<td>Guide Opens -Viewer - Paeds</td>
<td>0</td>
<td>15</td>
<td>31</td>
<td>152</td>
<td>-</td>
<td>376</td>
<td>616</td>
<td>790</td>
<td>911</td>
</tr>
</tbody>
</table>

44 Particular challenges of 2015-6: During the most of the year there were staff vacancies in both infection control manager (filled on an interim basis) and antimicrobials pharmacist (despite multiple rounds of advertisement and appointment). Appointments have successfully been made into these posts during 2016/2017.
45. **Hand Hygiene compliance**. Compliance with hand hygiene remains a priority for the infection control service and is one of the most important measures in preventing the spread of infection in hospital. 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.

46. All clinical areas in the OUH NHS FT report Hand Hygiene Compliance with the World Health Organisation (WHO) 5 moments of Hand Hygiene (2009) and as directed by OUH NHS FT Hand Hygiene Policy. The data are entered monthly on to ORBIT and presented monthly via the Quality Report by Divisions at the OUH NHS FT Clinical Governance Committee.

47. The Infection Control Service validates these data by undertaking independent Hand Hygiene audits at least once a year in all inpatient and Day Treatment units across all four OUH NHS FT Sites, as part of the Infection Control Annual Audit plan.

63 Individual in-patient and Day treatment areas were audited by the Infection Control Service during 2015 / 2016 and the results were as follows:

- 3.2% (2/63) of the areas audited demonstrated a compliance level equal to, or greater than 95%.
- One clinical area (PICU) demonstrated 100% compliance to the WHO 5 moments of hand Hygiene
- 84% (53/63) of the areas audited demonstrated compliance equal to, or less than 80%.

While these data do not automatically equate to unsafe practice, they do not give adequate assurance of safety, and substantial improvements in hand hygiene compliance are required. Actions are in train as part of the 2016/2017 infection prevention and control plan.

**Emergency Admission Meticillin Resistant Staphylococcus aureus (MRSA) Screening compliance**

48. As per OUH NHS FT policy and national guidance, patients admitted either as an emergency, or electively for specific Surgical or Invasive procedures, or a course of treatments, are required to be MRSA screened.

49. MRSA screening Compliance (Adults) for 2015 / 2016 was as follows:

- Emergency 48.06% (24065 / 50077)
- Elective 78.81% (7590 / 9631)
- Overall compliance 53.02% (31655 / 59708)

50. National guidance (DOH, 2014) advises that Trusts should aim for “very high levels of compliance”, but there is no guidance provided as to how trusts should rate compliance.

51. Work is therefore on-going with the OUH NHS FT EPR team to develop an audit tool that is EPR based and does not rely on a 3rd party software package, and that reliably links MRSA screens ordered within the electronic patient record with admission in
situations requiring screening. Meanwhile screening compliance is nonetheless reported monthly to encourage improvement.

**Performance and Quality team cleaning validation audits**

52. Compliance criterion 2 of the Hygiene code (2010) states that Trusts must provide and maintain a clean and appropriate environment in managed premises that facilitates the prevention and control of infections.

53. As a means of providing this assurance, monthly cleaning audits are undertaken Trust wide by the Nursing and Domestic teams (in terms of their respective cleaning responsibilities), whilst validation cleaning audits are undertaken by the Performance and Quality team who aim to undertake audits monthly in “very high risk” areas i.e. AICU, Haematology, Theatres and audit the majority of the remaining clinical areas at least once within a quarter.

54. All clinical areas are expected to achieve compliance at 92% (although it should be noted that the Trust should be moving to the National rate of 98% for very high risk areas. 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 FT Clinical Governance meeting.

55. The contracts team have introduced 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.

**Continence service**

56. The continence service for the OUH Trust established a nurse led continence service comprising of 1.6 WTE, aiming to reduce catheter associated urinary tract infections, standardise catheter related and containment products, support patients with continence issues for early discharge and ensure up to date education and training for continence care is available for all trust staff. The service provided advice to all trust staff on bladder and bowel continence and urinary catheter issues; guidelines for care and maintenance of catheters updates; training to multiple staff groups; and work with Oxford Health NHS Foundation Trust with product formulary updates, strengthening working bonds across Oxfordshire Health Economy.

**Infection Control**

**Investigation of Infection control incidents**

5. A number of incidents were investigated by the infection control team in addition to the post infective reviews carried out for all MRSA bacteraemias and *C. difficile* cases.

**Pseudomonas bacteraemia on the JR1 New-born Care Unit**

5.1 On 30th September 2015 2 babies on the New-born Care ITU Unit developed *Pseudomonas aeruginosa* bacteraemia. As this is an unusual organism to cause neonatal bacteraemia, immediate actions were taken to treat the babies, to limit the risk of potential transmission events, and to investigate the cases.
5.2 The most likely source of infection in the index case was prematurity, chorioamnitis and omphalitis. The most likely cause in the second case was felt to be a transmission event from the first baby due to poor hand hygiene practice.

5.3 The resulting action plan focused strongly on improvements with Hand Hygiene compliance, with support from Infection control.

**Cluster of infections at the NOC following Fluoroscopic guided procedures**

5.4 A cluster of infections following Fluoroscopic guided procedures undertaken in Fluoroscopy Room IM16, NOC Radiology during a 3 week period was reported by the department in October 2015 (Nerve Root Block 08/10/15, Steroid Injection 15/10/15 and Vertebroplasty 27/10/15).

5.5 The infections involved skin micro flora and prompted an Infection Control review to identify any potential sources or causes of these infections.

5.6 Following an environmental review, observations of practice, a review of the patient histories, and establishing that the room air change rate was appropriate for the procedures being undertaken in the room, it was identified that pre-procedure skin decontamination was being undertaken using a 0.5%, rather than the OUH Standard of a 2% Chlorhexidine Gluconate/70% Isopropyl Alcohol solution. This was rectified and a wider Trust-wide review carried out.

5.7 Opportunities for improvement in cleaning and hand decontamination were also identified and action taken.

**Measles case in the Paediatric Emergency Department, March 2016**

5.8 A Child with suspected measles was admitted to the Paediatric Emergency Department in early March and transferred to the Paediatric Ward in the Children’s Hospital. The child had recently received the measles vaccine in Indonesia before returning to the UK. Genotyping undertaken by Public Health England demonstrated that the infection was with wild type measles.

5.9 In the context of a cluster of Measles cases (20) across London, Cambridge, Essex and Hertfordshire affecting predominantly adolescents that was reported by PHE, a review was undertaken of the system in place in the Trust to ensure that all staff are up to date with their MMR vaccinations within high risk areas of the Trust.

**Surgical site surveillance**

**Cardiac surgery**

6. Surgical site surveillance of all patients undergoing all cardiac surgery has been undertaken locally since 5th November 2012. The Oxford Heart Centre continuously participates in the Public Health England Surgical Site Surveillance program for non-CABG and the CABG. Transcatheter Aortic Valve Implantation (TAVI) surgical site commenced in October 2014.
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.

The total organ/space infections from April 2015 – March 2016 were 0.369% (3/813).

The Oxford Heart Centre with The Royal Brompton & Harefields and Papworth Hospital have formed a cardiac surgical site infection Network Group. This now has over ten cardiothoracic centres participating and allows benchmarking and shared learning.

**Surgical site surveillance elective and emergency (trauma) orthopaedics**

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.

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.

Table 7 details all significant Primary Total Hip replacement SSI identified to date within 12 weeks of surgery undertaken at the NOC 01/04/15 – 31/03/16.

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Procedures</td>
<td>250</td>
<td>241</td>
<td>309</td>
<td>277</td>
<td>1,077</td>
</tr>
<tr>
<td>No. SSI</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>SSI rate</td>
<td>0%</td>
<td>0.41%</td>
<td>0.32%</td>
<td>0.36%</td>
<td>0.28%</td>
</tr>
</tbody>
</table>

The upper acceptable SSI rate for 2015-2016 was set at 1.0% for Primary Total Hip Replacement and therefore the OUH FT is below this upper limit.

Table 8 details the total number of Significant *Primary Total Knee replacement* SSI identified within 12 weeks of Surgery undertaken at the NOC 01/04/15 – 31/03/16.
Table 8

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Procedures</td>
<td>187</td>
<td>192</td>
<td>88</td>
<td>102</td>
<td>569</td>
</tr>
<tr>
<td>No. SSI</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>SSI rate</td>
<td>0.53%</td>
<td>0.52%</td>
<td>1.14%</td>
<td>1.96%</td>
<td>0.88%</td>
</tr>
</tbody>
</table>

15. The upper acceptable SSI rate for 2015-2016 was set at 2.5% for Primary Total Knee Replacement and therefore the OUH FT is below this upper limit.

16. Table 9 details organ/space infections acquired following emergency admission for hip fracture in Trauma. Denominator data are gathered by reporting from Bluespier for the John Radcliffe site. The Horton denominator data are provided by OxTrauma administration and John Radcliffe denominator data are also cross checked with OxTrauma administration.

Table 9 Emergency admission hip fracture (not risk adjusted); Year 2015 -2016

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Procedures</td>
<td>186</td>
<td>170</td>
<td>171</td>
<td>171</td>
<td>698</td>
</tr>
<tr>
<td>No. SSI</td>
<td>3</td>
<td>0</td>
<td>6</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>SSI rate</td>
<td>1.61%</td>
<td>0%</td>
<td>3.51%</td>
<td>1.75%</td>
<td>1.72%</td>
</tr>
</tbody>
</table>

Norovirus

17. 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.

A total of 8 confirmed Norovirus outbreaks were reported across the Horton and John Radcliffe Hospital Sites, with outbreaks predominately reported in general medicine and paediatrics, affecting 89 patients and 25 staff.

Conclusion and recommendations

18. The OUH Trust did not meet its annual objective for zero avoidable MRSA bacteraemia, but was below its upper limit for Clostridium difficile.
19. Rates of surgical site infection (in cardiac, orthopaedics and trauma) are all at acceptably low levels.

20. Audits of cleaning and hand hygiene indicated need for improvements, and these are being addressed in the next year’s action plans.

21. Programmes of work to manage risks associated with decontamination and the estate are in place and making progress against plans.

22. The Trust Board is asked to receive and discuss this Annual DIPC Report

Dr Tony Berendt
Medical Director

September 2016

Report prepared by:

Simon Wells, Interim Manager/Senior Nurse, Infection Control,
Lydia Rylance-Knight, Interim Manager/Senior Nurse Infection Control
Dr M Scarborough, Consultant in Clinical Infection
Dr Nicky Jones, Consultant Physician; Department of Infectious Diseases