

# **Infection Prevention & Control Annual Report 2017-2018**

**Dr Tim Neal, Director of Infection Prevention & Control**

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## TABLE OF ABBREVIATIONS

<b>CCG</b>	Clinical Commissioning Group
<b>CPE</b>	Carbapenamase-Producing Enterobacteriaceae
<b>CQC</b>	Care Quality Commission
<b>DIPC</b>	Director of Infection Prevention and Control
<b>HCA</b>	Health Care Act
<b>HCAI</b>	Health Care Associated Infection
<b>PHE</b>	Public Health England
<b>IPC</b>	Infection Prevention & Control
<b>IPCC</b>	Infection Prevention and Control Committee
<b>IPCN</b>	Infection Prevention and Control Nurse
<b>IPCT</b>	Infection Prevention & Control Team
<b>IPS</b>	Infection Prevention Society
<b>IQR</b>	Inter-quartile range
<b>LWFT</b>	Liverpool Women's NHS Foundation Trust
<b>MRSA &amp; MSSA</b>	Meticillin Resistant (Sensitive) Staphylococcus Aureus
<b>NLMS</b>	National Learning Management System
<b>NUMIS</b>	Nursing & Midwifery Information System
<b>OLM</b>	Oracle Learning Management System
<b>RLBUHT</b>	Royal Liverpool and Broadgreen University Hospital Trust
<b>SS</b>	Safety Senate
<b>SSI</b>	Surgical Site Infection
<b>TVN</b>	Tissue Viability Nurse

## 1 Summary of Key Achievements and Main Findings

### 1.1 Key Achievements 2017-18

The Trust was compliant with the prescribed MRSA bacteraemia target

The Trust was compliant with the prescribed *C.difficile* target

The Trust reported 10% reduction in E.coli sepsis

Table 1: Trust Attributable HCAI 2015-18

Organism	April 2015 - March 2016	April 2016 - March 2017	April 2017 - March 2018
<i>Clostridium difficile</i> infection (CDI)	0	0	0
Meticillin resistant <i>Staphylococcus aureus</i> (MRSA) sepsis	1	0	0
Meticillin sensitive <i>Staphylococcus aureus</i> (MSSA) sepsis	0	0	2
<i>E.coli</i> sepsis	7	8	6

### 1.2 Main Findings

#### 1.2.1 Education

The IPCT has organised and delivered 78 training sessions on ANTT in addition to other regular training sessions

#### 1.2.2 Guidelines

The Trust Water Safety Policy has been reviewed in line with new Trust Policy Process.

#### 1.2.3 Environmental and Clinical Practice Audits

128 (100%) environmental, 107 (91%) clinical practice ward audits and 58 (36.5%) community midwives' combined clinical audits have been completed in accordance with the Trust plan.

#### 1.2.4 MRSA

38 adult patients were identified in the Trust with MRSA, 36 were identified by pre-emptive screening. 4 neonates were identified with MRSA colonization with no evidence of local transmission

#### 1.2.5 *C. difficile*

There have been no Trust acquired *C.difficile* infections in 2017-18

#### 1.2.6 Bacteraemia

There have been no MRSA bacteraemias reported in 2017-18

There were 3 MSSA bacteraemias in 2017-18 (2 Neonates, 1 Adult)

14 neonates had significant Gram-negative sepsis (4 congenital) and 12 neonates had significant Gram-positive infections (9 congenital).

There were 10 *E.coli* bacteraemias in 2017-18 (7 neonates and 3 adults). There is a national target of 10% reduction from the previous year's figures which was achieved.

There were no glycopeptide resistant enterococcal bacteremias in 2017-18

### **1.2.7 Surgical Site Infection Surveillance**

For the period April – September

0.9% of elective caesarean sections and 1.1% of Emergency Caesarean sections resulted in an SSI.

1.8 % of open Gynaecological abdominal surgery and 0.3% of Laparoscopic abdominal surgery resulted in an SSI

Wound surveillance was suspended in November 2017 due to a reduction of staff in the Infection Prevention and Control team.

## **2 Infection Prevention & Control Team Members**

During 2017- 18 the Infection Prevention and Control team (IPCT) has been supported by a seconded Midwife, a seconded Gynaecology Nurse and a Neonatal Nurse

### **Miss K Boyd**

Infection Prevention & Control Analyst (part time 0.80 WTE - 30 hours/week Infection Prevention and Control Analyst, 0.20 WTE - 7.5 hours/week Policy Officer for the Governance team)

### **Mrs D Fahy**

Infection Prevention & Control Nurse - (0.60 WTE – 22.50 hours/week)

### **Dr T J Neal**

Consultant Microbiologist – Infection Prevention & Control Doctor and Director of Infection Prevention and Control (DIPC) (2 sessions / week worked on LWFT site)

### **Mrs Anne-Marie Roberts**

Secondment Link Midwife (0.40 WTE - 16 hours)

### **Mrs Julie Burns**

Seconded Link Nurse (0.40 WTE - 16 hours) **(Left the Trust 03.12.18)**

### **Mrs Eleanor Walker**

Neonatal Link Nurse (0.40 WTE – 15 hours)

The IPCT is represented at the following Trust Committees:

Safety Senate	Monthly
Clinical Supplies Meeting	Monthly until November 2017
Infection Prevention & Control	Bi-Monthly
Medicines Management	Bi-Monthly
Water Safety Meetings	Twice yearly
PLACE	Ad-hoc
Building Planning	Ad-hoc

The Team is managed by the Deputy Director of Nursing and Midwifery the budget is managed by the IPCN

There are no Trust costs associated with the infection prevention and control doctor and DIPC.

### 3 Role of the Infection Prevention & Control Team

The following roles are undertaken by the IPC team:-

- Education
- Surveillance of hospital infection
  - Surgical Site data collection (until October 2017)
  - National bacteraemia data reporting
  - PHE data reporting
- Investigation and control of outbreaks
- Development, Implementation and monitoring of Infection Prevention and Control policies
- Audit
- Assessment of new items of equipment
- Assessment and input into service development and buildings / estate works
- Patient care/ incident reviews

Infection prevention and control advice is available from the Infection Prevention & Control team and 'on-call' via the DIPC or duty Microbiologist at RLBUHT.

### 4 Infection Prevention and Control Committee

The IPC Committee meets bi-monthly and is chaired by the Director of Nursing and Midwifery. The Committee receives regular reports on infection prevention and control activities from clinical and non-clinical divisions/departments.

Reports received include those from:

- Estates and Operational Services
- Occupational Health
- Decontamination
- Divisions/departments
- Link Group
- Water Safety group
- Infection Prevention and Control team members

The Terms of Reference of the IPCC are included as **Appendix A**

The IPCT report quarterly to IPCC and the DIPC reports quarterly to Safety Senate (SS) which also receive minutes of the IPCC meetings. The Quality committee (QC) receives minutes from SS. The Trust Board also receives an annual presentation and report from the DIPC.

Trust IPC issues, processes and surveillance data are relayed to the public via Infection Prevention and Control posters, patient information leaflets, the Trust website (copy of this report) a notice board in the main reception which is updated on a monthly basis and departmental notice boards in ward areas.

Throughout the year many changes in practice have been initiated, facilitated, supported or mandated through the work of the IPCT and IPCC. Some of these are on a large scale, such as input of the IPCT into large capital projects undertaken by the Trust (see section

9.2) however many appear smaller and take place in the clinical areas as a consequence of audit, observations and recommendations. These interventions equally contribute to the provision of clean and safe care in the organisation. The IPCT examined its effectiveness throughout the year. The following detail some of the changes facilitated throughout the year.

- Suspended wound surveillance due to reduced staffing within the team
- Cannula audits undertaken by department as of October 2017
- The IPCT have identified that ANTT training is required more frequently this has been agreed at IPCC and ANTT training is being delivered in relevant departments.
- Pool audits undertaken by department as of October 2017
- IPCT more visible within areas

## **5 External Bodies**

### **5.1 Health Care Act & Care Quality Commission**

The Health Care Act (HCA) was published in October 2006 and revised in January 2008 and January 2011 as the Health and Social Care Act. This code of practice sets out the criteria by which managers of NHS organisations are to ensure that patients are cared for in a clean environment where the risk of HCAI is kept as low as possible.

The Health Care Act action plan is a standing item on the IPCC agenda which monitors progress. There is one outstanding standard of the HCA with which the Trust is not fully compliant; (detailed in Appendix B). This relates to surveillance software which is awaiting the implementation of suitable software at the provider laboratory with hope of acquisition by LWFT following this.

### **5.2 Liverpool Clinical Commissioning Group (CCG) Assurance Framework**

Assurance data is reported monthly to the CCG and bi-monthly at IPCC it incorporates performance data, exception reporting audit data and screening compliance.

### **5.3 Mandatory Surveillance**

The Trust submits data on MRSA, MSSA, *E.coli*, *Clostridium difficile*, *Klebsiella* and *Pseudomonas* infections by the 15<sup>th</sup> day of each month to the Public Health England via an online Health Care Associated Infection Data Capture System. HCAI data is also submitted each month for the Trust Quality Report and Corporate Information.

## **6 Education**

### **6.1 Mandatory training and Induction:**

Mandatory training in Infection Prevention and Control is a requirement for all Trust staff including clinical, non-clinical staff and contractors. The IPCT update the training package annually and ensure that it reflects best practice, national recommendations and issues identified as non-compliant in the previous year. All staff receive training in infection prevention and control every three years via electronic learning and a Hand Hygiene Assessment. The electronic package is incorporated into the NLMS and linked to OLM. Ten hand hygiene sessions have been delivered on corporate induction throughout 2017-18

Training continues to be provided by the IPCT for medical staff which includes consultants, trainees and ad-hoc mandatory training for corporate services. Five formal teaching sessions have been delivered by the DIPC throughout 2017-18



The IPCT has provided 20 general training sessions in 2017-18 (Including, the use of standard precautions, and Audit/NUMIS training)

Although the majority of mandatory training is delivered by the IPC team a number of Link Staff also provide training including hand hygiene within their areas.

## **6.2 Link Staff**

The IP&C link staff meetings are held bi-monthly and Professional Development Days held twice yearly. The programme is organised to reflect current initiatives, implementation of new guidance and reinforcement of any non-compliance relating to IPC. The number of attendees on each development day was 8 (23%) and 14 (40%). Link staff meetings and professional development days are included in the TNA provision for Link Staff.

## **6.3 ANTT Training**

A review of ANTT training was undertaken in 2016, and it was agreed at IPCC in July 2016 that training would continue to be annual for Neonatal Unit and change from once only to 2 yearly for the rest of the Trust.

It was agreed that due to the number of staff requiring an ANTT update the IPCT would complete the initial drive with a plan for Link staff to assist with assessments in clinical practice, where necessary. On completion of the initial drive the plan was for ANTT to be reinstated on the training matrix on a 2 yearly basis.

78 sessions were provided by the IPC team in 2017-18. This included planned and ad hoc sessions in the clinical area in order to accommodate staff attendance. These sessions were not always well attended due to staff workload and availability.

A new plan was put in place for ANTT to be included in the Obstetric training days from Jan 2018 and clinical assessors were trained to assess staff in clinical practice.

# **7 Guidelines/Policies**

No new IPC policies have been required. The existing IPC policy and SOP's have been reviewed in line with Trust policy

- Water Safety policy has been reviewed

# **8 Audits**

## **8.1 ICNA Trust audit programme**

The IPCT continue to use the IPS audit tools originally devised in 2004. The audit programme for the year is established and agreed by the IPCC. All areas are audited annually (low risk areas) or twice yearly (high risk areas) by the IPCT. Clinical practice audits (PPE, Sharps and Hand Hygiene) are completed with a minimum frequency of twice yearly by ward/clinical staff. 5 moments of hand hygiene audits are completed by ward/clinical staff monthly.

The IPS Clinical Practice audits, Saving Lives audits and monthly '5 moment's' audits are entered onto the NUMIS system allowing real-time oversight of results and compliance by local managers. A total of 107 (91%) Clinical Practice audits and 198 (88%) Hand Hygiene

audits have been carried out by ward department staff and have been reviewed by the IPCT

Environmental audits using the IPS audit tools are carried out unannounced by the IP&C team and where possible accompanied by a member of departmental staff. A total of 128 Environmental scheduled audits (Including general environment, linen, waste and kitchen) over 26 clinical areas have been carried out by the IPCT. Individual department scores, main themes of non-compliance and areas of improvement are recorded and available on NUMIS.

The audit scores (mean and range) are outlined below:

Audit	Mean Score (%)	Range (%)
Ward Environment	91%	68- 98
Ward Kitchen	93%	68-100
Linen	96%	80-100
Departmental Waste	99%	85-100
Patient Equipment	95%	82-100
Hand Hygiene	99%	97- 100
Personal Protective Equipment	99%	91- 100
Sharps safety	98%	90- 100
Monthly 5 moments	95%	73- 100

Community midwives were expected to complete a combined self –assessment clinical practice audit of Sharps, PPE and Hand Hygiene twice a year. Community midwives completed an audit in October 2017 but unfortunately this was completed after the audit time frame for the first audit period, of April – September 2017. Therefore one of the two yearly audits was missed which is reflected in the low percentage in numbers of audit. The mean score for the audit however was 97% and actions have been discussed with the Matron, Team Leaders and IPCT. It is expected that the community midwives audits will continue twice yearly.

## 8.2 Peripheral cannula audits

The IPCT continued to audit the ongoing care of cannulae in both Maternity and Gynaecology areas on a fortnightly basis until September 2018, with ad hoc cannula audits being undertaken since. A total of 37 cannula audits were undertaken with scores ranging from 28 - 100% (mean 84%), insufficient documentation on the VIIAD chart remains the most common identified deficit. From September 2018 ownership of cannula audits returned to ward areas.

## 8.3 Mattress audits

Mattress audits are completed in all areas in the Trust. The audit examines cleanliness and mattress integrity. Results are reported through the Divisional Report to IPCC. The audits are forwarded to IP&C team but local areas have ownership for replacement and condemning of any mattress not fit for purpose. There is a system in place for the provision and storage of replacement mattresses across the Trust. The most recent audit identified a non-compliance issue with MAU trolleys with regards to accessibility of difficult to clean areas, new trolleys were ordered.

## 8.4 Birthing Pool Audits

Pool audits were completed on a fortnightly basis by IPCT until September 2018. 19 audits were undertaken by IPCT during this time with scores having ranged from 57-100% with a mean score of 78%. Areas of non-compliance related to the documentation of the daily cleaning of the pools and before and after patient use. IPCT notified Ward Managers, Matrons and Link staff of audit results. From September 2018 ownership of pool audits returned to ward areas and reporting of compliance reported at IPCC. IPCT provided an audit template for pool cleaning compliance. Main concerns remains to be documentation of pool cleaning.

## 9 Other Issues

### 9.1 Water Safety

The Water Safety group has met in line with its terms of reference. The Trust has recently appointed an Authorising Engineer (water) to support the Water Safety group; the group will review the Trust Water Safety Plan. Water testing for *Pseudomonas aeruginosa* in augmented care areas has been performed in accordance with national guidance and results have been compliant with expected standards.

### 9.2 Building Projects & Design Developments

The team remain reliant on the Estates Department and the Divisions alerting and involving the team in impending projects via the Infection Prevention and Control Committee meetings.

2017-18 projects requiring IPC Team involvement included:

- Gynaecology Outpatients, Imaging LWH OPD entrance Improvement programme
- MAU design
- Discussions about NICU refurbishment project

### 9.3 Soft FM

The IPCT were involved in the tendering and evaluation of the Trust Soft FM services contract which was given to OCS and commenced on 1<sup>st</sup> July 2017. This included the establishment of a rapid response team and updated service level agreements.

## 10 Surveillance of Infection

Hospital infection (or possible infection) is monitored in the majority of the hospital by 'Alert Organism Surveillance' this involves scrutiny of laboratory reports for organisms associated with a cross infection risk e.g. MRSA, *Clostridium difficile* etc.

On the Neonatal Unit, which houses most of the long-stay patients, surveillance is undertaken by both 'Alert Organism' and by prospective routine weekly surveillance of designated samples. The IPCT examines results of these samples and action points are in place for the unit based on these results.

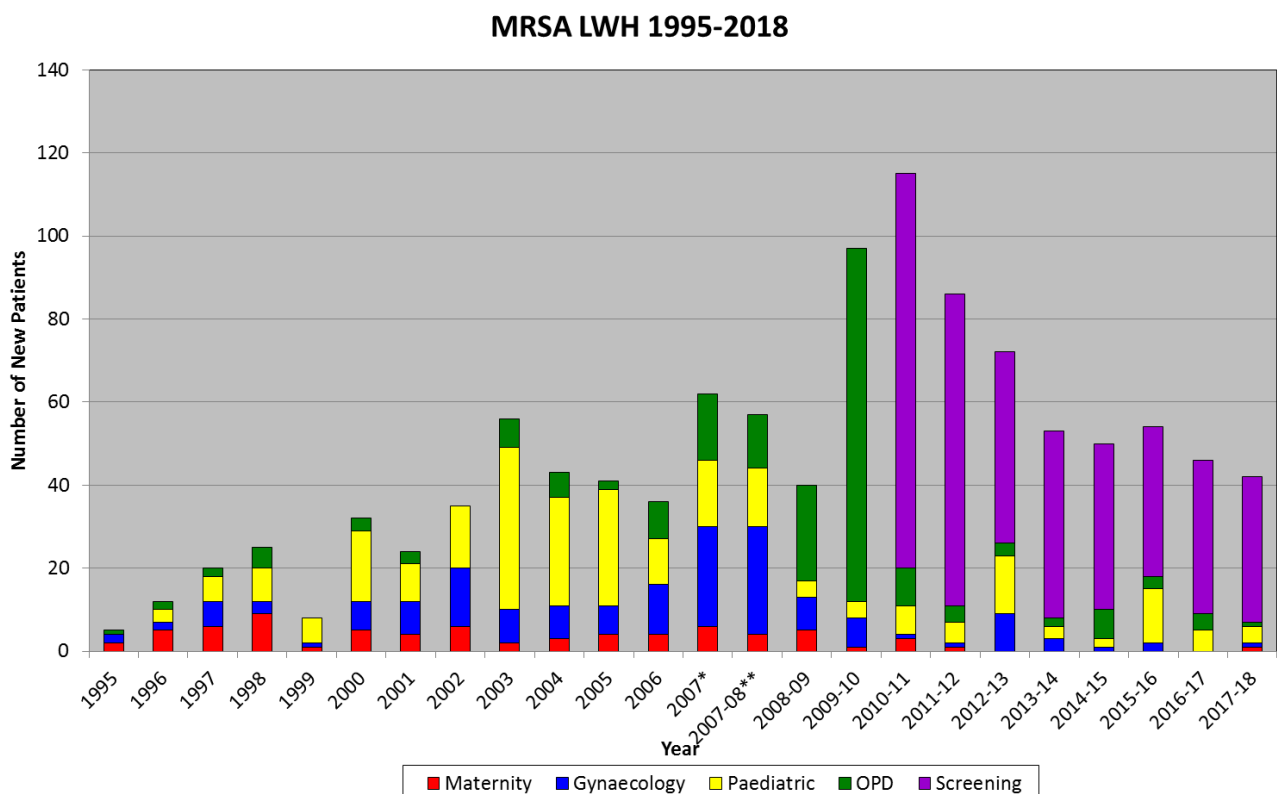
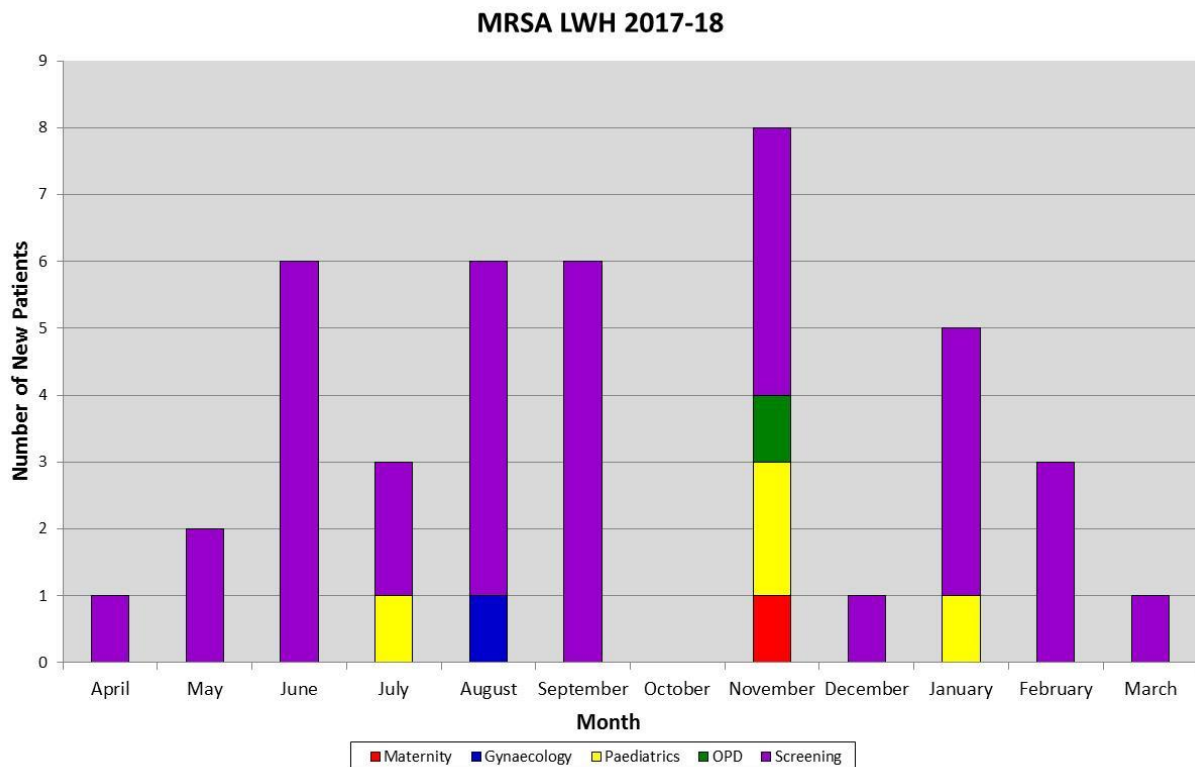
Surveillance of bacteraemias (blood stream infections) for both national mandatory and in house schemes is also undertaken. National mandatory reporting of blood stream infections has been extended this year to include *Klebsiella* and *Pseudomonas* in addition to *E.coli* and *S.aureus*.

The surveillance system for surgical site infections by the IPCT was suspended in November this year as staffing levels in the IPCT were depleted.

## 10.1 Alert Organism Surveillance

### 10.1.1 MRSA

The total number of patients identified carrying Methicillin Resistant *Staphylococcus aureus* (MRSA) in the Trust during the year 2017-18 was 42, primarily identified from screening samples. The charts below show the number of new patients identified with MRSA and the annual totals for the period 1995 – 2018.



As outlined in previous Annual Reports the Government had established targets for screening such that all elective admissions and all eligible emergency admissions to hospital should be screened for carriage of MRSA prior to, or on, admission. The IPCT have an MRSA screening policy which outlines actions for patients found to be positive on screening. During 2017-18 the criteria for screening patients for MRSA was modified following consultation with the IPCC and a formal risk assessment, patients attending for day case and ambulatory surgery were excluded from the screening programme.

In the period April 2017 to March 2018 4091 adult patients were screened for MRSA carriage; 36 (0.9%) were positive.

Two patients were identified with MRSA wound infections (1 Maternity, 1 Gynaecology) both these infections were identified in clinic after discharge from the hospital, both resolved.

There were no clusters or other epidemiological linking of adult patients with MRSA infections. There was no evidence of spread of MRSA amongst adult patients in the Trust. There were no MRSA bacteraemias in adult or neonatal patients in the reported year.

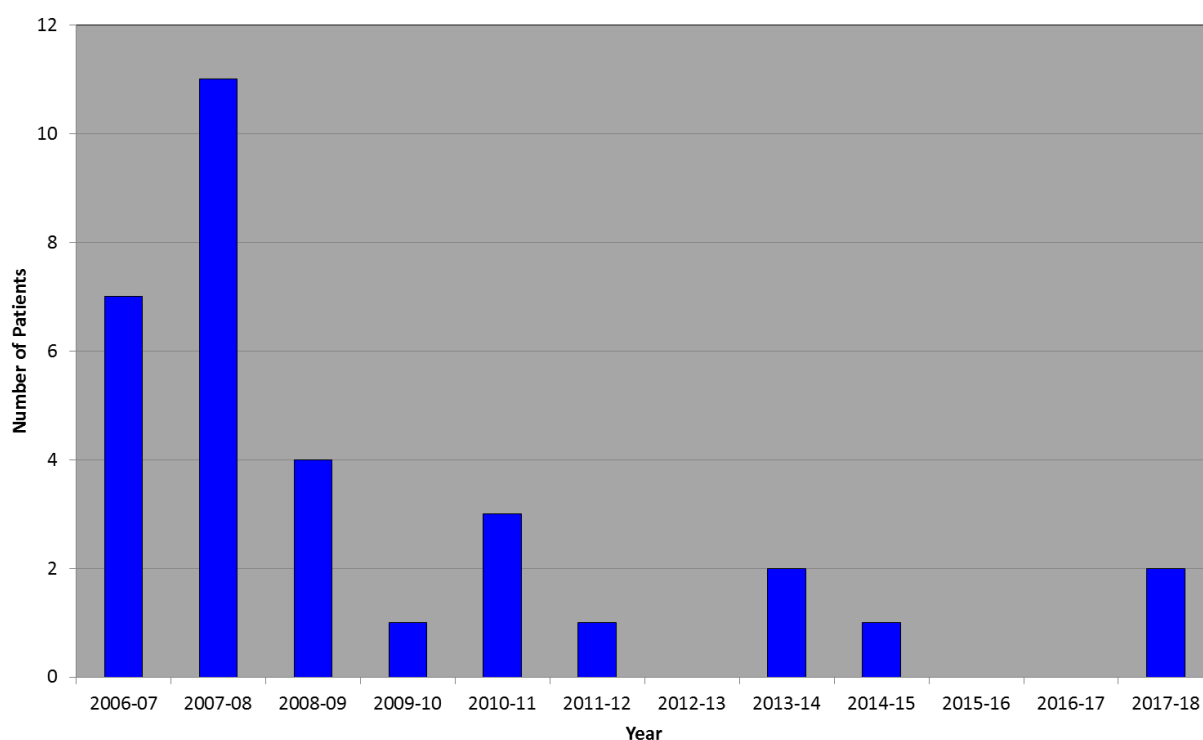
During the period of this report 4 babies were identified with MRSA. There was no identified epidemiological link between the babies and no evidence of spread on the Neonatal unit. There was a link between one of the Maternal cases and one of the Neonatal cases.

#### 10.1.2 *Clostridium difficile*

Mandatory reporting of this disease commenced in January 2004 and includes all patients over 2 years old. Historically the number of cases at LWFT has been low (see chart below). The prescribed trajectory for this disease for the Trust in 2017-18 was one.

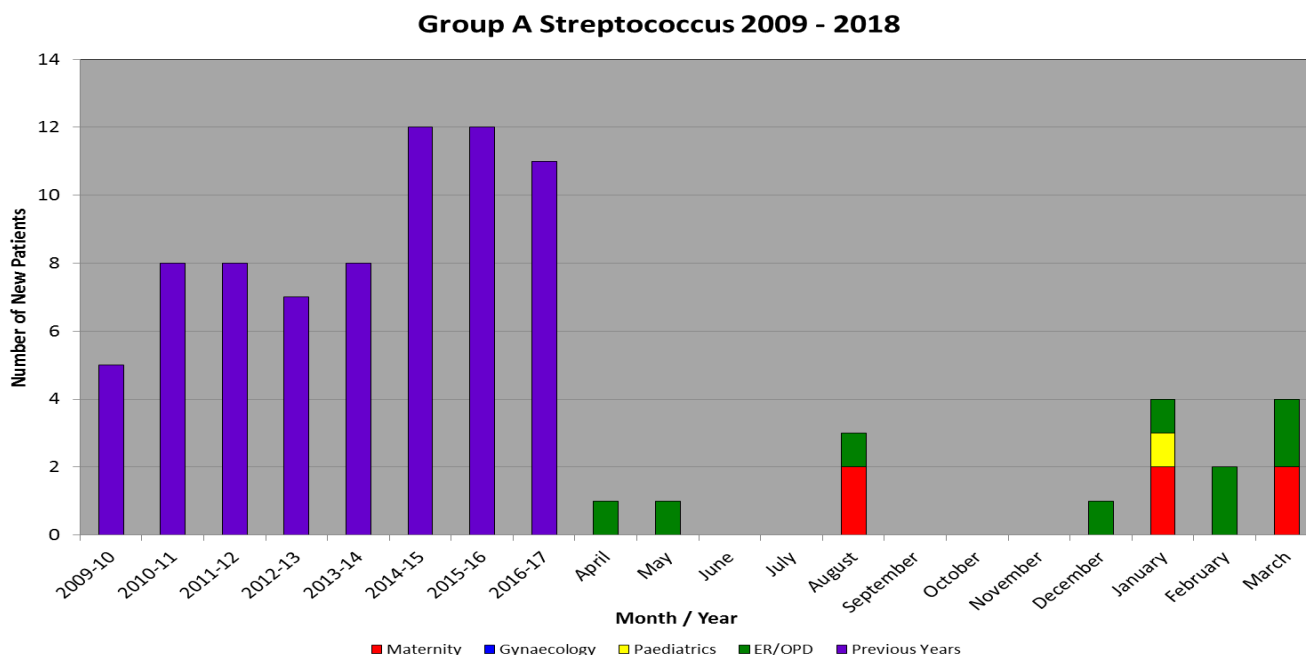
During the period April 2017 to March 2018 there were two patients identified with *C.difficile* infection in the Trust, both these patients were admitted with community-onset infection and therefore do not count against the Trust's trajectory.

***C. difficile* Positive Samples**



### 10.1.3 Group A Streptococcus

In the period April 2017 to March 2018, 14 patients were identified with Group A Streptococcus as detailed below. Two adult patients presented with invasive Group A Streptococcal infection (iGAS), septicaemia. Both had established infection at the time of admission. The paediatric patient was linked to one of these iGAS patients, but apart from this there was no obvious epidemiological link between patients.



There was no identified transmission of Group A streptococci in the Trust.

### 10.1.4 Glycopeptide Resistant Enterococcus (GRE)

There were no GRE bacteraemia's reported.

### 10.1.5 Carbapenemase Producing Enterobacteriaceae

The screening for multidrug - resistant organisms was incorporated into National Guidance and in 2014 LWH commenced screening patients in high risk groups for Carbapenemase producing enterobacteriaceae (CPE). In June 2016 the screening process was extended. All patients who have been an inpatient in any other hospital within the preceding 12 months require screening. Meditech facilitates the risk assessment. CPE screening compliance is audited weekly by the IPCT  
Overall compliance 88%

Month	Screening Compliance
Apr 17- June 17	96%
July 17- Sept 17	82%
Oct 17 – Dec 17	89%
Jan 18 – Mar 18	73%

The main theme of non-compliance identified has been missed screens on patients who are direct transfers from another hospital. This issue have been addressed with Ward Managers, IPCT Link staff and clinical staff in the relevant areas.

#### **10.1.6 Routine Neonatal Surveillance**

Nearly all infection on the Neonatal unit is, by definition, hospital acquired although a small proportion is maternally derived and difficult to prevent. Routine weekly colonization surveillance has continued this year on the Neonatal unit. Results are shown in Appendix C

As colonisation is a precursor to invasive infection the purpose of this form of surveillance is to give an early warning of the presence of resistant or aggressive organisms and to ensure current empirical antimicrobial therapy remains appropriate. Action points are embedded in the Neonatal unit and IPC policies linked to thresholds of colonisation numbers to limit spread of resistant or difficult to treat organisms.

As well as resistant or aggressive organisms focus has remained on both *Pseudomonas spp.* and *Staphylococcus aureus* as potential serious pathogens. The median number of babies colonized with *Pseudomonas* each week was 1, and with *S.aureus* was 5, both figures unchanged from 2016-17.

### **10.2 Bacteraemia Surveillance**

#### **10.2.1 Neonatal Bacteraemia**

As always the commonest organism responsible for Neonatal sepsis was, the common skin organism, coagulase-negative staphylococcus (CoNS). In the period April 2017 – March 2018 14 babies (14 in 2016-17 and 15 in 2015-16) had infections with Gram-negative organisms, 3 of these infections (2 *Haemophilus* and 1 *E coli*) occurred in the first 5 days of life and were congenitally acquired, one *P.aeruginosa* occurred on day 5 and most probably represented a late presentation of congenital infection. The remaining 10 Gram-negative infections occurred after 5 days (1 *P.aeruginosa*, 1 *Enterobacter koserii*, 1 *Stenotrophomonas maltophilia*, 2 *Klebsiella sp* and 6 *E.coli* (in one instance a relapse of congenital infection))

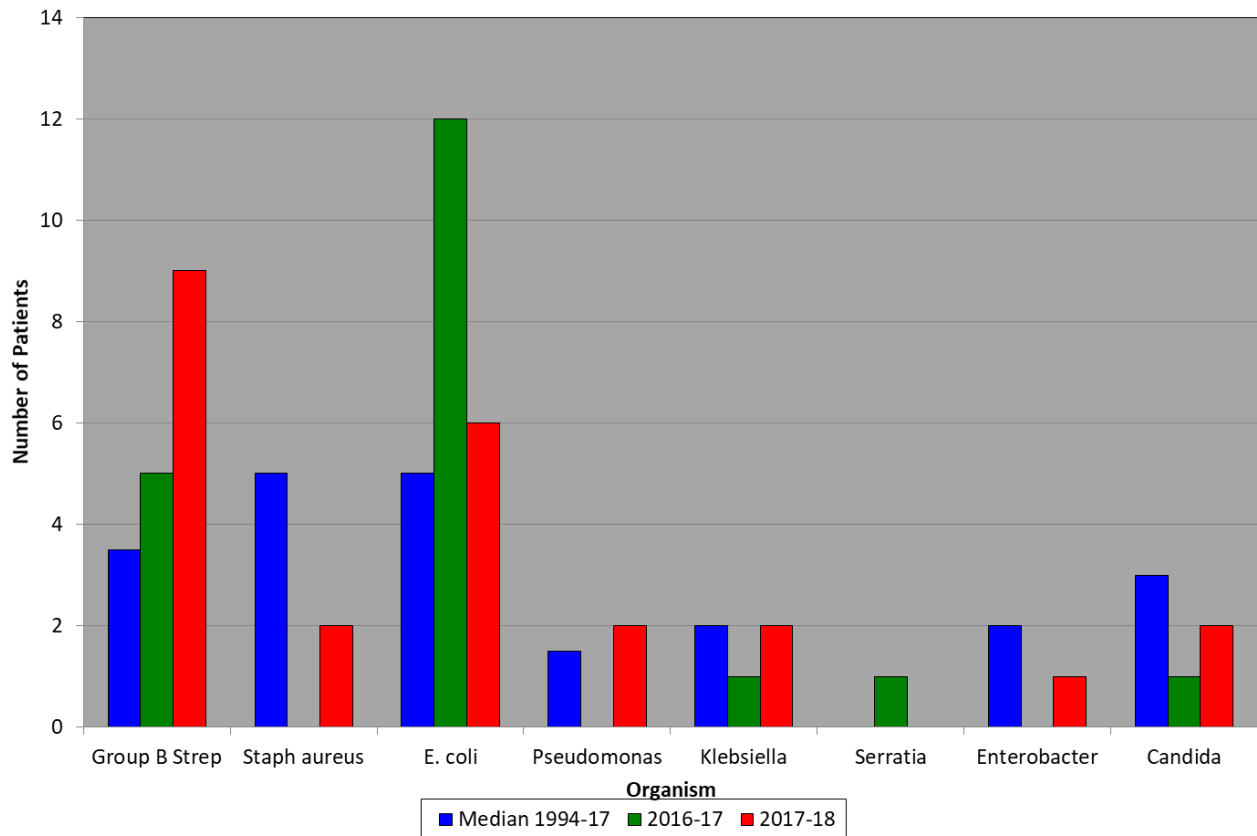
There were 12 episodes of infection with significant Gram-positive pathogens; 8 cases were congenitally acquired Group B streptococcus and 1 congenitally acquired *Streptococcus millerii*. There were 3 late-onset infection (1 Group B streptococcus and 2 *S.aureus*).

There were 2 babies in 2017-18 who developed invasive infection with *Candida*

All non-coagulase-negative staphylococcal sepsis on the unit is subject to a review to determine the focus of infection, precipitating causes and the appropriateness of care.

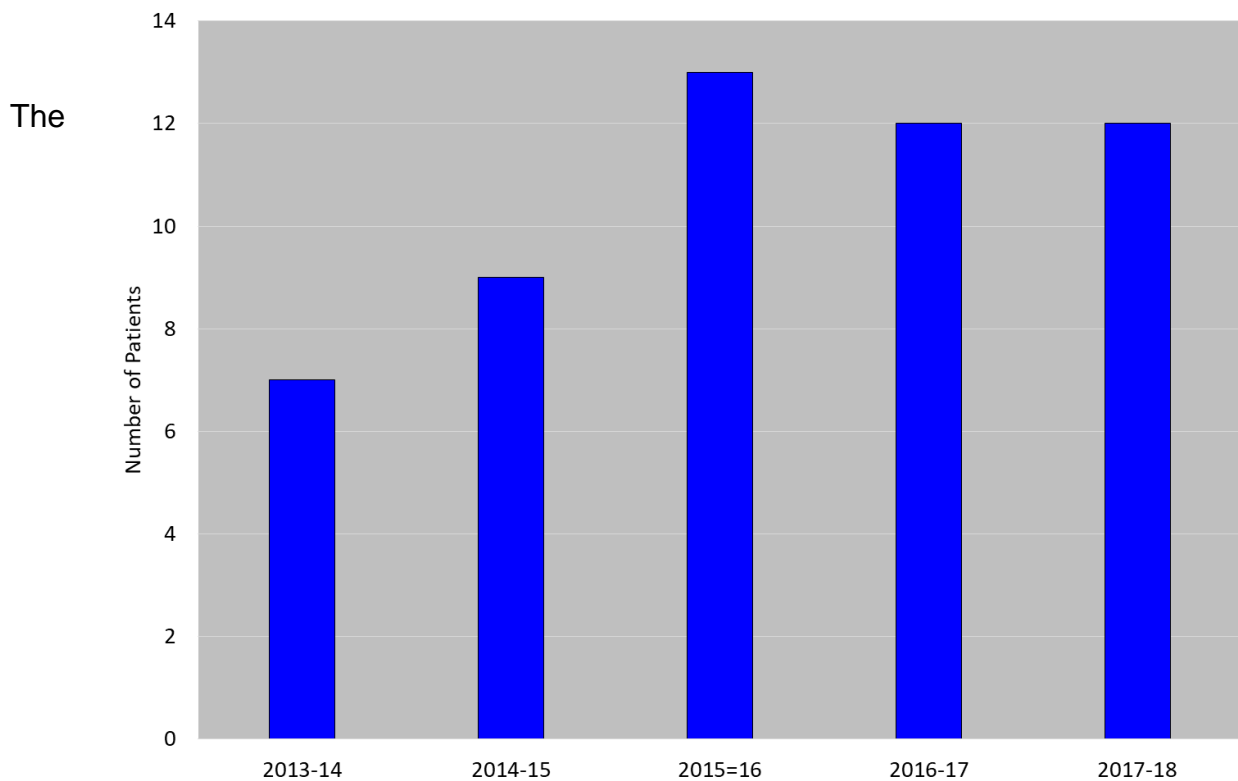
The bar chart below describes the pattern of 'definite-pathogen' Neonatal bacteraemia in the current year in comparison to last year and the median value for each organism for preceding years. Although there is considerable variability in the figures from year to year (probably reflecting the complex of pathogen host relationship in this group). 2 babies developed infection with *P.aeruginosa*, as this was the first such incident for 5 years an investigation was undertaken. (See section 11 and appendix E)

### Bacteraemia NICU (Non-CoNS)



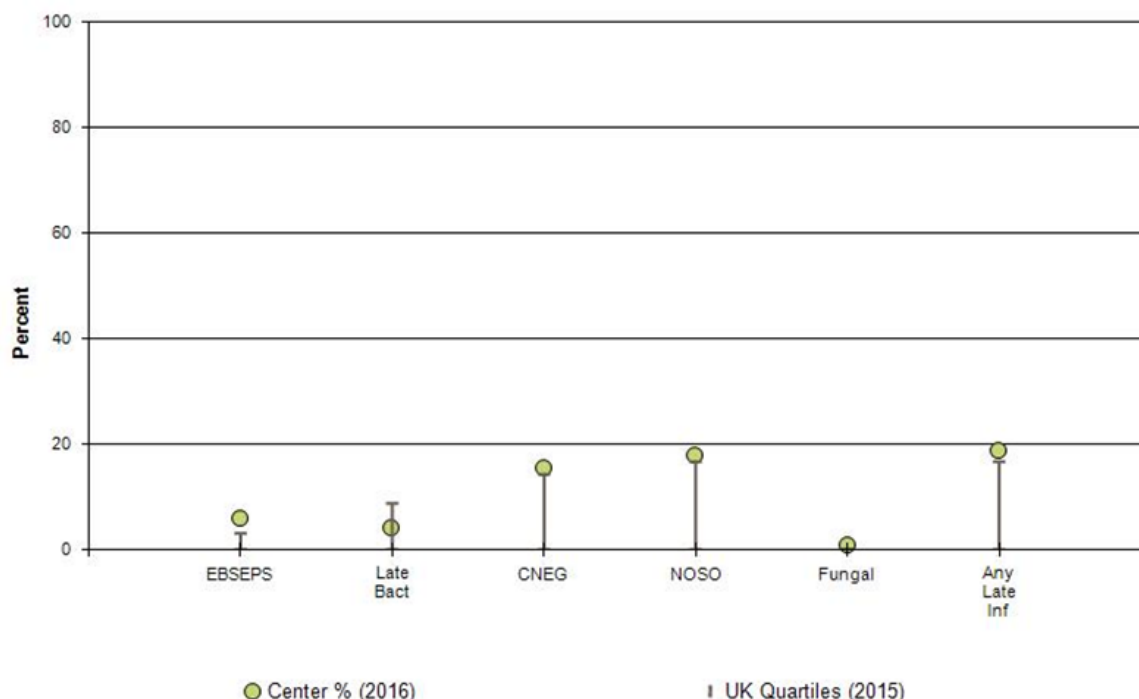
As outlined in last year's report the IPCT have been monitoring the number of Neonatal infections classified as 'congenital'. 12 babies this year had congenital infection.

### Congenital Infections





Neonatal Unit continues to monitor standardised infection rates. The most recent data (2016) show overall rates of bloodstream infection are either within the IQR (e.g. late bacterial infections and fungal infections) or at the upper quartile (CONS infections). However, there has been a gradual increase in late-onset bloodstream infections with CONS since 2013.



### 10.2.2 Mandatory Bacteraemia Surveillance

There have been no MRSA or MSSA bacteraemia cases in adult patients in the period April 2017 to March 2018, however 2 Neonates developed MSSA bacteraemia (see section 11.1)

The CCG has a prescribed target to reduce *E.coli* bacteraemia by 10% in 2017-18. Although this is not a Trust target the IPCT have been working with regional groups facilitated by the CCG to reduce *E.coli* sepsis. In 2017-18 the Trust reported 7 *E.coli* bacteraemias in Neonates (1 categorised as congenital). In the same period there were 3 *E.coli* bacteraemias in adult patients (12 in 2015-16). The IPCT expect clinical areas to undertake an RCA of all significant bacteraemias to establish any elements of sub-optimal care.

In addition to the mandatory surveillance the IPCT has been collecting clinical data on bacteraemic adults in the Trust; 29 patients were identified with positive blood cultures from 323 cultures submitted (9%). 13 (45% of positives, 4% of total) of these were contaminated with skin organisms. Of 16 significant bacteraemias one was considered to be possibly healthcare associated. Details are provided in Appendix D

### 10.3 Surgical Site Surveillance

Surgical Site Infection (SSI) is one of the most common healthcare associated infections, estimated to account for 15% of HCAI. National surveillance for abdominal hysterectomy suggests an SSI incidence of 1.5%. There is no national data for caesarean sections however studies report rates between 2% & 20% with the highest incidence being in emergency sections.

Surgical site wound surveillance in both Maternity and Gynaecology was re-established in 2014/15 to include all abdominal procedures and groin node dissections. In April 2016 wound surveillance extended to include perineal surgical site infections. Data has been collected by a member of the IPCT/TVN using a standard surveillance sheet. Surveillance includes the inpatient period for all patients and the post discharge period until the 30th day. Unfortunately in August 2017 the TVN left the Trust as a consequence wound surveillance data has only been collected for the first 6 months of the year.

### **10.3.1 Maternity**

Wound infections are assigned by the time of operation rather than the time infection is recognised i.e. an infection identified in November from surgery in October will be recorded in October's figures.

In the 6 month period (April 2017 – September 2017) 1219 Caesarean Sections were undertaken (571 elective, 648 emergency). 14 patients with potential SSI were reviewed with 12 fulfilling the criteria for SSI. Of the 12 infections, 5 were in elective and 7 in emergency cases (0.9% and 1.1% respectively).

Perineal Surgical Site Infections – 659 episiotomies were undertaken, 16 SSI have been identified (2.4%).

### **10.3.2 Gynaecology**

1134 abdominal procedures were undertaken in the 6-month period in Gynaecology / Gynaecology-oncology with 224 procedures being open and 906 being laparoscopic. The IPCT/TVN reviewed 13 patients with potential infections. 7 SSI were identified, 4 in open and 3 in the laparoscopic category (1.8 % and 0.3% respectively).

4 groin infections were identified

As a number of wound infections are diagnosed post discharge, the numbers actually seen by the IPCT are limited at the inpatient period. Some patients who develop infection post discharge will be captured via community notes (although these often take several weeks to return to the Trust) and patients who represent to the Trust. A more formal process of post-discharge surveillance has been established including additional information on Meditech for Maternity Assessment unit post-natal attendees and for Community Midwife patient discharges.

## **11 Outbreaks of Infection**

There have been no major hospital-wide of infection during the period of this report.

In October 2017 two babies on the Neonatal unit developed septicaemia caused by *Pseudomonas aeruginosa*. As this is an uncommon event, the last being over 5 years ago, this was treated as a significant incident. PHE and commissioners were informed and the incident was investigated. The incident team concluded that the two episodes of infection were unrelated and this was not therefore an outbreak. A report on the incident prepared for the Trust's Safety Senate is attached as Appendix E.

## **12 Risk Register**

- 1652 - Risk of hospital acquired infection due to potential lapses in practice and non-adherence with Infection Control policies resulting in potential serious harm or death to a patient, prolonged LOS, unsatisfactory patient experience; significant financial loss; loss of stakeholder confidence; and/or a material breach of CQC conditions of registration
- 1578 - Risk of infectious diseases causing disruption to Trust services including risk to patient and staff safety requiring the implementation of emergency preparedness intervention

## **13 Health & Wellbeing**

The Trust Health & Wellbeing Department report monthly to the IPCC including vaccination updates. Staff have historically been screened for TB, Hepatitis B and Rubella immunity. Guidance on Measles, Chicken pox, HIV and Hepatitis C have been incorporated for all 'new starters' and a catch up exercise is in place for staff already employed. The IPCC supports the Health & Wellbeing team in ensuring that workers in designated areas have appropriate vaccinations and immunity.

## 14 Infection Control Team Work Plan

### 14.1 Infection Control Team Work Plan 2017-18

<u>Work Plan</u>	<u>Completion Date</u>	<u>Comments</u>
<b>Training</b> <ul style="list-style-type: none"> <li>Continue all Trust mandatory &amp; induction training</li> <li>Continue to support link staff personal development</li> </ul>	Ongoing	See section 6
<b>Audit</b> <ul style="list-style-type: none"> <li>Continue with ICNA/IPS Audit Programme</li> <li>Continue Saving Lives audits including cannulation</li> <li>Continue monitoring of pool cleaning</li> </ul>	Ongoing	See section 4 & 8  Cannulation and Pool audits devolved to the wards from October 2017
<b>Surveillance</b> <ul style="list-style-type: none"> <li>Continue 'Alert Organism' surveillance focused on resistant pathogens</li> <li>Continue to monitor cases mandatorily reportable infections</li> <li>Continue wound surveillance for surgical site infection including perineal surgical site infections</li> <li>Undertake a comprehensive review surgical site infections where figures indicate a rising incidence</li> <li>Implement actions identified through RCA of bacteraemia's and C.difficile infections</li> <li>Continue to work with external agencies to understand if congenital infection rate rising and any preventable factors</li> <li>Work with the CCG to deliver their target of 10% reduction in E.coli sepsis.</li> </ul>	Ongoing	See Section 10  Perineal Wound surveillance stopped October 2017 Surgical site surveillance suspended since November 2017  TJN attends CCG meetings on behalf of LWH
<b>Health Act &amp; NICE</b> <ul style="list-style-type: none"> <li>Review compliance and evidence</li> <li>Review and ensure Trust maintains its compliance with current NICE guidance relating to infection, infection control, sepsis and antimicrobial stewardship.</li> </ul>	March 2018	See section 5  Reviewed and submitted as part of the Monthly Assurance Report

## 14.2 Infection Control Team Work Plan 2018-19

<u>Work Plan</u>	<u>Completion Date</u>	<u>Comments</u>
<b>Training</b> <ul style="list-style-type: none"> <li>Continue all Trust mandatory &amp; induction training</li> <li>Continue to support link staff personal development</li> </ul>	Ongoing	
<b>Audit</b> <ul style="list-style-type: none"> <li>Review ICNA/IPS Audit Programme in line with other local Trusts</li> <li>Continue Saving Lives audits including cannulation</li> <li>Continue monitoring of pool cleaning</li> </ul>	April 2018 Ongoing	
<b>Surveillance</b> <ul style="list-style-type: none"> <li>Continue 'Alert Organism' surveillance focused on resistant pathogens</li> <li>Continue to monitor cases mandatorily reportable infections</li> <li>Undertake a comprehensive review surgical site infections where figures indicate a rising incidence</li> <li>Implement actions identified through RCA of bacteremia's and C.difficile infections</li> <li>Work with the CCG and Trust Sepsis lead to deliver their target reduction in Gram-negative sepsis.</li> </ul>	Ongoing	
<b>Health Act &amp; NICE</b> <ul style="list-style-type: none"> <li>Review compliance and evidence</li> <li>Review and ensure Trust maintains its compliance with current NICE guidance relating to infection, infection control, sepsis and antimicrobial stewardship.</li> </ul>	September 2018 Ongoing	

### 15.1 Appendix A – Terms of Reference - Infection Prevention and Control Committee Terms

#### INFECTION PREVENTION AND CONTROL COMMITTEE TERMS OF REFERENCE

<b>Constitution:</b>	The Committee is established by the Trust Board and will be known as the Infection Prevention and Control Committee.
<b>Duties:</b>	<p>The Committee is responsible for providing assurance to the Trust Board in relation to those systems and processes it monitors and ensure compliance with external agency's standards e.g.: CQC etc.</p> <ol style="list-style-type: none"> <li>1. Agree and disseminate the systems and processes for effective Infection Prevention and Control.</li> <li>2. Develop the strategic direction of Infection Prevention and Control, ensuring that the team is resourced sufficiently to achieve improvement in performance.</li> <li>3. Review and approve the work of the Infection Prevention &amp; Control team members in line with Trust objectives through the IPCC team work plan.</li> <li>4. Review and endorse all policies relating to Infection Prevention &amp; Control and evaluate their implementation.</li> <li>5. Receive and review regular reports of infection incidents or outbreaks and ensure that reports are forwarded to appropriate external authorities.</li> <li>6. Ensure that lessons identified from incidents, outbreaks, or reports from external organisations are actioned by relevant Divisions in the organisation.</li> <li>7. Implement a regular reporting timetable including comprehensive Division reports and reports from support services at regular intervals.</li> <li>8. Ensure that effective Infection Prevention and Control is being delivered in Divisions and monitor evidence of prevention and control practice.</li> <li>9. Promote and facilitate the education of staff of all grades in hand hygiene Infection Prevention &amp; Control and related topics</li> </ol> <p>Receive, discuss and endorse the annual Infection Prevention &amp; Control report produced by the Infection Prevention &amp; Control team prior to submission to the Safety Senate Committee and Trust Chief Executive.</p>

<b>Membership:</b>	<p>The Committee membership will consist of:</p> <ul style="list-style-type: none"> <li>• The Chair – Director of Nursing, Midwifery or Representative of CEO</li> <li>• Director of Infection Prevention and Control</li> <li>• Infection Prevention &amp; Control Nurse</li> <li>• Trust Decontamination Lead</li> <li>• Representative of Public Health England</li> <li>• Estates or Patient Facilities Manager</li> <li>• Health and Safety Advisor</li> <li>• Occupational Health Nurse</li> <li>• Matron from Gynaecology</li> <li>• Matron from the Maternity</li> <li>• Matron from Neonatal</li> <li>• Matron from Reproductive Medicine Unit</li> <li>• Antibiotic Pharmacist</li> <li>• Representative from Clinical Commissioning Group</li> <li>• Maternity Safety Lead</li> <li>• Neonatal Safety Lead</li> <li>• Gynaecology Safety Lead</li> <li>• Surgical Services Safety Lead</li> <li>• Reproductive Medicine Unit Safety Lead</li> </ul> <p>Members can participate in meetings by two-way audio link including telephone, video or computer link (excepting email communication). Participation in this way shall be deemed to constitute presence in person at the meeting and count towards the quorum</p> <p>The Committee will appoint a member of the Committee as Chair of the Infection Prevention and Control Committee and another member to be Vice Chair from the outset. The Vice Chair will automatically assume the authority of the Chair should the latter be absent.</p>
<b>Quorum:</b>	<p>Chair (or approved Deputy)  IPCN or DIPC  Representative from each Division (either Safety Lead or Matron)  Representative from Facilities Department</p>
<b>Voting:</b>	<p>Each member will have one vote with the Chair having a second and casting vote, if required. Should a vote be necessary a decision will be determined by a simple majority?</p>
<b>Attendance:</b>	<p><b>a. Members</b>  Members will be required to attend a minimum of 75% of all meetings.  Safety Leads and external representatives will be required to attend a minimum of 50% of all meetings.</p> <p><b>b. Officers</b>  The DIPC / Director of Nursing, Midwifery shall normally attend meetings.</p> <p>Other officers and staff of the Trust will be invited to attend the</p>

	<p>meeting as appropriate when an issue relating to their area of operation or responsibility is being discussed.</p> <p>Representatives from partner organisations or other external bodies may be invited to attend as appropriate. Such representatives will not have voting rights.</p>
<b>Frequency:</b>	Meetings shall be held minimum of [6] times per year. Additional meetings may be arranged from time to time, if required, to support the effective functioning of the Trust.
<b>Authority:</b>	The Committee is authorised by the Trust to investigate any activity within its Terms of Reference. It is authorised to seek any information it requires from any employee and all employees are directed to cooperate with any request made by the Committee
<b>Accountability and reporting arrangements:</b>	<p>The Committee will be accountable to the Chief Executive and Trust Board. The minutes of the Committee will be formally recorded and submitted to the Quality Committee (QC). The Chair of the Committee shall draw to the attention of the QC any issues that require disclosure to it, or require executive action.</p> <p>The Committee will report to the Board annually on its work and performance in the preceding year.</p> <p>Trust standing orders and standing financial instructions apply to the operation of the Infection Prevention and Control Committee.</p>
<b>Monitoring effectiveness:</b>	The Infection Prevention and Control Committee / IPC Team will undertake an annual review of its performance against its duties in order to evaluate its achievements.
<b>Review:</b>	These terms of reference will be reviewed at least annually by the Infection Prevention and Control Committee.
<b>Reviewed by [Committee/ Subcommittee/Group]:</b>	Infection Prevention and Control Committee
<b>Approved by [name of establishing Committee]:</b>	Infection Prevention and Control Committee
<b>Review date:</b>	May 2019
<b>Document owner:</b>	Julie King, Acting Director of Nursing and Midwifery <a href="mailto:Julie.king@lwh.nhs.uk">Julie.king@lwh.nhs.uk</a>



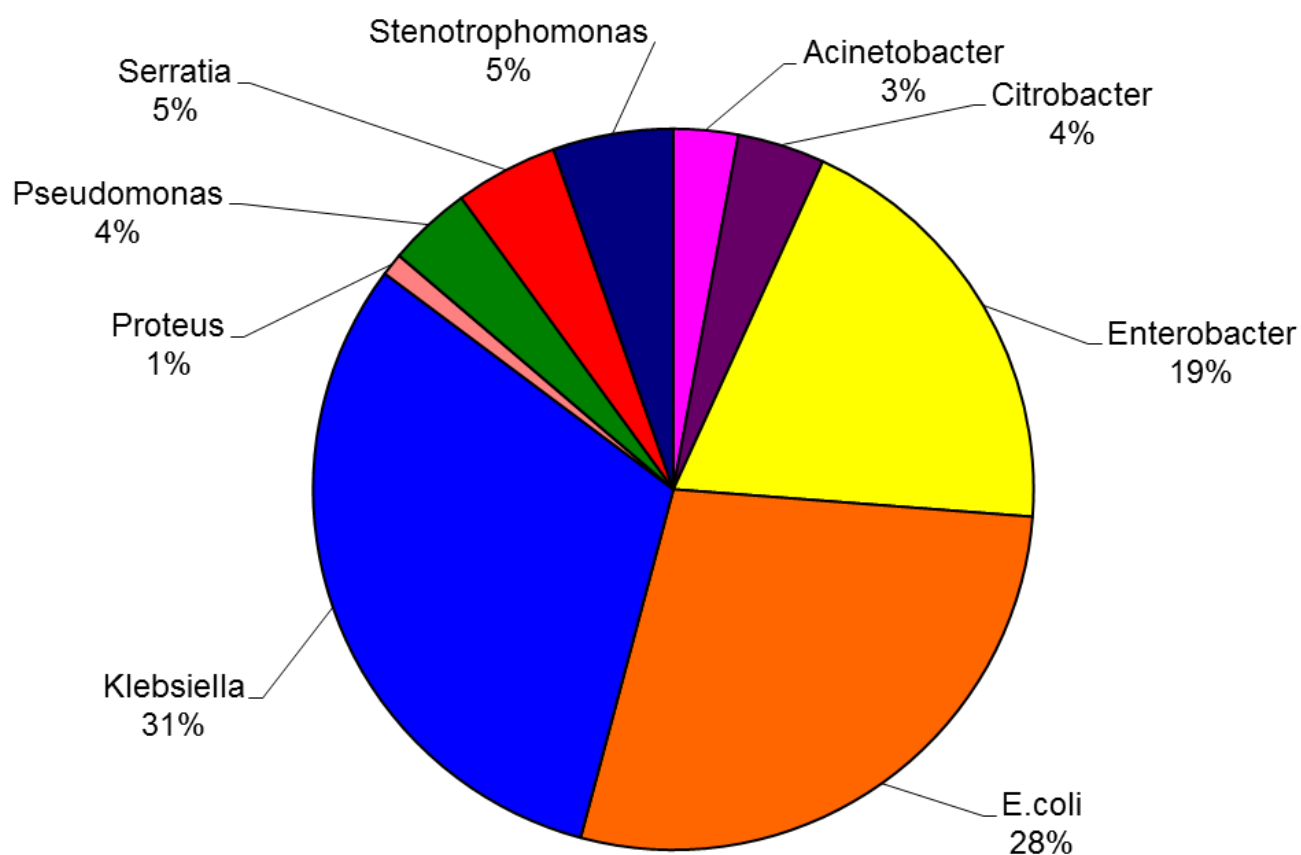
## 15.2 Appendix B – Health Care Act

Criterion	Additional Quality Elements	Baseline Assurance Apr 17	Update Mar 18	Responsibility	RAG
1.8 An infection prevention and control infrastructure should encompass: In acute healthcare settings for example, an ICT consisting of appropriate mix of both nursing and consultant medical expertise (with specialist training in infection control) and appropriate administrative and analytical support, including adequate information technology. The DIPC is a key member of the ICT		Awaiting implementation at Host Laboratory site prior to implementation at LWFT	Awaiting implementation at Host Laboratory site prior to implementation at LWFT	Director of Nursing / Midwifery / Director of Infection Prevention and Control	Amber

### 15.3 Appendix C - Neonatal Colonisation Surveillance

	2007/08	2008/09	2009/10	2010/11	2011/12	2012-13	2013/14	2014/15	2015-16	2016-17	2017-18
Acinetobacter	1	1	1	2	1	3	3	6	3	3	3
Citrobacter	3	2	4	2	6	6	4	3	4	7	4
Enterobacter	15	12	16	15	21	21	17	14	17	22	19
E.coli	26	29	30	30	23	20	30	27	21	22	28
Klebsiella	34	32	33	31	38	32	34	39	41	35	31
Proteus	1	3	2	4	0	3	1	1	1	1	1
Pseudomonas	14	18	10	9	6	11	5	4	3	3	4
Serratia	4	1	3	4	2	2	2	1	3	2	5
Stenotrophomonas	2	2	1	3	3	2	4	4	7	5	5

### Percentage Colonisation 2017-18



## 15.4 Appendix D - Adult Bacteraemia Surveillance 2017 - 18

29 Positive blood cultures

13 Coagulase-negative staphylococcus or other contaminant.

16 Pathogens

Directorate	Organism	Potentially Hospital Associated	Likely Source
<b>Gynaecology</b>	<i>Klebsiella spp</i>	Y	Focus not identified on review
	<i>Bacteroides spp</i>	N	Peritonitis
	<i>Bacteroides spp</i>	N	Necrotic fibroid
	<i>Bacteroides spp</i>	N	Pelvic malignancy
	<i>S.aureus</i>	N	No focus identified
	Group A Streptococcus	N	Community onset
	<i>E.coli</i>	N	UTI
<b>Maternity</b>	Haemophilus	N	RPOC
	S.pneumoniae	N	Community Acquired Pneumonia
	<i>E.coli</i>	N	Perineal infection
	<i>E.coli</i>	N	UTI
	Group B Streptococcus	N	Peripartum
	Group B Streptococcus	N	Peripartum
	Group A Streptococcus	N	Peripartum
	<i>Granalicatella spp</i>	N	Community onset
	<i>Klebsiella spp</i>	N	UTI

## 15.5 Appendix E - Pseudomonas Incident Report

MEETING	Safety Senate	
PAPER/REPORT TITLE:	Pseudomonas Incident NICU Q3	
DATE OF MEETING:	12 <sup>th</sup> January 2018	
ACTION REQUIRED	For Assurance	
EXECUTIVE DIRECTOR:	Choose an item.	
AUTHOR(S):	Dr Tim Neal	
LINK TO STRATEGIC OBJECTIVES:	3. To deliver safe services Choose an item. Choose an item. Choose an item.	
LINK TO BOARD ASSURANCE FRAMEWORK (BAF):	<b>Safe:</b> Choose an item Choose an item Choose an item <b>Efficient:</b> Choose an item. <b>Experience:</b> Choose an item.	<b>Effective:</b> Choose an item. <b>Well Led:</b> Choose an item.
WHICH CQC KLOE FUNDAMENTAL STANDARD/S DOES THIS REPORT RELATE TO?	<b>Safe:</b> 1.1 Safe - Reg12 Safe care and treatment Choose an item. Choose an item. Choose an item. <b>Caring:</b> Choose an item. <b>Responsive:</b> Choose an item.	<b>Effective:</b> Choose an item. Choose an item. <b>Well Led:</b> Choose an item. Choose an item.
LINK TO TRUST STRATEGY, PLAN AND EXTERNAL REQUIREMENT (e.g.: NHS Improvement Compliance/E&D/NHS Constitution)	Choose an item. Choose an item.	
FREEDOM OF INFORMATION STATUS (FOIA):	Choose an item.	
RECOMMENDATION: (eg: The Board/Committee is asked to:-....)		
PREVIOUSLY CONSIDERED BY:	Committee name	Not Applicable
	Date of meeting	

## Executive Summary

### Summary

2 babies on the neonatal unit developed fatal *Pseudomonas aeruginosa* sepsis during October 2017. Prior to this the last instance of *P. aeruginosa* sepsis had been in 2012. 16 babies were colonised with *P.aeruginosa* in the period immediately prior to and following the two episodes of sepsis. An incident team was convened and investigated potential sources of the infection including testing of the water supply on the unit. The two episodes of infection were caused by distinct strains of *P.aeruginosa*. The majority of colonising strains were also distinct as were strains identified in the sink traps. Water sources repeatedly tested negative for *P.aeruginosa*.

## Report

### Key Time Points

24/08/17 2 babies identified colonised with *P.aeruginosa* – barrier nursing implemented for these individuals

See timeline (appendix 1) for details of babies involved, room details and date of colonisation/infection.

03/09/17 3<sup>rd</sup> baby identified (colonised from admission)

04/09/17 Request made by DIPC for testing of water sources on NICU

19/09/17 Water sampling test results from all clinical rooms on NICU 'No *P.aeruginosa* detected'

24/09/17 Baby 7 delivered and admitted to NICU room 7, not colonised on admission

27/09/17 Baby 5 (colonised since 15/09/17) moved to room 7.

01/10/17 Baby 9 develops sepsis and dies, blood cultures grew *P.aeruginosa*

03/10/17 Sepsis review for Baby 7 and review of current colonisation and potential links

09/10/17 Water in room 7 retested and in additional non clinical rooms 'No *P.aeruginosa* detected'

20/10/17 Barrier nursing of whole unit introduced

20/10/17 *Pseudomonas* strain typing results for babies 5 & 9 received demonstrating indistinguishable strains (Strain A).

24/10/17 Meeting with DIPC and key unit personnel to discuss additional actions – cohorting considered but at this point only one baby on unit known to be colonised

24/10/17 Environmental sampling of shared equipment and sinks undertaken on NICU – *Pseudomonas* isolated from sink plugholes but not from any other environmental or equipment source.

27/10/17 Baby 12 (colonised with *P.aeruginosa* from birth) develops overwhelming sepsis and dies.

27/10/17 DIPC discusses possible risks with neonatal consultant and agrees change in antibiotic policy for late onset sepsis to maximise cover against *Pseudomonas*.

29/10/17 Organism causing sepsis in Baby 12 confirmed as *P.aeruginosa*. Multidisciplinary discussion between DIPC, neonatal medical and nursing staff, agreed temporarily to move to sterile water for baby cares.

29/10/17 DIPC discussed incident with PHE consultant.

30/10/17 Incident meeting held on the unit (notes and actions attached). Concerns about the estate were raised at the meeting in particular the lack of space between cots in HDU, some old style sinks remaining in non-clinical areas of the unit and the poor facilities for laundry and equipment cleaning.

31/10/17 Meeting of DIPC and neonatal staff to review actions agree patient information letter and press holding statement.

31/10/17 Additional water and environmental sampling of delivery suite undertaken

08/11/17 *Pseudomonas* typing result for Baby 12 received confirming a distinct strain (Strain E) from the organism causing sepsis in Baby 7. Other typing results confirm a mixture of *Pseudomonas* strains indicating i.e. not an outbreak or common source.

14/11/17 Meeting with DIPC and neonatal team, agreed that a transmission event had occurred between babies 5 and 9 (probably in room 7) which resulted in HCAI septicaemia. The second septicaemic event was unrelated but was due to an organism colonising Baby 12 from birth. The incident was closed and additional infection control measures stood down.

### **Outstanding Actions**

Although the incident was closed a number of actions relating to the neonatal unit estate remain outstanding, primarily the identification of a suitable area for cleaning and decontamination of equipment separate from the area used to clean laundry. A number of sinks both on delivery suite and in non-clinical room on the neonatal unit require replacement with modern compliant sinks with rear drains.