Liverpool Women's NHS Foundation Trust

Infection Prevention & Control Annual Report 2015-2016

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TABLE OF ABBREVIATIONS

CCG	Clinical Commissioning Group
CGC	Clinical Governance Committee
CPE	Carbapenamase-Producing Entrobacteriaeceae
CQC	Care Quality Commission
DIPC	Director of Infection Prevention and Control
DNM	Director of Nursing Midwifery
HCA	Health Care Act
HCAI	Health Care Associated Infection
PHE	Public Health England
IPC	Infection Prevention & Control
IPCC	Infection Prevention and Control Committee
IPCN	Infection Prevention and Control Nurse
IPCT	Infection Prevention & Control Team
IPS	Infection Prevention Society
LWFT	Liverpool Women's NHS Foundation Trust
MRSA & MSSA	Meticillin Resistant (Sensitive) Staphylococcus Aureus
NLMS	National Learning Management System
NUMIS	Nursing & Midwifery System
OLM	Oracle Learning Management System
RLBUHT	Royal Liverpool and Broadgreen University Hospital Trust
SSI	Surgical Site Infection
TNA	Training Needs Analysis
TVN	Tissue Viability Nurse

1 Summary of Key Achievements and Main Findings

1.1 Key Achievements 2015/16

The Trust was compliant with the prescribed MSSA bacteraemia target

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

The IPCT has extended SSI surveillance

Increased audit has improved cannula care

Compliance with CPE screening has improved

All IPC audits are now reported through NUMIS

1.2 Main Findings

1.2.1 Education

The IPCT has provided 149 general training sessions in 2015-16.

1.2.2 Guidelines

The Trust Infection Control Policy has been reviewed and updated in line with new Trust guidance.

1.2.3 Environmental and Clinical Practice Audits

142 (100%) environmental and 348 (95%) Clinical Practice Audits have been completed in accordance with the Trust plan.

1.2.4 MRSA

13 neonates were identified with MRSA colonization with evidence of local transmission. One baby developed MRSA infection.
42 adult patients were identified in the Trust with MRSA, 36 were identified by pre-emptive screening. 3 MRSA infections were identified.

1.2.5 C. difficile

There have been no *C.difficile* infections in 2015-16

1.2.6 Bacteraemia

There was one MRSA bacteraemia reported in 2015-16

There were 4 MSSA bacteremia's in 2015-16 (1 Adult, 3 neonate). The Trust's target for this infection is zero Trust attributable cases in adults.

15 neonates had significant Gram-negative sepsis (6 congenital) and 10 neonates had significant Gram-positive infections (6 congenital).

There were 18 E.*coli* bacteraemias in 2015-16 (8 neonate and 10 adults). There is no nationally set target for this infection, although baseline data are being collected.

There were no glycopeptide resistant enterococcal bacteremias in 2015-16

1.2.7 Surgical Site Infection Surveillance

2.0% of caesarean section and 1.2% of gynaecology wounds were identified as infected.

2 Infection Prevention & Control Team Members

During 2015 - 16 the Infection Prevention and Control Team (IPCT) has been supported by a seconded Midwife, and a seconded nurse.

Miss K Boyd
Infection Prevention & Control Analyst (part time 30 hours/week Infection Prevention and Control Analyst, 7.5 hours/week Policy Officer for the Governance Team)
Mrs D Fahy
Infection Prevention & Control Nurse - (1 WTE – 37.5 hours/week)
Dr T J Neal
Consultant Microbiologist – Infection Control Doctor and Director of Infection Prevention and Control (DIPC) (2 sessions / week worked on LWFT site)
Mrs Anne-Marie Roberts
Secondment Link Midwife (16 hours)
Mrs Julie Burns
Seconded Link Nurse (16 hours)

The IPCT is represented at the following Trust Committees:

Clinical Governance - now Safety Senate	Monthly
Patient Facilities & IPCT & G4S	Bi-monthly
Clinical Supplies Meeting	Monthly
Emergency Planning	Bi-Monthly
Health & Safety	Bi-Monthly
Infection Prevention & Control	Bi-Monthly
Medicines Management	Bi-Monthly
Nursing and Midwifery Board	Monthly
Water Safety Meetings	Twice yearly
PLACE	Ad-hoc
Synergy Meeting	Bi-Monthly
Building Planning	Ad-hoc

The Team is managed by the Deputy Director of Nursing and Midwifery who also managed the budget until January 2016, the budget was devolved to the IPCT.
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
    - 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.

The IPCT report quarterly to IPCC and the DIPC reports monthly to CGC which also receives minutes of the IPCC meetings. The Governance and Clinical Assurance committee (GACA) receives minutes from CGC in addition to IPCT quarterly reports. 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. In March 2016 the IPCC examined its effectiveness throughout the year by reviewing action plans and ensuring that actions cited were either completed or no longer required. The following detail some of the changes facilitated throughout the year.

- The Infection Prevention and Control team have increased CPE screening auditing across the Trust
- Environmental Audits and Saving Lives Audits have moved onto the NUMIs system
- Expanded wound surveillance to include groin nodes
- The team has increased cannula audits to weekly to monitor compliance more closely.
- The IPCT have identified that ANTT training is required more frequently this has been rolled out within the Gynecology department initially by the TVN.
- Pool audits have been increased by the IPCT to monitor compliance
- A more formal post discharge surveillance has been established via Meditech, Community midwives and MAU

Although there is progress in some areas, in others significant actions are not addressed in a timely manner

The IPCT has failed to make progress on one ‘non-compliance’ from the Health care act:-

- Provision of surveillance software

The IPCT has also failed to make progress on two actions within the workplan:-

- Expand Wound surveillance to include Perineal Site Infections
- Implement actions identified through RCA for Congenital infections

5 External Bodies

5.1 Health Care Act & Care Quality Commission

The Health Care Act 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 A). This relates to surveillance software which is awaiting the implementation of suitable software at the provider laboratory with hope of acquisition by LWH following this.

6 Education

The IPCT has provided 149 general training sessions in 2015-16;

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 either by face to face electronic learning or workbook training and a Hand Hygiene Assessment. Seventeen face to face mandatory sessions have been delivered in 2015-16

Training continues to be provided by the IPCT for medical staff which includes consultants, trainees and ad-hoc mandatory training for corporate services. Seven formal teaching sessions have been delivered by the DIPC throughout 2015-16

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

The IPCT have developed an electronic mandatory training package for both clinical and non-clinical staff. Following discussions with the Training and Development Department the package was implemented in January 2016. The package is now available for all staff to complete however face to face sessions are still available if preferred. The electronic package is incorporated into the NLMS and linked to OLM

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. Attendance by link staff at the two development days was 40% and 45% respectively. Link staff meetings and professional development days are included in the TNA provision for Link Staff.

6.3 Training sessions

Training sessions including the use of personal protective equipment (aprons, gowns, gloves and face masks/eye protections) have been delivered to staff in both maternity and gynaecology. The IPCT have face fit tested those staff required to wear FFP3 masks following a risk assessment.16 face fit testing sessions have taken place in 2015-2016.

6.4 Carbapenemase Producing Enterobacteriacae (CPE)

The IPCT team continued to deliver training sessions to clinical staff. The purpose of the sessions were to inform staff of the risks to patients of acquiring CPE and the prevention and management of these incidents

7 Guidelines/Policies

No new IPC Policies have been required. The IPC policy has been updated, separated into 3 policies and 18 SOP's

- Infection Prevention and Control Policy V6
- MRSA Policy V1
- Clostridium difficile Policy V1
- Diarrhoea SOP V1
- Effective Hand Hygiene SOP V1
- Influenza SOP V1
- Isolation Barrier Nursing SOP V1
- Linen SOP V1
- Personal Protective Equipment SOP V1
- Use and Disposal of Sharps SOP V1
- Wound Infection SOP V1
- Norovirus SOP V1
- Aseptic Non Touch Technique SOP V1
- Urinary Catheterisation and Ongoing Care SOP V1
- Peripheral Cannulation and Ongoing Care SOP V1
- Carbapenemase-Producing Entrobacteriaceae SOP V1
- Management of Blood Bourne Viruses SOP V1
- Management of Hepatitis A and E SOP V1
- Management of Inpatients with Viral Infections SOP V1
- Management of Pulmonary Tuberculosis SOP V1
- Management of Known Suspected or at Risk Patients with CJD or other Human Transmissible Spongiform Encephalopathies SOP V1

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 moments audits are entered onto the NUMIS system allowing real-time oversight of results and compliance by

local managers. A total of 123 Clinical Practice audits and 225 Hand Hygiene audits have been carried out by department staff and have been reviewed by the IPCT

Environmental audits using the IPS audit tools are carried out unannounced by the IP&C Practitioners and where possible accompanied by a member of departmental staff. A total of 142 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	89%	74-100
Ward Kitchen	88%	78-100
Linen	93%	82-100
Departmental Waste	91%	91-100
Patient Equipment	96%	89-100
Hand Hygiene	89%	83 - 100
Personal Protective Equipment	92%	90 - 100
Sharps safety	92%	85 - 100
Monthly 5 moments	90%	70 - 100

In October 2015 Community Midwives audits went live on the NUMIS system for Community Midwife input (a combined self-assessment clinical practice audit of sharps, PPE and hand hygiene). Actions have been discussed with Matron, Team Leaders and the IPCT. The self- assessment tool has been modified in March 2016.

In October 2015 the NUMIS system went live for Saving Lives audits. Departmental staff are responsible for ensuring that monthly observations (as agreed with IPCT) are completed and are displayed along with NUMIS scores on the Trusts standardised IPC notice boards.

The Trust audit process is on target with the planned timetable.

8.2 Peripheral cannula audits

As out lined in last year's annual report the IPCT continue to audit the ongoing care of cannulae in both Maternity and Gynaecology. Following reimplementation of the VIIAD chart and further training the IPC have audited on a weekly basis. Scores have ranged from 60 - 100% with a mean score of 92 % insufficient documentation on the VIAAD chart, is still an area of concern.

8.3 Mattress audits

Mattress audits are completed 3 monthly in Delivery Suite and Midwifery Led Unit, and 6 monthly in all areas. 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. No significant or unresolved issues relating to mattresses have been identified.

8.4 Birthing Pool Audits

Pool audits have been completed on a weekly basis by IPCT. Both MLU and Delivery Suite achieved 100% compliance with the cleanliness of the pool at the time of audit. Areas of non-compliance relate to the documentation of the daily cleaning of the pools and before and after patient use. The IPCT feedback to departments and Matrons. IPCT continue to notify Ward Managers, Matrons and Link staff of audit results.

9 Other Issues

9.1 Water Safety

The water safety group has met in line with its terms of reference. 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. There have been no cases of infection with *Pseudomonas aeruginosa* in the current year.

9.2 Building Projects & Design Developments

Meetings between Estates, Facilities & IPCT have continued. 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.

2015-16 projects requiring IPC Team involvement included:

- Midwifery Led Unit
- Genetics moving from Alder Hey to Liverpool Women's

9.3 Waste Contract

It was agreed that the new waste streams should be trialled. The new waste stream / bag to bed trial began in March 2016.

9.3.1 Sharpsmart

The IPCT and IPCC have approved the use of 'Sharpsmart, 'a more environmental friendly sharps disposed system, for use throughout the Trust. This system will be implemented in 2015-16.

9.4 Linen Contract

The Trust changed its linen provider in 2015-16. This contract is monitored by the Trust Facilities Manager.

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.

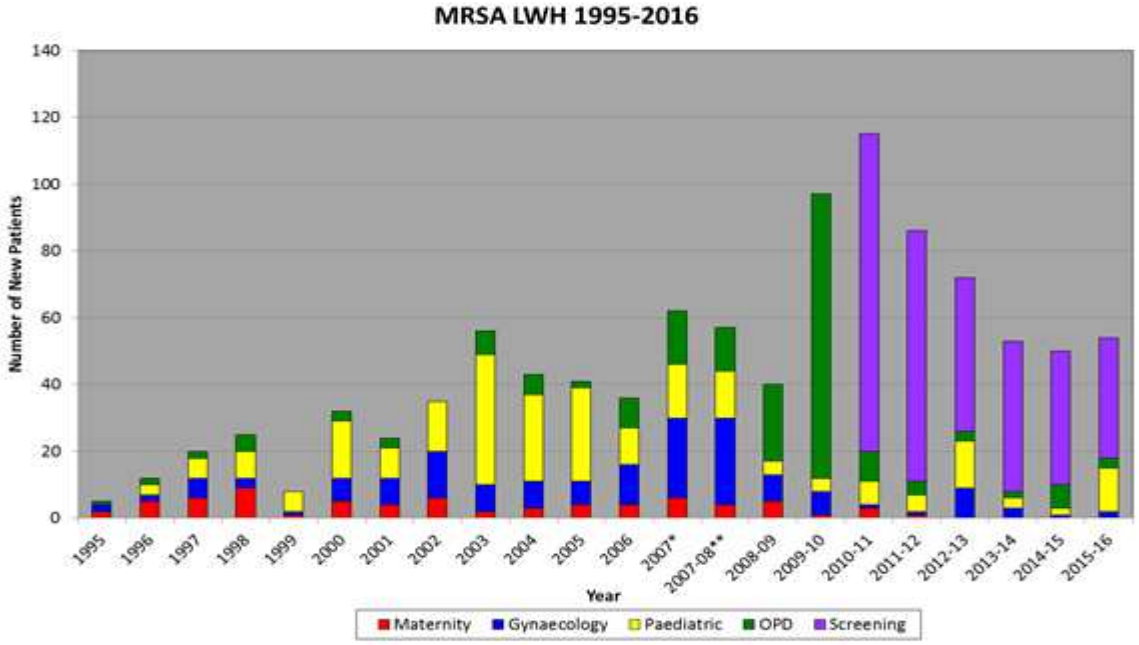
Surveillance of bacteraemias (blood stream infections) for both national mandatory and in house schemes is also undertaken.

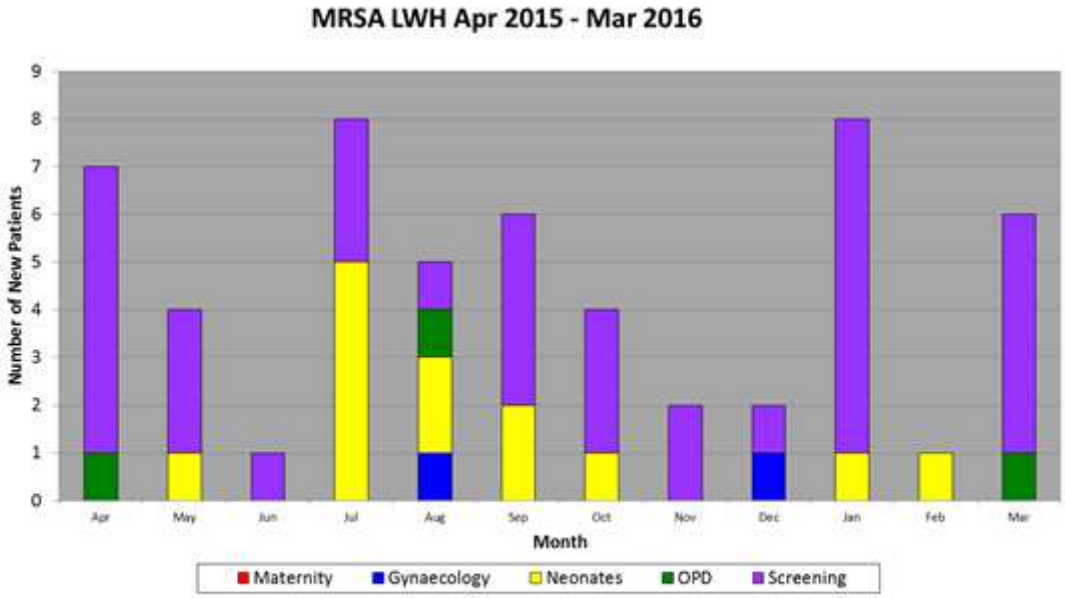
The need for surveillance of surgical wound infections has long been recognised as an important quality marker by the IPCT and Trust. The surveillance system for surgical site infections, restarted in 2014 by the IPCT and has been extended this year.

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 2015-16 was 54, primarily identified from screening samples. The charts below show the number of new patients identified with MRSA per year for the period 1995 – 2016 and the number per month for the current reporting year by provenance.





As outlin

ed in previous Annual Reports the Government have 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 as part of the infection prevention and control policy which outlines actions for patients found to be positive on screening. The percentage of patients screened in line with this policy is detailed in the table below.

Screening of Elective and Emergency Admission 2015-16												
Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
% of eligible patients screened	100	100	100	100	100	100	100	100	100	100	100	100

In the period April 2015 to March 2016 9276 adult patients were screened for MRSA carriage. 42 (0.45%) were positive this represents a continued decline in prevalence over the past 5 years.
Six adult patients were identified with MRSA on diagnostic samples from clinical sites. Three were from wounds thought to be infected, and one urine sample, one HVS and one mouth swab were also positive.
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 patients in the reported year.

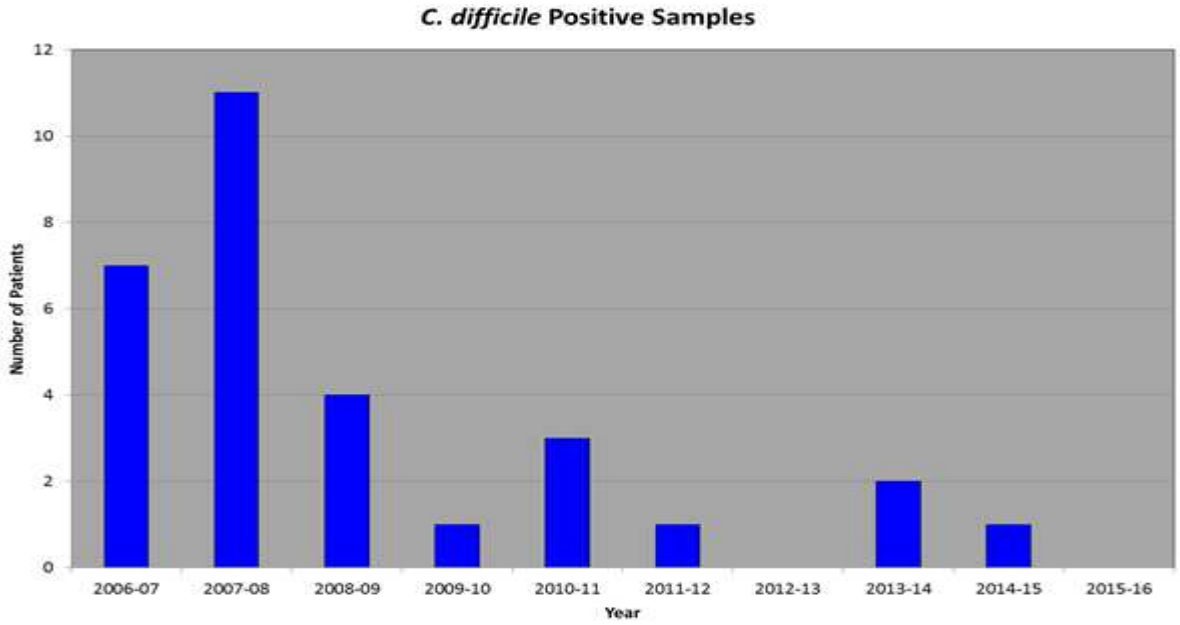
There was one neonatal patient in the Trust identified with MRSA bacteraemia in the reported year. A full multidisciplinary review of care was undertaken and it was identified that the infection was secondary to a line infection.

During the period of this report 13 babies were identified with MRSA. 10 occurred over the summer period including one baby with MRSA bacteraemia (see section 11). Three were identified on admission swabs suggesting maternal acquisition.

Updated guidance on screening has been released from DoH in 2015 – 16. This allows deviation from universal screening where local risk assessment identifies that this can safely be achieved. The IPCT are working with directorates to identify patient groups which do not benefit from MRSA screens.

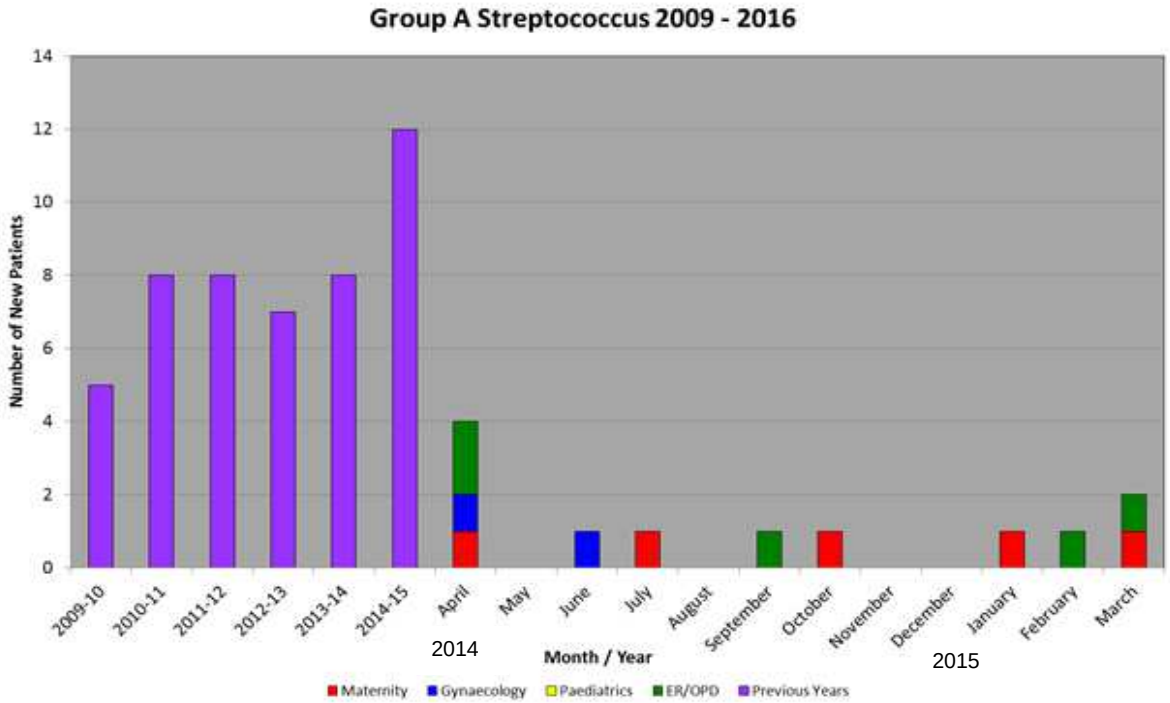
10.1.2 Clostridium difficile

C*lostridium difficile* is the commonest cause of healthcare acquired diarrhoea in the UK. 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 small (see chart below). During the period April 2015 to March 2016 there were no patients identified with *C.difficile* infection in the Trust.
The prescribed trajectory for this disease for the Trust in 2015-16 was one.



10.1.3 Group A Streptococcus

In the period April 2015 to March 2016, 12 patients were identified with Group A streptococcus as detailed below.



Five of the 12 patients with Group A streptococcal infection were maternity patients (including two from the infant feeding service) Seven were Gynaecology patients, 5 of which presented to the Gynaecology service via the emergency room, the two remaining were ward patients. There was no identified transmission of Group A streptococci in the Trust.

As highlighted in previous annual reports Group A streptococcal infection is being increasingly recognised as a cause of mortality and morbidity in maternity patients. There were no episodes of Group A streptococcal bacteraemia or invasive infection (iGAS), one

patient had tonsillitis, two patients had breast infection and one had infection of a surgical wound.
Isolates were submitted to the national reference laboratory for typing, no epidemiological links were identified.

10.1.4 Glycopeptide Resistant Enterococcus(GRE)

There were no GRE bacteraemia's reported.

10.1.5 Carbapenemase Producing Enterobacteriaceae

The Trust continues to screen patients in high-risk groups (i.e. Patients directly transferred from other Trusts or Patients who have been in-patients in high-risk hospitals within the last 12 months). Meditech facilitates the risk assessment. CPE screening compliance is audited weekly by the IPCT
Overall compliance April 2015 March 2016 = 87%

Month	Screening Compliance
Apr 15- June 15	82%
July 15– Sept 15-	90%
Oct 15 – Dec 15	93%
Jan 16 – Mar 16	84%

The main theme of non-compliance is 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. IPCT staff have included CPE Screening in an Infection Control update on Maternity Obstetric Training days.

There have been no confirmed cases of CPE, colonisation or infection to date.

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 D

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 (unchanged from previous year) and with *S.aureus* was 5 (increased from 4 the previous year).

1.1 Bacteraemia Surveillance

1.1.1 Neonatal Bacteraemia

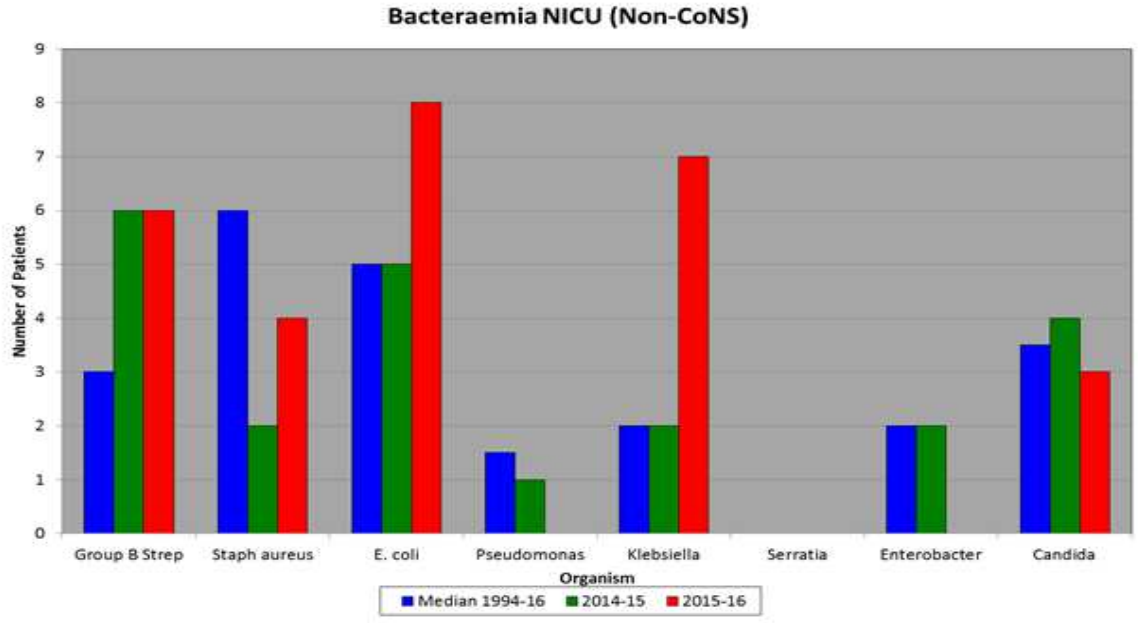
As always the commonest organism responsible for neonatal sepsis was, the common skin organism, coagulase-negative staphylococcus (CoNS). In the period April 2015 – March 2016 15 babies (9 in 2013-14 and 13 in 2012-13) had infections with Gram-negative organisms, 5 of these infections (all *E coli)* occurred in the first 5 days of life and were congenitally acquired, one *E.coli* occurred on day 5 and most probably represented a late presentation of congenital infection. The remaining 9 Gram-negative infections occurred after 7 days (2 *E.coli*. 7 *Klebsiella sp)*

There were 10 episodes of infection with significant Gram-positive pathogens; in 7 cases (6 Group B streptococcus and 1 *S. aureus)* the infection was congenitally acquired. The remaining 3 (1 MRSA & 2 *S. aureus*) occurred after the first week of life.

There were 3 babies in 2015-16 who developed invasive infection with Candida (one congenital).

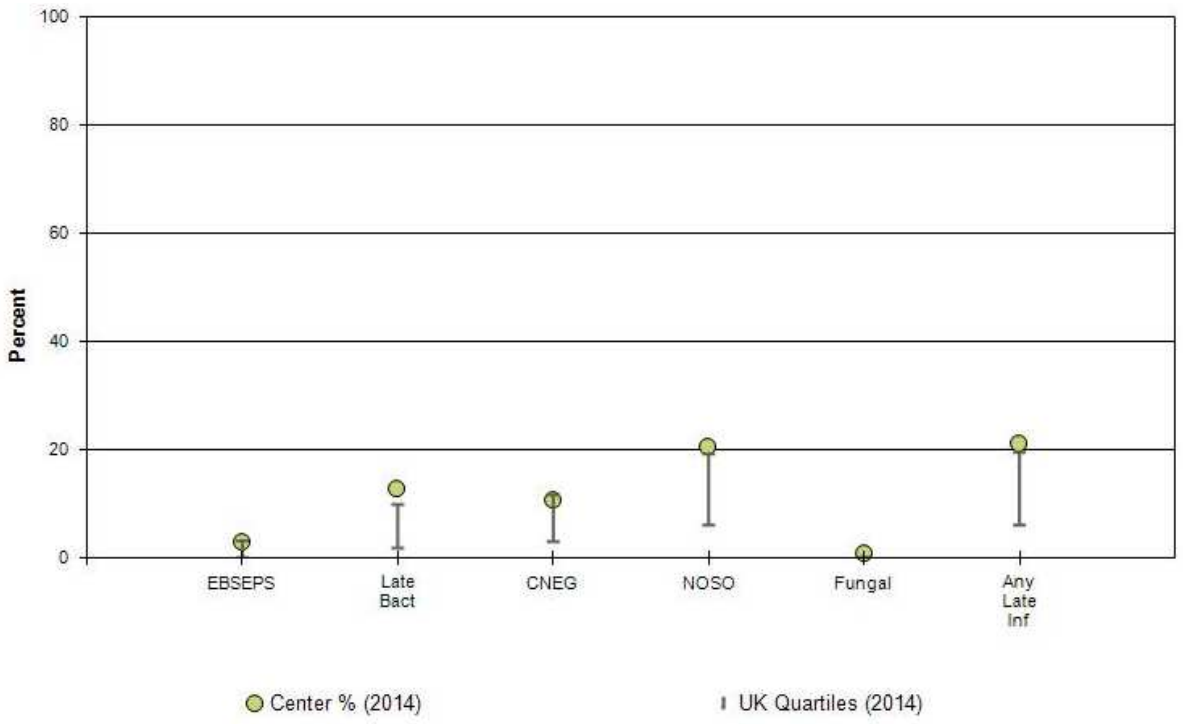
All non coagulase-negative staphylococcal sepsis on the unit is subject to a review to determine the focus of infection, precipitating causes and the appropriateness of care.
The bar chart below describes the pattern of 'definite-pathogen' neonatal bacteraemia in the current year in comparison to last 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) of significance this year is an increase in both klebsiella and *S. aureus* infections. No common link was established between the patients with these infections. There have been no *P. aeruginosa* bacteraemias in the last 4 reported years.

13 babies this year had congenital infection (9 in 2014-15 and 7 in 2013-14) although it was part of the IPCT work plan to conduct multidisciplinary reviews of care of babies born with infection this has not been possible to arrange due to diary conflicts of the various parties required. Nonetheless this remains a priority for the organisation.



The Neonatal Unit continues to monitor standardised infection rates. The most recent results (2014) of the benchmarking exercise against other units in the Vermont Oxford network demonstrate a sustained improvement in the Trust's position.

VON 2014



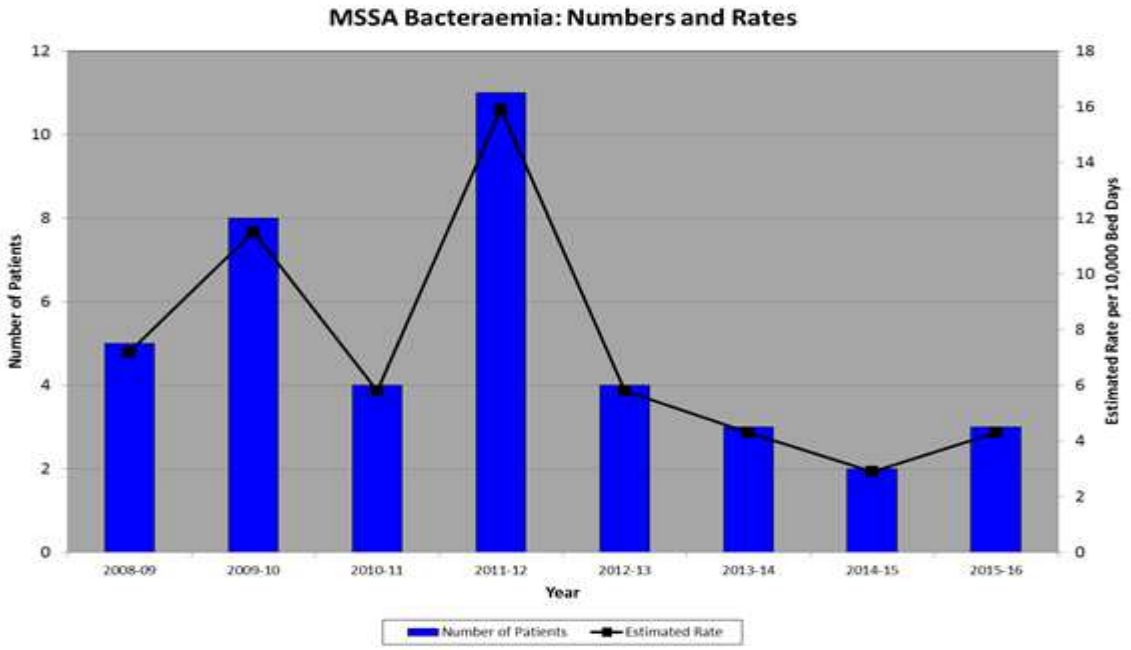
1.1.2 Mandatory Bacteraemia Surveillance

The IPCT has continued to submit infection data to the national mandatory bacteraemia surveillance scheme (instituted April 2001). All positive blood cultures are reported monthly to PHE. National data are collected on *S. aureus*, (MSSA and MRSA) bacteraemia.

In the period April 2015 to March 2016 there was one patient with MRSA bacteraemia (having had zero cases for the preceding 5 years). The Trust's given target for the period was zero.

Although data for Methicillin susceptible *S. aureus* (MSSA) have been collected since 2001 this was not mandatory nor were the data published until January 2011. There have been 4 episodes of MSSA bacteraemia (3 in neonates see section 10.2.1) in the period 2015-16. The adult patient with MSSA bacteraemia was admitted with the infection from the community. Unpublished Trust attributable MSSA data for LWFT for the years 2008-2016 are shown below.

Although there are no externally set targets for MSSA bacteraemia the Trust target is zero Trust attributable cases in adult patients. There have been no Trust attributable MSSA bacteraemia cases in adult patients in the last 2 years.



E.coli bacteraemia has also been made mandatorily notifiable although targets have not yet been established. In 2015 – 16 the Trust reported 8 *E.coli* bacteraemias in neonates (6 categorised as congenital). In the same period there were 10 *E.coli* bacteraemias in adult patients (10 in 2014-15). The IPCT expect clinical areas to undertake a 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; 28 patients were identified with positive blood cultures from 290 cultures submitted (10%). 7 (25% of positives, 2% of total) of these were contaminated with skin organisms. Of 21 significant bacteraemias 2 were considered to be possibly healthcare associated. Details are provided in Appendix E

10.2 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 to include all abdominal procedures. In April 2015 wound surveillance extended to include groin node dissections. 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.

10.2.1 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 12-month period (April 2015 – March 2016) 2,300 Caesarean Sections were undertaken (1063 elective, 1237 emergency). 89 patients with potential SSI were reviewed

with 47 fulfilling the criteria for SSI. Of the 47 infections, 12 were in elective and 35 in emergency cases (1.1% and 2.8% respectively).

10.2.2 Gynaecology

2,352 abdominal procedures were undertaken in the 12-month period in Gynaecology / Gynae oncology with 566 procedures being open and 1454 being laparoscopic. The IPCT/TVN reviewed 46 patients with potential infections. 20 SSI were identified, 10 in open and 10 in the laparoscopic category (1.8% and 0.7% respectively).

Groin dissections – 23 groin dissections were undertaken. The TVN reviewed 11 potential SSI's. 8 SSI 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 MAU post-natal attendees and for community midwife patient discharges.

The number of infections identified so far is small making the identification of common themes difficult. The surveillance will continue and potential themes will be identified in future report.

10.2.3 Perineal Surveillance

According to the IPCT forward plan surveillance of perineal infections should have commenced in January 2015. There was slippage in this date and this surveillance commenced in April 2016

11 Outbreaks of Infection

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

11.1 MRSA Colonisation NICU

During the summer months a cluster of patients colonised with the same strain of MRSA was identified on the neonatal Unit. 8 Babies were identified and one developed infection. (A summary is provided in Appendix C).

12 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.

13 Infection Control Team Work Plan

13.1 Infection Control Team Work Plan 2015-16

Work Plan	Completion Date	
Training		
• **Continue all Trust mandatory & induction training**	Ongoing	
• **Continue to support link staff personal development**	Ongoing	
• **Implement the bespoke electronic training module**	July 2015	Completed and implemented January 2016 section 6.1
Audit		
• **Continue with ICNA/IPS Audit Programme**	Ongoing	Section 8.1
• **Utilise NUMIS to monitor audit data and compliance:-**		
- **Environmental audits**	June 2015	Completed
- **Saving Lives Audits**	August 2015	Completed

Surveillance • **Continue 'Alert Organism' surveillance focused on resistant pathogens** • **Continue to monitor cases mandatorily reportable infections** • **Expand wound surveillance for surgical site infection to include:-** - **Groin dissection infections** - **A more formal process of post-discharge surveillance** - **Perineal surgical site infections** • **Implement actions identified through RCA of bacteremia's and C.difficile infections:-** - **Congenital**	Ongoing Ongoing April 2015 October 2015 January 2016 Ongoing April 2015	 Commenced section 10.3 Commenced Commenced April 2016 Not commenced section 10.2.1
NICE • **Monitor Saving Lives and additional IPCT audits of cannula care** • **Monitor Normathermia being maintained via Theatre audit** • **Monitor Dress code and human traffic through put in Theatre via audit** • **Sign up to safety sepsis bundle**	Ongoing July 2015	Section 8.2 Completed July 2015 Completed July 2015 Commenced
Health Act • **Monitor through IPCC Trust response to actions outlined in the Health Care Act Gap Analysis**	Ongoing	Section 5

13.2 Infection Control Team Work Plan 2016 - 17

Work Plan	Completion Date	Comments
Training • **Continue all Trust mandatory & induction training** • **Continue to support link staff personal development**		
Audit • **Continue with ICNA/IPS Audit Programme** • **Continue Saving Lives audits including cannulation** • **Continue monitoring of pool cleaning**		
Surveillance • **Continue 'Alert Organism' surveillance focused on resistant pathogens** • **Continue to monitor cases mandatorily reportable infections** • **Expand wound surveillance for surgical site infection to include:-** - **Perineal surgical site infections** • **Implement actions identified through RCA of bacteremia's and C.difficile infections:-** • **Commence RCA of congenital infections**	April 2016 April 2016	
Health Act • **Review compliance and evidence**		

NICE • **Review compliance and evidence for QS 61** • **Review Compliance and evidence for QS 113**	April 2016 January 2017	

14 Appendices

14.1 Appendix A - Summary of Health Care Act Partial Non-Compliance

Criterion	Additional Quality Elements	Baseline Assurance Jul 15	Update Sept 15	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

14.2 Appendix B - Clinical Practice Audits NUMIS – Infection Prevention and Control audits

Clinical practice

All clinical practice audits (hand hygiene, sharps, PPE and 5 moments of hany hygiene audits) are entered locally onto the NUMIS system;this allows a real-time oversight of results.

Audits completed between , April 2016-March 2016 have been collated and the overall compliance for clinical practice audits have been updadted onto NUMIS.

Personal Protective Equipment	
Number of audits Due	42
Number of audits returned	41
Overall Compliance	98%
Completed audits scoring: <84% 85-94% 95-100%	0 (0 scores due to no return) 5 36
Themes of non-compliance :	Staff not always wearing eye protection

PPE Department Summary

	Apr 15	May 15	Jun 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec15	Jan 16	Feb 16	Mar 16
TRUST OVERALL							99.2					95.27
ANTENATAL CLINIC AINTREE							100					100
ANTENATAL CLINIC LWH							98.66					100
BEDFORD UNIT							100					100
CLINICAL GENETICS							100					100
DELIVERY SUITE							93.33					93.33
EMERGENCY ROOM							100					100
FETAL CENTRE							100					100
GYNAE OUTPATIENTS LWH							100					100
GYNAE OUTPATIENTS AINTREE							100					100
GYNAE THEATRES							100					93.33
GYNAE WARD / HDU							100					100
HEWITT CENTRE							100					100
IMAGING							100					0
MATERNITY ASSESSMENT UNIT							100					100
MATERNITY BASE							100					100
MATERNITY THEATRES							100					93.33
MIDWIFERY LED UNIT / JEFFCOATE WARD							100					100
NEONATAL UNIT							100					100
PHYSIOTHERAPY							100					100
RMU KNUTSFORD							90					100
ROSEMARY WARD / CATHARINE SUITE							100					100

Sharps	
Number of audits due	40
Number of audits returned	39
Overall Compliance	98%
Completed audits scoring:<84% 85-94% 95-100%	0 (0 scores due to no return) 8 31
Themes of non-compliance:	Temporary closing of sharps bin not always used

SHARPS Department Summary

	Apr 15	May 15	Jun 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec15	Jan 16	Feb 16	Mar 16
TRUST OVERALL			98.36				93.67					
ANTENATAL CLINIC AINTREE			100				100					
ANTENATAL CLINIC LWH			100				100					
BEDFORD UNIT			100				100					
CLINICAL GENETICS			90				95					
DELIVERY SUITE			100				96.15					
EMERGENCY ROOM			100				100					
FETAL CENTRE			100				100					
GYNAE OUTPATIENTS LWH			100				88					
GYNAE OUTPATIENTS AINTREE			100				100					
GYNAE WARD / HDU			100				96.15					
GYNAE THEATRES			100				90.90					
HEWITT CENTRE			100				96					
MATERNITY ASSESSMENT UNIT			100				100					
MATERNITY BASE			84.61				88.46					
MATERNITY THEATRES			100				90.90					
MIDWIFERY LED UNIT / JEFFCOATE WARD			96				100					
NEONATAL UNIT			95.65				90.47					
PHYSIOTHERAPY			100				100					
RMU KNUTSFORD			86.95				100					
ROSEMARY WARD / CATHARINE SUITE			100				0					

Hand Hygiene	
Number of audits due	44
Number of audits returned	43
Overall Compliance	98%
Completed audits scoring:<84% 85-94% 95-100%	1 (0 scores due to no return) 2 40
Themes of non-compliance:	All hand was sinks not free from inappropriate items. No hand cream.

Hand Hygiene Department Summary

	Apr 15	May 15	Jun 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec15	Jan 16	Feb 16	Mar 16
TRUST OVERALL							98.73					95.11
ANTENATAL CLINIC AINTREE							100					100
ANTENATAL CLINIC LWH							100					100
BEDFORD UNIT							100					100
CLINICAL GENETICS							97.14					100
DELIVERY SUITE							95					97.5
EMERGENCY ROOM							100					100
FETAL CENTRE							100					100
GYNAE OUTPATIENTS LWH							100					100
GYNAE OUTPATIENTS AINTREE							100					100
GYNAE THEATRES							100					83.33
GYNAE WARD / HDU							100					95
IMAGING							97.05					94.59
HEWITT CENTRE							100					100
MATERNITY THEATRES							100					100
MATERNITY ASSESEMENT UNIT							100					100
MATERNITY BASE							94.87					97.43
MIDWIFERY LED UNIT / JEFFCOATE WARD							92.30					100
NEONATAL UNIT							97.14					98.26
PHARMACY							100					100
PHYSIOTHERAPY							100					100
RMU KNUTSFORD							94.11					94.87
ROSEMARY WARD / CATHARINE SUITE							100					0

5 Moments (Monthly)	
Number of Audits Due	240
Number of Audits returned Overall Compliance	225 93%
Completed audits scoring:<84% 85-94% 95-100%	4 (0 scores due to no return) 20 201
Themes of non-compliance	Hand hygiene after low risk procedures.

5 Moments Department Summary

	Apr 15	May 15	Jun 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec16	Jan 16	Feb 16	Mar 16
TRUST OVERALL	98.41	99.50	84.12	97.76	90.20	97.60	95.04	91.46	88.78	93.06	89.65	90
ANTENATAL CLINIC AINTREE	100	100	0	100	100	100	100	100	100	100	100	100
ANTENATAL CLINIC LWH	100	100	0	100	100	100	100	100	100	0	0	100
BEDFORD UNIT	100	100	100	100	100	100	100	0	100	100	100	0
CLINICAL GENETICS	100	100	100	100	100	100	0	100	100	100	100	100
DELIVERY SUITE	100	100	100	100	100	100	100	100	90	100	100	100
EMERGENCY ROOM	100	100	100	90	100	100	100	100	100	100	100	100
FETAL CENTRE	100	100	100	100	100	100	100	100	100	100	0	100
GYNAE OUTPATIENTS AINTREE	100	100	100	100	0	100	100	100	100	100	100	100
GYNAE OUTPATIENTS LWH	100	100	100	100	100	100	100	100	90	100	100	90
GYNAE THEATRES	90	100	100	100	100	100	100	100	100	100	100	100
GYNAE WARD / HDU	100	100	0	80	100	100	100	100	100	94.44	100	100
HEWITT CENTRE	100	100	100	100	100	100	100	100	100	100	100	90
IMAGING	100	100	100	100	90.90	100	100	0	100	90	100	100
MATERNITY ASSESSMENT UNIT	100	100	100	100	100	100	100	100	100	100	100	100
MATERNITY BASE	100	100	100	100	100	100	100	100	100	100	100	100
MATERNITY THEATRES	100	100	100	100	100	100	100	100	100	90	100	100
MIDWIFERY LED UNIT / JEFFCOATE WARD	100	100	100	100	100	70	90	100	0	100	100	100
NEONATAL UNIT	100	100	100	100	100	90	100	100	90	100	100	100
ROSEMARY WARD/CATHARINE SUITE	80	90	100	90	0	100	100	100	0	100	100	0
RMU KNUTSFORD	100	100	100	87.5	70	90	100	90	90	90	90	100

Actions

All audits are reviewed by the IPCT. Audits scoring less than 100% are to be actioned locally by clinical areas, the audit is only closed by IPCT once measures are in place or are audit has taken place.

Environmental Audits

The Environmental Audits were added to NUMIS in June 2015. There have been a number of minor updates to the NUMIS system since then;with an update to allow IPCT to forward a PDF copy of the environmental audit and actions to relevant staff e.g. Ward managers, Estates manager and G4S managers.

Environmental Audits	
Number of audits due	142
Number of audits returned	142
Audits scoring: <84% 85-94% 95-100%	19 51 72
Mean score % Ward environment Kitchen Linen Dept.Waste Patient Equipment	 89% 88% 93% 91% 96%
Themes of non-compliance:	High level dust Low level dust Items on floor Temporary closure on sharps boxes not always used correctly

14.3 Appendix C – MRSA Outbreak NICU

Summary
An outbreak of MRSA colonisation was identified in 2015-2016 involving 8 cases on the Neonatal Unit; one colonised baby subsequently became bacteraemic.

Key Timeline Points
13th July 2015 - The outbreak was recognised. Three babies identified with colonisation. A number of control measures were put in place.
28th July 2015 – 4th baby identified with colonisation. Cohort area established.
13th August - 5th baby identified with colonisation.

Control was achieved and from the end of August 2015 there was only one baby who remained colonised on the unit.

20th September 2015 -Unfortunately further spread occurred towards the end of September. Three additional babies had been identified with colonisation. Further enhanced surveillance was implemented along with additional environmental cleaning and monitoring.
1st October 2015 - Despite the actions put in place one of the newly colonised babies developed an MRSA bacteraemia. The baby was treated promptly with good effect and a PIR was undertaken.
22nd October 2015 - Two colonised babies remained on the unit and were nursed in cohort areas by dedicated nurses. Enhanced surveillance and enhanced use of personal protective equipment continued. Eye treatment room utilised as single barrier nurse facility.
8th December 2015 – Enhanced surveillance and additional barrier nursing discontinued. Final baby with MRSA discharged.

Actions
- The outbreak group met regularly to ensure agreed actions were implemented.
- Public Health England were updated frequently by the DIPC with all developments.
- Number of cots on the unit was reduced by 3
- Enhanced surveillance/screening implemented.
- Enhanced use of personal protective equipment.
- Barrier/cohort nursing implemented immediately.

Conclusion
- The outcome of bacteraemia PIR identified that infection was potentially preventable and that the source of the infection was likely to be line related.
- Audit data of compliance with infection prevention policies demonstrated good compliance and training records were up to date.

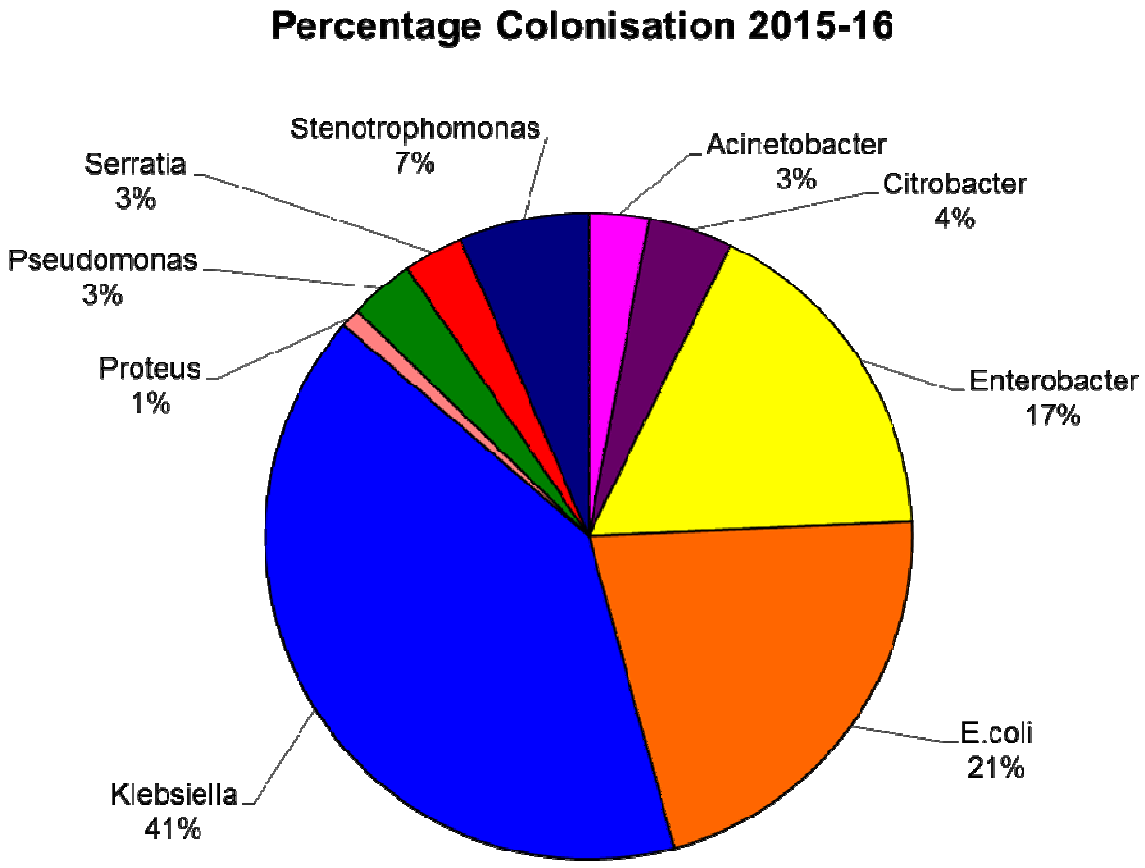
- Reviews of occupancy and staffing identified both high occupancy and acuity as potential contributing factors in the outbreak

Recommendations

- Plans for both increased staffing and modification to the estate to bring the unit in line with recommendations have been shared with National Commissioners.
- A review from CCG and PHE, report awaited.

14.4 Appendix D - Neonatal Colonisation Surveillance

	2005	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012-13	2013/14	2014/15	2015-16
Acinetobacter	1	1	1	1	1	2	1	3	3	6	3
Citrobacter	8	3	3	2	4	2	6	6	4	3	4
Enterobacter	17	19	15	12	16	15	21	21	17	14	17
E.coli	27	23	26	29	30	30	23	20	30	27	21
Klebsiella	34	29	34	32	33	31	38	32	34	39	41
Proteus	2	4	1	3	2	4	0	3	1	1	1
Pseudomonas	9	16	14	18	10	9	6	11	5	4	3
Serratia	1	3	4	1	3	4	2	2	2	1	3
Stenotrophomonas	1	2	2	2	1	3	3	2	4	4	7



14.5 Appendix E - Adult Bacteraemia Surveillance 2015 - 16

28 Positive blood cultures

7 Coagulase-negative staphylococcus or other contaminant.

21 Pathogens

Directorate	Organism	Potentially Hospital Associated	Likely Source
G*ynaecology*	E.coli	No	UTI
	E.coli	No	PID
	E.coli	No	Pelvis
	E.coli	No	UTI
	Klebsiella sp	Yes	Perforation
	S.aureus	No	Nephrostomy
	Bacteroides sp	No	Pelvis
Maternity	*E.coli*	No	Chorioamnionitis
	E.coli	Yes*	Pelvis
	E.coli	No	UTI
	E.coli	No	UTI
	E.coli	No	Chorioamnionitis
	E.coli	No	UTI
	H. Influenzae	No	Pelvis
	S.anginosus	No	Pelvis
	S.pneumoniae	No	Pneumonia
	K.pneumoniae	No	UTI
	Group B streptococcus	No	Peripartum
	Group B streptococcus	No	Peripartum
	Group B streptococcus	No	Peripartum
	Group B streptococcus	No	Pelvis

*RCA not undertaken