GREAT ORMOND STREET HOSPITAL FOR CHILDREN NHS FOUNDATION TRUST

INFECTION PREVENTION AND CONTROL ANNUAL REPORT

April 16 - March 17 (Part A)

and

ACTION PLAN April 17 - March 18

(Part B)

Compiled by: Dr John Hartley - Director of Infection Prevention and Control & Helen Dunn- Lead Nurse Infection Prevention Control

(Format - Modified from the template recommended in Health and Social Care Act 2008)

GREAT ORMOND STREET HOSPITAL FOR CHILDREN NHS FOUNDATION TRUST
INFECTION PREVENTION AND CONTROL ANNUAL REPORT
April 16 - March 17

AUTHOR: Dr John Hartley - Director of Infection Prevention and Control

Part A Executive summary

1 Introduction

Great Ormond Street Hospital for Children NHS Trust recognises the obligation placed upon it by the Health Act 2006, (updated 2015) to comply with the Code of Practice for health and adult social care on the prevention and control of infections and related guidance.
The Trust supports the principle that infections should be prevented wherever possible or, where this is not possible, minimised to an irreducible level and that effective systematic arrangements for the surveillance, prevention and control of infection are provided within the Trust.

2) Description of infection control arrangements

Director of Infection Prevention and Control (DIPC) and Infection Control Doctor
Dr John Hartley, Consultant Microbiologist.
Executive lead for IPC - Chief Nurse, Juliette Greenwood.
Lead Nurse for Infection Prevention and Control – 1 wte, Helen Dunn
Deputy Lead Nurse in IP&C 1 wte; IPC nurse 1;
Clinical Scientist in IP&C 1wte (currently 0.4 in place as scientist on NIHR fellowship 0.6)
Other 2 consultant microbiologists – 3 PAs
IPC Administrative support and Data Management **–** 0.6 wte filled May 2017
The CNSs for Tuberculosis and ID lead on Tuberculosis related issues;
ID consultants contribute to the out of hours advice
Antibiotic pharmacist – 1 day of time, post within pharmacy
Quality Improvement team – dashboard development and display

Divisional Responsibility

Under the terms of the Trust IPC Strategy set out previously each Division (CW, JMB and IPP) has a local Divisional group to drive local planning and implementation of IPC actions.

2:3 The Infection Prevention and Control Committee (IPCC) meet every two months in 2016, increased to monthly in 2017. Committee reports to Patient Safety and Outcome Committee.

2:4 Reporting lines

The DIPC is accountable to the CEO and reports to the Board.
The DIPC and Lead nurse for IPC meet bi-weekly with Executive lead.
A report of all significant IPC issues is presented weekly to the Safety Team.
Significant IPC issues are Datix'd, collated and passed through reporting line.
An annual plan is written and included in each annual report.

2:5 Antimicrobial stewardship

Antimicrobial Stewardship – in 2016/17 stewardship focused on review and provision of Antimicrobial Policies (Policy group), and audit of consumption and antibiotic review (in line

with the 16/17 CQUIN). In Oct 2016 Chair of the Committee passed from DIPC to ID Consultant (Dr A Bamford). A business case is being developed for additional staff time to enable expansion of AMS activity.

Surviving Sepsis – the Trust established a dedicated improvement project team to lead on implementation of the Surviving Sepsis / Sepsis 6 initiative.

2:7 **IPC advice and On-call service*.*** Continuous advice service provided by IPC Team, and Microbiology and Infectious Disease consultants out of hours.

3:3 Outbreak Reports
Contemporaneous outbreak reports are written by the IPCT and fed back to clinicians and managers and disseminated through the IPC Committee.

4 Budget allocation to IP&C activities

4:1 Staff
Staff budget in Department of Microbiology, Virology and IPC, Laboratory Medicine.
Divisions fund own audit and surveillance staff.
4:2 Support
IT Support and hardware: is supplied within the departmental budget.
There is no separate IPC budget, but emergency outbreak funding is provided by the Trust.

5 HCAI Statistics *2016/17*

5:1 **MRSA bacteraemia =** 3 **episodes**
5:2 MSSA bacteraemia = 36 RCAs showed line infection is the most common cause.
5:3 E. coli bacteraemias = 21 episodes
5:4 ***Glycopeptide resistant enterococcal bacteraemia (GRE)*** *= 2*
5:5 Clostridium difficile **associated disease** = 4 reported; 0 lapse in care.
5:7 GOS acquired Central Venous Catheter related bacteraemia = 1.7/1000 line days. This equates to 87 episodes, and is a non-statistically significant Increase from last year's rate of 1.4. We are implementing additional actions to try to reduce further.
5:8 Other bacteraemia episodes and antimicrobial resistance – 660 positive blood cultures, with 777 isolates, from just over 400 clinical episodes.
Review of the antibiotic resistance of the most clinically significant gram negative infection (82 isolates) is the lowest we have experienced.

5:10 Surgical Site Infection Surveillance and Prevention

J M Barrie Surgery (except Neurosurgery) – continuous active surveillance programme. National comparison suggested we were an outlier for spinal surgery, but it is a complex case mix. Active care plan in place. Implementation of One together programme to improve standardisation of pre-, intra- and post-operative care bundle.
J M Barrie Neurosurgery – a continuous surveillance programme VPS infection is maintained at a low rate.
Cardiothoracic – no annual surveillance for 16/17. Continuous surveillance has re-commenced.

5:14 Viral infections detected while at hospital

Children, parents and staff frequently enter the Trust incubating these common infections and act as sources for localised outbreaks. GOSH Trust outbreak and prevention policy includes isolation of children with suspected viral respiratory infection or gastro-enteritis with emphasis on recognition and early intervention. There was an increase in admitted and potentially acquired in hospital infection with major outbreaks requiring ward closure for control of enteric viruses.

Respiratory viral infections detected:			
	Total	Community onset	Hospital onset
Total in 2013/14	252	172	80
Total in 2014/15	399	302	97
Total in 2015/16	333	230	103
Total in 2016/17	374	262	112
Enteric viral infections detected			
Total in 2013/14	360	229	131
Total in 2014/15	352	199	153
Total in 2015/16	351	212	139
Total in 2016/17	499	281	218

5:11 MRSA Admission Screening and rates

We continue with a universal admission screening policy, with daily report to wards to facilitate compliance.

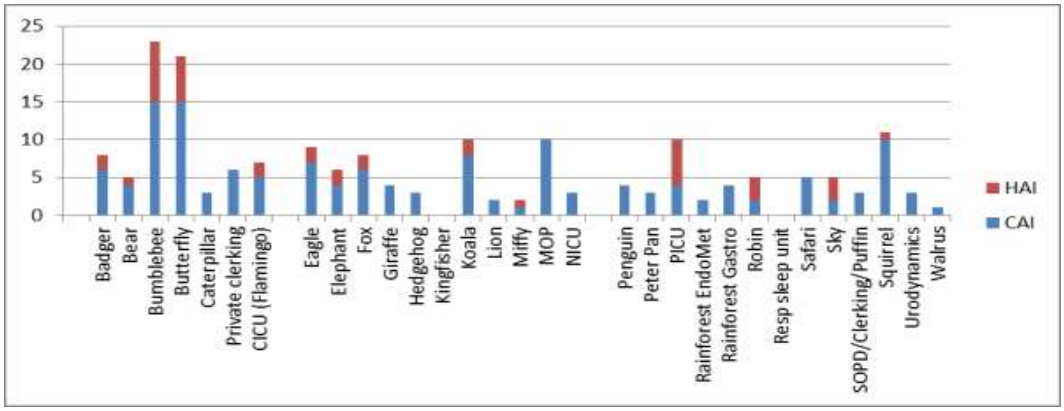
MRSA cases of colonisation/carriage at GOSH

In 2016/17 there were 234 children with first detections, 18 probably or possibly acquired in the hospital. Each case is investigated. There were no outbreaks.

5:12 Multiple resistant 'gram negative' (MDRGN) organisms screening and rates

Universal admission faecal screening is advocated for standard multidrug resistant isolates and carbapenem resistance.
MDR-GN carriage/colonisation - In 2016/17 testing revealed 186 first detections same as previous years), with 41possible cross infection. These are found across the Trust.

Bar chart showing location of children colonised on admission or subsequently found to be colonised with multiple resistant gram negative bacteria by ward in 2016/17



5.17b Vancomycin resistant enterococci – an increase in carriage has been detected, predominantly associated with sporadic out of hospital acquisition. Surveillance is ongoing.

5:18 Serious Untoward incidents and complaints involving Infection, major outbreaks and threats

Serious Incidents: In the 2016/17 financial year there were no SIs declared involving IPC.As listed under 5.15 Viral Gastroenteritis, ward closures were necessary in the control of 4 outbreaks this year.

6 Hand Hygiene, CVC on going care guidelines

The emphasis on carrying out hand hygiene at the 'point of care' through the '5 moments' campaign has been adopted across the organisation; with regular audit of this and CVC ongoing care. See section 9.

The drop in audit completion continued in 2016/17 and the Divisions have elected to modify the process through focused audit day (JMB) or matron audit (CW).

7) Facilities

Environment

A new Soft FM Services Contract was awarded to the successful bidder Outsourced Client Solutions (OCS). The contract commenced 1 August 2016 with an initial duration until 31 July 2021. Completion of work plans and schedules was slow. Bin and catering reviews are underway.

Decontamination

The Sterile Services provision of service for GOSH will move to a new provider,Steris IMS. from 1 November 2017.
Implementation of NICE IPG 196 for reduction of risk of transmission of Creutzfeldt-Jacob disease (CJD) vie interventional procedures is nearly complete.

8. Estates

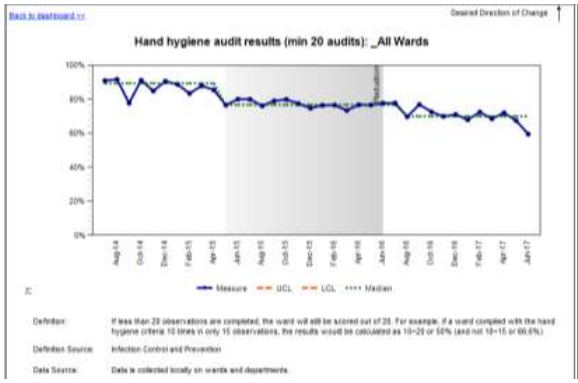
The extensive programme of verification of specialist ventilation was followed in theatres and most areas, but was not able to proceed to schedule in clinical ward areas. This has been prioritised in 2017/18 with ward closures underway to accommodate annual requirements. Water Safety Management Group continues to develop and manage risk associated with water. There is an expanded programme to control risk from *Pseudomonas aeruginosa*. Low temperature hot water system in MSCB operates satisfactorily.
Risk from heater cooler units has been identified as low risk but on going pending manufacture of new equipment (nearly complete).

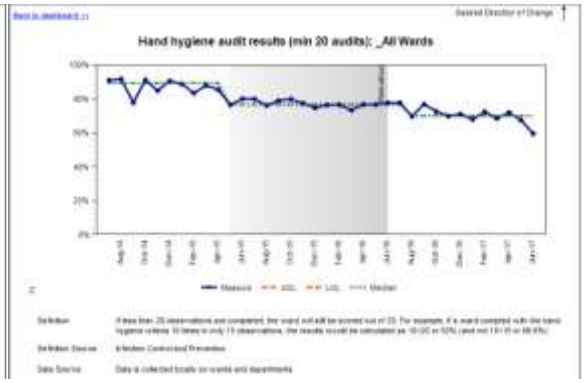
9 Trust wide audit

A Trust annual IPC audit programme is followed. Individual ward and 'All Trust' compliance is published monthly on the dashboards and reviewed by Divisional and Nursing boards.

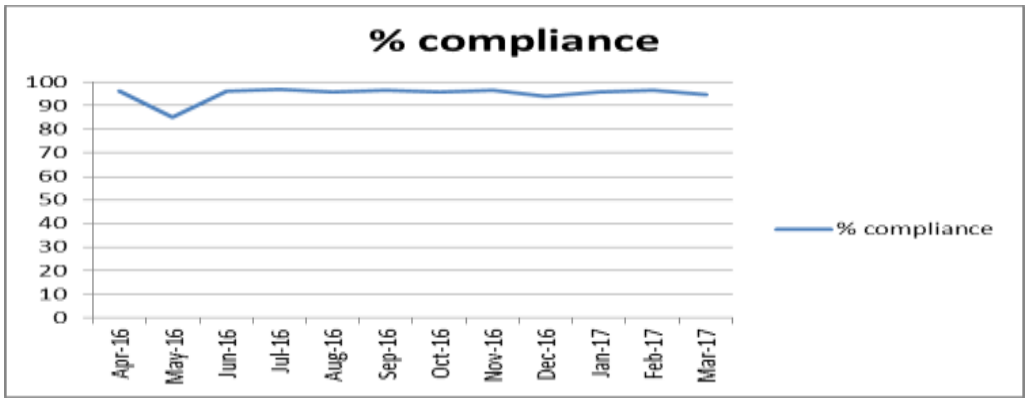
Hand Hygiene and CVL care bundle compliance

Audit completion compliance rates continued to decreased in hand hygiene and CVL bundle compliance, when scoring negative for incompleted audits as shown in graphs below:





Absolute number hand hygiene audit compliance for ward based audit



Developments: Because of the differences between the audit processes and recognition of an audit fatigue, the IPC and Divisional teams have considered these audit reports and elected to modify the process. The J M Barrie Division will be championing a more intense audit day with action plan while C West is asking the senior nurses to undertake the audit themselves.

9:5 Antibiotic prescribing and audit; AMS; Sepsis

Undertook CQUIN 4: antimicrobial resistance and stewardship. We developed definitions, achieved the data requirements and established an excellent surveillance system. 72 hour review compliance review was excellent, but did not achieve the 1% reduction in consumption. The systems have been the foundation for future monitoring and clinical systems. The new AMS committee plans for 17/18 are in the full text.

Surviving Sepsis: A Quality Improvement programme was established in September 2016 under leadership of Ms Claire Rees. This is ongoing. Update in full report.

10 Occupational Health

OH continues to provide 'new entrants' screening ,"Exposure Prone Procedures" clearance, staff immunisation (including influenza, final uptake 62% up again (48% last year) and blood borne virus exposure follow up (74 events, compared to 88 in previous year).

11 Targets and Outcomes	Target	Outcome
MRSA bacteraemia –	0	3

Clostridium difficile infection lapses in care	<14	0
Rate of GOS acquired line infection /1000 days	< 1.3	1.7
Analysis for S. aureus bacteraemias	100%	100%
MRSA colonisation acquisition	0	18
Hand hygiene audits (total audits 16646)	95%	96%
CVL care bundle audits (total audits 2809)	90%	88%
For substantive staff:		
IPC level 1 induction	95%	96%
IPC level 2 update	95%	80%

12. Training activities

Basic IPC training and update is provided for all staff through either e-learning, face to face teaching from the IPC team or both. Update is now only through e-learning, including assessment questions. Attendance is monitored and records are maintained by the Training Department, uptake is improving.

New training modules:
The new induction 'game' has almost completed development and will be introduced.
A new online level 2 update training package has now been created and released, with focus on standard precautions, and target to achieve 95% completion.

IPC training days: A popular training day programme continues.

Hand hygiene training for staff on wards is provided locally, and by the IPC team for staff without a ward. All episodes should be recorded by the training department.

IV and aseptic non-touch technique training and update is provided for nursing staff locally but currently there is no assurance that this is provided to all medical staff.

Training and competency assessment for intravascular catheter insertion is provided locally and all divisions should be working towards a standard policy. This is not yet completed.

13. Summary

There is a fully functioning Infection Prevention and Control programme established at GOSH with involvement of all staff.

From an infection prevention and control view, overall this year we have continued to provide a safe passage for the majority of the 40 000+ admissions cared for, with provision of clean safe environment and equipment and the avoidance of infection. We have also reduced serious blood stream infections form gram negative antimicrobial resistance organisms to the lowest ever, which represents the outcome of an enormous control effort by patients, families, staff, labs, estates, facilities and all. However, health care associated infections still occur. We had an increase in blood stream infections (from non-resistant organisms) some of which may be explained by case mix. A particular problem was experienced with enteric viruses, including need for ward closures to control. While more children were admitted with infection, subsequent lack of control arises from failure to recognise and contain the risk

early. Undertaking of routine hand hygiene audit continued to drop, although compliance during recorded observations by ward staff remained high. The same applies to central venous line care bundles, although compliance was not satisfactory. The two clinical divisions are addressing the non-completion of audit through new audit process; we continue to stress the importance of a full assessment of infection risk and implementation of actions when a patient is symptomatic.

In an effort to understand better the achievable target and gain new perspectives, the IPC Clinical Scientist will be undertaking a sabbatical at Boston Children's Hospital later this year.
J C Hartley DIPC

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AUTHOR: Dr John Hartley - Director of Infection Prevention and Control
Helen Dunn – Lead Nurse IPC

Full report

Contents

Part A - Full Infection Prevention and Control Report for GOSH 2015/16 Activity

1 Introduction

Great Ormond Street Hospital for Children NHS Trust recognises the obligation placed upon it by the Health Act 2006, (updated 2008, 2012, and 2015), to comply with the Code of Practice for health and adult social care on the prevention and control of infections and related guidance.

The Trust supports the principle that infections should be prevented wherever possible or, where this is not possible, minimised to an irreducible level and that effective systematic arrangements for the surveillance, prevention and control of infection are provided within the Trust.

It is the policy of the Trust to include in the individual responsibility of every member of staff the need to participate in the prevention and control of infection. This is listed directly in medical and nursing job descriptions and expressed through requirement to provide safe care by compliance with Health and Safety, Control of Substances Hazardous to Health (COSHH), and other legislation and regulations

The Director of Infection Prevention and Control is responsible for the Trusts overall programme for IPC, working closely with the IPC Team, the Executive Lead with responsibility for IPC (currently the Chief Nurse), the Divisional Teams, Occupational Health, Development and Property Services (including Estates, Facilities and Re-development), Clinical Governance and Safety Team, and Quality Improvement Team. The IPC team is embedded in the Department of Medical Microbiology, Virology and Infection Prevention and Control. The Trust requires an infection control programme for active investigation, surveillance, prevention and control of infection in patients, staff and visitors to the Trust. This programme is the responsibility of all staff, not just the central IPC Team, and the delegation to and acceptance of this responsibility by clinical divisional and corporate teams has increased and is key to success. The IPC team, Divisional or central, ensures the infection control programme is implemented and any risks related to or likely to cause infection are investigated and appropriate action taken.

The infection control programme aims to continuously review and build on existing activity, driven by local needs, while incorporating and complying with the latest Department of

Health (DH), Public Health England or other relevant strategy and regulations as laid out in such documents as:

Strategy:

The Health and Social Care Act 2008 (updated July 2015) Code of Practice on the prevention and control of infections and related guidelines and its subsequent updates.

Older guidance is listed in previous reports.

Other guidance responded to this year includes:

Candida auris: laboratory investigation, management and infection prevention and control Guidance PHE 27/6/2016

Infection prevention and control is a complex issue and everyone's concern; the Trust continues to support managers and clinical leaders in the drive to reduce healthcare associated infection.

The IPC programme is described in the Trust Policy 'Infection Prevention and Control Assurance Framework and Operational Policy', July 2014.

This report lists the IPC team structure and team plan, and some aspects of the policy but mainly reports the results of process (control) and outcome (infection) surveillance and audit.

The data shows that a great effort is employed to reduce HCAI, but that they still occur and some are preventable. Health care associated infection is an ever present risk for patients and staff and requires constant application of best practice to reduce to a truly unavoidable minimum. In recognition of the ever growing needs for IPC input the Trust has agreed to upgrade the clinical scientist in IPC.

When considering IPC in children it is important to remember

1. IPC activity requires energy and commitment from all staff and resources (such as 16 646 hand hygiene audits (down from 19 258 last year) or 25 108 MRSA screens) - but infections still occur (such as 409 possible bacteraemias, up from 345, with 87 acquired line infections (up from 76), or 335 hospital onset respiratory and enteric virus infection (up from 242)

2. The necessary IPC activity may impact on the patient journey for the individual and for others, with daily risk assessment necessary to optimise flow while reducing risk. This is limited by resources.

3. IPC activity is not just about the high profile individual actions (hand hygine – important that it is) but is also about the continuous provision of a safe environment (clean wards, water, air and equipment), regular assessment of risk, and the use of standard precautions and specified protocols by all staff. These may be inadvertently bypassed when other activities are high.

4. IPC is embedded in the functioning of the hospital and the care provided such that many infections are prevented, the risk of them may be forgotten and the drive to continuously implement actions may wane, so constant promotion is required.

5. Many of the Nationally driven goals, such as MRSA bacteraemia, Clostridium difficile infection, urinary catheter infection and ventilator associated pneumonia, were never top priority for children, and particularly not the specialist children service provided. The new national focus on MSSA and gram negative infection is important in paediatrics.

6. Many of the children require vascular access devices. It is particularly important we to protect them from vascular device associated infection.

7. Many of the children are susceptible to infection because of their illness or the treatment and are often already infected or colonised. We need to protect them from each other's bugs – respiratory and enteric viruses and antibiotic resistant organisms. The latter is a major challenge as the worldwide threat from antibiotic resistance increases.

8. Above all, children are children, with very different needs to adults, that have to be sympathetically incorporated into the care environment – often with great difficulty as love, attention and toys are perfect routes for cross infection.

This report describes the IPC programme in place, with measures of the implementation compliance and outcomes used to support current actions and direct future plans.

2) Description of infection control arrangements

2:1 Director of Infection Prevention and Control (DIPC)

- Dr John Hartley, consultant Medical Microbiologist. DIPC since August 2009 (0.3 wte allocated that also includes time as Infection Control Doctor).

2:2 The Infection Prevention and Control Team (IPCT) during 2016/17

Nursing and clinical scientist establishment:

- Lead Nurse for Infection Prevention and Control - Helen Dunn
- Deputy Lead Nurse in IP&C - Barbara Brekle
- IPC Nurse– Helen Saraqi
- Principal Scientist in IP&C – Elaine Cloutman-Green – now 5 days per week (but 3 days seconded to NIHR Clinical Fellowship, currently without back fill.
- Infectious Diseases CNSs lead on Tuberculosis control as required

***Medical Staff**:*

- Dr John Hartley - Consultant Microbiologist, Infection Control Doctor and DIPC
- Dr Garth Dixon - Consultant Microbiologist, Lead Clinician for the Department of Microbiology, Virology and Infection Control: 1PA for IPC
- Dr James Soothill - Consultant Microbiologist: 2 PAs for IPC
- Professor Judy Breuer – Consultant Virologist (advisory)

Working with:

- Dr Alasdair Bamford - Consultant in Infectious Diseases
- Professor Nigel Klein – Professor of Infectious Diseases and Microbiology
- Dr Delane Shingadia – Consultant in Infectious Diseases
- Dr Adam Irwin - Consultant in Infectious Diseases
- (Dr Karen Moshal – Consultant in Infectious Diseases – long term sabbatical)

Antibiotic pharmacist

Part time post – one day a week

Administrative support and Data Management

Administrator and data analyst IPC Team – vacant during year (but filled for 3 days a week from December 16 and permanently May 2017, but only 0.6 wte)

Quality Improvement Team -

Provides invaluable central support for audit and surveillance data display.

Executive lead for IPC

The Chief Nurse Juliette Greenwood, is the Executive lead for IPC; supported for medical issues by the Deputy medical director.

2.3 Divisional Responsibility

Under the terms of the Trust IPC Strategy set out previously each Division developed a local Divisional group to drive local planning and implementation of IPC actions.

The structure has changed with the divisional structure changes in 2016/7.

There are now Divisional IPC meetings for J M Barrie, Charles West and International and Private Patients.

2:4 The Infection Prevention and Control Committee (IPCC)

Committee continued to meet bi-monthly during 2016, changing to monthly in 2017. Membership was reviewed in 2016/17 following the new divisional structure.

Member by role:
Chair (DIPC or Deputy DIPC)
Lead Nurse IPC
Executive lead IPC
Infection control doctor
IPC Team members, ICNs, Clinical Scientist
Consultant Microbiologists
Divisional manager Charles West
Public Health England Representative
Charles West Division:
Divisional Assistant Chief Nurse
Matron
Medical Consultant
Infectious Diseases Consultant
J M Barrie:
Divisional Assistant Chief Nurse
Consultant Surgeon
IPP Division:
Head of Nursing
Medical Consultant
Research and Innovation – Somers Clinical Research Facility
Development and Property Services:
Head of Estates
Head of Facilities
Staff and Well Being (OH): Nurse manager
Others: Academic ID physician; Chief Pharmacist
When required: Chair of Antimicrobial Stewardship Committee

Administrative support: provided by IPC Administrator (currently vacant but filled May 2017

2:5 Reporting lines

The DIPC is accountable to the CEO.
The DIPC and Lead nurse for IPC meet bi-weekly with Executive lead.
A highlight report of all significant IPC issues is presented weekly to the Safety Team.

The IPCT provide a report of all incidents dealt with by the IPCT to each IPCC.
The IPCC reports to the Patient Safety and Outcome Committee.

During management of incidents the IPC team or clinical area complete clinical incident forms returns via Datix. The Clinical Governance and Safety Team compile a monthly report for wards/Heads of Nursing/Risk Action Groups for feedback on individual incidents and a quarterly reports for the Quality and Safety Committee, which feeds to the Clinical Governance Committee.

The DIPC continues to report directly to the Trust Board and present an Annual Report

2:6 Antimicrobial Stewardship

Antimicrobial policies - A Consultant Microbiologist and Infectious Disease Physician are members of the Drugs and Therapeutics Committee. The Consultant Microbiologist leads the Antibiotic working group, which is a sub-group of the D&T Committee, supported by the part time pharmacist, and undertakes provision and review of antimicrobial policies.

Antimicrobial Stewardship – AMS focused on review and provision of Antimicrobial Policies (Policy group), and audit of consumption and antibiotic review (in line with the 16/17 CQUIN). In Oct 2016 Chair of the Committee passed from DIPC to ID Consultant (Dr A Bamford). A business case is being developed for additional staff time to enable expansion of AMS activity.
Surviving Sepsis – the Trust established a dedicated improvement project team to lead on implementation of the Surviving Sepsis / Sepsis 6 initiative.

2:7 Links to Trust Business Plans

Incidents are notified by the IPCT or the Divisions via the incident reporting system.
Information is supplied to the Divisions when requested and there is open access when assistance is needed.
Specialties and Divisions are advised to put IPC issues on their risk registers for review in RAG/Divisional meetings to support business plans.
IPC Team bids are made through the Department of Microbiology, Virology and IPC within the Department of Paediatric Laboratory Medicine, now part of Charles West Division.

2:8 IPC advice and *On call service.*

The 3 wte IPC nurses and 0.4 wte clinical scientist provide a service for IPC from 8 am to 6 pm, Monday to Friday, supported by the continuous consultant microbiologist service. The Consultant Microbiologists and Infectious Disease Consultants provide a continuous out of hours on call service. The IPCT cover Occupational Health needs related to infection control, such as inoculation injuries, which are also covered by consultant microbiologist/ID consultant during out of working hours.

3 Plans and Reports

3:1 DIPC *Board Reports*
2016-04-01 Trust Board regular IPC Report
2016-07-12 Trust Board, presentation of annual report
2016-11-29 Trust Board regular IPC Report
2017-03-20 Trust Board regular IPC Report

3:2 Annual IPC Team Action Plan
An annual plan is written and included in each annual report.

3:3 Outbreak Reports

The DIPC ensures contemporaneous outbreak reports are written by the IPCT and fed back to clinicians and managers and disseminated through the IPC Committee.

4 Budget allocation to IP&C activities

4:1 Staff

Medical: There are 6 specific consultant programme activities funded to consultant medical microbiologists for IPC (3 allocated to Dr John Hartley, 2 and 1 to the others)

Nursing: 3 WTE infection control nurses (ICNs) funded (Band 8b and 2 Band 7).

Scientific: 1 wte Band 8a Principal Clinical Scientist, currently 0.4 wte working in IPC and 0.6 secondment on NIHR Clinical Fellowship.
Need to employ back fill for the 0.6

Laboratory: The laboratory is a fully staffed with UKAS accreditation to ISO 15189 standard on 26.07.2017. UKAS number 8675

Administrative: 1 wte equivalent post, now reduced to 0.6 wte and vacant until May 2017 ;

SSIS Team : Surveillance has been devolved to the Divisions in 2013 and is undertaken and funded differently.
J M Barrie Surgery (except Neurosurgery)– one full time surveillance officer, supported by practice educator and Lead Nurse;
Neurosciences – surveillance through regular MDT audit
Charles West - Cardiothoracic - one surveillance officer supported by practice educator; surveillance incomplete in 16/17 due to staffing issues. Resumed under new structure in 2017.

4:2 Support

IT Support and hardware: is supplied within the departmental budget.
Emergency outbreak funding: is provided by the Trust if and when needed.

4:3 Training of IPC team members

Resources for continual professional development (CPD) of the IPC Team are currently funded by the Trust or department.
Medical staff have an allocated study leave allowance from the Trust which may be used towards infection control training.
Nursing staff obtain funds from the nurse training budget, external sponsorship and the departmental special purpose fund.

5 HCAI Statistics

A MANDATORY SURVEILLANCE

Mandatory data can also be viewed on the PHE website
https://fingertips.phe.org.uk/profile/amr-local-indicators/

5:1 Staphylococcus aureus (MRSA) bacteraemia

Surveillance of methicillin resistant *Staphylococcus aureus* (MRSA) bacteraemia is undertaken in line with National reporting requirements. NHS England have now concluded that preventable MRSA bloodstream infections are no longer acceptable and as such there is no longer an MRSA objective as the target is zero. Trust attributed cases are shown below:

Annual GOSH MRSA Bacteraemia Rates (PHE Data) Trust Apportioned Cases

Year	***MRSA Bacteraemia numbers (attributed)***	***Estimated MRSA Bacteraemia rates per 100,000 bed days***
April 01 – Mar 02	7	9.1
April 02 – Mar 03	13	17.3
April 03- Mar 04	4	5.1
April 04 – Mar 05	7	9.6
April 05 – Mar 06	6	7.7
April 06 – Mar 07	5	6.3
April 07 – Mar 08	2	2.5
April 08 – Mar 09	8	11
April 09 – Mar 10	1	1.0
April 10 – Mar 11	1	1.1
April 11 – Mar 12	4	4.3
April 12 – Mar 13	3	2.9
April 13 – Mar 14	1	0.9
April 14 – Mar 15	0	0
April 15 – Mar 16*	1 (2)*	1.2
April 16 - Mar 17	3	3.5

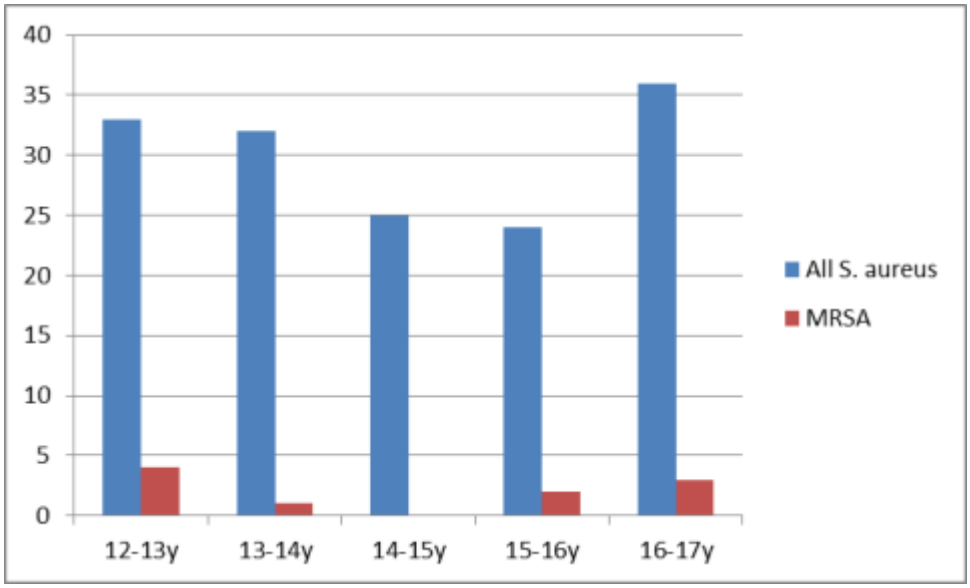
*2nd bacteraemia present pre-admission therefore not attributed in PHE data

5:2 *Stapylococcus aureus* (MSSA) bacteraemia

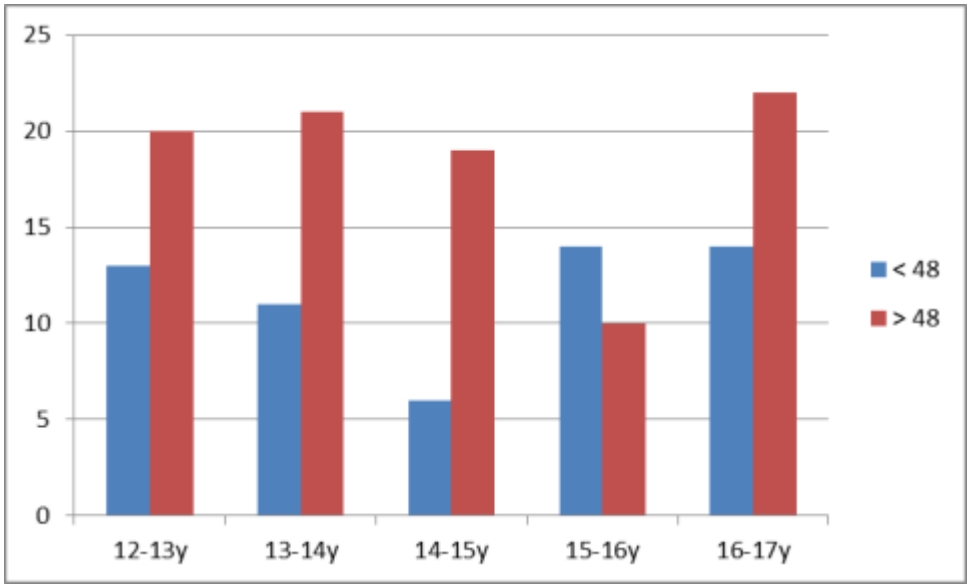
While MRSA has been the principle *S. aureus* of concern nationally, GOSH has recognised that methicillin sensitive *S. aureus* (MSSA) is a more significant issue to children. This has now been recognised nationally as all *S. aureus* bacteraemia is now reported, although there are no national targets for MSSA.

Continuous surveillance is undertaken of all *S. aureus* bacteraemia and root cause analysis is undertaken to investigate episodes where there may have been an opportunity for trust to influence onset. Overall there were 36 episodes, 22 with onset after 48 hours.

Bar chart showing number of S. aureus bacteraemias by financial year



Bar chart showing number of S. aureus bacteraemia episodes in patients with onset before or after 48 hours of admission:



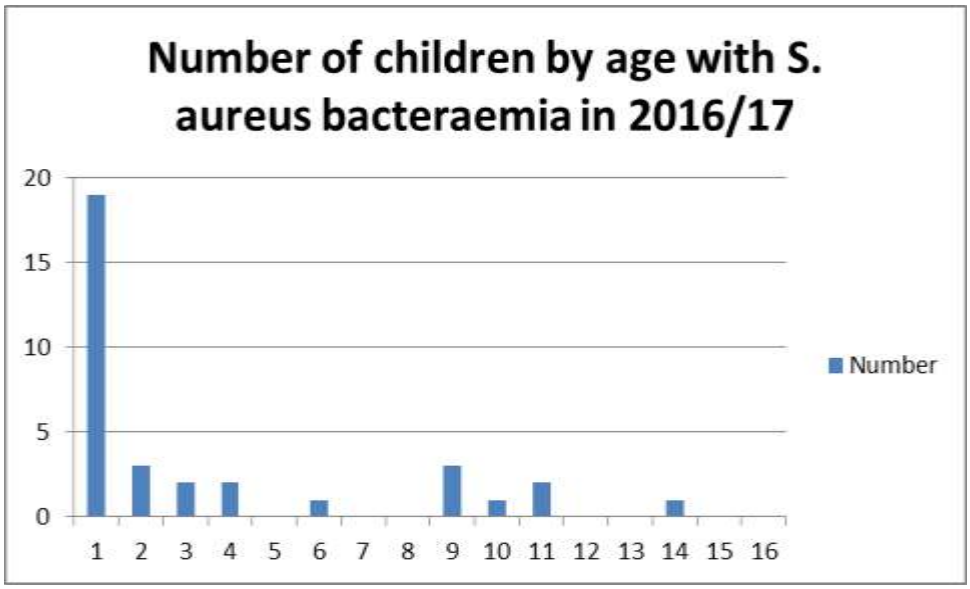
S. aureus bacteraemia has increased from last year.

Root cause analysis of S. aureus bacteraemias

All S. aureus bacteraemias are reviewed by IPC team and full or mini-RCAs requested for all S. aureus bacteraemias developing after 48 hours of admission and not incubating before admission and those occurring in prior GOSH patients. RCA completion by clinical teams was not complete for the year, however RCA and clinical review shows likely source:

	Line	Surgical sites	Spontaneous in febrile neutropenia and not felt to be line	Skin	Contaminant	Source not determined – young infants on NICU	UTI, respiratory, Endocarditis Osteomyelitis HD Fistula
< 48 hr	5	2		1			5 (1 each)
>48 hr	8	4	2	2	2	3	1 (Resp)

The majority of infections occur in young children.



While line related infections were the main single cause, increase was seen in infections related to surgical sites (especially cardiac). Interventions continue to focus on prevention of line related bacteraemia, with additional focus on the divisional SSI prevention teams

5.3 E. coli bacteraemias

E. coli bacteraemias are reported nationally, although currently there is no target.

	Total	Detected after 2nd day
12/13	19	
13/14	23	
14/15	19	10
15/16	17	10
16/17	21	17

A detailed analysis of factors related to E coli bacteraemia will be made in 17/18.

5:4 Surveillance of Glycopeptide Resistant Enterococcal bacteraemia (GRE)

Year	Number of GRE bacteraemias
2008/09	0
2009/10	0
2010/11	1
2011/12	5
2012/13	5
2013/14	0
2014/15	2
2015/16	2*
2016/17	2

*Typing showed they were each unique events.

5:5 Surveillance of Clostridium difficile **infection.**

The role of toxigenic *Clostridium difficile* as a pathogen in children is not well understood, although it rarely causes severe disease. With a higher carriage rate than that found in adults and frequent multiple causes of diarrhoea in children, especially hospitalised children receiving intensive therapy, it is often impossible to determine clinical significance of toxin when detected.

The potential for disease has always been acknowledged at GOSH and we have performed extensive testing and surveillance for many years, allowing instigation of additional infection prevention and control actions with hand washing with soap and water and cleaning with chlorine releasing agents.

While there has been some variation in number of children with positive tests year on year, we did not experience the dramatic increase seen in adult hospitals during the 2000s and almost no cases due to the virulent endemic strain, ribotype 027, seen in adults.

National mandatory surveillance was introduced for children aged 2 year and over in April 2007 and a nationally determined target, based on the initial year, was set for those first tested on or after third day of admission (after day of admission and next two days). We report toxin positive children with diarrhoea and no other cause present or, if another possible cause is present, where clinical opinion led to treatment as a possible case. This strategy has been explicitly discussed and agreed with NHS England, London HCAI lead.

There has been national guidance on testing, advocating that Trusts move from the 'standard EIA toxin' tests to a two stage test with antigen detection (GDH) and EIA, due to the poor sensitivity and specificity of the EIAs. We have reviewed this advice and in 2015/16 continued to use the neutralised cell cytotoxicity assay for toxin detection as this is the acknowledged reference toxin detection test. We follow up toxin detection with culture and ribotyping to ensure detailed surveillance is maintained.

Almost all positive stools represent co-incidental detection and are sporadic ribotypes, although there was some clustering suggesting cross infection.

	11/12	12/13	13/14	14/15	15/16	16/17
C. difficile 1st toxin detections ALL ages and any duration of admission	96	104	92	97	103	71
Number 'trust apportioned cases' (aged above 1 year and in for > 2 days when tested and reported as possible CDI on HCAI site)	9	7	13	15	7	4
Objective (number below which we aim to keep apportioned cases._	9	8	7	7	14	14
Possible lapse in care				2	2	0

Analysis of every case is undertaken to assess the likelihood of true disease, and any avoidable risk factors or lapses in control measures. Details were presented to the NHS England, London lead for Infection Prevention and Control and the Clinical Commissioning group. It was agreed that the majority of cases reported and assigned to the Trust did not represent a failing in C. difficile infection prevention and control.

As disease does rarely occur and there is a continuing risk of cross transmission we will continue to test stool to detect these rare cases and assist in control measures.

5:6 Mandatory Surgical Site Surveillance (SSI)

National mandatory surveillance only requests information on hip and knee implants and open reduction and fixation of long bones. These are rarely performed so no surveillance is undertaken.

Periodic and continuous SSI surveillance is undertaken by a number of surgical specialties and is reported in the local surveillance section below.

Additional Local Surveillance

5:7 GOSACVCRB – GOS acquired Central Venous Catheter related bacteraemia

Continuous Trust wide surveillance mechanisms were introduced in Feb 2006 to identify GOSH inpatient associated central venous catheter related blood stream infection

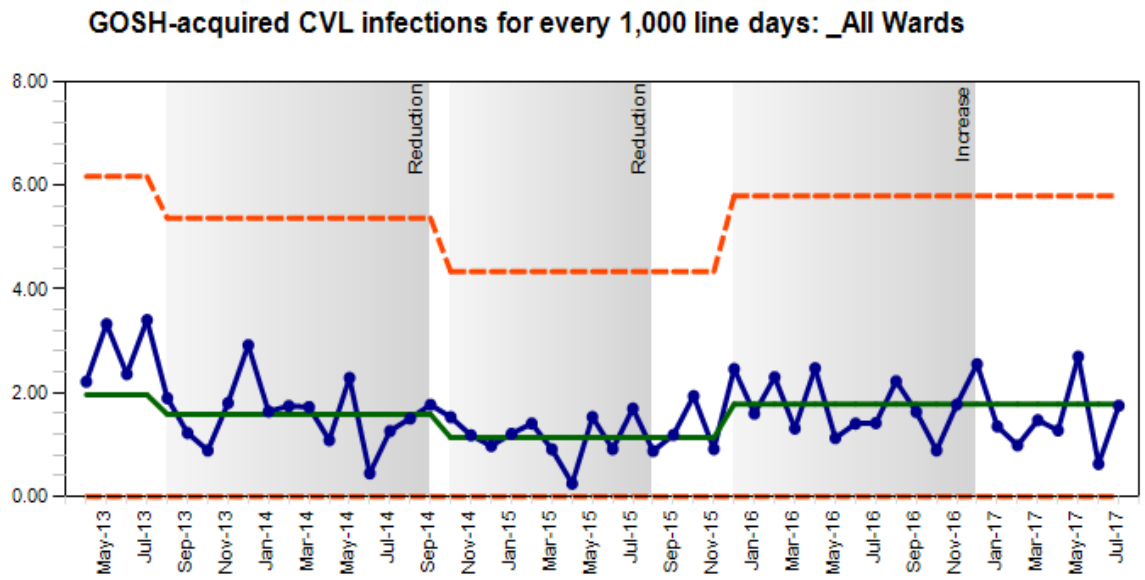
(GOSACVCRB). Surveillance requires daily recording of presence of patient lines by ward staff on an online form (audit of compliance shown in Audit section) and classification of all positive blood cultures according to a standard protocol. Outcomes measured is the GOSH acquired infection rate per 1000 line days. Compliance with line day data return is audited.

The data is displayed on the dashboard for IPC and clinical teams to review. Monthly data is broken down to 'ward where child was when blood culture taken' and each unit receives specific case data so further analysis. Root cause analysis can be performed by clinical teams.

Comparison with other hospitals is not straightforward as definitions vary. The GOSACVCRB definition was designed to have low specificity and alert units to potential cases for review. Implementation of CDC CLABSI criteria (which requires two blood cultures for common skin organisms), would reduce the apparent number.

Overall Trust rate (GOSACVCRBs per 1000 line days) was 1.7 thisyear. Our lowest rate was achieved in 14/15 and there has been an increase since Dec 15. Contributory factors are discussed below.

Financial year	Rate per 1000 line days			
7/8	4.3			
8/9	3.7			
9/10	3.3			
10/11	2.6			
11/12	2			
12/13	2.1			
13/14	2.1			
14/15	1.3			
15/16	1.4	=	76 episodes	(52539 line days)
16/17	1.7	=	87 episodes	(52679 line days)



Organisms associated with GOSACVCRB

In 2015/16 75 episodes have been called GOSACVCRB (compared with 76 in 2014/15). See the table below for a breakdown of the organisms identified from the 75 episodes

Organisms causing GOSACVCRB in the financial year		2015/16	2016/17
Gram positive	Coagulase negative staphylococci	34	37
	S. aureus	6	8
	Streptococcus sp	3	5
	Enterococcus sp	3	1
	Other gram positives	1	6
Gram negative			
- Enterobacteriacea	Klebsiella sp	7	10
	E. coli	4	4
	Serratia spp	3	
	Enterobacter sp	2	2
	Citrobacter sp	1	
-Pseudomonas and others	Pseudomonas aeruginosa	3	3
	Others	4	4
Fungal	Candida sp	4	7
Total		76	87

Other GP 15/16 – Brevibacterium
Other GP 16/17 – Bacillus sp 4, Micrococcus, Other GN 15/16 – Acinetobacter, Chryseobacterium, Achromobacter, Bacteroides
Other GN 16/17 – Acinetobacter, Roseomonas, Rothia, Stenotrophomonas

16/17 – mixed cultures have one isolate recorded; there were 2 other enterococci with S. aureus and 2 other Enterobacter with an E coli and an Enterobacter.

GOSH CVC infection reduction programme.

The programme to reduce GOS acquired CVC related bacteraemias (GOSACVCRB; 'line infections') has used an improvement process based on the universal or focussed introduction of care components combined with continuous process and outcome audit. Initially the 'saving lives' standard care bundle was implemented across the entire trust and significant reduction in line infection rate was seen year on year. However, this did not reach zero. Review of additional interventions was undertaken and it was decided to introduce parafilm and biopatch in areas or situations associated with the greatest risk.

Parafilm is a thermoplastic paraffin film with a paper backing primarily used in laboratories. It is semi-transparent, water-resistant, moldable, self-sealing and cohesive. Evidence suggests that using a protective barrier around the hub and the connections of a central venous catheter might be an effective preventive measure against contamination and infection (Stotter et al, 1987). A small study done by Irving et al (2011) demonstrated a reduction of CRBSIs after the introduction of Parafilm to protect CV catheter hubs and connections.

References: STOTTER, A.T. et al (1987) Junctional care: the key to prevention of catheter sepsis in intravenous feeding JPEN J Parenter

Enteral Nutr 11, pp. 159-162;
IRVING, S. et al (2011) Protective Barrier Reduces Central Venous Catheter Infection Nutr Clin Pract 26 (6), pp 726

The rollout of parafilm to the rest of the inpatient areas in the trust is planned during 16/17. Alongside the rollout the standard measures of CVL care bundle surveillance will continue as will the monitoring of GOS acquired CVC related bacteraemias.

With the continued persistence of line related infection, despite the roll out of parafilm, the IPC committed advocated the pan-trust use of biopatch, which has now been launched in Aug 2017. Compliance with good line care is however still important as audit does not show 100%, so focus remains of care bundle as well as the additional interventions.

5.8 Other bacteraemia and sensitivity data in gram negative isolates.

Blood culture surveillance is complicated due to mixed cultures and difficulty defined clinical episodes. In the year there were 11 990 separate blood culture sets sent. 659 were positive giving 777 isolates. Taking repeat isolates within 14 days as the same episode there about 405 episodes.

As the number of bacteraemias associated with CVC related infection had reduced the proportion of non-line related bacteraemias has increased. Regular surveillance has been undertaken of crude bacteraemia episodes defined by any positive blood culture in a child. The table below shows the 345 episodes by species detected in the financial 2015/16 year and 431 isolates in 16/17.

table below shows comparison year on year for the Haem/Oncol/Immunol/BMT group of patients

(Episodes of contamination have not been removed and further blood cultures are classed as a new episode after 14 days.)

		2015/16		2016/17	
		All patients	H/O/I/B	All patients	H/O/I/B
GNR	E. coli	16	5	21	6
	Klebsiella sp	16	4	19	7
	Enterobacter sp	8	4	13	6
	Serratia sp	5	2	3	1
	Acinetobacter sp	4	2	5	1
	Citrobacter sp	2		2	1
	Proteus sp,	1		1	
	Morganella			1	
	Pantoea			1	1
	Others (Erwina, Leclercia)			2	
GNR	Pseudomonas aeruginosa	9	3	13	2
	Stenotrophomans	3	1	6	5
	Other non-fermenters	8	3	8	2

	H. influenzae			1	
GNR	Anaerobic GNR	5	3	1	
GPC	CNS	153	42	187	60
	S aureus	25	9	36	4
	alpha haem Streptococcus	30	16	29	12
	Enterococcus sp	16	5	24	6
	Micrococcus	11	1	8	4
	S. pneumoniae	1		3	1
	Group B Strep			2	1
	Rothia			3	
	Abiotrophia			2	1
	Aerococcus			1	
GNC	Neiserria sp	4	1		
	Moraxella sp			2	2
	N meningitidis	1	1		
	Eikenella	1	1		
	Veilonella			1	
GPR	Actinomyces	2		3	2
	Corynybacterium sp			6	2
	Brevibacteria	2	1		
	Gordonia	1			
	Bacillus sp	3	1	8	4
	Propionibacterium	1			
	Nocardia	1	1		
	Microbacterium	1			
	Tsukamurella sp	1			
	Clostridium sp.			5	4
Yeast	Candida albicans	8		8	3
	Candida species	6	4	6	0
	Total	345	110	431	138

Antibiotic resistance:
Review of all the 82 most significant gram negative coliform blood culture isolates (E coli etc) and P. aeruginosa from patients shows a sustained low rate of resistance to our empirical antibiotic policy choice

	Amikacin	Gentamicin	Ciproflox	Ceftaz	P/Taz	Carbapenem
82	1	4	16	9	5	3 (2 P aer)
%	1.2	4.9	19.5	11	6	3.7

Multidrug resistant isolates in blood -

	Amik/PTAZ Also resistant to Gent, Ceft, Mero - a CPE	Gent, Ceft and Cip resistant	Cip and PTAZ	Gent and PTAZ
	1	1	2	1 – the CPE

This is very different to the situation 16 years ago when there were resistant isolates found, especially in the immunocompromised patients. Gentamicin resistance was common (over 30%) and combined with ceftazidime or piperacillin/tazobactam in 30 and 15% of isolates.

The significant resistance drove the choice of dual therapy amikacin plus piperacillin/tazobactam, and it is still probably justified as first line empirical therapy in the antibiotic policy.

There were 2 isolates resistant to ciprofloxacin and piperacillin/tazobactam, which is being used more to avoid aminoglycoside use but has a slightly increased risk of being inadequate.

The increasing detection of carbapenemase resistance has not yet transferred to blood isolates but is a concern should the Trust acquire transmissible and virulent strains (as in 2014).

5.9 Ventilator associated pneumonia / Ventilator associated events.

The PICU Ventilator Associated Pneumonia (VAP) study: VAP was shown to be low in PICU and systematic surveillance was stopped in 2011. (See earlier annual reports.)

Continuous central surveillance is currently not performed. PICU / Microbiology have undertaken surveillance using different surveillance definitions in PICU between July - December 2014. VAP incidence was 1.8/1000 ventilator days using 2015 criteria (onset > 2 days after ventilation) and 2.4/1000 ventilator days using 2008 criteria (irrespective of duration of ventilation- early onset intubation associated).The different definitions pick up different patients.

With the new VAE-with infection – called infection related ventilator condition (iVAC) ,there is seemingly no requirement for chest x-ray changes and the condition is defined by acute ventilatory deterioration plus inflammatory changes and then proceeds through a diagnostic

criteria for infection, for which are graded according to strength of evidence from protected BAL, quantitative culture, semi quantitative, to clinician decision to treat.

The difficulty in applying the standard set of definitions currently available has been highlighted by the PICU and microbiology department nationally through a letter in the Journal of Hospital Infection.

Care plans are in place in the ICUs for the reduction of risk of ventilator associated events but the ICUs do not undertake any systematic surveillance.

5.10 Surgical Site Infection Prevention and Surveillance

Prior Trust Base line:

From 2011 to 2013 there was a SSIS team based in the IPC team, however, subsequent surveillance has been performed by the individual specialty or Divisional teams. Trust wide rates were established (using the Public Health England SSIS scheme definitions and 30 day home followup) and are summarised for the total surveillance below:

Summary of data collected by SSIS Team 2010 - 2013

Number of Operations	3966	% infection
Total of Infections	245	6.2
Superficial	87	2.2
Deep	16	0.4
Organ Space	36	0.9
Patient Reported	106	2.7
Lost to Follow Up	481	12.1

The data was drawn from all neurosurgery, cardiorespiratory, spinal implant and a selection of procedures from plastics, general and neonatal, craniofacial, and other orthopaedic, without any day cases. The area with the highest rate of organ space infection was neurosurgery. After the cessation of the central surveillance scheme the divisions continued and in different formats, described below.

In parallel with surveillance there has been development of prevention bundle, with particular emphasis on preoperative wash, skin preparation, antimicrobial prophylaxis, temperature control, wound closure and dressings.

In recognition of need for further standardisation, the IPC is assisting the Surgical division audit the surgical care pathway this year (in IPC annual plan).

5.11 Surgery / J.M Barrie Division: one full time surveillance officer supported by Tissue Viability Nurses and Modern Matron has undertaken surveillance of designated surgical procedures in each specialty. This is reported locally and spinal implant surgery reported to the PHE National SSIS scheme.

Report from Leo Morgan Surgical Site Surveillance Officer.

Surgical Site Surveillance Programme

Introduction

The Surgical Division (reshuffled within J.M Barrie Division) at Great Ormond Street Hospital for Children NHS Foundation Trust comprises 9 clinical Specialities, providing care to around 22,000 children a year. The trust has a long history of Surgical Site Surveillance which was conducted centrally as part of the Infection Prevention and Control Team until April 2013 when the responsibility transferred to the relevant individual clinical divisions.

Within the Surgical Division a Surgical Site Infection Surveillance Officer (SSISO) was appointed to work assisted by the Tissue Viability team under the direction of the Modern Matron. This paper sets out a review of the service to date and details the plans and objectives for the SSIS programme in the financial year 2017-18.

2016 -17 Aims

- For SSIS Service to present SSI reports to senior management on Medical + Surgical Infection Prevention and Theatres, Interventional Radiology, Radiology + PACU Infection Prevention monthly meetings.
- To further develop the exception report, this will highlight deviations from the care bundle and give some explanatory narrative.
- To assist the surgical teams to standardise areas of the patient pathway.

Speciality Surveillance procedures

Speciality leads were involved in discussions regarding which procedures were suitable and useful to carry out surveillance. Procedures that are undertaken by laparoscopy, are a diagnostic theatre based test (such as biopsy) and where the primary wound closure does not occur in theatre were excluded in line with PHE guidance. It is important to note that no surgical category falls in the mandatory group, but spinal surgery at GOSH is reported to PHE.

The procedures and surveillance protocols for each speciality are listed below:

Speciality	**Procedure**	Surveillance
Spines	All (excluding plaster jackets and injections)	SO Post op D1, D2, D3 30 day phone call + 1 year follow up

Orthopaedics	Insertion of 8 plates	SO post op D1 30 day phone call
Orthopaedics	Open Reduction and Internal Fixation	SO post op D1 30 day phone call
ENT	Cochlear Implant	SO post op D1 30 day phone call
ENT	LTR Graft	SO post op D1 30 day phone call
ENT	Excision of thyroglossal cyst	SO post op D1 30 day phone call
Urology	Open Pyleoplasty	SO post op D1 30 day phone call
Urology	Wilm's Tumour / nephrectomy	SO post op D1, D3 (weekly if still here) 30 day phone call
Cleft	Cleft lip repair (+/- palate)	SO post op D1 30 day phone call
General Surgery	Neonatal Laparotomy	SO post op D1, weekly until 30 days (telephone if transferred out)
General Surgery	Excision of neuroblastoma	SO post op D1, D3 (weekly if still here) 30 day phone call
General Surgery	General Laparotomy	SO post op D1, D3 (weekly if still here) 30 day phone call
Plastic Surgery	Non-buried K wires	SO post op D1 30 day phone call extend to 6/52 if required
Plastic Surgery	Tissue Expander insertion	SO post op D1 30 day phone call
Plastic Surgery	Tongue Reduction	SO post op D1

		30 day phone call
Dental & MaxFax	ABG	SO post op D1 & 30 day phone call
Ophthalmology	No data required	

Ophthalmology were excluded as no procedure was able to be identified which met the inclusion criteria and could be easily surveyed.

Where appropriate an information sheet about SSIS is given to children and their families undergoing appropriate procedure at the pre-operative appointment. The SSIS team identify children from the daily theatre list and then ensure the following data collection protocol:

- Base line data collected on all patients on day 1 post op
- All children have a 30 day post discharge follow up telephone call
- Spinal patients are seen on post op day 1, 2 and 3 until the post-operative wound check. Once the IVABx have stopped the surveillance is discontinued and the patients then receive the 30 day phone call and follow up at one year, where applicable.

Data Collection

For 2016-17 financial year, all specialities have one full calendar year (2016) of data for their identified procedure or procedures. MAGEC growing revision was added in August 2016. Tissue expander insertion surgery was added in September 2016 on commencement of the service.

Monitoring and recording data

The SSIS team have utilised the S4 database to enter all data including follow up and have a robust system in place for ensuring that all children are followed up as per the protocol outlined above.

The data collected for the year of 2016 is detailed below:

Spinal Surgery

Procedure	**Lost to Follow Up**	**Parent Reported Infections**	**SSI**			**Annual Total**	**Infection %**
			Superficial	**Deep**	**Organ Space**		

All Spines	0	8	3	3	0	189	7.4%
Posterior Spinal Fusion	0	6	3	3	0	117	10.2%
Anterior Spinal Fusion	0	0	0	0	0	14	0%
MAGEC Insertion	0	1	0	0	0	10	10%
MAGEC Revision	0	0	0	0	0	7	0%
Combined Fusion	0	0	0	0	0	3	0%
Growth Rod Insertion	0	0	0	0	0	1	0%
Growth Rod Lengthening	0	1	0	0	0	23	4.3%
Growth rod Revision	0	0	0	0	0	14	0%
Extension Of Fusion	0	0	0	0	0	0	0%
SHILLA	0	0	0	0	0	0	0%

Orthopaedics

Procedure	**Lost to Follow Up**	**Parent Reported Infections**	**SSI**			**Annual Total**	**Infection %**
			Superficial	**Deep**	**Organ Space**		
8 plates	0	5	0	0	0	36	13.9%
Open Reduction	0	1	0	0	0	18	5.5%

ENT

Procedure	**Lost to Follow Up**	**Parent Reported Infections**	**SSI**			**Annual Total**	**Infection %**
			Superficial	**Deep**	**Organ Space**		
Cochlear Implant	2	1	0	1	0	47	4.2%
LTR Graft	0	0	0	1	0	9	11%
Thyroglossal Cysts	1	0	0	0	0	7	0%

Dental/Maxillofacial

Procedure	Lost to Follow Up	Parent Reported Infections	SSI			Annual Total	Infection %
			Superficial	Deep	Organ Space		
ABG	3	3	0	1	0	65	6.1%

Urology

Procedure	**Lost to Follow Up**	**Parent Reported Infections**	**SSI**			**Annual Total**	**Infection %**
			Superficial	**Deep**	**Organ Space**		
Open Pyeloplasty	4	0	0	0	0	30	0%
Nephrectomy	1	0	0	0	0	24	0%

Cleft

Procedure	**Lost to**	**Parent**	**SSI**	**Annual**	**Infection**

	Follow Up	Reported Infections	Superficial	Deep	Organ Space	Total	%
Cleft	5	1	0	0	0	53	1.8%

General Surgery

Procedure	Lost to Follow Up	Parent Reported Infections	SSI			Annual Total	Infection %
			Superficial	Deep	Organ Space		
Laparotomy	10	1	7	0	0	79	10%
Neuroblastoma	0	0	0	0	0	8	0%

Plastic Surgery

Procedure	Lost to Follow Up	Parent Reported Infections	SSI			Annual Total	Infection %
			Superficial	Deep	Organ Space		
Non-buried K wires	0	1	0	0	0	24	4.2%
Tissue Expander	0	0	1	0	0	4	20%
Tongue Reduction	0	0	0	0	0	21	0%

Process dashboards

In addition the team have a real time dashboard looking at the four main areas of the care bundle for theatres which the DoH recognise as having the highest impact on surgical site infections. The areas are antibiotic protocol adherence, pre-operative wash, temperature control, MRSA screen.

Divisional and specialty run charts are produced and displayed on the Dashboard.

Investigating infections and sharing of learning

The on-going monitoring of both infection rates and compliance with the care bundle are discussed at the divisional and theatres infection control monthly meetings. In addition, the division carry out an RCA for any child who meets the following criteria:

- Prolonged inpatient stay or readmitted to GOSH for wound management (including administration of IVAB)
- Has an organ space infection (including return to theatre for management)
- All deep and organ/space spinal surgery infections

Indications for an RCA are monitored through the 30 day phone call by the Surveillance officer. When called an RCA is led by the child's consultant or the speciality lead. Findings are presented to the infection control committee with a summary of key learning and should feed into local M & M meetings.

Cluster of infections in spinal implant surgery

The infection rate in spines for 2016 was 7.4%, this is a 2% noteworthy decrease from 9.4% 2015 data, although higher than target. GOSH remains an outlier in comparison to other participating Hospitals through the PHE Surgical Site Surveillance Programme.

The wounds were more easily classified given the improved documentation implemented, such as the wound review vignette sticker. However, there are still significant poor documentation on medical notes and fragmentation of the data required when conducting an RCA, as the information is stored across many different systems, making the process lengthy and time consuming.

Each SSI case is investigated following actions from the MDT and each incident is looked at individually and comparatively. After investigation, it was noted through the surveillance process that there are no single risk factors to explain the occurrences as SSI's, like most infections can be multi-factorial in causation.

Moving forward

The SSIS team have increased surveillance in specialities where there are 2 procedures that fit into the criteria; MAGEC revision and Tissue Expander Insertion are now monitored.

The team has generated speciality exception reports.

Antibiotic protocol adherence and Temperature control are recognized by DoH as having high impact on surgical site infections. The SSIS team has continuously monitored these two risk factors and reported back to the relevant teams, where an optimal compliance with expected antibiotics protocol and temperature control remain a significant issue.

The SSIS team propose the following aims for the 2017-18 financial year:

- Antibiotics prophylaxis, where applicable: poor documentation and compliance highlighted as a risk factor. Work with Theatres and Anaesthetics to devise a Surgical Site Surveillance (SSS) Tab for PIMs to capture more accurate data of the time of surgical incision and the Antibiotics administration, as per pharmacy policy.
- Hypothermia noted as another risk component, including spines. Work with Anaesthetists to audit when hypothermia is occurring and factor if there are changes that can be made to improve temperature control. Pre operatively pre warming trialling agreed to start for spinal patients from April 2017 and continuous surveillance of lowest recorded intra operatively temperature to monitor if hypothermia rates decrease.
- To continue to use the data gathered and report it back to each speciality. Work together to use the data and add any explanatory narrative to the data.
- For SSIS Service to present SSI reports to senior management on Medical + Surgical Infection Prevention and Theatres, Interventional Radiology, Radiology + PACU Infection Prevention monthly meetings.
- To assist the surgical teams to standardise areas of the patient pathway, where pertinent.

Spines

- CNS team to continue to complete wound review and document in clinical notes
- To monitor and report deviances of standardisation of skin prep and dressings

Conclusion

More of an emphasis will now be on reviewing exceptions to the care bundle and patient pathway to improve the patient outcomes.

5.12 Report for Cardiorespiratory Surgical site infection surveillance

No annual surveillance report for year as surveillance was intermittent due to staffing issues. A number of organs space infections occurred and were investigated. An active surveillance and prevention group has since restarted surveillance.

5.13 Neurosurgery SSI surveillance

Neurosciencesdoes not have a dedicated SSIS officer. Surveillance is undertaken through the weekly audit meeting and complication entry onto a bespoke Neurosurgery database

with specific classification for SSI. Permanent shunt procedure CSF infection deep or organ space craniotomy infections are likely to be detected as as re-admission is inevitable. Superficial incisional infections of shunt and other procedures is not likely to be complete as there is no out of hospital data collected.

Permanent shunt infection surveillance

The Neurosurgical team maintain a dedicated audit data base with accurate recording of shunt related infections. Since 2010 this will be used to provide monthly data for inclusion on the Neurosciences Safety dashboard.

The permanent shunt procedure infection rate (all types of shunts, primary insertions, internalisation and revisions) was:

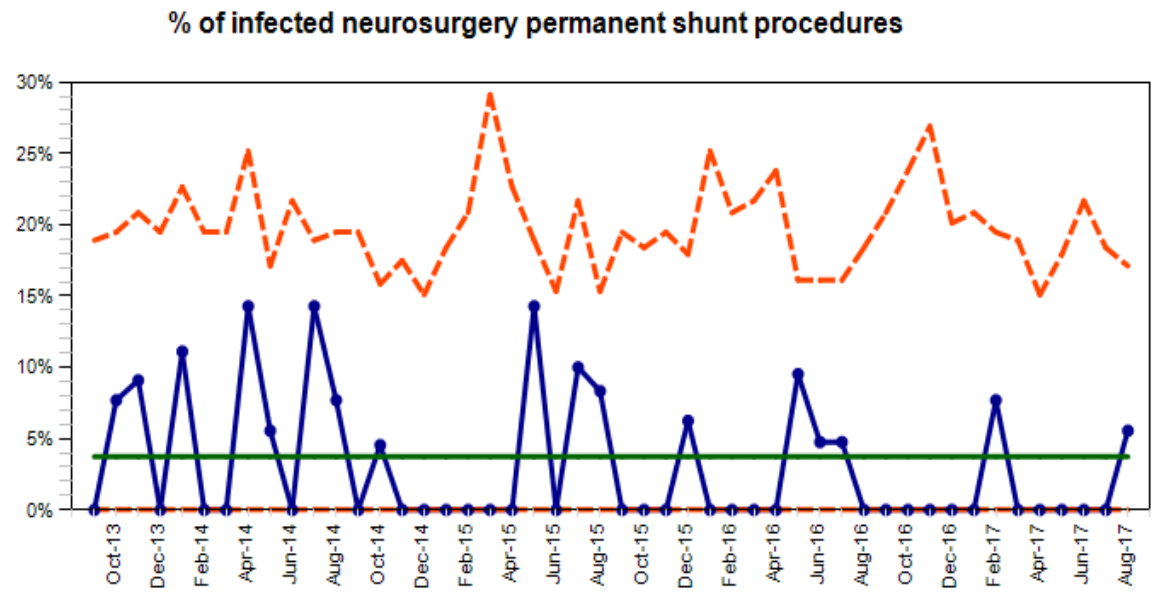
2013/14 - 6 infections from 170 procedure at rate of 3.5

2014/15 - 5 infections from 157 procedures at rate of 3.2

2015/16 - 6 infections from 165 procedures at a rate of 3.6

2016/17 – 5 infections form 161 procedures at a rate of 3.1

The continuous dashboard is shown below:



Viral infections detected while at hospital

5.14 Surveillance of Respiratory virus infection

Respiratory viruses are common in children and often asymptomatic or only causing mild infection. However, in children with immunodeficiency or other severe illness, normally mild infections may be serious, with even the simplest 'common cold' leading to death. We are aware that children acquire infections while in hospital, with multiple sources among patients, visitors and siblings, staff and other adults. The prevention of cross infection requires good compliance with standard and transmission based infection prevention procedures, including assessment of risk and low threshold for testing, including in asymptomatic immunocompromised children who shed high loads for long periods.

The advent of PCR testing a few years ago increased the test sensitivity and apparent numbers increased, but this has been unchanged in the last few years, with the exception of widening the panel in some children to include rhinovirus and coronavirus. Extended panel testing is not performed on all acute admission and data will underrepresent 'community infection' (virus present on admission). First detections are called hospital acquired if the symptoms onset in hospital or if the first test was after 48 hours; some detections will have been incubating. Some children have 2 or 3 viruses so the total number of positive patients is less than the number of viruses.

Comparison of the last three years, see below, shows that the number of potential hospital acquired cases has increased slightly again, as did the overall number of respiratory viral infections compared to last year.

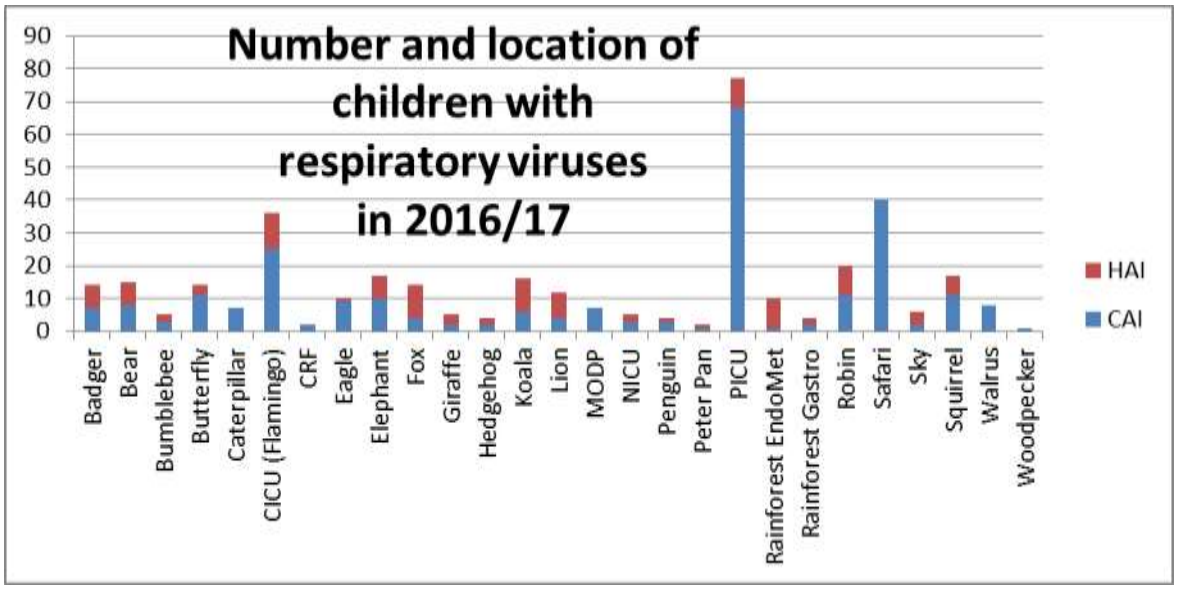
The data unsurprisingly shows that the highest number of admissions with acute respiratory virus infection is to the PICU and CICU; however this leaves non-infected children admitted to these units at risk of exposure and transmission is detected. Probable virus transmission detected during admissions (labelled HAI) is obvserved across the hospital, disproportionately higher than the ICUs and reflecting transmission from unrecognised reservoirs, which are common in children and their carers and staff, or long stay susceptible children likley to be tested.

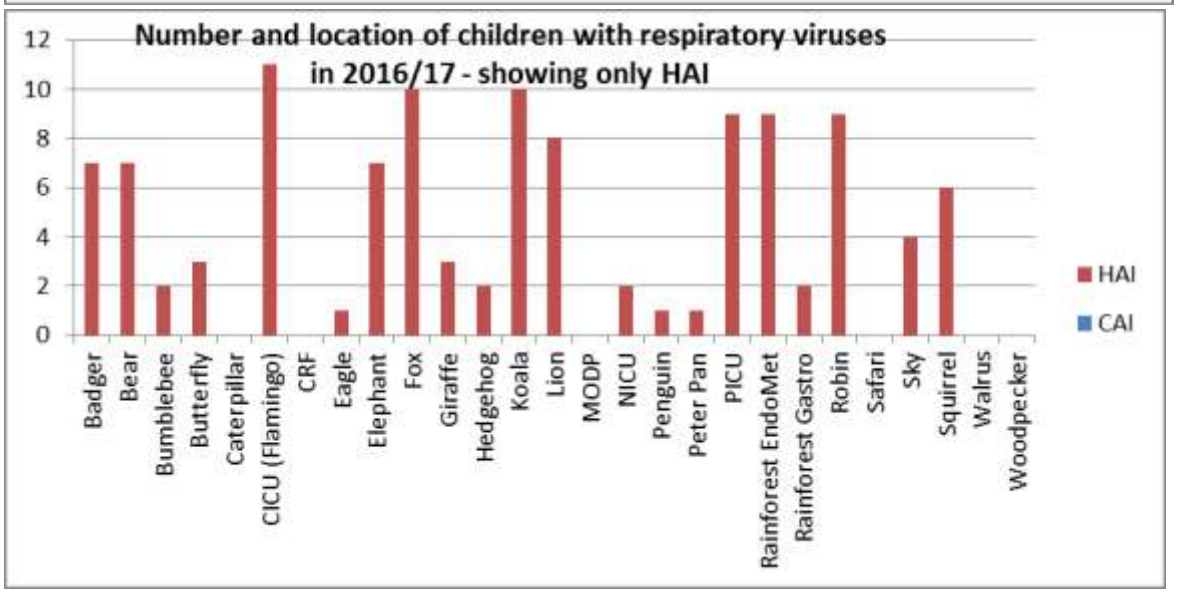
Implementation of standard precautions are designed to mitigate the risk of transmission but it has not been eliminated. We intend to keep focus on all staff, patient and family involvement with prevention.

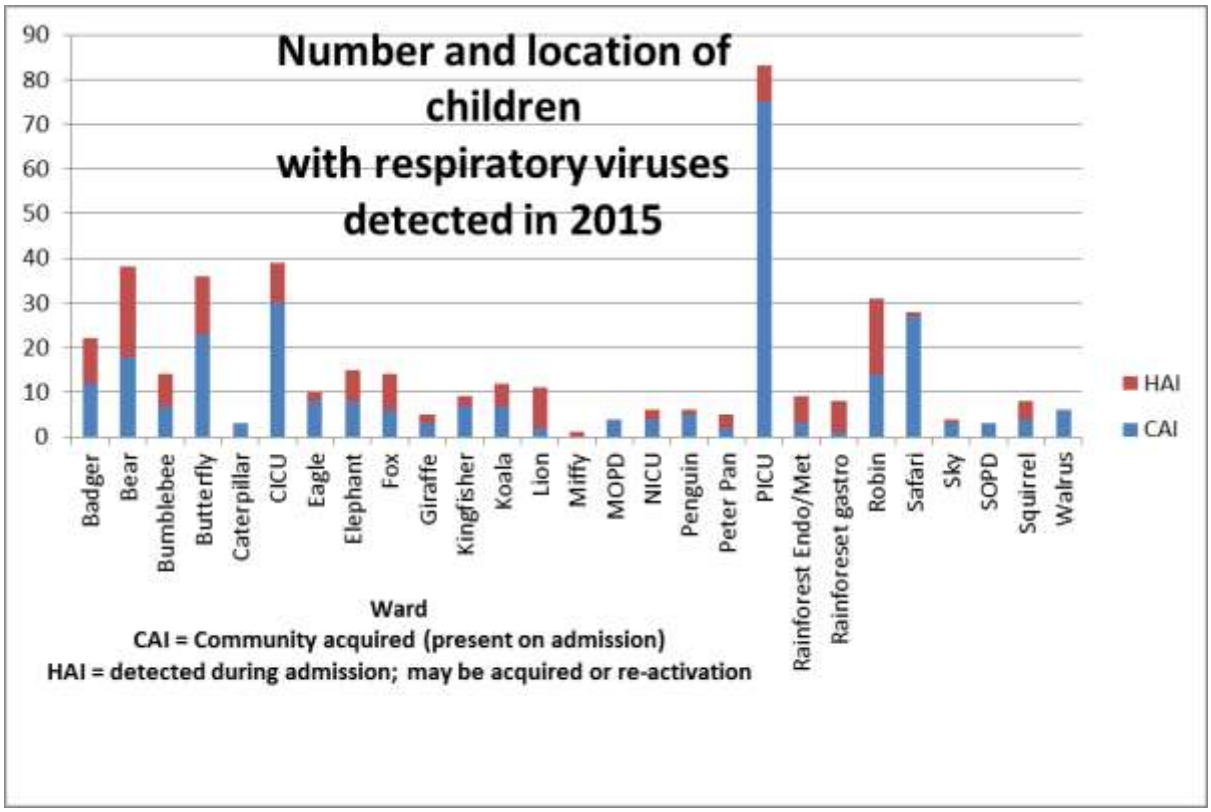
Numbers of respiratory viral infections detected in patients by financial year:

	2014/15:				2015/16				2016/17:		
	Total	CAI	HAI		Total	CAI	HAI		Total	CAI	HAI
Influenza	**55**	**45**	**10**		**51**	**41**	**10**		**46**	**38**	**8**
Influenza A	40	34	6		39	30	9		30	25	5
Influenza B	15	11	4		12	11	1		16	13	3
RSV	**99**	**81**	**18**		**126**	**80**	**46**		**97**	**71**	**26**
Parainfluenza	**75**	**51**	**24**		**25**	**14**	**11**		**77**	**55**	**22**
Parainflu 1	6	2	4		6	3	3		4	4	
Parainflu 2	13	7	6		7	3	4		17	11	6

Parainflu 3	53	41	12		11	7	4		56	40	16
Parainflu 4	3	1	2		1	1	0				
Adenovirus	**104**	**75**	**29**		**26**	**23**	**3**		**79**	**53**	**26**
HMPV	**51**	**37**	**14**		**11**	**8**	**3**		**33**	**25**	**8**
Rhinovirus	**10**	**8**	**2**		**17**	**9**	**8**		**30**	**16**	**14**
Enterovirus									**2**	**2**	
Human coronavirus	**5**	**5**	**0**		**1**	**0**	**1**		**10**	**2**	**8**
Total	399	302	97		333	230	103		374	262	112







5.15 Surveillance of Viral Gastro-enteritis

GOSH Trust outbreak and prevention policy includes isolation of children with suspected viral gastro-enteritis with emphasis on recognition and early intervention.

As in respiratory infections, children, parents and staff frequently enter the Trust incubating these common infections and act as sources for localised outbreaks. Control of these explosive outbreaks may require closure or restriction of admission to units, along with additional environmental cleaning, as attack rates are high and secondary cases occur.

Detailed investigation of these outbreaks and numbers of reported patients, staff or visitors affected are kept by the IPC team and the decision to close wards is based on risk assessment and epidemiological data.

Change in methods: For the last 3 financial years all faeces have been tested by PCR (so numbers cannot be compared to years before then).

The number of enteric viruses detected in 2015/16 was similar to 2014/15 (351 v 352) but the number with apparent hospital acquisition decreased from 153 to 139. The number detected in 2016/17 has increased significantly to 499, with 218 recognised acquisitions.

A slide showing the type of feedback from an outbreak control is shown below.

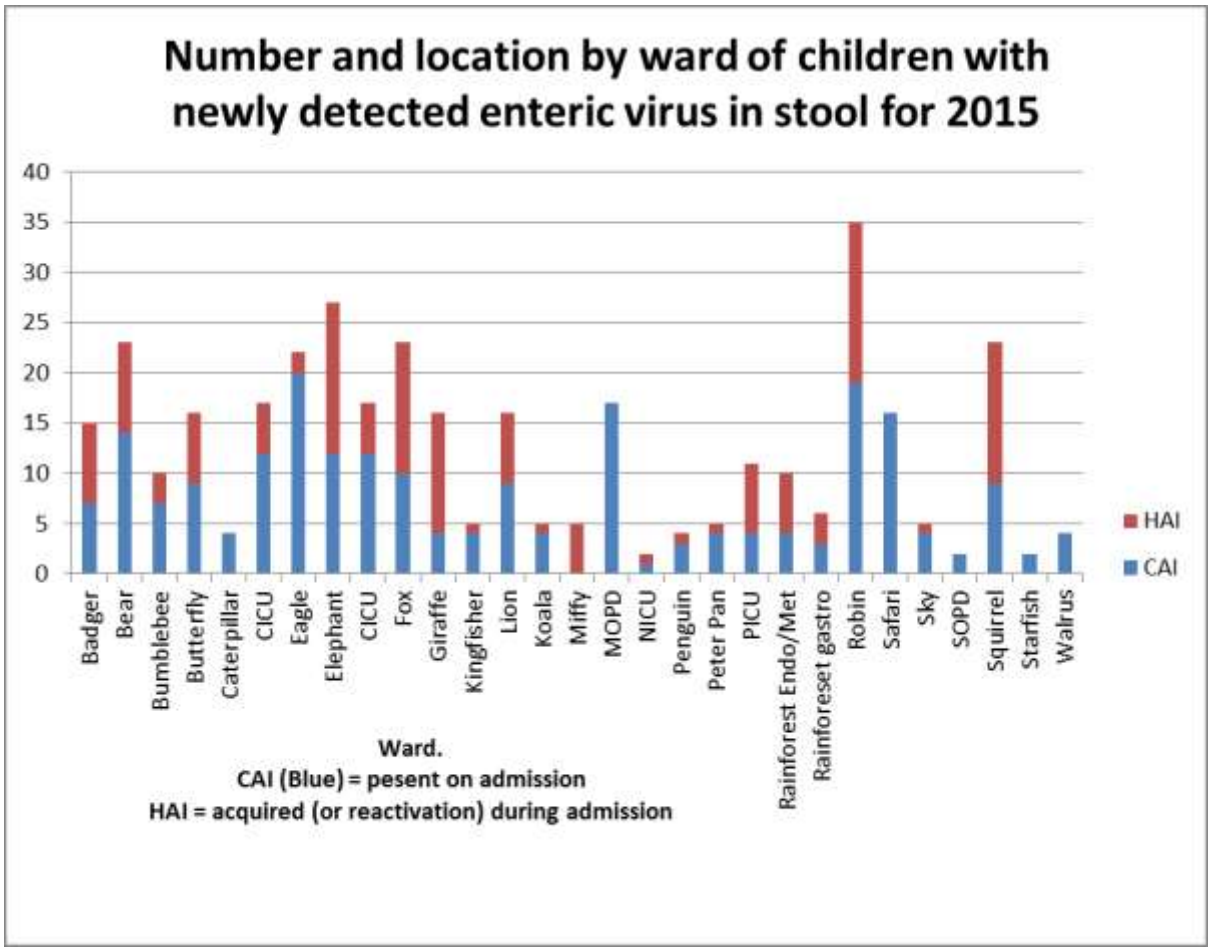
Table showing number of enteric viruses detected by financial year

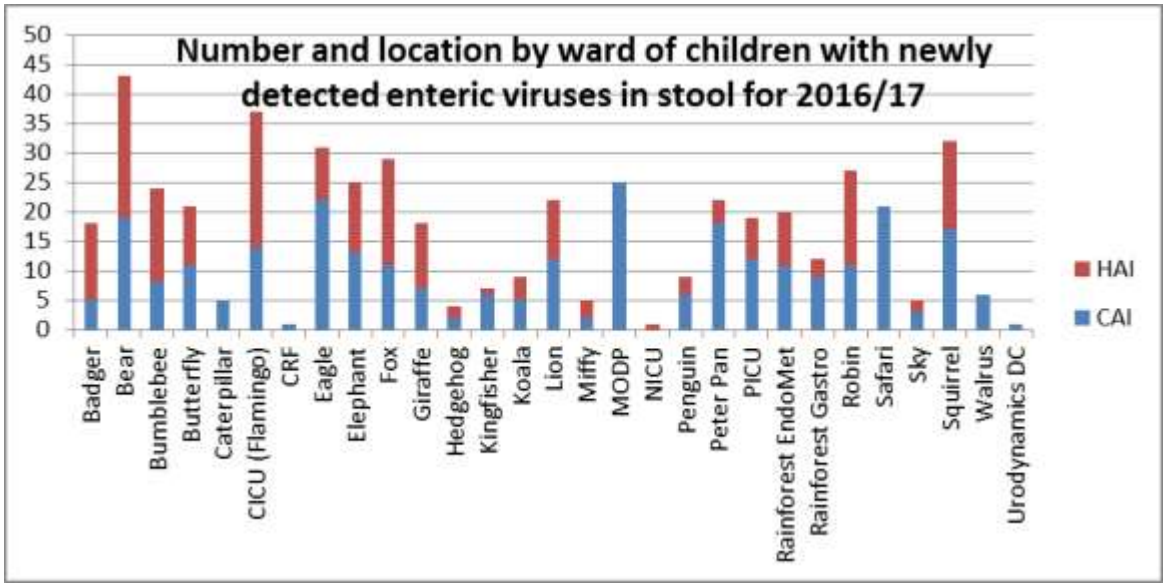
CAI = community oset

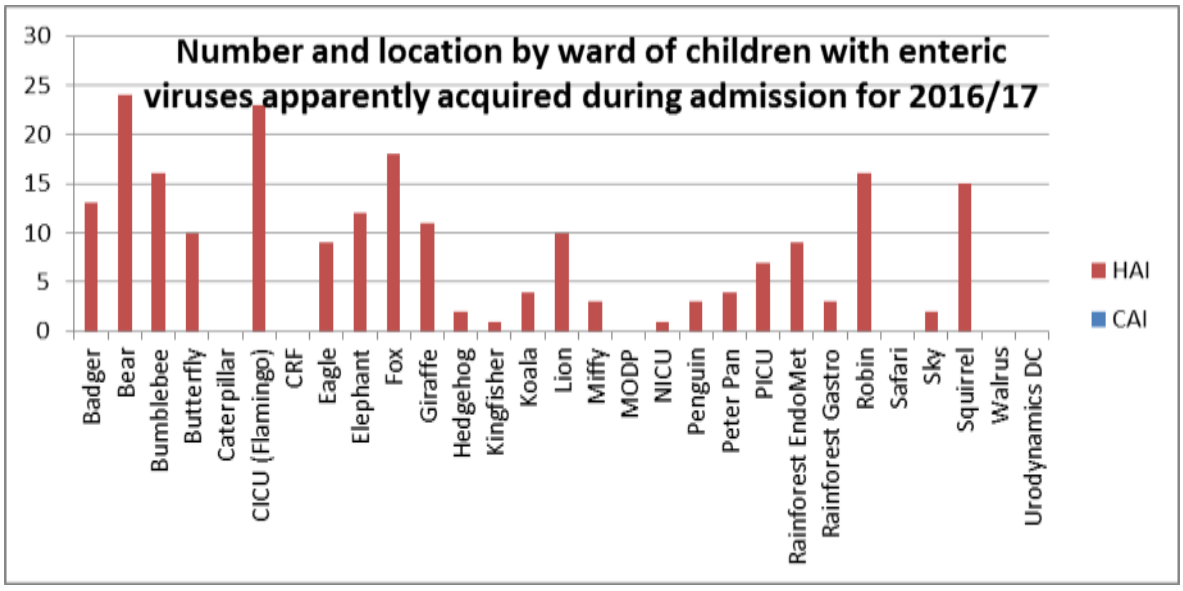
HAI = Hospital acquired (or relapse in immunocompromised)

	2014/15			2015/16			2016/17		
	Total	CAI	HAI	Total	CAI	HAI	Total	CAI	HAI
Adenovirus	106	63	43	106	62	44	205	124	81
Astrovirus	16	10	6	18	15	3	53	23	30
Norovirus	147	77	70	117	73	44	154	77	77
Rotavirus	20	16	4	21	15	6	28	21	7
Sapovirus	63	33	30	89	47	42	59	36	23
Total	352	199	153	351	212	139	499	281	218

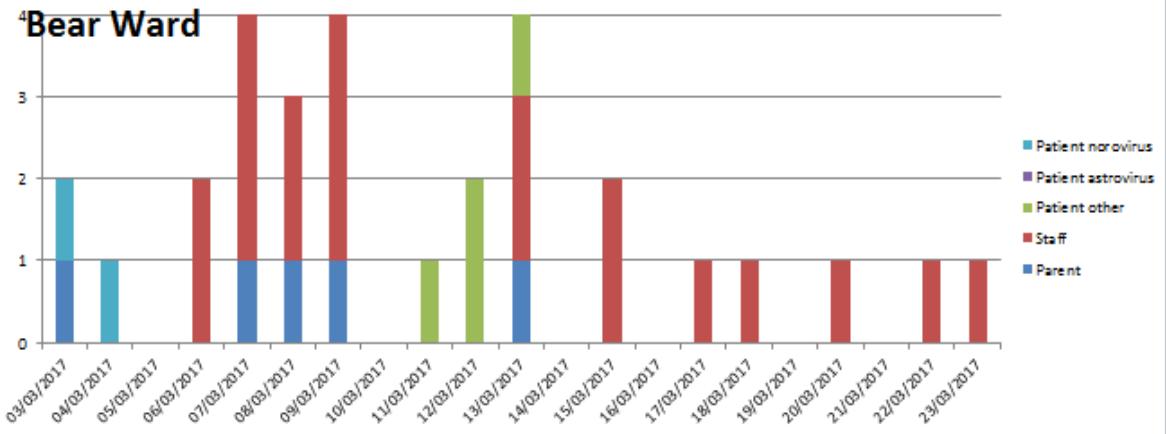
Number of detections is shown by virus and onset in the table and by ward child was on in the bar chart below.







Reflecting this large number of cases admitted or with onset in the hospital, disruption to clinical services have been the most intense for years. Outbreaks are managed where possible without ward or bed closure, however this was necessary 4 times in the year. Reasons for outbreaks are multifactorial, but frequently include failure to recognise and react appropriately to an initial infectious child and difficulty managing clinical services such that environmental control is not achieved rapidly. At times staff have also found difficulty maintaining good personal protection while working, especially in relation to water supplies.



Faeco-oral transmission of norovirus to the 2 children in bay. Source unknown.

Failure to control further faeco-oral spread to staff due to multiple factors but in particular
- inadequate environmental control
- inadequate personal protection (drinking, HH)

Environmental contamination
May be worsened by cleaning failure (chlorine not chlorclean)
Delay in testing, recognition of outbreak and additional controls.
Spread to staff and parents, with probable further contamination

Number of Ward closures Year on Year due to confirmed or presumed viral gastroenteritis

Year	***Predominant organism***	***Ward Closures or admissions restricted to emergency***
April 04 – Mar 05	Rotavirus	17 wards (range from 3-9 days)
April 05 – Mar 06	Rotavirus / Norovirus	11 wards (range from 3-7 days)
April 06- -Mar 07	Norovirus	9 wards (range from 3-10 days)
April 07 – Mar 08	Norovirus	5 wards (range from 2-26 days)
April 08 – Mar 09	Norovirus	8 wards (range from 2-10 days)
April 09 – Mar 10	D and V (no organism detected)	3 wards (range from 3 – 4 days)
April 10 – Mar 11	Rotavirus, Norovirus and Astrovirus	3 wards on restricted admission (6 – 19 days)
April 11 – Mar 12	Norovirus, Rotavirus, Adenovirus, or D&V cause not found Mixed viruses	10 wards on restricted admission* admissions (4 – 14 days) 1 ward was closed for 1 week**
April 12 – March 13	Norovirus, staff and patients affected	One ward was closed for three days
April 13 – March 14		No ward was closed.
April 14 – March 15	Norovirus staff and patient	1 ward on restricted admission
April 15 - March 16	D and V (sapovirus & norovirus)	1 ward closed (8 days) 3 ward on restricted admissions
April 16 – March 17	Norovirus, astrovirus	8 ward outbreaks with 4 ward or bed closures

Surveillance for antimicrobial resistant organisms

5.16 MRSA Admission Screening and acquisition, carriage rates and ward location

The Trust MRSA screening target is to screen all admissions in the 30 days prior to admission (or sooner if admitted elsewhere in those 30 days) or within 24 hours of admission.

Wards are provided continuous feedback on completion of screening through the Infection Control Report page (which wards monitor daily) and reminders from the IPC team.

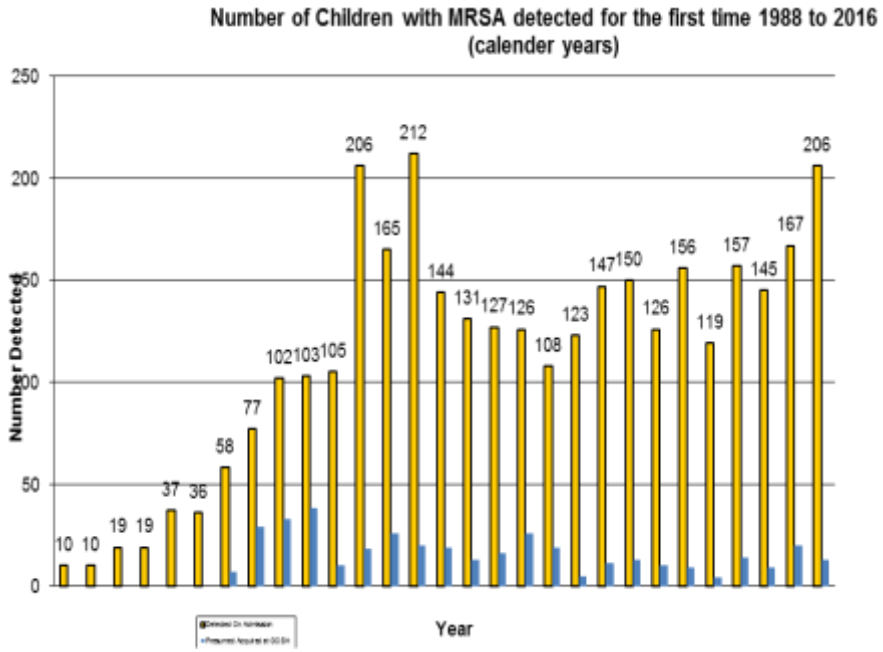
Automated admission screening compliance for admissions (30 day prior to within 24 hr) is under development.

MRSA cases of colonisation/carriage and infection at GOSH

Details of newly detected MRSA carriage is shown in the chart below by calendar year; in 2016 there were 187 new detections, with 19 probably or possibly acquired in the hospital.

In the financial year 16/17 there were 234 first detections, with 18 possible acquisitions.

Every apparent GOSH acquired case is investigated. There was one small outbreak this year of 2 linked cases; although single acquisitions occur, without obvious source. The degree of contact precautions used for known cases appears to be adequate.
Long term colonised patients are always present and represent ongoing risk.

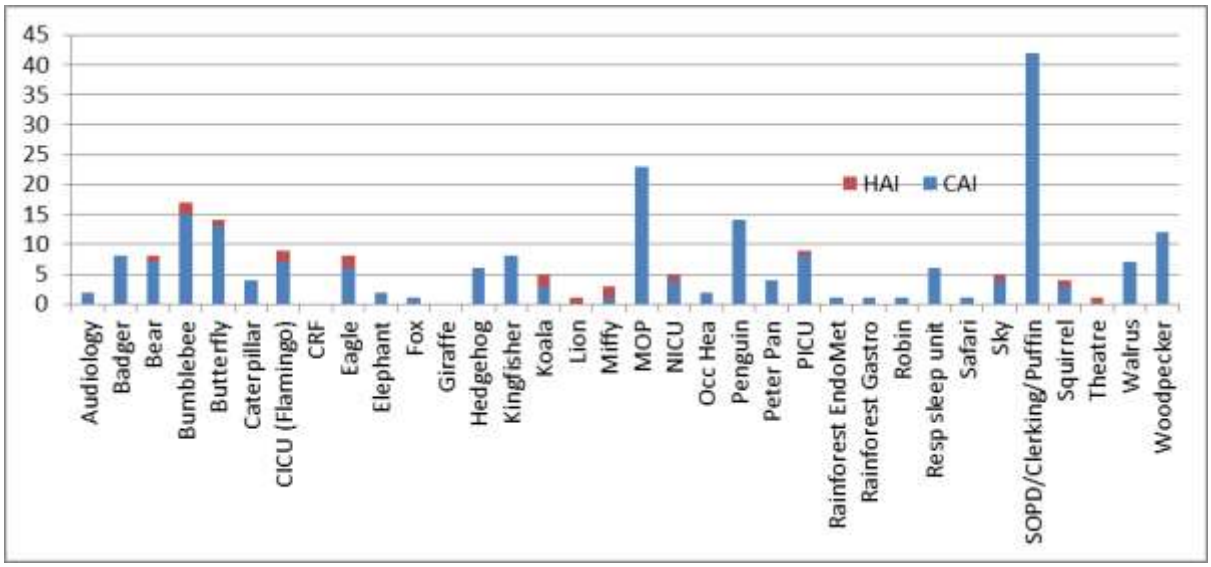


GOSH Hospital MRSA acquired colonisation by financial year:

	Number acquired colonisations
April 04 - March 05	19
April 05 – March 06	29
April 06 – March 07	9
April 07 – March 08	4

April 08 – March 09	16
April 09 – March 10	9
April 10 – March 11	10
April 11 – March 12	7
April 12 – March 13	6
April 13 – March 14	12
April 14 – March 15	7
April 15 – March 16	19
April 16 – March 17	18

Bar chart showing location of child when MRSA first detected in 2016/17



5.17 Multiple resistant 'gram negative' organisms (including transmissible carbapenemase producing organisms

Routine admission faecal surveillance is performed to allow instigation of isolation procedures in patients who are colonised with multiple antibiotic resistant organisms and transmissible carbapenemase resistance; knowledge of the presence of Gram negative organisms carrying linked resistance mechanisms between an aminoglycoside and other first line antibiotics is used to guide antibiotic choice for empirical treatment of serious sepsis.

We detect similarly colonised or infected children during procession of clinical samples and weekly faecal screening of inpatients in high risk areas (haematology, oncology, immunology and bone marrow transplant). Additional isolation procedures at instigated at considerable organisational, financial and individual cost.

Screening/testing in 2015 revealed 186 first detections (same as 2014), of which 136 came in colonised and 50 were either cross infection or detected as result of antibiotic selection with previous negative or unknown (as not screened on admission). The data has been

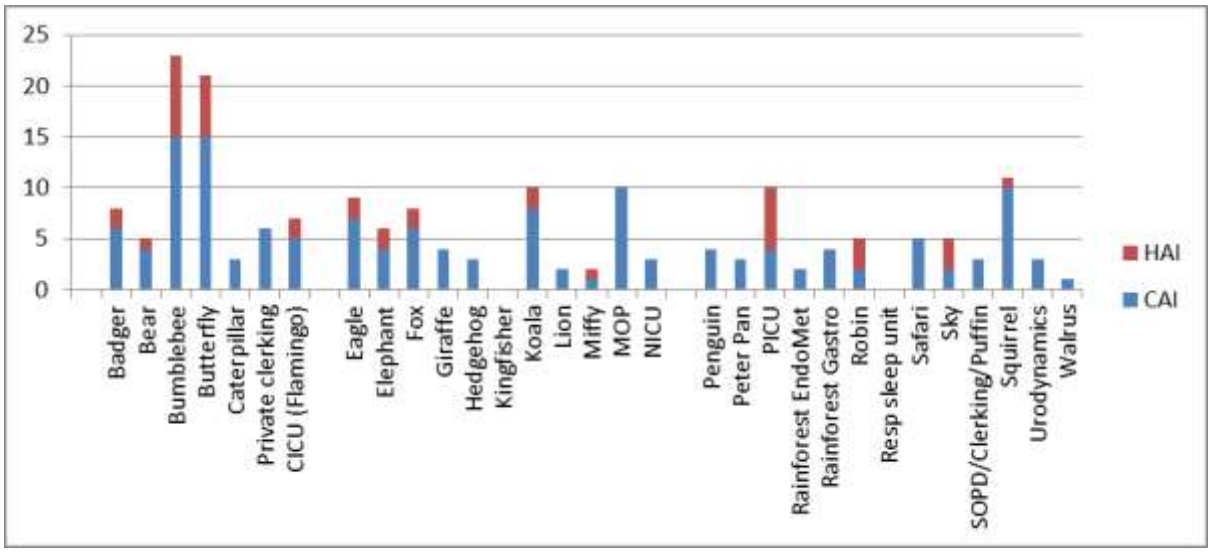
brought in to line with the financial year and shows in 2016/17 there were also 186 new detections, with 41 detected during admission.

This high level is due to the continuing national and international increase in antimicrobial resistant organisms but was also due to cross infection. Children are located in most wards (see bar chart below), with predominance in the International and Private Patients unit.

Potential acquisitions occur throughout the year and not all isolates can be investigated through detailed typing, so complete analysis of source is not possible. Where the initial epidemiological analysis strongly suggests cross infection further typing is undertaken and linked cases were confirmed in a number of wards. Undetected cross infection will be occurring. Detailed research is underway to answer help understand the epidemiology of these isolates.

The organisation is stretched in its ability to apply controls mechanisms without adverse impact on other aspects of care provision; however we feel it is essential to continue to do so.

Bar chart showing location of children colonised on admission or subsequently found to be colonised with multiple resistant gram negative bacteria by ward in 2016/17

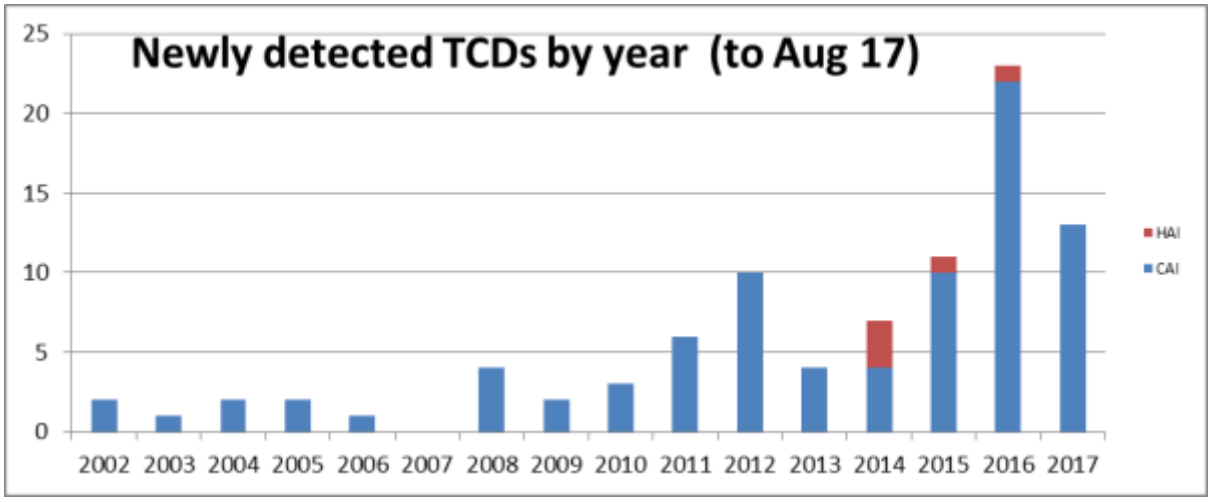


CAI = present on admission; HAI = detected during admission and possibly by cross infection

Carbapenemase resistant gram negatives

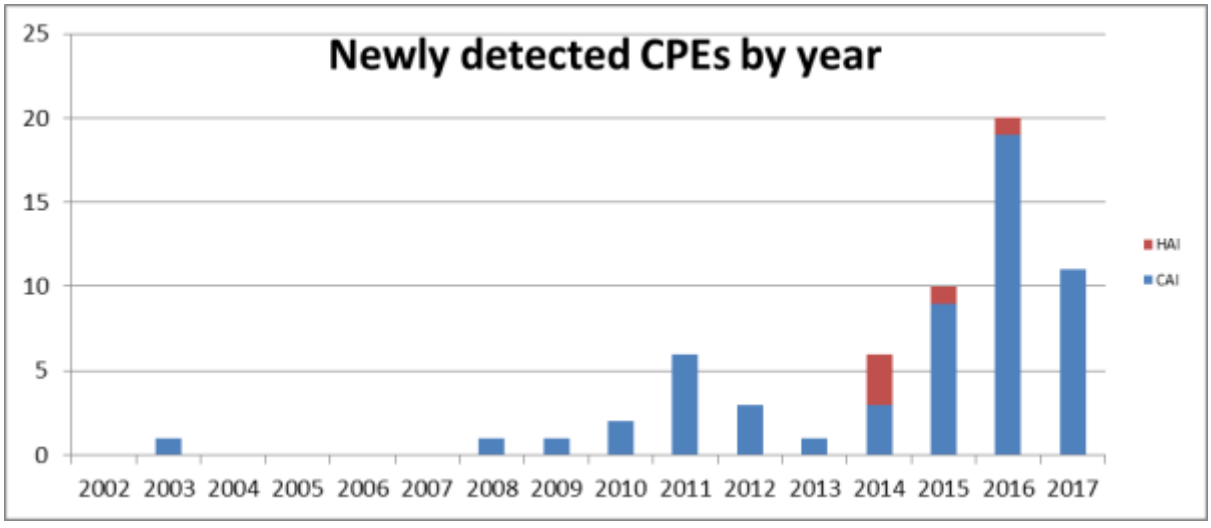
The transmissible carbapenemase resistance determinants (TCDs; blaNDM, KPC, oxa48, VIM and IMI especially) represents the most serious threat to treatment yet. Organisms carrying this mechanism may become truly untreatable. They are becoming more prevalent in various countries and regions within UK and have been responsible for major outbreaks. We screen for carriage and implement strict control mechanisms when found. There had been an increase in detection of children colonised with carbapenemase over the last 10 years, with an initial peak in 2012, but increasing again since 2015.

Bar chart showing the number of children newly detected as colonised with significant transmissible carbapenemase carrying organisms (Enterobacteriaceae, Acinetobacter spps, Pseudomonas aeruginosa) , by year (2017 data to end Aug)



Carbapenemase producing enterobacteriaceae (CPEs) Within the group of carbapenenase producing organisms there is a particular focus on CPEs (organisms which are part of the normal human gut flora and frequently associated with HCAI e.g. *E. coli, Klebsiella pneumonia*), with a control Tool Kit introduced by PHE. We have seen an increase in the number of patients with this type of organism.

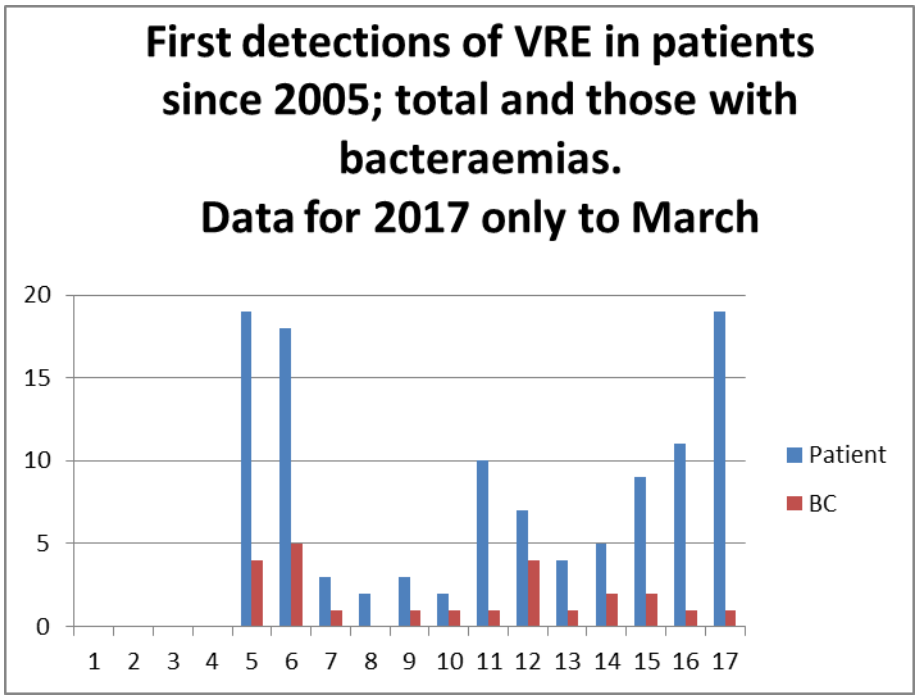
Bar chart showing the number of children newly detected as colonised with significant carbapenemase carrying organisms Enterobacteriaceae (CPEs) by year (2017 data to end Aug)



After the outbreak in 2014 we have controlled all introductions of CPEs to date, but some children, including neonates, are found to be colonised with no obvious source and extreme vigilance is needed.

5.18 Vancomycin resistant enterococci (VRE)

There has been an increase in detected colonisation with VRE, detected through serendipity as the screening media used for CPO screening improves VRE detection**.**



Detailed typing was undertaken in conjunction with PHE, Colindale.Majority of cases are unique – with an unknown source in the community /out of GOSH increase

There were some probably linked cases in haematology/oncology and CICU, but these have only been colonisation to date.

Need to ensure standard precautions are followed.

5.19 Serious Untoward incidents and complaints involving Infection, major outbreaks and threats

Serious Incidents: In the 2016/17 financial year there were no SIs declared involving IPC.

As listed under 5.15 Viral Gastroenteritis, ward closures were necessary in the control of 4 outbreaks this year.

There was a significant whooping cough exposure requiring patient and staff prophylaxis. The NENCL HPU gave support during this extensive control programme. No patient cases were detected.

6 Hand Hygiene and Aseptic Protocols

6:1Hand Hygiene and CVC on going care guidelines

The emphasis on carrying out hand hygiene at the 'point of care' through the '5 moments' campaign has been adopted across the organisation.

The Trust clinical practice guidelines are available on the GOSH Web within the Infection Control link. Alcohol gel hand hygiene products are placed inside all ward areas to encourage staff, visitors and patients to decontaminate their hands within the clinical area. Compliance with the CVL ongoing care bundle is essential for the prevention of line infections.

Regular audit is undertaken (see section 9).

6.2 Other Saving Lives High Impact Interventions

In addition to auditing hand hygiene compliance and compliance with the CVL care bundle the following areas are audited regularly and they results are on the Trust intranet dashboard against the relevant ward / department as part of the 'Saving Lives' programme:
- Peripheral line care bundle (insertion and maintenance)
- Urinary catheter care bundle (insertion and maintenance)
- Renal dialysis care bundle audited
- Isolation precautions audited annually

7) Facilities Annual Report Summary – 2017

Report received from Margaret Hollis
Environment
Following a tender process through PPS Procurement, a new Soft FM Services Contract was awarded to the successful bidder Outsourced Client Solutions (OCS). The contract commenced 1 August 2016 with an initial duration until 31 July 2021. Since the start of the contract the standard of cleanliness across the Trust in clinical and non-clinical areas has improved. This was evidenced in the improved score for the 2017 PLACE assessment that

took place 9 March 2017. Working cohesively with OCS a Mini PLACE Assessment Tool will be introduced to enable the Trust Floor Managers to validate an environmental audit in accordance with PLACE criteria.
A Trust wide waste bin replacement has been carried out to encourage behavioural change for staff, parents and visitors to the Trust. This supports sustainability by adopting the correct waste streams for disposal of waste.
There has been a noted reduction in the volume of food waste. Facilities have commenced a review of the Catering service with the aim to improve menu choice for patients and improve on the choice of Healthy Food options for visitors that eat in the Lagoon Restaurant. These improvements will ensure food waste is kept to a minimum

Decontamination
Decontamination Services which include: Sterile Services, Endoscopy decontamination and Medical Equipment cleaning and disinfection has undergone a tender process through PPS Procurement. The successful provider is Steris IMS. The new contract commences 1 November 2017. The new provider will work with the Trust to introduce innovation to the service. Guys and ST Thomas Hospitals NHS Foundation Trust, the incumbent, will work closely with the Trust and Steris IMS through the mobilisation process
Implementation of NICE IPG 196 for reduction of risk of transmission of Creutzfeldt-Jacob disease (CJD) vie interventional procedures is nearing implementation. Steris IMS have demonstrated the governance process in place to manage GOSH Trust inventory of Pre and Post 97 Neurosurgical instruments.

Additional items:
Risk from cardiac bypass heater cooler units
The HCUs were previously found to be colonised with Mycobacterium chimera but actions were in placer (good theatre ventilation) or put in to place (positioning) to minimise risk and justify continued use. Replacement machines have now reached production and when additional components are available we will switch.
J C H

8. Estates

Report compiled by Jeffrey Legge

8.1 The extensive programme of verification of specialist ventilation was followed in theatres and most areas, but was not able to proceed to schedule in clinical ward areas. This has been prioritised in 2017/18 with ward closures underway to accommodate plan. The Estate team continue to work closely with the IPC team in improving the practices of maintenance and monitoring on the both the ventilation and water systems.

8.2 Authorised engineer water has been appointed there is a further recommendation in HTM 04 to appoint a responsible person these positions will bring a more positive approach to the experience in both developing the safe working practices and the few issues when then have arisen.
8.3 Water safety is now managed through the Water Safety management Group, chaired by DIPC. All systems continue to be tested, monitored and reported on in liaison with the IPC. The remedial works have been acted on quickly from notification. Communication and cooperation with the end users that now understand more clearly the work that goes into the

maintenance of the safe deliverability of water to their areas. Water Safety Management Group continues to develop and manage risk associated with water. There is an expanded programme to control risk from Pseudomonas aeruginosa.
8.4 Pseudomonas aeruginosa continues to be tested for, with extension to other areas with at risk patients, presently it does not present itself as a risk under the on-going control measures undertaken by the Estates and clinical teams.
8.5 MSCB continues to be closely monitored as being operated outside of the guideline under derogation, at the lower temperature of 43^0C without any problems. A lot of work in rebalancing the water system throughout the building has been undertaken since the last report and concern which has provided excellent results and removed the concerns from continued poor readings from several areas.
8.6 Risk from heater cooler units has been identified as low risk but on going pending manufacture of new equipment.

9 Trust wide Audit

The infection control Trust-wide audit plan is now well embedded in the Trust's overall audit programme and registered with audit department. This plan is based on the internal and external infection control strategy which includes elements of High Impact Interventions from the "Saving Lives" programme. The infection control link network personnel in the Trust take responsibility, with guidance from the IP&CT, for performing planned audits. To support and provide additional information the IP&CT have carried out hand hygiene audits form January 2016 to December 2016..

Antibiotic prescribing – review was audited in line with the CQUINS for 2016/1 (see separate report below)

9.1 Public Health England (PHE); Point prevalence survey

The infection control team completed the national point prevalence survey in 2016. Summary data showed

Summary Data: HCAI, AMU, Devices

247 patients met criteria for inclusion in PPS from your organisation

Number	% total	Has HAI	% HAI	Receives Antimicrobial	% AM
247	100.0%	14	5.7%	140	56.7%

Peripheral Venous Catheter	% PVC	Central Venous Catheter	% CVC	Urinary Catheter	% UC	Intubation	% Intub
85	34.4%	129	52.2%	22	8.9%	35	14.2%

For detailed organisation data with ward breakdown see table 1.

9:2 Hand Hygiene Results

Hand hygiene audit has been undertaken in different ways.

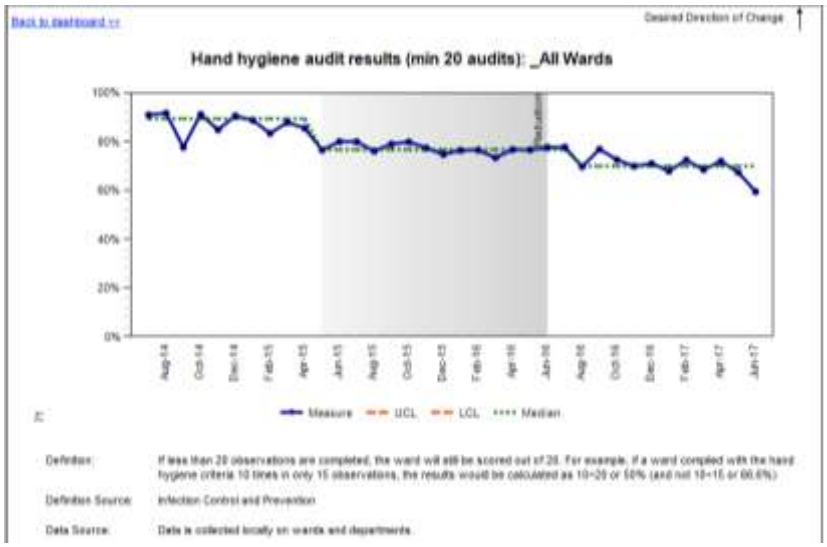
Ward based audit: There is a continuous audit process for compliance with hand hygiene requirements. This is traditionally undertaken by ward based staff and recorded on an online tool. Each area is asked to undertake a minimum of 20 observations a month and if they do not complete this number the missing observations are recorded as a failure.

Hence there are two dashboard data displays, either including negative scoring for non-completed minimum (Audit type 1) or taking into account only the actual observations (audit record 2). The latter measure includes a component of audit of the ability to undertake audit.

Individual ward/department and All Trust Hand Hygiene compliance is published monthly on the Transformation dashboards and reviewed by Divisional Boards and Nursing.

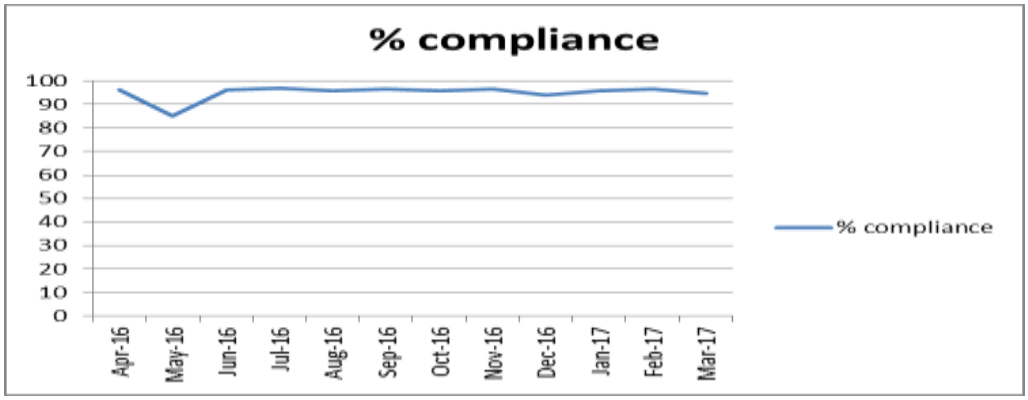
IPC Team based audit: In addition the IPC team have undertaken independent audit.

Ward based Hand Hygiene - All Trust compliance (with zero score for non-returns) (audit type 1 as above):



The data for March 2017 represents 1722 individual observations, with compliance in 1631; but because many areas did not complete 20, the dashboard shows 68%.

Audit display – absolute values



Compliance recorded by completed audits for March 2017 shows 95%.

Completion of audit has continued to decrease in this financial year, although compliance when assessed is still high.

Infection control team audit

Infection Control Precautions Audit (November 2016)
Purpose of audit – to review if quality standards are being met around infection control precautions.
Method Observation audits undertaken discreetly by Infection Control team for one week in January 2016 on electronic tools designed by Clinical Audit department.
Key headline results
896 observations were undertaken across 21 inpatient wards.

Infection Prevention Society Standards for contact precautions were reviewed on each ward. The mean % of standards met is 85%.

Hand Hygiene audit

The Infection Control Team completed a number of observational hand hygiene audits in addition to the standard audit programme for the year 2016/17. These audits were completed in May 2016 and November 2016 and reported to the divisions and the Infection Control committee. As a result of the audits completed by the team the Trust has moved to auditing the '5 moments' for hand hygiene in the audit tool as well as including a section to monitor staff compliance with Bare below the elbows.

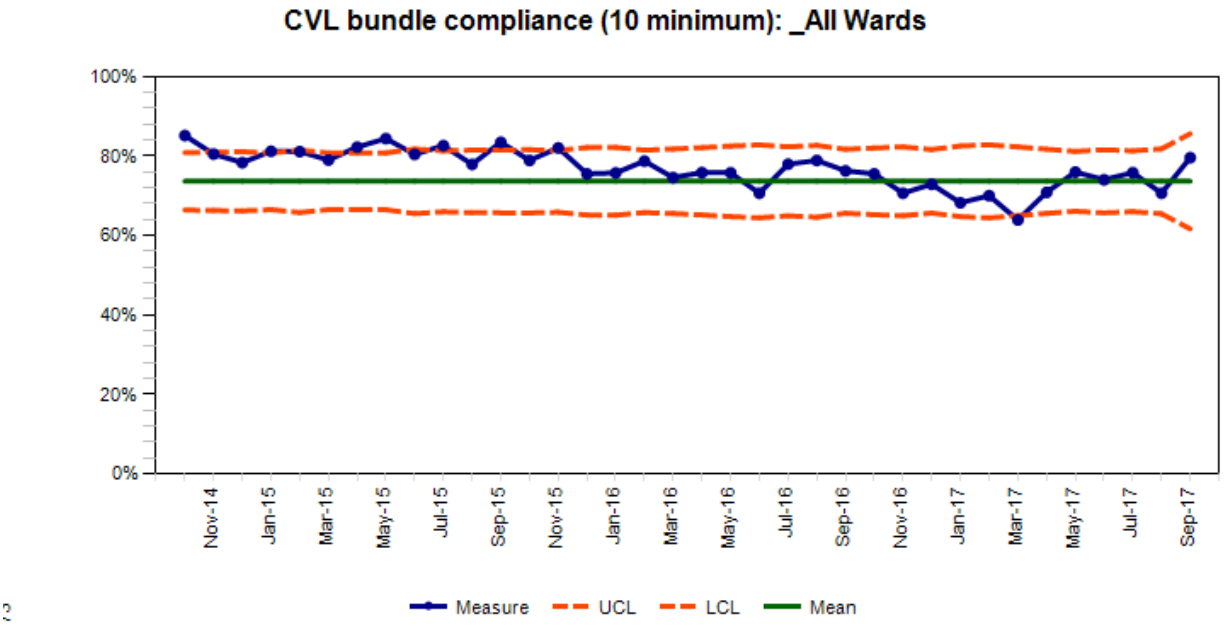
Developments: Because of the differences between the audit processes and recognition of an audit fatigue, the IPC and Divisional teams have considered these audit reports and elected to modify the process. The J M Barrie Division will be championing a more intense audit day with action plan while C West is asking the senior nurses to undertake the audit themselves.

9:3 Central Venous Line Ongoing Care

Audit of the Saving Lives HII CVL care bundle is performed monthly from all areas with frequent CVLs. As with hand hygiene, it is reported as All Trust and individual ward data on the Transformation Dashboard with negative scoring for less than 10 audits.

Compliance seen as % of audit observations done is shown on graph and has gone down in reflection of the reduction in compliance with completion of audit.

CVL ongoing care bundle audit – compliance of observations expected (areas not providing a return are scored as zero and bring down the overall Trust audit.)



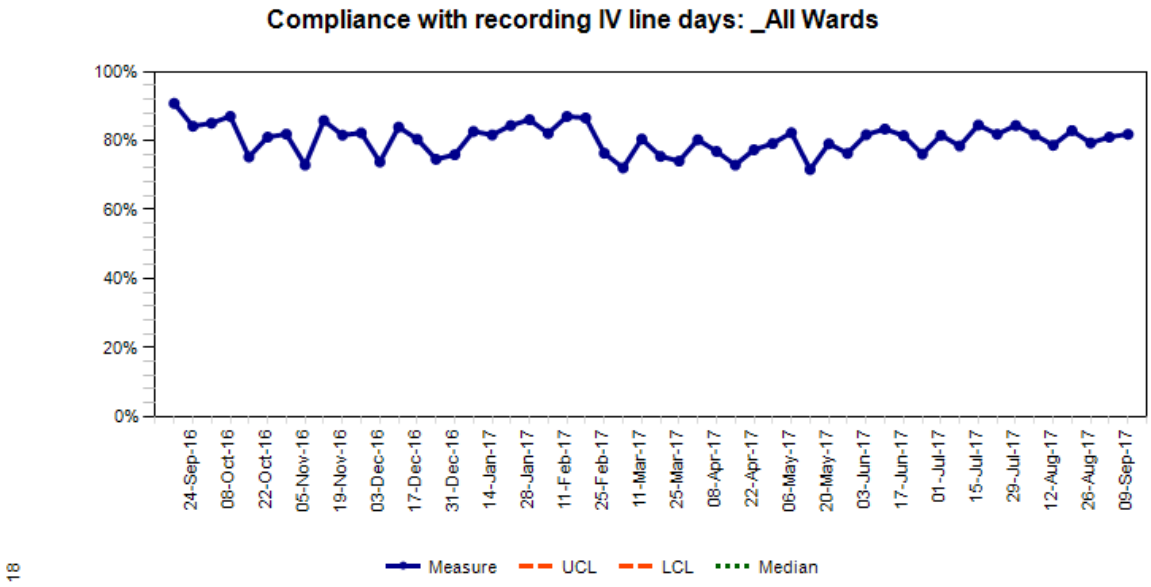
Definition: CVL bundle compliance. Must have a minimum of 10 audits per month - where there are less than 10 in a month, the measure percentage will still be calculated as if 10 were carried out.

The time point for March 2016 represents 206 satisfactory observations out of 234 performed with a rate of 88% but shown here as a rate of 64%. Completion of audit has fallen off in this financial year, with 2809 audits (compared to 3405 last year) with overall compliance of audits undertaken 86%.

The actual compliance is below the target for CVC bundle compliance and both divisions need to focus on this in their action plans.

9:4 ‘Line days’ data entry for CVC surveillance

To enable the continuous surveillance of GOSACVCRB related bacteraemia, denominator data is entered on a daily basis by wards. Compliance with data entry is audited.



18

Definition: The percentage of patients that have been recorded as to whether or not an IV line is present.

A single line day would be the presence of a single CVC in a patient for all or part of a day. There are various types of CVCs surveyed, they are already described on the dashboard document.

The presence of CVCs with more than 1 lumen (often they have 2 or 3) is counted as 1 line day.

If there are 2 or more separate CVCs per day in the patient, each CVC will be counted separately.
The denominator number of line days is calculated by each ward recording the number of lines in each inpatient present on the ward overnight. The inpatient list is generated from PIMS overnight and displayed electronically for the ward to enter the number of lines present.
The number of line days is calculated for the month by addition of the daily return by ward area.

Individual wards are provided with specific line infection outcome data and encouraged to maintain high line day data entry.

All dashboard data is discussed at each divisions infection control board. The divisions must develop a plan to ensure compliance against these audits.

9:5 Antibiotic prescribing, audit and antimicrobial stewardship.

Below is the summary report of the work towards the CQUIN in 16/17. Author J C Hartley, DIPC

2016/17 CQUIN 4 : Antimicrobial resistance and antimicrobial stewardship
– The Trust participated in the 16/17 CQUIN for antimicrobial stewardship reporting on consumption and prescription review within 72 hours. This was overseen by the DIPC (chair of the stewardship committee at beginning of year) and the final report and discussion is shown below

Report of CQUIN 4 : Antimicrobial resistance and antimicrobial stewardship
Outcome:

CQUIN 4a Consumption - sub parts 1-3
The consumption has not decreased by the measure Day of therapy/ 1000 patient days.
However, it has for 2 of 3 ('All antibiotics' and piperacillin/tazobactam) when viewed through the measure antibiotic doses/ 1000 admissions (close to the original DDD/1000 admission)

CQUIN 4a Data sub part 4: Intermediate year data is provided.

CQUIN 4b - 72 hour review: Targets all achieved.

4a. Reduction in antibiotic consumption
NHSE proposal - Reduction in antibiotic consumption (defined daily dose DDD) per 1,000 admissions
There are three measures to this indicator and one data request
1. 1% Total antibiotic consumption per 1,000 admissions
2. 1% Total consumption of carbapenem per 1,000 admissions
3. 1% Total consumption of piperacillin-tazobactam per 1,000 admissions
4. A quarter of the value for provision of data for 20144/15 and 2015/16

Due to concern over the wide variation in daily dose (due to range of patient weights), we felt it was difficult to select a DDD and proposed an alternative measure:

GOSH Proposal. To use a measure for antibiotic consumption based on number of days patients are exposed to a drug (patient 'Day on Therapy') per number of days at risk of exposure (inpatient days).
Numerator: Patient 'Day on Therapy) – if an inpatient receives an antimicrobial during the defined period of 1 day, they score one DOT. For all antibiotics, each drug is treated differently and so if on 2 drugs they would score 2 DOT.
Source of data: electronic JAC medicines management system and PIMS
Denominator: total number of hospital inpatient days, divided by 1000. Source PIMS.

Patient groups:

1. Non-intensive care (ICU), non-international and private patients (IPP).

Electronic prescribing was available for the baseline year (2013/14) and ongoing for non ICU areas that used the JAC system. NHS England asked us to remove IPP, so the consumption data with baseline comparison is provided for 'non-ICU, non-IPP' patients.

2. ICU areas.

Electronic prescribing was introduced in Nov 2015 for the ICUs (using Careview). (This excludes the use of prophylaxis in cardiothoracic surgery as it is not recorded electronically.) As base line data was not available, we agreed to provide data from Jan 2016 and establish a base line year in 2016/17 for ICU consumption.

1. Consumption data for Non-ICU, non-IPP patients:

i. Consumption as 'Day on therapy' per 1000 inpatient days

Financial Year	**All antibiotic**	**Meropenem**	**Piperacillin/tazobactam**
2013/14	595.3	28.4	62.9
2014/15	642.7	35.9	61.0
2015/16	596.4	34.4	59.7
2016/17	623.3	36.6	63.4
% Change from baseline year	4.5	22.3	0.8

Alternative (nearer to original CQUIN) consumption

ii. Consumption as Antibacterial doses / 1000 admissions

	All antibiotics	**Meropenem**	**Piperacillin/tazobactam**
2013/14	3271.3	211.0	565.2
2014/15	3452.0	267.0	551.7
2015/16	3229.3	251.9	527.1
2016/17	3226.7	256.3	529.6
Change from baseline year	-1.4	17.7	-6.7

Using this measure, greater than 1% reduction was met in 2 of the three groups 'all antimicrobials' and piperacillin/tazobactam.

2. Consumption Base line data for ICU patients

Year	**ICU consumption as 'Day on therapy' per 1000 patient days**		
	All antibioitics	**Meropenem**	**Piperacillin/tazobactam**
2061/17	1318.5	107.3	204.3

	ICU consumption as doses per 1000 admissions		
	All antibioitics	**Meropenem**	**Piperacillin/tazobactam**
2061/17	19086.5	1873.9	4308.8

CQUIN 4b: Empiric review of antibiotic prescriptions

NHSE proposal: To increase the percentage of antibiotic prescriptions reviewed within 72 hours

Numerator: Number of antibiotic prescriptions reviewed within 72 hours
Denominator: Number of antibiotic prescriptions included in the sample (>/= 50 per month)
Target: Based on achievement in each quarter within 2016/17
Method: One day a month pharmacy staff undertook a ward based review of all antibiotic prescriptions, recording evidence of a review for those who were on the antibiotic for > 72 hours. Other data collected covered indication for prescription on EP and if prescribed according to policy or advice.

Outcome of audit of empirical antibiotic prescription review in 2016/17

	Target %	**Achieved**
Q1	25	**91**
Q2	50	**93**
Q3	75	**94**
Q4	90	**97**

Outcome: CQUIN 4b - Targets all achieved.

Discussion on antibiotic consumption CQUIN

Antibiotics play a crucial role in the care of children, for both treatment and prevention of infection. A large number of children are immunocompromised by their disease or treatment, while others undergo major surgery; resulting antibiotic use is high.

During 2016/17 in the non-ICU/non-IPP group the percentage of children on any antibiotic each month ranged from 31 – 38%, while for children on the ICUs it ranged from 55 to 83% .

The primary goal of individual antibiotic policy has been to ensure adequate antibiotic therapy is initiated taking into account the immune status and risk of antimicrobial resistant infection. There are antibiotic policies in place for most situations and the choice of antibiotics should be according to the Trust Wide or local policy or modified by discussion with microbiology/infectious diseases. Use of carbapenems (almost exclusively meropenem in GOSH) is restricted, requiring approval from microbiology/ infectious diseases.

Weekly or twice weekly ward rounds are undertaken with the ICUs, bone marrow transplant, cardiac and lung transplant, international and private patients, neurosurgery, haematology and oncology teams to assist with patient management and stewardship. Additionally, treatment of all children with positive blood cultures are discussed.

Recording the indication for prescription, compliance with policy and documented review are components of antimicrobial stewardship focused on and regularly audited by Pharmacy (as part of ongoing antimicrobial stewardship). The additional audit data of these components (not part of the 16/17 CQUIN), shown below, indicate that policy compliance is high, with 0 – 4% of prescriptions not to policy each month.

Month	**No. reviewed**	**% Indication on EP**	**% GOS policy**	**% local policy**	**% Micro advice**	**% None**	**No. > 72 hours**	**% reviewed**
06/16	247	84	72	13	13	2	184	91
07/16	125	62	73	14	10	4	106	96
09/16	244	85	78	11	10	1	202	91
10/16	271	89	75	12	9	1	194	88
11/16	256	87	71	19	9	1	188	95
12/16	292	90	75	16	8	2	247	97
01/17	280	88	63	22	12	3	181	97
02/17	214	85	84	2	14	0	183	100
03/17	244	90	71	11	16	1	191	94

The 2016/17 CQUIN set the new challenge of a reduction in consumption compared to the 2013/14 baseline.

To comply with this CQUIN required discussion on what parameters were appropriate for a paediatric hospital and then the application of a skilled data analyst to abstract electronic prescribing and patient admission data. This took 6 months to achieve for the non-ICU data and has only recently been achieved for the ICUs.

During this exercise we were able to achieve detailed actual dose administration level data and are able to use this to give the modified measure we had proposed and alternative measures such as actual number of doses / 1000 admissions (approximating to the original CQUIN). The modified parameter shows no reduction, but the dose/1000 admissions shows reduction in all antibiotics and piperacillin/tazobactam. Meropenem still shows an increase, which may reflect both the introduction of the sepsis 6 programme, and the presence of resistant flora altering our empirical therapy.

In 2017/18 we will be continuing to focus on antimicrobial stewardship through a newly reconstituted AMS Committee and through consolidation of sepsis 6. We aim to have an extended educational and engagement process with all areas and have submitted a business case to the Trust to fund additional antimicrobial pharmacy and microbiology/infectious disease time.

J C Hartley
DIPC

9.6 Antimicrobial Stewardship Committee plan for 2017 – Report from Dr Bamford

The AMS committee is now chaired by Dr Alasdair Bamford, ID consultant. The terms of reference and membership have been reviewed. This is in line with NICE guidance on antimicrobial stewardship and continued response to the previous patient safety alert on AMS. The purpose and strategy of the committee are under review and are currently being finalised. The first meeting was held on the 7th April with a view to quarterly meetings. 4 main work streams have been identified (Policy, Resistance reporting, Education, Audit) each of which have a lead. Main themes emerging for each work stream:

- Policy:
    - accessibility of policies has been highlighted as an area for improvement and mobile phone apps are being considered alongside other solutions in conjunction with QI teams.
    - Prescribing practices relating to surgical prophylaxis have been reviewed and are part of ongoing work in liaison with theatre staff
    - Trainee involvement in policy review process is to be trialled
    - Review of febrile neutropenia policy is planned in relation to Piptaz/Mero/Amik and antifungal consumption

    - An antifungal stewardship programme is under development (BMT – lead by BMT, All other areas – lead by ID/micro)
    - GOSH will be taking part in a national audit of antifungal use
- Prescribing audits:
    - Quality of prescribing and 72 hour review are to be a main area to focus on
    - Liaison between AMS team and EPR planning team is ongoing
    - Electronic solutions to pharmacist monthly audit is to be developed (trainee/pharmacy)
    - Dashboard to be developed relating to prescribing and CQUIN targets (see below) in collaboration with QI
- Resistance reporting
    - Further work to delineate which will be the key outcomes of use to report to the AMS committee
    - Trends in resistance patterns in relation to colonising and invasive organisms will be reported in the first instance
- Education
    - Work to raise the profile of AMS activities throughout the trust is ongoing
    - Standard training for ID/Immunology training now
    - Should be increased emphasis in the medical/nursing/pharmacy induction which is being explored
    - Awareness to be raise by involvement of members of the AMS committee in Antibiotic Awareness day etc.

CQUIN targets on antimicrobial consumption are likely to be continued in to 2017/18. Reduction in overall use, piptazobactam and meropenem as previously. Stewardship rounds will be increased in relation to piptaz/mero through joint working of the micro/ID team.

GOSH has contributed to ECDC and GARPEC point prevalence surveys. Data from this will be used to inform strategies for AMS.

AMS committee continues to work alongside the Sepsis 6 committee to ensure that stewardship is a major element of new strategies for timely empiric antibiotic therapy in sepsis in GOSH.

A business case has been submitted for an overall antimicrobial stewardship programme including a full time pharmacist and additional consultant P.A.'s. The outcome of this is awaited.

9.5 Sepsis

9.7 Surviving sepsis and antimicrobial resistance

The below update is drawn from the clinical lead of the Sepsis Committee, AMS Committee Chair and DIPC as submitted for Update provided for CQC Sept 2017

Details of any actions you have undertaken in the last 12 months to improve management of sepsis.
Include your current use of assessment tools; use of national guidance; management of 'Red flag sepsis' patients & screening and treatment using the 'Sepsis Six' care bundle where relevant.

In September 2016 a Quality Improvement programme was set up to improve the timely recognition and treatment of sepsis. This programme has overseen the development of a Sepsis 6 protocol, suitable for use across all specialties at GOSH, based upon NICE guidance, UK Sepsis Trust paediatric resources and learning from other paediatric centres. Following an initial pilot across four wards, the Sepsis 6 protocol was implemented across all specialties in January 2017. The protocol clearly defines the amber and red flag signs for sepsis and supports staff to escalate a suspicion of sepsis appropriately, delivering the six core interventions in one hour to patients with a high suspicion of sepsis. The Sepsis programme has worked closely with the AMS team in ensuring that advice is consistent and any improvement actions taken by either programme is cognisant of an effect on the other. Since the implementation of the Sepsis 6 protocol, staff have been supported through nursing and medical training programmes, including access to simulation sessions, development of a Sepsis 6 app which allows opportunity for real-time data collection of sepsis recognition and management and project support for local improvements to systems and processes which facilitate recognition and treatment of potential sepsis within one hour. We have also provided parent and family information leaflets to educate and raise awareness about sepsis out of hospital. We have shared the learning from this programme at national and international conferences and are in communication with other hospitals and regional networks to share best practice.

What is your trust doing to reduce the impact of serious infections e.g. sepsis and antimicrobial resistance (AMR)?

Reduction of sepsis -trust infection prevention and control programmes for prevention of sepsis. Recent focus on prevention of vascular access infection (parafilm and biopatch) and improved SSI surveillance and prevention (One together project).

Reduction of likelihood of sepsis with antimicrobial resistant organisms

- Reduce cross transmission through universal inpatient screening for AMR organisms with implementation of additional controls. Current focus on compliance, speed of detection and patient communication.
- Reduce AMR selection through antimicrobial stewardship
  - Quarterly AMS committee, reports to IPC committee.

- Twice weekly ID/micro/virology clinical rounds including stewardship covering ICUs and neurosurgery. Weekly rounds covering BMT/Haem/Onc/IPP/Heart and lung transplant.
- New AMS-round tool developed summarising infection related information
- Daily email to ward pharmacists and ID/micro team regarding Tazocin and Meropenem prescriptions.
- Developing Antifungal stewardship programme.
- Monthly Antimicrobial Policy group meeting, polices on intranet
- Establishing system for reporting antimicrobial consumption and local resistance rates
- Meropenem use requires authorisation.
- AMR/AMS/Sepsis covered in trust induction.
- Completion of prevalence studies and work with other children's hospitals on AMR/AMS and Sepsis to facilitate benchmarking and collaboration.

Reduction of harm resulting from sepsis - The implementation of Sepsis 6 bundle on all inpatient wards to improve the recognition and timely management of patients with sepsis, using a detailed antibiotic protocol developed in conjunction with the AMS team. All patients on the pathway are reviewed to tailor antibiotic prescriptions appropriately. We have designed an electronic prescription tool to enable clinicians to deliver this pathway promptly and trigger appropriate review.

Provide details of the outcomes of patients managed within your trust with both presumed and confirmed sepsis

All patients with presumed sepsis are screened using clearly defined triggers. Patients with suspected sepsis are treated with the Sepsis 6 protocol and 65% of patients receive the Sepsis 6 bundle within one hour of recognition. We are tracking longer term outcomes including intensive care admissions and mortality, but it is too early to see if there are any trends in the data. There has not been an increase in the overall use of broad spectrum antibiotics since the protocol was instigated. Parents and staff report increased satisfaction and confidence in patient safety since the protocol was introduced.

Who is responsible for reporting on sepsis management and antimicrobial prescribing to the trust board?

Sepsis management: As the Sepsis programme is still in implementation phase, it is reported to the Quality Improvement Committee (chaired by the Medical Director) on a monthly basis by Clare Rees (Locum Consultant Paediatric Surgeon) and Rhiannon Follett (Quality Improvement Manager). Each of the Trust's Divisions are currently creating plans for reporting through their Divisional Board meetings on a monthly basis which feed into Trust Board.

Antimicrobial prescribing: committee reports to the Infection Prevention and Control Committee which reports to the Patient Safety and Clinical Outcome committee. The DIPC is the chair of the IPCC and includes AMS in the regular reports given directly to the board.

9.8 Hospital cleaning

See Facilities report.

10 Occupational Health

Information from Lisa Liversidge, Head of Staff Health and Wellbeing

10:1 Occupational Health new starters

The service is run in house. All applicants offered a post are assessed in OH prior to commencement to ensure that they fulfil the requirements around immunisation status for healthcare workers as per the Green Book.

Staff Immunisations

The need for continued screening and immunisation for measles has been highlighted by a number of outbreaks in the general population and amongst healthcare staff nationally. Employees who are unable to provide evidence of MMR vaccination or positive serology prior to commencement in post are vaccinated. This includes administrative and clerical staff and other staff if they work in clinical areas.

Screening for immunity to varicella zoster virus (chicken pox) is equally important as adult immunity is not guaranteed and staff are frequently exposed to infectious cases.

Following several incidents of staff exposures to pertussis a booster vaccination programme was offered to staff working in what was deemed to be high risk areas.

Influenza Vaccine

Influenza uptake was part of the health and wellbeing CQUIN this year. The Flu Immunisation group co-ordinated an active vaccination programme for all staff using vaccinators from OH as well as peer vaccinators. Occupational Health provided roving clinics in the clinical areas which were well receive.

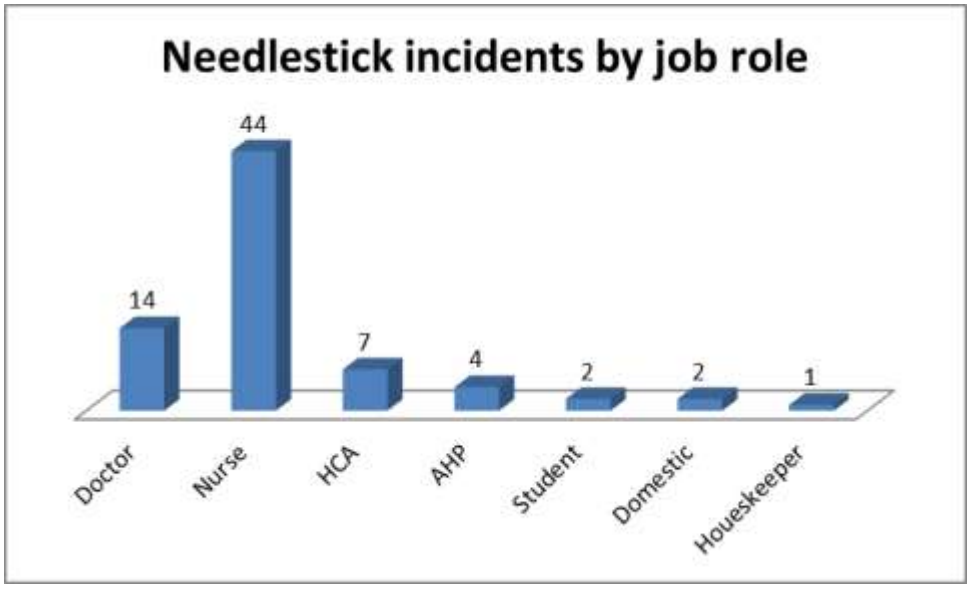
Final flu uptake figures for 2016/17 were at 62% compared to 48% 2015/16.

10.2 *Exposure to blood borne viruses*

From April 2016 – March 2017 there were 74 attendances at OH following a needlestick injury. Of these 74, 3 staff nurses attended on more than one occasion for injuries. A staff nurse working in theatres had 3 separate needlestick injuries associated with being struck with a used suture needle. A staff nurse in anaesthetics attended twice with different reasons attributed to her 2 needlestick injuries and alarmingly a staff nurse on Bumblebee ward attended twice following 2 separate injuries caused by re-sheathing a needle. She was educated about safe disposal of sharps as a part of the occupational health appointment.

Needlestick injuries are occurring across the Trust. The highest incidence unsurprisingly is within theatres with 6 incidents occurring, followed by anaesthetics which had 4 incidents.

The number of post exposure OH attendances for each job role is identified in the chart below:



59% of needlesticks were sustained by nurses, however this is unsurprising due to the nature of their work, potential to exposure and numbers of nurses employed in comparison to other staff groups.

It would appear that attendees who visit occupational health are following the correct procedure, carrying out appropriate first aid, informing the nurse in charge of the incident, contacting OH and recording the incident on Datix.

There was only once incident last year where the source was unknown. Appropriate follow up occurred.

The safe sharps working group is currently auditing the use of sharps within the Trust in line with the HSE Safe Sharps directive and recommending the use of safe alternatives where practicable to implement a safer alternative for paediatric use.

11 Targets and Outcomes in 2016/17

See section 5 A for full details on mandatory and internal surveillance targets

	Target	Outcome	Comment
MRSA bacteraemia	Zero	3	Line, Skin, Deep SSI.
C. difficile infection	Less than 14 lapse in care	Lapse in care = 0	C difficile infection remains rare but surveillance for cross infection continues.
MRSA screening within 24 hours	80%		Screening audit awaited
MRSA admission	100%		Screening audit awaited

screening ICUs	(where screening appropriate)		
MRSA colonisation acquisition	Zero	18	Only 2 linked on one ward. Rest sporadic with not source identified.
GOS acquired CVC related bacteraemia	< 1.3 / 1000 line days	1.7	Additional actions incorporated in to care bundles
		1.	
CVC care bundle compliance	90%	86%	
Hand hygiene compliance	95%	95% absolute But only 68% with negative scoring	New approach will be used in 17/18 by divisions
Ventilator associated pneumonia	No target		Limited surveillance on PICU
Root cause analysis of S. aureus bacteraemia	100%	100% by IPC team and clinical	Not all had full RCA
Surgical site infection surveillance	Surveillance in all areas	Data for JM Barrie / Neurosciences Cardiothoracic Limited this year	
Compliance with L1 induction training	95%	96%	Data for substantive staff
Compliance with level 2 update	95%	80%	Data for substantive staff
GOSH Non-Payroll reporting audience Level 1	95%	69%	
Level 2	95%	23%	

12. Training activities

12:1 Infection Prevention and Control Training for all hospital staff

Infection prevention and control teaching is given to all groups of staff, including medical consultants and junior medical staff, on induction. All staff are required to complete the Infection Prevention and Control Level 1 Training which includes the completion of the level 1 e-learning programme, the reading of supporting materials and the answering of the assessment questions. Clinical staff receive the Infection Prevention and Control Level 2 face-to-face session as part of their induction programme. This teaching session is delivered by a member of the IPC team.

As part of the mandatory updates, all staff are required to complete the Infection Prevention and Control Level 1 e-learning programme, including the assessment questions every three years. In addition, all clinical staff are required to complete the Infection Prevention and Control Level 2 e-learning programme, including the assessment questions every year.

Attendance is monitored and records are maintained by the Training Department through the GOLD system. The level 1 and level 2 e-learning programmes were designed by the IP&CT at GOSH and are based on the Skills for Health Core Skills Framework.

GOSH Payroll reporting audience (Substantive staff,)

	IPC L1 (Valid for 3 years)	IPC L2 (valid for 1 year)
Staff who completed between April 16 – March 17	414	2307
Staff compliant upto March 17	1281	2307
Total Staff Required	1338	2883
Compliance	96%	80%

Level 1 compliance has improved from 88% the previous year and level 2 from 59%.

GOSH Non- Payroll reporting audience (honorary, agency, in-house bank, volunteers and students)

	IPC L1 (Valid for 3 years)	IPC L2 (valid for 1 year)
Staff who completed between April 16 – March 17	546	298
Staff compliant upto March 17	816	298
Total Staff Required	1178	1269

Compliance	69%	23%

Work still needs to be completed to bring non-substantive staff rates up to the same level of compliance.

Hand hygiene training (initial training and yearly update training) for clinical staff and non-clinical staff working on the wards (e.g. house keepers and ward administrators) is delivered locally on each ward/department by the either the practice educators or IPC link practitioners. Hand hygiene training for non-clinical staff not affiliated to a specific ward/department (e.g. porters, linen room staff) is delivered by a member of the IP&CT. All episodes of training and update should be recorded by the training department.

Other training carried out by the infection control team includes participation in delivery of the University Care Certificate, Newly Qualified Nurse training and the induction of student nurses. The team also provide teaching at local level to the wards when requested.

12:2 Infection Prevention and Control Training Days

From October 2013, in addition to the mandatory induction and update training, the IPCT team run quarterly Infection Prevention and Control Training Days. These days are open to all clinical staff, including medical staff. They provide staff with an overview of infection prevention and control specific to the paediatric setting, including an introduction to basic microbiology and virology. In addition, emerging infection control issues such as the increasing threat of antimicrobial resistance and the role of the environment, especially in relation to water- and air management are also discussed. This day continues to be held quarterly and is well attended.

12:3 IV training, including aseptic non-touch technique (ANTT)

All nursing staff are trained and assessed in the administration of intravenous (IV) therapy and ANTT by either a practice educator or a member of the IV team. The mandatory be-annual update assessment of the administration of IV therapy is undertaken locally on the wards by either a practice educator or a member of the IV team. Currently there is no assurance that training for medical staff happens or is recorded (especially for peripheral cannula insertion and ANTT)

12.4 Intravascular catheter insertion

Vascular access devices are significant source of risk, including infection, in the health care environment. All staff inserting devices should be trained and competent and all Divisions should be working towards implementing a standard policy.

Part B - Infection control Action Plan for the year 2017/18
Infection Prevention & Control (IPC) Team Annual work plan 2017/18

Submitted by Lead Nurse

Shown here are the 10 essential from the Code of Practice. Work programmes are linked to these codes.

Code of practice criteria	
1	Systems to manage and monitor the prevention and control of infection. These systems use risk assessments and consider how susceptible service users are and any risks that their environment and other users may pose to them.
2	Provide and maintain a clean and appropriate environment in managed premises that facilitates the prevention and control of infections.
3	Ensure appropriate antimicrobial use to optimise patient outcomes and to reduce the risk of adverse events and antimicrobial resistance.
4	Provide suitable accurate information on infections to service users, their visitors and any person concerned with providing further support or nursing/ medical care in a timely fashion.
5	Ensure prompt identification of people who have or are at risk of developing an infection so that they receive timely and appropriate treatment to reduce the risk of passing on the infection to other people.
6	Systems to ensure that all care workers (including contractors and volunteer) are aware of and discharge their responsibilities in the process of preventing and controlling infection.
7	Provide or secure adequate isolation facilities.
8	Secure adequate access to laboratory support as appropriate.
9	Have and adhere to policies, designed for the individual's care and provider organisations, that will help to prevent and control infections.
10	Providers have a system in place to manage the occupational health needs and obligations of staff in relation to infection.

Programme of Work	Lead	Time frame	Progress to date	Action required	Hygiene code
Audits- finalise an environmental monitoring tool for use by the IPC team across the organisation.	IPC Team	Ongoing	Being trialled by IPC team		1, 2
Audits- monitor wards/departments compliance with the annual audit plan for hand hygiene. Support divisions with improving compliance as and when needed.	IPC Team	On-going			1, 6, 9, 10
Audits- High impact and CVL infections are monitored on a monthly basis.Update the care bundles to reflect any improvements made in care since they were introduced	IPC Team	Commence July 2017			1, 6, 9, 10
Audits- work with QI to create a dashboard related to the nursing quality indicators and matrix of measures that reflects IPC information.	IPC Team	Ongoing			1, 6, 9, 10
Audit- the team will audit compliance against policies in place across the trust should be monitored through audit. Examples of this include the isolation audit.	IPC team	To be carried out at least bi-annually.			1, 7
Training- The IPC team will monitor and feedback training compliance with	IPC Team	On-going			6

level 1 & 2 training					
Training- The team will review IPC level 1 & 2 training and create a training package for non-clinical patient facing staff	IPC Team	To be discussed with L&D			6
Information dissemination- The team will update/create patient/staff infection leaflets pertinent to infection prevention control	IPC team	On-going			3
Information dissemination- the team will review and update policy and guidelines to ensure they reflect new evidence and best practice	IPC team	On-going			
Surveillance- The team will continue to report and collect information on mandatory surveillance categories required by PHE. Where the infections are healthcare associated a root cause analysis +/- RCA review meeting will take place.	IPC Team	On-going			1, 5, 9
Admission screening- to monitor compliance with MRSA admission screening.	IPC Team	To commence ASAP when IT support acquired.			1
Surveillance- To be involved with RCA into deep/organ space wound infections which will be led by the divisions and reported back through the divisional infection control meetings.	IPC Team	On-going			1, 6

Water management- the team will co-ordinate the testing and management of appropriate water outlets for pseudomonas aeruginosa and legionella in close collaboration with the estates department. In addition the team will access and provide guidance on any other waterbourne pathogens which may cause disease in patients/staff.	IPC team	On-going			1, 8, 9
Ventilation- the team will work closely with the estates department to ensure rooms with specialist ventilation are managed and maintained in an appropriate manner.	IPC team	On-going			1, 9
Cleaning- to work with clinical areas to ensure that standards of cleanliness are maintained	IPC team	Ongoing			2
Re-development- the team will actively be involved with the redevelopment works carried out within the trust as well as any refurbishment that takes place ensuring infection control standards are adhered to.	Helen Dunn	On-going			7, 2
Divisional IPC support- the team will provide infection control support to the divisions at divisional infection control meeting and on a day to day basis.	IPC Team	On-going.			1

In order to facilitate this the team will each lead on certain divisions.					
To provide a 7 day a week Infection Prevention Control service which responds to the needs of the organisation. This includes the daily review of microbiological and virology result, their interpretation as well as the management of outbreaks and incidents	IPC team	On-going			1, 3, 4, 5, 7, 8