ANNUAL INFECTION PREVENTION AND CONTROL REPORT

April 2014 – March 2015

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Contents

Section 1

Introduction

Infection prevention and control has continued to be at the forefront of activities within the Sheffield Teaching Hospitals NHS Foundation Trust, being a key quality issue in all areas of care.

Throughout this document several abbreviations or shortenings are commonly used.

- Trust-wide annual Infection Prevention & Control Report - Report.
- Sheffield Teaching Hospitals NHS Foundation Trust – STHFT or the Trust
- Royal Hallamshire Hospital - RHH
- Northern General Hospital - NGH
- Meticillin resistant *Staphylococcus aureus* – MRSA
- Meticillin sensitive *Staphylococcus aureus* – MSSA
- *Clostridium difficile – C.difficile*
- *Clostridium difficile* toxin associated diarrhoea - CDD
- Infection Prevention & Control, relating to a team, group, programme etc. - IPC
- Infection Control, relating to the title of team members – IC
- Department of Health – DH
- Director of Infection Prevention and Control – DIPC
- Health Care Associated Infection – HCAI
- NHS Sheffield Clinical Commissioning Care Group (CCG)

Several Department of Health, Public Health England, NICE and professional body documents are referred to throughout this Report, the references for which are given here:

1. Health and Social Care Act 2008: Code of Practice for the Prevention and Control of Infections and related Guidance https://www.gov.uk/government/publications/the-health-and-social-care-act-2008-code-of-practice-on-the-prevention-and-control-of-infections-and-related-guidance
2. Care Quality Commission registration Standards http://www.cqc.org.uk/content/regulations-service-providers-and-managers
3. 2013/14 report from the Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI). https://www.gov.uk/government/publications/advisory-committee-on-antimicrobial-resistance-and-healthcare-associated-infections-annual-reports
4. Public Health England guidance on detection, management and control of carbapenemase-producing Enterobacteriaceae https://www.gov.uk/government/collections/carbapenem-resistance-guidance-data-and-analysis
5. Department of Health updated MRSA screening guidance https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/345144/Implementation_of_modified_admission_MRSA_screening_guidance_for_NHS.pdf
6. Public Health England guidance on Ebola https://www.gov.uk/government/collections/ebola-virus-disease-clinical-management-and-guidance
7. NICE Quality Standard 2014: Infection Prevention and Control http://publications.nice.org.uk/infection-prevention-and-control-qs61
8. EPIC 3 National evidence based guidelines for preventing HCAIs http://www.his.org.uk/files/3113/8693/4808/epic3_National_Evidence-Based_Guidelines_for_Preventing_HCAI_in_NHSE.pdf
9. Saving Lives: A delivery programme to reduce Healthcare Associated Infection (HAI) including MRSA. http://webarchive.nationalarchives.gov.uk/20120118164404/http://hcai.dh.gov.uk/
10. NICE (2012) Infection: Prevention and Control of healthcare-associated infections in primary and community care http://guidance.nice.org.uk/CG139
11. Essential steps to safe, clean care: reducing healthcare-associated infection. The delivery programme to reduce Healthcare associated infections (HCAI) Including MRSA: http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4136212
12. Safety Thermometer Tool http://www.ic.nhs.uk/services/nhs-safety-thermometer
13. *Clostridium difficile* Infection: How to Deal with the Problem https://www.gov.uk/government/publications/clostridium-difficile-infection-how-to-deal-with-the-problem

14. Public Health England guidance on Norovirus https://www.gov.uk/government/collections/norovirus-guidance-data-and-analysis
15. Department of Health –Managing Pseudomonas in Healthcare Settings https://www.gov.uk/government/publications/addendum-to-guidance-for-healthcare-providers-on-managing-pseudomonas-published
16. Duty of Candour information https://www.gov.uk/government/consultations/statutory-duty-of-candour-for-health-and-adult-social-care-providers

This Report covers a wide range of topics including the STHFT performance against a variety of national standards. Progress in relation to the IPC Programme forms a large part of this Report and Key Indicator results are reported. This Report pertains to the year 1st April 2014 to 31st March 2015. However where appropriate, data/ information have been included from April 2015 onwards although the majority of this will be reported in the 2015/16 IPC Report. I would like to thank all my colleagues who have contributed to this Report, which like the IPC Service as a whole is a multi-disciplinary team effort. In particular I would like to acknowledge and thank Trevor Winstanley, Patty Hempshall, Mohammed Raza and Maggie Bacon for providing data which have been included in various sections of this Report.

Dr C J Bates
Director of Infection Prevention and Control
July 2015

Executive Summary

Section 2: Infection Prevention and Control Service

Infection prevention and control continues to be a key health care priority for the Department of Health (DH), patients and the public. The documents that have been used to assess infection prevention and control services over the last few years are listed in Section 1, including the Health and Social Care Act[1] and the Care Quality Commission Standards[2].The Trust has undertaken an in-house assessment of current compliance against these standards, including the latest draft version of the Healht and Social Care Act[1], which is currently undergoing revision - see Section 3 of this Report. In addition this year the Infection Prevention and Control (IPC) Team reviewed the Public Health England guidance on detection, management and control of carbapenemase-producing *Enterobacteriacaeae*[4], DH updated MRSA screening guidance[5] and DH advice regarding the detection and management of Ebola infection[6]. Areas identified for action have been included in the 2015/16 IPC Programme.

A summary of the key roles and responsibilities within the Trust IPC Service is included in Section 2 and a diagram showing the current structure can be found in Appendix D of this Report. In addition to the roles and responsibilities of the specialist IPC Team, those of the Communications Team, the Trust Governors and the Board of Directors are also described.

The overall responsibility for infection prevention and control within each Group lies with the Clinical Directors (CDs), although this is generally a delegated duty to the Nurse Directors (NDs). The structure for infection prevention and control information flow and accountability within each Group includes all professional groups not just the nursing staff. The NDs liaise with other key staff e.g. Clinical Directors (CDs), Matrons and Medical IPC Leads to make this a reality. The NDs and CDs continue to be encouraged to use the Healthcare Governance arrangements within their areas as conduits for communicating, implementing and reviewing infection prevention and control advice, guidance and information including surveillance data.

The annual IPC Programme was written in a similar format to previous years and the process for monitoring progress during the year also remained largely unchanged. Each Group or Department completes a quarterly assessment form and returns this to the DIPC for review. Results of these reviews are reported at the quarterly IPC Committee, see Section 4 of this Report.

Section 3: Assessment of Progress in Respect of the Health and Social Care Act[1] and the Care Quality Commission Standards[2]

The Trust regularly reviews progress and compliance against relevant infection prevention and control standards and uses these assessments to develop and update the IPC Programme. Over the years the standards and tools used have varied depending on the national requirements and documents available. The current assessments are made using an in-house tool based on the requirements of the latest version of the Health and Social Care Act[1] and the Care Quality Commission registration standards[2]. The results of this self-assessment are given in this Section. All criteria have coded as Blue or Green. Overall the coding shows an Overall the coding shows a continued high level of compliance (98%) despite the requirements within Section 3 (Antibiotic Management) being expanded for the 2015 assessment. Actions required to further improve compliance form part of the Trust 2015/16 IPC Programme.

Section 4: Report on the Infection Prevention & Control Programme 2014/15

The main focus this year has continued to be the Infection Control (IC) Accreditation Scheme. Most of the other activities in the Programme relate to this Scheme by either being an integral part of it or via audit, ownership etc. The following were also key issues: compliance with the Health and Social Care Act[1], NICE guidance[7] and EPIC 3[8], prevention and control of influenza, norovirus, MRSA/MSSA bacteraemia, resistant Gram negative organisms and *C.difficile*, optimising the management of invasive devices and widening the surveillance of surgical site infections. Progress in respect of the Programme is detailed in this Section of the Report.

The Programme is divided into the following sections: 'IC Accreditation', 'NICE guidance[7]/EPIC 3[8]', 'Health and Social Care Act[1]', 'Audit and Review', 'Ownership at Group, Directorate and Ward level', 'Decontamination of Medical Devices', 'Surveillance', 'MRSA', 'MSSA', '*C.difficile'*, 'Gram negative organisms', 'Influenza and other Respiratory Viruses', ' Norovirus', 'Hand Hygiene', 'Management of Invasive Devices', 'Environmental & Cleaning Issues', 'Education & Training', 'Communication and Information' and ' Research/Studies'. A summary of progress made in relation to key elements of the Programme can be found either within this Section or other chapters elsewhere in this Report.

Progress in respect of the Programme was assessed quarterly by completion of Performance Assessment Forms. These assessments were reviewed by the DIPC and each area coded Red, Amber, Yellow, Green or Blue depending on progress made, Table 1 summarises the results.

In summary:

- Coding was as follows: Blue 95-100% of the IPC Programme completed, Green 90-94%, Yellow 80-89%, Amber 65-70% and Red <65% or no return received
- All areas made significant progress during the year
- All areas coded as Green or Blue at the end of the year.
- The major reason areas were not coded as Blue at the end of the year were a) newly identified departments needing to Accredit for the first time, b) failure to make an antibiotic audit return for that quarter, c) review of some IPC documents for local implementation required or d) lack of documentation of medical staff infection prevention and control education.

Section 5: Key Indicators

The following key indicators have been used to monitor the quality of the IPC Service for April 2014 to March 2015:

- Progress in respect of the Trust IPC Programme - See Section 4 of this Report
- Compliance against the Heath Act[1] using the Care Quality Commission Standards[2] - See Section 3 of this Report
- Total number of new meticillin resistant *Staphylococcus aureus* (MRSA) cases detected by the Trust laboratories – See Sections 6.5 to 6.7 of this Report.
- Number of *Clostridium difficile* toxin associated diarrhoea (CDD) episodes within the Trust – See Sections 7.2 to 7.3 of this Report
- Results of the mandatory DH surveillance schemes
    - Serious clinical incidents related to infection – No such incidents were reported, see Section 5.7 of this Report
    - Comparison with other similar Trusts – STH performed 5th best out of 27 similar trusts when combining data from the MSSA bacteraemia, MRSA bacteraemia and CDD mandatory surveillance scheme modules

- MRSA bacteraemia - See Sections 6.8 to 6.13 of this Report
- CDD infections - See Sections 7.4 to 7.8 of this Report
- Glycopeptide resistant enterococcal bacteraemia – the number of episodes detected during 2014/15 was 14 which is an increase compared to previous years; most cases being detected within the Haematology Unit. Investigations revealed that this is not due to a single outbreak but that patients are most likely to be acquiring these organisms from multiple sources in both the community and healthcare establishments, see Sections 5.8 to 5.10.
- For 2014 the Trust elected to undertake surveillance of knee arthroplasty (otherwise known as knee replacement) for January to December 2014 and hip arthroplasty from October to December 2014. All these procedures were undertaken at the NGH as all such surgery was concentrated at this site during 2014. For knee arthroplasty the STH infection rate was 1.1% against a national average of 0.5%. For hip arthroplasty the STH infection rate was 0.6% against a national average of 0.6%. Sections 8.3 to 8.6 describe the actions taken within the Orthopaedic Directorate following the various infection related issues noted in last year's IPC Report.

- Meticillin sensitive *Staphylococcus aureus* (MSSA) bacteraemia

  Overall between 2003/04 and 2014/15 the number of episodes of MSSA bacteraemia has decreased by 39%. During 2014/15 the overall number of MSSA bacteraemia episodes detected has remained at a similar level to last year. However, the number which are Trust Attributable has fallen significantly (19%).

  Since January 2011, it has been mandatory to report MSSA bacteraemia to the DH. In previous years the Trust has performed relatively poorly compared to other teaching hospitals. The IPC Team reviewed the data collected and produced an action plan during the autumn of 2012 to address the issues identified. The reduction in the number of Trust Attributable and Healthcare Associated episodes seen since that time reflects the success of these actions.

  This improvement is also reflected in the Trust's performance relative to other similar trusts in relation to Trust Attributable MSSA bacteraemia. Of the 27 acute teaching hospitals within England, the STH came 19th in 2012/13 and 12th in 2013/14. In 2014/15 this position had improved further with the STH coming 5th in respect of this particular parameter. Addressing MSSA bacteraemia will continue to form part of the 2015/16 IPC Programme.

- *Escherichia coli bacteraemia*

  Overall the number of episodes recorded has increased by 18.2 % compared to last year. This may reflect the increasing activity and admissions experienced by the Trust. The number of Trust Attributable cases is similar to last year, the increase being seen in patients who are septic on admission.

  Overall this year, 7.7% of strains year were ESBL producers. This is a reduction from last year (8.5%) which in turn was a reduction on the previous year's figure.

  The percentage of local isolates that were ESBL producers from community acquired cases was 5.4%, healthcare associated cases 8.5% and hospital attributable cases 7.4%. There appears to be year on year variation in these data. Public Health England report that, nationally in 2014, the rate of blood culture isolates of *E.coli* which were likely to be ESBL producers was approximately 11.8%.

Surveillance of *E.coli* bacteraemia became part of the DH national mandatory surveillance scheme from June 2011 onwards. Data from this scheme is only published using crude numbers rather than rates. In addition the data released includes all episodes detected and does not take into account whether the episode was associated with care provided by the trust or not. Therefore it is not appropriate to compare local data from this scheme with that observed elsewhere. The IPC Team will continue to monitor the situation comparing the local position year on year and how this compares to the national picture.

At the present time there is little information as to whether there are any interventions that will reduce the number of *E.coli* bacteraemias that occur. *E.coli* carriage in the gastrointestinal tract is universal and the majority of infections are therefore caused by the patient's own body flora. One area where action might have an effect is in relation to the use and management of urinary catheters. The Catheter Associated Urinary Tract Infection group leads on this issue, see section 4.16 for a summary of their activities this year.

Section 6: Meticillin resistant *Staphylococcus aureus* (MRSA)

Overall, the number of new cases of MRSA infection or colonisation has risen this year which is the second year a rise has been noted. This may reflect the increasing activity being undertaken by the Trust. The majority of new cases detected are detected on admission.

Compliance against the MRSA screening protocols has been reported to Sheffield CCG on a monthly basis; compliance is consistently above 100%

The number of episodes of Trust assigned MRSA bacteraemia during 2014/15 was four. It is pleasing to note that the Trust once again has one of the lowest rates for MRSA bacteraemia amongst the 27 Acute Teaching Hospitals in England. The average rate of MRSA bacteraemia episodes per 100,000 bed-days across all trusts within England was 0.9 compared to the Trust rate of 0.7.

Since 2013/14, acute trusts and clinical commissioning groups have taken a zero tolerance approach to MRSA bacteraemia, which is in line with the DH agenda on this issue.

Locally, all cases of MRSA bacteraemia are taken extremely seriously. A meeting is held between the IPC Team and the patient's clinical team to determine the series of events that lead to the bacteraemia. The DH Post Infection Review tool is used to identify any actions required to improve practice and action plans produced to implement these. The results of these meetings are copied to Sheffield CCG who monitor the Trust's performance in this regard.

A great deal of work has taken place over the past few years designed to reduce the likelihood of patients experiencing MRSA generally and bacteraemia in particular. This work has been detailed in previous Reports and continues to be implemented and reiterated during the current year.

Section 7: *Clostridium difficile* toxin associated diarrhoea (CDD)

Overall, comparing 2014/15 with 2013/14 there has been a 14% increase in the number of CDD episodes detected in patients within the Trust. However, the number of episodes remains less than two years ago. These data relate to all episodes detected in patients within the Trust and include both 'Trust attributable' and 'non-Trust attributable' cases.

The number of 'Trust attributable' CDD episodes detected in 2014/15 has increased by 16% compared to last year although the number of cases remains lower than two years ago. This follows year on year reductions over the past five years. It is pleasing to note the relatively low number of cases compared to previous years has been maintained, following the continued implementation of the *C.difficile* action plan commenced in June 2011. The challenge faced by the Trust going forward is to maintain this improvement and if possible see further reductions. Whether this is possible is still uncertain given that 5-20% of people carry *C.difficile* in their gastrointestinal tracts. These people will be at risk of disease regardless of infection prevention and control measures being optimised within the Trust.

The IPC Team investigated the cases presenting during 2014/15 to determine if any cause for the increase seen this year could be determined. Most of the increase was seen during the first half of the year. It was noted that more cases presented early in their hospital stay (within 7 days of admission) compared to previous years. The Team investigated whether there had been any change in antibiotic prescribing practice by staff within the admissions units or by general practitioners prior to the patient's admission. The cleanliness of the admission units was also reviewed. No change was found in either of these elements of care and therefore the cause for the rise in cases remains elusive. Pleasingly the number of cases fell during the second half of the year and this has continued into 2015/16. The exception to this trend was March 15, where 15 cases were detected. However, no cause for this transient increase was found. It is likely therefore that the increases seen early in 2014/15 and in March 15 were mainly due to normal variation. The above situation was discussed with the Regional Microbiologist who concurred with the Team's view in this regard.

Since 2008/9 the DH has set year on year reduction targets for 'Trust attributable' cases of CDD. The target for 2014/15 was 94. The Trust detected 93 cases.

Compared to other Acute Teaching Hospitals the Trust has generally compared relatively well being 7th to 9th out of the 27 trusts in this category, apart from 2011/12 when the Trust performed less well compared to other similar trusts. Over recent years the Trust has once again been in the top 10 best performing Acute Teaching Hospitals coming 10th out of 27 trusts now in this group for 2014/15.

For 2014/15, the average rate of 'Trust attributable' CDD episodes per 100,000 bed-days across England for all trusts was 15.1 compared to the Trust rate of 16.2

Since April 2014, cases of Trust-attributable *C.difficile* have also been subject to an assessment to determine whether any 'lapse in care' has been identified which may have contributed to the case; section 7.20 summarises the definitions and process involved in this assessment.

Of the 93 Trust-attributable episodes detected during 2014/15, a possible 'lapse in care' was only identified in 30 instances. The STH will use this information as one of a number of parameters to monitor in-house progress in relation to *C.difficile* year on year. Comparison with other trusts is not meaningful given the variant nature of how these assessments are undertaken.

As in previous years, the challenge faced by the Trust during 2014/15 was to maintain the improvements seen in previous years and to determine any other actions that might be successful in driving down the number of cases even further. This ongoing action plan can be summarised under the headings below.

- Reducing environmental contamination of wards and departments
- Optimising infection prevention and control practice
- Optimising antibiotic prescribing

- *C.difficile* case follow up and action
- Raising the profile of infection prevention and control
- Ongoing real time monitoring of cases

During 2014/15 every effort was made to continue the deep clean programme through the busy winter period. However, a break was necessary and during this period enhanced in-situ cleaning was undertaken on the Admissions wards to reduce contamination in these busy areas.

From January 2015 onwards, the Microbiology Department medical staff began to undertake daily week-day ward rounds on the Frailty Unit specifically to review and advise on any antibiotic therapy that had been prescribed to patients in this area. The Unit was chosen for this initiative as elderly patients are at particular risk of developing CDD. This has been extremely well received by the clinicians and has contributed towards improving antibiotic stewardship. This initiative is unfortunately limited by the time consuming nature of this type of activity.

All cases of CDD are taken extremely seriously and the IPC Team undertake regular reviews of each individual patient with this infection to ensure their care is optimised. Data are collected on an on-going basis and where clusters of cases occur, the Infection Prevention and Control Team undertakes a review. This review includes details of each case including where they were nursed, whether they were in contact with other cases and the antibiotic therapy they had received. In addition, infection prevention and control procedures in the area concerned are reviewed. Action is then taken depending on the findings of this review. Details of surveillance and follow-up of CDD infections can be found in this Section together with a number of action points. These include the on-going work being undertaken in relation to cleaning and disinfecting the environment, laboratory testing and antibiotic prescribing. The specialist unit to care for patients with *C.difficile* infection situated on Robert Hadfield 5 at the Northern campus continues to function. The unit continues to be a great success with positive feedback received from both patients and their relatives.

Section 8: Outbreaks, Major Incidents and Complaints

There have been numerous occasions during the year when the Infection Prevention and Control (IPC) Team have either detected, or been called for advice regarding, a potential outbreak. Some of these situations proved to be false alarms, whilst others could be handled swiftly and any outbreak ‘nipped in the bud’. The IPC Team always aims to control an outbreak by causing the minimal disruption possible to the running of the ward or department concerned. However, there are occasions when this is not possible and patient and staff screening and/or bed closures may be necessary.

In summary, this year at least 552 patients and 47 staff have been involved in clusters or outbreaks and at least 455 bed-days were lost i.e. the number of days unoccupied beds had to be kept empty in bays affected by the infection concerned. The majority of these incidents were due to norovirus or influenza.

No serious infection related incidents were reported this year. A range of other incidents with infection prevention and control implications are summarised in Section 8.

The IPC Team received a number of complaints this year. Most of them were not solely related to infection prevention and control but contain a number of complaints regarding the general care received by patients. The infection prevention and control related complaints and incidents are summarised below (one such complaint received unless stated otherwise):

- Possible acquisition of *C.difficile* within the Trust - investigations revealed that an alternative source was equally possible
- Alleged acquisition of gastrointestinal infection within the Trust - investigations revealed that this was not likely due to the timing of the infection in relation to the hospital visit
- Alleged lack of IPC Team involvement in the care and advice given to a patient found to have campylobacter shortly after admission - investigations revealed that this was not the case
- Patient unhappy at being swabbed for MRSA on admission
- A patient was informed that they were MRSA positive; subsequently the laboratory determined that this was an incorrect result but the IPC Team had already informed the patient as per agreed protocols
- Patient complaint as to the consistency of application of standard infection prevention and control procedures i.e. use of gloves, aprons
- Concern as to hygiene/cleanliness/hand hygiene on a ward/department
- Concern regarding the cleanliness of toilets in one area of the Trust
- Patients unhappy regarding communication with them in relation to their being a possible contact of resistant Gram negative organisms plus their subsequent management until they can be determined to be clear or not (three)
- A patient was flagged on the patient management system as being a possible contact of a resistant Gram negative organism but on re-admission was told she had MRSA; this was due to the admitting staff erroneously interpreting the information on the flag
- Visiting professional to one of the intermediate care facilities did not comply with infection prevention and control procedures

The STHFT takes seriously any complaint of acquisition of an organism whilst a patient is being cared for within the Trust. Appropriate lessons learnt from the investigations into these cases are taken on board. However, for some of the cases mentioned above, investigations revealed that it was unlikely that the organism had been acquired within the Trust or that an alternative source was equally probable.

To date most of these complaints have been settled by local resolution although it is likely that more formal proceedings will be initiated in a number of cases. In some instances the complaint was due to a misunderstanding rather than STHFT providing poor care, but some complaints were justified and measures have been taken to improve care and practices within the Trust. Ownership at ward level by all groups of staff is a prerequisite for improvement in this area.

Section 9: Antibiotic Resistance

Local antibiotic resistance rates generally compare well to those seen nationally. However, resistant *Staphylococcus aureus*, *Enterococcus spp. Streptococcus pneumoniae* and multi-resistant Gram negative organisms, including those known as extended spectrum beta-lactamase producers, are present and measures need to continue to ensure the incidence of these organisms is kept to a minimum.

This year these figures show that resistance rates in Sheffield have seen an upward trend, although generally levels are similar to the latest national figures. It should be noted that, for some of the organisms, the national figures lag a year or so behind the local ones. Given the increases seen locally this year, there is a possibility that this may also be reflected in the national figures when these are published.

Despite this increases seen this year, the local data allows clinicians to continue to prescribe traditional antibiotics with confidence in the majority of situations. It should be noted that the above data relate to all isolates investigated within the Sheffield laboratories including those from samples submitted from the community.

Section 10: Carbapenemase Producing *Enterobacteriaceae*

Resistance amongst bacteria to certain antibiotics is not a static phenomenon and the development of new mechanisms of resistance occurs over time. Over recent years there has been increasing concern regarding the development of resistance to the carbapenem group of antibiotics. These are relatively new agents and are invaluable for the treatment of infections due to Gram-negative bacteria e.g. *E.coli*, *Klebsiella*, *Serratia species,* otherwise known collectively as *Enterobacteriaceae.*

Carbapenem resistant organisms remain rare within the UK but are being increasingly seen particularly in London and the North-West. Of particular concern are organisms that exhibit resistance due to enzymes called carbapenemases. These organisms are known carbapenemase producing *Enterobacteriaceae* (CPEs).

Infections caused by such organisms are much more difficult to treat than their more sensitive counterparts. In addition, the carbapenemase enzyme may be transferred to other species and strains of bacteria. For these reasons, it is vital that spread within health-care establishments is prevented wherever possible.

Public Health England has published several documents designed to advise trusts on how to detect, manage and control CPEs, the latest being Public Health England guidance on detection, management and control of carbapenemase-producing *Enterobacteriaceae*[4]. The STHFT has for some years had policies and procedures in place for dealing with these organisms based on previous communications. The IPC Team has updated these documents to take account of the new guidance.

Some of the advice may appear restrictive but this is vital to prevent spread to other patients. The Trust policy includes risk assessment on admission, screening protocols, isolation precautions, protocols for managing contacts and outbreaks. The IPC Team are working with clinical colleagues across the Trust to implement the above guidance on a rolling basis

Screening for CPEs is not straightforward and an assessment was undertaken during 2014/15 to determine a preferred methodology. The practicalities and funding to enable rollout of the preferred screening method are under discussion.

The IPC Team have worked with those responsible for the current patient management system (Patientcentre) to ensure a mechanism is in place to allow the system to appropriately identify patients known to be carrying or infected with CPEs, should they be re-admitted. Adding these flags to Patientcentre is now managed within the IPC Team by the IPC Systems Manager. Work is on-going to ensure a similar system is in place when Lorenzo replaces the current system.

During roll out of the CPE policy, one issue has proved less than straightforward to implement. This relates to how to follow up and screen patients who are contacts of patients found to be colonised or infected with a CPE. Follow up and screening requires multiple samples over many weeks. In addition, many of the contacts have already been discharged prior to the CPE being detected in the index patient, which increases the difficulty of appropriate communication. Following a number of complaints, the IPC Team have reviewed the pathways and practices relating to this issue and amended protocols are now in place.

To date, CPEs are uncommon locally and Sheffield is not classed as a high-risk area. Table 22 contains information as to the number of cases detected by the laboratories in Sheffield and the number where the most likely source was STH.

The IPC Team and clinical staff will continue to respond appropriately to each situation and endeavour to optimally manage each case and prevent spread wherever possible. However, as these organisms become more common across the UK, this will become an increasing challenge

Section 11: Influenza

Influenza activity increases each year during the autumn and winter months, with the predominant strains varying from year to year.

The 2014/15 influenza season was unusual in that cases continued to be detected into the spring months (particularly influenza B). The data presented below includes these latter cases even though these occurred after the end of March 2015 and therefore fall outside of the time period generally covered by this Report. Overall this season the Trust laboratories tested 9434 samples for influenza of which 1200 (12.7%) were positive. The number of STH in-patients with confirmed influenza was 460. Sadly 56 individuals died within 30 days of being diagnosed i.e. there is a reasonable likelihood that influenza may have contributed to their death. These data reflect the increase in influenza activity seen nationally this year compared to the last few years.

The overall strategic management of influenza this season was led by the Winter Planning Group. This Group met regularly over the autumn and winter and updated the Trust seasonal influenza protocols for managing patients with suspected and confirmed influenza. They also advised on a range of strategic and operational issues relating to this infection.

The remit and role of the Winter Planning Group is being reviewed during 2015/16. Whatever the outcome of this review, a group will be convened to oversee the Trust's response to the impact of infections such as influenza and norovirus; the draft name for this new group is the Outbreak and System Resilience Group (OSRG).

Overall, front line staff and the IPC Team were able to manage the situation in such a way as to minimise disruption to normal Trust business. However, the number of cases this year was high and patients with influenza contributed significantly to the pressures experienced by the Trust over the winter and spring months.

One of the initiatives trialled during the year was the use of 'near patient testing' kits for the diagnosis of influenza. These kits were made available to a number of admission areas and allowed a rapid test to be undertaken on the ward, thereby expediting appropriate management and infection prevention and control strategies for patients testing positive. The OSRG will determine whether this test will continue to be used for the 2015/16 influenza season.

Section 12: Norovirus

Norovirus once again affected the Trust during 2014/15 and, as in previous years, the Trust followed national guidance as to how to manage the situation. This included the Public Health England guidance on managing norovirus in healthcare settings[14] which recommends that, when cases of norovirus are suspected or confirmed, initial management should concentrate on bay by bay closure rather than full ward closure.

During 2014/15, 43 norovirus clusters/outbreaks were detected involving 225 patients and 42 staff. At least 455 bed-days were lost; see Section 8 for the definition of a 'lost bed-day'.

The number of clusters, patients and staff affected and bed-days lost was significantly less than in previous years and lower than last year, which itself was a low activity year. It is extremely pleasing to note the relatively low number of norovirus clusters and cases this year.

Once again staff, from across the Trust, have worked extremely hard to keep numbers low whilst minimising the impact of such measures on the rest of Trust business. It should be noted that norovirus activity seen within the Trust varies year on year and generally reflects activity in the community.

Overall, norovirus has once again been one of the infections which has had a significant impact on the Trust's ability to provide quality and timely care to patients. Addressing this will continue to be a key issue for the coming year and will be one of the main issues on the OSRG agenda.

Section 13: Ebola

The recent Ebola outbreak in parts of West Africa has been well publicised, as has the possibility of suspected or confirmed cases being detected in returning travellers, healthcare workers and military personnel.

STH has had guidelines in place for many years designed to detect and manage patients with severe viral haemorrhagic fevers, of which Ebola is a key example. In response to the recent Ebola outbreak, an STH Ebola Task and Finish Group was set up, led by one of the Infectious Diseases consultants, Dr Anne Tunbridge. The aim of the Group was to optimise plans for safely detecting, diagnosing and managing patients suspected or confirmed as being infected with the Ebola virus or other Category 4 pathogens, based on Public Health England advice[6].

The Group was multi-disciplinary and consisted of staff from the following departments: Infectious Diseases, IPC Team, Emergency Planning, Laboratory Medicine, A&E, Emergency Medicine, Critical Care, Obstetrics, Supplies, Waste Management, Hotel Services, Mortuary and Occupational Health.

The Group met fortnightly for most of 2014/15. The Group undertook a wide ranging approach reviewing all elements of the pathway. A summary of their work can be found in Section 14. This is not a complete list and the amount of work undertaken by the Group should not be underestimated.

The Trust was requested to prepare to manage not only suspected cases of Ebola but also to act as a surge capacity centre, if the units that usually take such cases were full. The work to upgrade the Trust's systems, processes and facilities to allow this was considerable. The Health & Safety Executive visited the Trust on a number of occasions and were very complementary regarding the work carried out. They confirmed the Trust was appropriately prepared to take confirmed cases if the need arose.

To date, a small number of patients have presented to the Trust who fulfilled the criteria for being a suspected case of Ebola e.g. the patient had a temperature and recent travel to the affected areas of West Africa. None proved to have the illness. It is pleasing to note that the protocols in place to detect and manage such patients

worked well, although there are always lessons to learn. The Task and Finish Group reviewed all such cases to help optimise their work.

Although the Ebola outbreak appears to be on the wane, the above work will place the Trust in a good position for the future. Ebola may re-emerge and sporadic cases can present at any time. In addition, Ebola is only one of a number of viruses that cause severe infections that are easily spread to healthcare staff and the procedures now in place can be used for any of these agents. The Task and Finish group will continue to meet in 2015/16 to finalise their work.

Section 14: Conclusion & The Future

This Report highlights both the progress made during the past year in relation to infection prevention and control and also the challenges that lie ahead. However, a great deal of hard work has taken place and much has been achieved. Preventing and controlling infection is an on-going issue for any healthcare establishment and STHFT is no exception in this respect. For a trust the size and complexity of STHFT the Trust, the specialist infection prevention and control personnel and staff working both on the wards and behind the scenes have much to be proud of.

Section 2

Infection Prevention and Control Service

2.1 2014/15 has once again been a busy year for the STHFT Infection Prevention and Control (IPC) Service with challenges and opportunities occurring throughout the year.

Health and Social Care Act[1] and Assessment of the IPC Service

2.2 Infection prevention and control is a key quality issue. There are numerous documents, pieces of guidance, bulletins, statements, performance indicators etc. emanating from the Department of Health, professional bodies, assessment bodies etc. which are designed to aid trusts in addressing this issue and assessing progress.

The Health and Social Care Act[1] remains the main national standard for infection prevention and control services. This document is used as the basis for assessment of trusts by a number of bodies, including the Care Quality Commission, and trusts are encouraged to use it as the basis for their infection prevention and control programmes. The IPC Team continues to review the latest version of the Act[1] to ensure the STHFT IPC Service and Programme are as compliant as possible with current requirements. The Act[1] is currently under revision with the amended version likely to be published in 2016. The IPC Team have reviewed a draft version of the revised document and included any proposed changes in the annual review of compliance against the Act which the Team undertakes each May/June; see Section 4.

Similarly, the Trust registration with the Care Quality Commission (CQC) requires compliance with their registration standards[2] including those that relate to infection prevention and control; these mainly relate to Regulations 12 and 15 in the new 2014 standards.

During 2014/15 a number of other key documents were published and the IPC Team reviewed these and identified areas for action which have been included in the 2015/16 IPC Programme. These documents included the 2013/14 report from the Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infections[3], Public Health England guidance on detection, management and control of carbapenemase-producing *Enterobacteriaceae*[4], DH updated MRSA screening guidance[5] and DH advice regarding the detection and management of Ebola infection[6]. Although unchanged from last year, the National Institute of Health and Clinical Excellence (NICE) Quality Standard for Infection Prevention and Control[7] and the EPIC 3 national evidence based guidelines for preventing healthcare associated infections[8] continue to be key documents that the IPC Team use when developing the current Programme.

2.3 Links to the major IPC standards and key documents can be found in Section 1 of this Report[1- 16].

2.4 The Care Quality Commission aims to visit all trusts regularly, the frequency and timing being based on a risk assessment. The Commission last inspected STHFT specifically in respect of infection prevention and control standards in January 2010; Section 4 of the Trust 2009/10 Report summarises their findings. However, the Commission has visited the Trust on a number of

occasions since and, although these visits have concentrated on other issues, infection prevention and control is often assessed as a by-product of ward/department reviews for other reasons e.g. for assessment of privacy and dignity. The Commission has not identified any infection prevention and control concerns as part of these visits.

Structure of the STHFT IPC Service

2.5 The current Trust IPC Service structure can be found in Appendix D.

2.6 The Executive Lead for infection prevention and control continues to be the Chief Nurse, Hilary Chapman. The Deputy Chief Nurse, Chris Morley, manages the IPC Service in conjunction with the Lead Infection Control Nurse Specialist, Patty Hempshall.

2.7 The role of Director of Infection Prevention and Control (DIPC) continues to be undertaken by the Lead IC Doctor, Christine Bates.

2.8 Elizabeth McLellan and Dave Partridge continue to undertake the operational IC Doctor role for the Central campus and Helena Parsons and Laura Prtak for the Northern campus. Dave Partridge also provides cover for the Community Group along with Christine Bates. These individuals provide cover for each other as and when necessary. Rob Townsend provides strategic microbiology and antibiotic therapy advice to primary care. Elizabeth McLellan leads on the microbiological aspects of Water Quality, Christine Bates on Decontamination and CJD, Helena Parsons on wound infection surveillance plus sepsis detection and management and Elisabeth Ridgway leads the Trust Antibiotic Therapy Team. Mohammed Raza continues as the consultant virologist with responsibility for virological aspects of infection prevention and control across the Trust.

2.9 Patty Hempshall continues as the Lead IC Nurse Specialist with a team of 8.2 WTE IC Nurse Specialists and 6.6 WTE IC Assistant Practitioners. Rachael Duckworth is the site Lead IC Nurse Specialist for the Northern campus. Team members have continued to rotate across the Trust during the year including services provided in community settings. This enables individuals to widen their experience of the differing specialities within the Trust, take account of the changing workload due to reconfiguration of clinical services and to promote standardised practice within the Team across both campuses and the community sector.

The Surgical Site Infection (SSI) surveillance Team now comprises 3.8 WTE nurse specialists and is led by Maggie Bacon.

2.10 The IC Assistant Practitioners continue to play a key part in delivering the IPC agenda. These individuals specifically concentrate on issues relevant to the prevention and control of MRSA and CDD including optimising decolonisation regimens, MRSA screening, ward inspections, audit of infection prevention and control practice e.g. hand hygiene, environmental cleaning and decontamination, including the use of hydrogen peroxide vapour technology.

2.11 The two antibiotic pharmacists continue to work with the IPC and Microbiology Teams. These individuals concentrate on optimising the antibiotic prescribing polices in conjunction with Dr E Ridgway and the two operational IC Doctors. In addition, work is continuing on the antibiotic prescribing web-site and regular audits of prescribing practice against the Trust antibiotic policies and guidelines are undertaken. Other initiatives

include a) ensuring the Trust tender exercise for e-prescribing takes into account the requirements of antibiotic prescribing and b) enabling junior medical staff to have better access to antibiotic prescribing policies by the use of 'Apps' for mobile telephones.

2.12 Glenn Radford continues as the IPC Systems Manager. His role is to work with the IPC Team to develop information systems and optimise the reporting of data to staff, patients and the public. Significant progress has once again been made this year.

2.13 The Communications Team, led by Julie Phelan, continues to add value to the IPC Service. Their key role is to help raise awareness amongst staff, patients and visitors of the many and varied issues involved in preventing and controlling infection. Infection prevention and control data and issues form part of the monthly reports in the Team Brief and features are regularly included in Link, Primary Link and Good Health. In addition, they are involved in leading the communication of various infection prevention and control initiatives throughout the Trust

2.14 The Trust Governors continue to contribute to the work of the IPC Service. Their key role, along with the IPC Team, is to ensure that the Service is in line with the wider Trust agenda and that the patient and public perspective is taken into account. Anne Eckford and Graham Thompson are the Governors who specifically undertake this role which includes them being members of the IPC Committee. Their help and assistance continues to be extremely valuable. Finally, the ongoing commitment of the Board of Directors has been key in ensuring that this element of healthcare remains a priority and that appropriate financial, material and moral support has been available to enable plans and initiatives to become a reality.

<u>Ownership of infection prevention and control at a clinical level</u>

2.15 The overall responsibility for infection prevention and control within each Group lies with the Clinical Directors (CDs), although this is generally a delegated duty to the Nurse Directors (NDs). The structure for infection prevention and control information flow and accountability within each Group includes all professional groups not just the nursing staff. The NDs liaise with other key staff e.g. Clinical Directors (CDs), Matrons and Medical IPC Leads to make this a reality. The NDs and CDs continue to be encouraged to use the Healthcare Governance arrangements within their areas as conduits for communicating, implementing and reviewing infection prevention and control advice, guidance and information including surveillance data.

2.16 Infection prevention and control continues to be embedded into the Trust Healthcare Governance system with the IC Accreditation scheme linking up with the Trust Clinical Assurance Toolkit. Participation in the IC Accreditation Scheme includes all in-patient and out-patient wards and departments including the Community Services Group where be-spoke modules have been implemented following a successful pilot during 2012/13.

2.17 The annual IPC Programme was written in a similar format to previous years and the process for monitoring progress during the year also remains largely unchanged. Each Group or Department completes a quarterly assessment form and returns this to the DIPC for review. Results of these reviews are reported at quarterly at the IPC Committee and Healthcare Governance Committee, see Section 4 of this Report.

Section 3

Assessment of Progress in Respect of the Health and Social Care Act[1] and the Care Quality Commission Standards[2]

3.1 The Trust regularly reviews progress and compliance against relevant infection prevention and control standards and uses these assessments to develop and update the IPC Programme. The current assessments are made using an in-house tool based on the requirements of the latest version of the Health and Social Care Act[1] and the Care Quality Commission registration standards[2]. The self-assessment tool is divided into ten Criteria, each with a list of actions/ targets. A score is allocated to each of these actions and a balanced scorecard generated. Each duty is then colour coded:

Blue	95-100%	Full compliance
Green	70-95%	Action required
Amber	50-70%	Urgent action required
Red	=<49%	Trust priority

3.2 The annual self-assessments undertaken in May/June 2007 to 2014 are recorded in previous year's Reports. The overall codings for these years shows year by year progress in compliance, 71%, 87%, 91%, 93%, 97%, 95%, 96% and 98% respectively.

3.3 The results of the self-assessment carried out in May 2015 show overall compliance at 97%. All Criteria have coded as Blue or Green. Overall the coding shows a continued high level of compliance despite the requirements within Section 3 (Antibiotic Management) being expanded for the 2015 assessment. Actions required to further improve compliance form part of the Trust 2015/16 IPC Programme.

Figure 1
STHFT Balanced Scorecard - May 2015

Criterion 1	Criterion 2	Criterion 3
Systems to manage and monitor the prevention and control of infection (100%)	**Provide and maintain a clean and appropriate environment (92.71%)**	**Antibiotic Management (100%)**
Criterion 4	Criterion 5	Criterion 6
Provide information on infections to service users, visitors and those providing further nursing/medical care (97.62%)	**Identify those with an infection and provide appropriate treatment /care to reduce the risk of spread (100%)**	**Staff are fully involved in preventing and controlling infection (88.89%)**
Criterion 7	Criterion 8	Criterion 9
Isolation facilities (100%)	Laboratory support (100%)	Infection Prevention and Control Policies and Protocols (95.06%)
Criterion 10		Overall Status
Occupational Health and Staff Training in relation to the prevention and control of HCAI (95.56%)		97%

Section 4

Report on the Infection Prevention & Control Programme April 2014 - March 2015

4.1 The Infection Prevention & Control (IPC) Programme describes the infection prevention and control activities that the Trust planned to focus on during the year. All areas continued to follow existing infection prevention and control activities, policies, protocols, procedures and guidelines unless specifically updated or superseded. The trust-wide IPC Programme outlines the issues to be addressed each year. Each Group or Department is free to produce their own Programme/Action Plan detailing how the requirements in the trust-wide Programme will actually be undertaken at a local level.

4.2 The main areas focused on this year were**:**

- Trust-wide achievement of annual IPC Accreditation
- Compliance with the NICE and EPIC3 guidance
- Prevention and Control of Norovirus
- Prevention and Control of *C.difficile*
- Prevention of meticillin sensitive *Staphylococcus aureus* bacteraemia
- Prevention of *E.coli* bacteraemia
- Prevention and Control of carbapenemase resistant Gram negative organisms
- Update of the infection prevention and control education induction and annual update e-leaning package

Most of the other activities will relate to these issues by either being an integral part of them or via audit, ownership etc.

- Infection Control Accreditation
- NICE Guidance[7]/EPIC3[8]/Saving Lives Toolkit[9]
- Health and Social Care Act[1]
- Ownership at Group, Directorate and Ward level
- Audit and Review
- Surveillance
- Meticillin resistant (MRSA) *Staphylococcus aureus*
- Meticillin sensitive (MSSA) *Staphylococcus aureus*
- *Clostridium difficile* (*C.difficile*)
- Gram negative organisms
- Influenza & other Respiratory Viruses
- Norovirus
- Hand Hygiene
- Decontamination of Medical Devices
- Management of Invasive Devices: Peripheral and Central intravenous cannulae & Urinary catheters
- Environmental and Cleaning Issues
- Education and Training
- Communication and Information
- Research, Service Evaluations, Studies and Assessments

4.3 Progress in respect of the IPC Programme was assessed quarterly by those responsible for infection prevention and control in each Group/Department. These assessments were reviewed by the Director of Infection Prevention and Control (DIPC) and each area coded Red, Amber, Yellow, Green or Blue depending on progress made, see Section 4.4 and Table 1 below. The full IPC Programme, including the quarterly assessment forms, can be found on the Infection Control web-page on the Trust intranet. The main body of the Programme can also be found on the Trust internet site.

Table 1
Assessment of Progress in respect of the 2014/15 IPC Programme

Blue = 95-100% Green = 90-94% Yellow = 80-89% Amber = 65-79% Red = < 65% or non-return

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
South Yorkshire regional Services				
• Renal	97%	95%	98%	98%
• Cardiac	98%	97%	97%	94%
• Vascular	99%	98%	99%	97%
Emergency Care Group				
• Diabetes and Endocrinology	89%	93%	92%	92%
• Respiratory	94%	95%	91%	99%
• Gastroenterology	93%	97%	94%	96%
• Emergency Care	99%	96%	93%	96%
• Geriatric and Stroke Medicine	98%	96%	97%	100%
Head & Neck Services	97%	98%	98%	97%
Specialised Medicine & Rehabilitation				
• Infectious Diseases	98%	97%	96%	100%
• GUM	93%	97%	97%	97%
• Rheumatology/O Day ward	98%	98%	94%	99%
• Dermatology	98%	96%	95%	100%
• Metabolic Bone	98%	98%	98%	99%
• Haematology	93%	93%	90%	93%
• Coagulation and Haemophilia	97%	97%	97%	98%
• Immunology				
• Macmillan Palliative Care	99%	99%	99%	99%
• Rehabilitation	99%	99%	99%	99%
• Cancer - Inpatient services	97%	97%	96%	99%
• Cancer – Outpatient services	95%	100%	99%	100%
• Cancer – Radiotherapy	99%	99%	99%	99%
• Cancer – Clinical Trials centre	100%	100%	99%	100%
	99%	99%	99%	99%
O,G,N & U				
• Maternity Services	94%	96%	96%	98%
• Gynaecology	97%	97%	97%	97%
• Neonatal Unit	99%	99%	99%	99%
OSCCA - Operating Service, Critical Care & Anaesthesia	97%	94%	92%	92%
Surgical Services - General Surgery, Orthopaedics & Plastics, Urology	99%	97%	99%	98%
Discharge Lounge NGH	100%	99%	99%	99%
Clinical Research Facility/Research Dept	99%	99%	99%	99%
Occupational Health	99%	99%	100%	99%
Pharmacy	99%	97%	97%	96%
Medical Imaging & BME	99%	99%	99%	99%
Professional Services: Medical Illustration, Therapy Services, Dietetics, Chaplaincy, Psychology, Speech & Language therapy	100%	100%	100%	100%
Community Services: Community Nursing, Intermediate Care, SPA & Interface, Community Dental, Assessment & Rehabilitation, Podiatry GP Collaborative, Continence, Lymphoedema, Domicillary Physiotherapy, Active Programmes, Falls Prevention, Addiction Services, Dietetics	96%	97%	96%	96%
Laboratory Medicine	100%	100%	100%	100%
Estates	98%	98%	98%	98%
Hotel Services (HS)				
• Waste	95%	98%	98%	100%
• Security	100%	100%	100%	100%
• Domestic Services	96%	99%	99%	99%
• Portering/Transport	96%	99%	99%	100%
• Catering	99%	99%	99%	100%
• Laundry	90%	97%	97%	97%
Infection Prevention and Control Team	88%	90%	92%	95%
Trust-wide	86%	88%	91%	93%

4.4 In summary:

- All areas made significant progress during the year
- All areas coded as Green or Blue at the end of the year.
- The major reasons Groups/Directorates were not coded as Blue at the end of the year were a) newly identified departments needing to Accredit for the first time, b) failure to make an antibiotic audit return for that quarter, c) review of some IPC documents for local implementation required or d) lack of documentation of medical staff infection prevention and control education.

4.5 A summary of progress made in relation to a number of key sub-sections within the Programme can be found below. Reports on the remaining sub-sections can be found in various chapters elsewhere in this Report.

Infection Control Accreditation

4.6 Details of the IC Accreditation Programme have been laid out in previous year's annual IPC Reports. The Accreditation scheme continues to be the main means by which infection prevention and control practice is standardised, improved and assessed across the Trust. A review of the Programme was undertaken in 2014/15 and the updated version will be published in 2015/16.

4.7 All established and newly configured in-patient wards have attained Accreditation at least once and 100% have re-accredited on an annual basis.

4.8 90% of out-patient, day-case and non-ward based in-patient clinical areas have now Accredited as least once. A number of areas not previously covered by the scheme commenced working towards Accreditation during the year and these areas are making good progress. Of the areas that have Accredited previously, 95% have Re-accredited on an annual basis. The IPC Team are working with the small number of areas who require help to gain Re-accreditation.

4.9 The be-spoke Accreditation scheme for the Community Services group has continued to progress well with phases 1 & 2 completed and phase 3 rolled out during the year. A number of departments have achieved Accreditation and others are working well towards achieving this.

4.10 The IPC Team continue to send out quarterly reports to senior staff within each department highlighting how many months have passed since each area Accredited. A six-monthly review of each area is also undertaken to ensure that progress towards annual Re-accreditation is continuing throughout the year.

4.11 As one of the measures to ensure that infection prevention and control is an integral part of the Trust Healthcare Governance system, progress in respect of the Accreditation scheme continues to form part of the Trust Clinical Assurance Toolkit (CAT) review.

Audit and Review

4.12 The majority of the infection prevention and control related audit programme takes place via the IC Accreditation Scheme. See Sections 4.6 to 4.11 of this Report. Full audit results can be obtained from the matrons and ward managers of the various areas taking part in the Scheme.

4.13 Progress in respect of the IPC Programme was regularly reviewed as outlined in the IPC Programme, see Section 4.4 and Table 1 above.

4.14 The Trust's position as regards the infection prevention and control related standards within the Care Quality Commission Registration Standards[2] was reviewed as requested by the Healthcare Governance Department. Compliance with all these standards was declared.

4.15 The IPC Team has a rolling programme of MRSA screening audits which is on-going. The results from these audits revealed that compliance with the MRSA admission screening policy was generally good varying from 85-100%. Ideally compliance would be 100% and the results have been fed back to the areas concerned and re-auditing has taken place as appropriate. The re-audits undertaken to date have shown improvements in all cases. In addition to admission screening, wards are requested to re-screen patients every four weeks during their stay. Compliance with this element of screening has historically been less well implemented. The IPC Team have continued to concentrate on this during the year and compliance has improved.

The DIPC also reviews the overall number of screens received by the Trust laboratories and compares this to the overall number of patient episodes where MRSA screening should be being undertaken. The percentage compliance for this parameter is reported monthly to Sheffield CCG. During 2014/15 the monthly percentage compliance was always greater than 100%.

4.16 The Trust, including certain services within the Community Services Group, continues to participate in the NHS Safety Thermometer Programme[12]. This includes collecting information on patients who have a urinary catheter *in situ* and who are being treated for a urinary tract infection. The Catheter-Acquired Urinary Tract Infection (CAUTI) Group continues to oversee the work to review the data collected and determine any actions required to optimise urinary catheter use and management.

During 2014/15, the group created a poster (named HOUDINI) to promote the removal of urinary catheters when they were no longer required. Posters were delivered to all ward areas and one of the intermediate care units. The poster was also presented at the 'Sharing Good Practice Festival'. In addition a patient information leaflet for patients having short term catheterisation was produced. Members of the CAUTI and IPC Teams also undertook a Trust-wide audit of elements of urinary catheter and peripheral cannula management; see section 4.17 below. These data reflected the general good practice that already exists in relation to urinary catheter management and will be used as a baseline for further interventions. This group will continue to meet during 2015/16.

4.17 During the autumn, members of the CAUTI and IPC Teams undertook a Trust-wide audit of elements of peripheral cannula use and management. This revealed that practice surrounding the documentation of cannula insertion, followed by regular review, has improved over recent years but there is still room for improvement. The introduction of the electronic patient record will be an important factor in bringing about consistent and sustained improvement in regard to this issue.

4.18 The IPC Team has continued the major review of infection prevention and control guidelines. Progress in this respect has been reviewed at the monthly IPC Team and quarterly IPC Committee meetings. A number of new policies

have been written and others updated as appropriate. This is a large project but significant progress continues to be made year on year. The list of policies and guidelines that the IPC Team has primary responsibility for producing and reviewing can be found in Appendix E.

4.19 The IPC Team has continued to progress the project to review information available to patients and their relatives to enable them to optimally manage their own invasive devices, particularly outside of the acute hospital setting. This review will continue in 2015/16.

4.20 As noted in last year's Report, one of the key elements of the Trust infection prevention and control governance structure is the quarterly reporting by Directorates of progress towards compliance with the annual IPC Programme. An internal audit undertaken during 2013/14, showed 'Significant Assurance' in respect to this process but also noted a small number of objectives where clarification would aid Directorates in determining what was actually expected of them. These issues have been addressed and the 2014/15 IPC Programme was updated to reflect the clarification required.

4.21 Wards/departments were required to review compliance against a number of key issues detailed below and to take appropriate action to rectify any non-compliances found:

- Areas defined as 'Points of Access' were asked to check the contents of the SARS/Avian Influenza Equipment Boxes to ensure these were in line with the requirements of the Trust policy. All areas declared compliance
- Areas were asked to ensure all staff taking samples for blood culture were trained to do so. All areas declared compliance
- Areas were asked to review their procedures for asking CJD screening questions and ensure these were in line with the Trust policy.

Surveillance

4.22 Surveillance of surgical site infections (SSI) has been part of the IPC Team's activities for many years, generally concentrating on key orthopaedic procedures. The need to expand the breadth of procedures covered by surveillance has been recognised over recent years and progress towards this aim continued during 2014/15.

Recruitment to the two additional surveillance nurse posts, agreed during 2013/14, was successful and Bev Almond and Marcia Bennett took up these posts during 2014/15. This has enabled surveillance of hip and knee arthroplasty to take place on both campuses and for work to commence in preparation for surveillance of key neurosurgical procedures.

Expansion of surveillance to other types of procedure and surgical specialities continues to be the aim for the Team and discussions continue as to the various options to enable this to occur.

Decontamination of Medical Devices

4.23 The Trust programme for decontaminating medical devices has two main elements a) the offsite service provided by Synergy Healthcare, which mainly relates to surgical instruments and b) the in-house decontamination of a wide range of re-usable devices and equipment that cannot, for a number of reasons, be processed off site.

4.24 The off-site service is monitored by the Joint Management Group via a service agreement. The in-house services are overseen by the Trust Decontamination Management Group; see Appendix C.

.4.25 Appendix C contains a report by Karen Tweed, the Deputy General Manager with responsibility for Decontamination, which summarises the work carried out during 2014/15 in relation to these two elements.

Hand Hygiene

4.26 The Trust has continued to promote best practice, including auditing of compliance, in respect of hand hygiene via the IC Accreditation Scheme.

4.27 Wards and departments are required to provide patients with access to hand hygiene facilities, not only in the toilet areas but also at the bed side especially if the patient has to use a commode.

4.28 The Supplies and Occupational Health Departments continue work with the IPC Team to optimise the hand hygiene products available to staff and patients

4.29 The Trust Dress Code for all staff has been developed and this Code includes the requirement to dress in a manner that will allow optimal hand hygiene.

4.30 During 2014/15, the IPC Team and Communications Department have developed and rolled out a campaign to once again encourage optimal hand hygiene amongst staff, patients and visitors.

Environmental and Cleaning Issues

4.31 Audit of the ward environment and the standard of cleanliness forms part of the IC Accreditation scheme. See Sections 4.6-4.11 of this Report.

4.32 The Patient Environment Group continues to meet and oversee the refurbishment and cleanliness agenda. The Trust continues to review the domestic services provision and how it is delivered.

4.33 The ward upgrade programme continued during the year, taking into account work required due to service reconfiguration. This programme is multi-disciplinary, involving members of the Estates Department, Domestic Services Department and the IPC Team, in particular the IC Assistant Practitioners.

4.34 The Estates and Domestic Services Departments have continued to work with the IPC Team to implement protocols for the cleaning of radiators and ventilation grills.

4.35 Clinical staff and the Domestic Services Department have continued to work with the IPC Team to implement protocols for the cleaning of bed spaces and beds as per agreed protocols.

4.36 The Trust continues to employ hydrogen peroxide vapour (HPV) misting to aid in cleaning and decontaminating the environment after wards/areas have been upgraded or refurbished. This is also employed in response to clusters or outbreaks of various infections on an ad-hoc basis.

4.37 All areas are required to determine who is responsible for the regular cleaning of patient trolleys used in their area and ensure these items are regularly and appropriate cleaned.

4.38 The guidelines for cleaning computer keyboards in clinical areas are available on the intranet. All such keyboards should be being cleaned regularly. Where available, keyboard covers are used in addition to regular cleaning. The guidelines for cleaning ward based IT equipment will be reviewed during 2015/16 to take account of the increase and type of equipment being introduced as part of the Trust Transformation Through Technology (T3) programme.

4.39 Wards and departments have responsibility for flushing infrequently used water outlets on a daily basis as part of the Legionella prevention programme. The Trust Legionella Committee continues to work to optimise this system and investigate the options for electronically logging this activity.

4.40 As recommended by the Department of Health[15], the Trust has a Water Safety Plan which covers various aspects of water quality including managing the risk of *Pseudomonas spp*. This Plan is overseen by the Water Quality Steering Group.
In summary the Water Safety Plan includes:

- Plans to ensure that the water distribution system and outlets are appropriately maintained and managed to reduce the risk of stagnation and contamination
- Local cleaning protocols for hand wash sinks to reduce the likelihood of outlet contamination i.e. taps are cleaned prior to the rest of the sink
- An assessment of the risk of *Pseudomonas spp*. to various patient groups and this is used as a basis for advice on the issues below
- Advice on the use of tap water for washing, bathing and showering patients i.e. in high risk units only water from outlets tested as pseudomonas free should be used for these tasks.
- Advice on the use of hand-wash basins and disposal of used water
- Monitoring clinical isolates of *P.aeruginosa* as an alert organism
- A programme for 6 monthly-testing of outlet water for *P.aeruginosa* on high risk units
- Plans for managing patients and the water system in the event of pseudomonas positive water samples

IPC Team, Estates, Microbiology and Clinical staff undertake the various actions required of them within this Plan.

<u>Education and Training</u>

4.41 The Trust policy is that all staff should receive infection prevention and control training at induction and appropriate annual updates thereafter. This education should be documented.

4.42 This policy forms part of the IPC Programme and Directorates do provide appropriate education programmes and sessions. Documentation of infection prevention and control education has been problematic in the past due to the lack of a centralised, electronic system for recording this information. However, this should improve with the roll out of the personal achievement and learning management system (PALMS) which took place during 2014/15.

4.43 The in-house induction IPC e-learning package has remained unchanged during 2014/15. This contains modules which are modified to reflect the

different knowledge base required by the various staff groups within these organisations e.g. Medical staff, Nursing staff, AHPs, secretaries, Executives etc. This package allows consistent training and education to be available at induction into the Trust. A review of the package is planned during 2015/16 to bring the material in line with the Trust's strategy to wherever possible use nationally produced e-learning materials as opposed to locally produced packages.

4.44 The IPC Team updated the annual refresher e-learning packages for 2014/15 with differing modules available for various staff groups.

4.45 In addition to the above e-learning packages, infection prevention and control is a key element of the centralised Trust induction days. IPC Team members participate in these days which include a hands-on hand hygiene module.

Communication and Information

4.46 Ward level infection prevention and control information for patients and visitors is displayed near the entrances to all wards. The data for this information are taken from ward based audit results from the Accreditation scheme and MRSA and *C.difficile* data collected by the IPC Team. The IPC Team work with Patient Partnership to collate, publish and update this information on a three monthly basis. A review of the content of the material displayed on these boards and the means by which it is displayed finished during 2014/15 and the agreed amended formats are now in use.

Research, Service Evaluations, Studies and Assessments

4.47 The IPC Team, Microbiology, Virology and various clinical staff across the Trust participate in a range of infection prevention and control related research, service evaluations, studies and assessments during the year. In summary these mainly related *to C.difficile* and influenza and more detail is given in sections 7 and 11 respectively.

Section 5

Key Indicators

5.1 The following key indicators are used to monitor the quality of the Infection Prevention and Control (IPC) Service

- Progress in respect of the trust-wide IPC Programme
- Compliance against the Heath and Social Care Act[1]
- Total number of new methicillin resistant *Staphylococcus aureus* (MRSA) cases detected by the Trust laboratories (includes cases of colonisation and infection at all body sites)
- Number of *Clostridium difficile* toxin associated diarrhoea (CDD) episodes within the Trust
- Results of the mandatory Department of Health surveillance schemes
- *Staphylococcus aureus* (*S.aureus*) bacteraemia – methicillin sensitive (MSSA)
- *Escherichia coli bacteraemia*
- Performance in relation to other Acute Teaching Hospitals in relation to MRSA bacteraemia, MSSA bacteraemia and CDD

Progress in respect of the trust-wide IPC Programme

5.2 This is addressed in detail in Section 4 of the full Report.

Compliance against the Heath Act[1] using an in-house self-assessment tool

5.3 This is addressed in detail in Section 3 of the full Report

Number of new MRSA cases

5.4 See Sections 6.5 to 6.7 of this Report.

Number of CDD episodes

5.5 See Sections 7.2 to 7.3 of this Report

Results of mandatory Department of Health surveillance modules

5.6 The mandatory surveillance scheme includes the following modules:

- Serious clinical incidents related to infection
- MRSA bacteraemia - see Sections 6.8 to 6.14 of this Report
- MSSA bacteraemia – see Sections 5.17 to 5.25 of this Report
- CDD – see Sections 7.4 to 7.8 of this Report
- Glycopeptide resistant enterococci (GRE) bacteraemia
- Wound infection rates for orthopaedic surgery

Serious incidents related to infection

5.7 There were no incidents officially reported under the Serious Incidents Related to Infection surveillance scheme during 2014/15.

Glycopeptide resistant enterococcal (GRE) bacteraemia

5.8 The mandatory surveillance scheme for GRE bacteraemia, commenced in October 2003 and finished in 2014. Despite the national scheme finishing, the

STH IPC Team continue to collect data to aid local surveillance of these organisms. Data are expressed as crude numbers and due to the small numbers involved, the significance of the results is difficult to determine. GRE isolates would be expected to occur in units where glycopeptide antibiotic use is necessarily high. This is most likely in haematology and renal units and therefore a number of cases would be expected in the STHFT.

5.9 The numbers detected each year are small and fluctuations are seen year on year. No trends or clusters of infection were detected in previous years. The historical national data shows that the Trust performed well in regard to this parameter.

During the second half of 2014/15 the number of GRE bacteraemia episodes increased and most cases were noted to be occurring within the Haematology Unit. The IPC Team and Haematology Unit staff convened an action group and a plan was developed to investigate this cluster and take appropriate actions as necessary. A programme of screening, practice and facilities audits and environmental cleaning was implemented. Following this, no further bacteraemia episodes have occurred.

However, the screening has detected a number of patients with GRE carriage and practices and protocols have been updated to appropriately manage these patients. Typing has shown that the GRE organisms detected have been from a number of different strains and the cluster detected was not due to a single outbreak. It is likely that patients are acquiring these organisms from multiple different places within the community and healthcare facilities and on occasion cross infection within STH. The nature of the underlying medical conditions within the Haematology Unit and the necessary high antibiotic use has resulted in GRE gastrointestinal carriage developing into infection in a small number of patients. The situation will continue to be monitored closely.

5.10 The consultant Microbiologists have been in contact with a number of other trusts who have also noted an increase in GRE isolates over recent months. The central Public Health England (PHE) office have been informed and they are looking into whether there is a nationwide community source which may be responsible for many of the isolates being detected within the acute trusts.

Table 2
Details of GRE bacteraemia detected by the Trust laboratories

	2006/7	2007/8	2008/9	2009/10	2010/11
Number of episodes	5	6	3	7	3

	2011/12	2012/13	2013/14	2014/15	
Number of episodes	7	8	7	14	

Wound infection rates for orthopaedic surgery

5.11 The orthopaedic surgical site infection (SSI) scheme differs from the other mandatory surveillance schemes in that it collects data on wound infections based on clinical as well as microbiological data. This is a more comprehensive means of detecting infections but requires a trained member of staff to review the patient, patient records and laboratory data. It is therefore considerably more labour intensive and time consuming. Trusts are

required to collect data on at least one type of orthopaedic procedure for at least three months of the year.

5.12 For 2014 the Trust elected to undertake surveillance of knee arthroplasty (otherwise known as knee replacement) for January to December 2014 and hip arthroplasty from October to December 2014. All these procedures were undertaken at the NGH as all such surgery was concentrated on this site during 2014.

5.13 For knee arthroplasty the STH infection rate was 1.1% against a national average of 0.5%.

5.14 For hip arthroplasty the STH infection rate was 0.6% against a national average of 0.6%.

5.15 Surveillance of both knee and hip arthroplasty has continued into 2015. From January 2015 onwards knee and hip arthroplasty procedures have been undertaken on both the RHH and NGH sites and surveillance has been undertaken at both campuses. Infection rates will be reported in next year's IPC Report as data collected to date are only provisional due to the fact that follow up continues for many weeks after the procedure has been undertaken.

5.16 Sections 8.3 to 8.6 below describe the actions taken within the Orthopaedic Directorate following the various infection related issues noted in last year's IPC Report.

Staphylococcus aureus bacteraemia

5.17 Much attention is given to methicillin resistant *Staphylococcus aureus* (MRSA) but methicillin sensitive *Staphylococcus aureus* (MSSA) is a far more common pathogen both in the community and within hospitals. MSSA naturally colonises approximately one third of the population at any one time. When people get an infection with this organism it is often caused by the organism they are already carrying but cross infection may also be a cause. It is generally not possible to ascertain where patients actually acquire the organism causing their infection but infections can be reduced by optimal infection prevention and control practice.

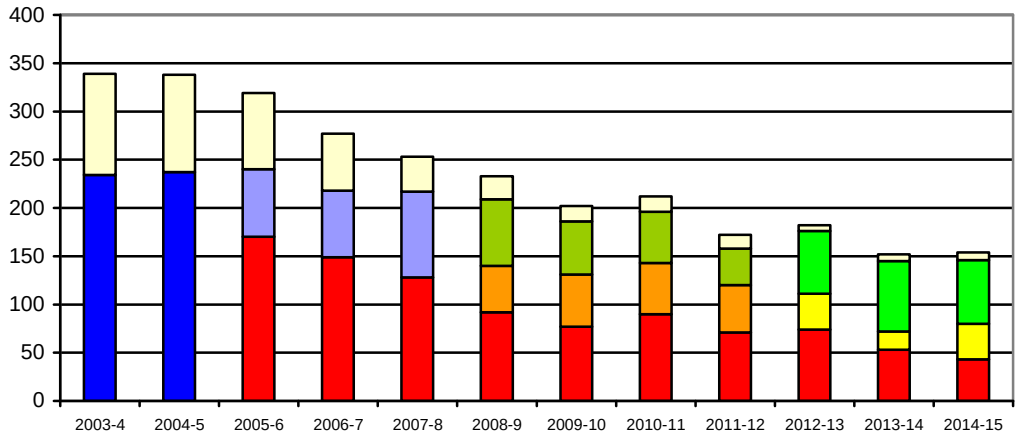
5.18 Chart 1 shows data for all S. aureus bacteraemia episodes (MSSA and MRSA) detected within the Trust laboratories over the past few years Overall between 2003/04 and 2014/15 the number of MSSA and MRSA episodes has decreased by 55%; for MSSA the reduction over this time period is 39%.

During 2014/15 the overall number of MSSA bacteraemia episodes detected has remained at a similar level to last year. However, the number which are Trust Attributable has fallen significantly (19%).

5.19 Since January 2011, it has been mandatory to report MSSA bacteraemia to the DH. In previous years the Trust has performed relatively poorly compared to other teaching hospitals. The IPC Team reviewed the data collected and produced an action plan during the autumn of 2012 to address the issues identified. The reduction in the number of Trust Attributable and Healthcare Associated episodes seen since that time reflects the success of these actions.

5.20 This improvement is also reflected in the Trust's performance relative to other similar trusts in relation to Trust Attributable MSSA bacteraemia. Of the 27 acute teaching hospitals within England, the STH came 19th in 2012/13 and 12th in 2013/14. In 2014/15 this position had improved further with the STH coming 5th in respect of this particular parameter. Addressing MSSA bacteraemia will continue to form part of the 2015/16 IPC Programme.

Chart 1
Details of S aureus bacteraemia episodes detected by the Trust laboratories



Community Acquired = cases detected within 48 hours of admission and the patient had not been within the STH in the past 6 weeks
Healthcare Associated = cases detected within 48 hours of admission but the patient had been within the STH in the past 6 weeks
Hospital Attributable = cases detected more than 48 hours after admission
MRSA = Meticillin resistant Staphylococcus aureus
MSSA = Meticillin sensitive Staphylococcus aureus

MRSA: all cases
MSSA: all cases (applies to 2003-5)
MSSA: Community Acquired & Healthcare Associated cases (applies to 2005-8)
MSSA: Hospital Attributable cases (applies to 2005-13)
MSSA: Community Acquired cases (applies to 2008-12)
MSSA: Healthcare Associated cases (applies to 2008-12)
MSSA: Likely Healthcare Associated cases (applies to 2012-13)
MSSA: Community cases & Healthcare associated cases where review has determined that recent contact with the Trust was coincidental (applies to 2012-13)

5.21 A clinical review is undertaken of all inpatients with MSSA bacteraemia. The data collected includes the most likely source for the bacteraemia and the Directorate where the infection occurred; see Tables 3 to 6 below. This information helps to determine which interventions are likely to be most effective in reducing the number of hospital attributable and health-care associated episodes.

5.22 Although the numbers for each ward and Directorate are small, Directorate and source data from the past three years indicate the following are areas where interventions continue to be beneficial: a) intravenous (peripheral, central and other) line care and b) prevention of post-operative wound and other soft tissue infections. The action plan undertaken over the past two years has concentrated on these issues and significant improvements have been seen.

Table 3
Number of Trust Attributable MSSA bacteraemia episodes by Most Likely Source

Directorate	2011/12	2012/13	2013/14	2014/15
Peripheral line	12	11	10	6
Central line	4	14	7	6
Other intravenous line	11	5	4	8
Post–operative wound	11	7	3	3
Soft tissue or bone	10	18	12	7
Respiratory tract	11	6	4	8
Urinary tract	1	1	0	1
SCBU – unknown source	3	0	0	0
Other	2	7	6	2
Unknown	6	5	7	2
Total	71	74	53	43

Table 4
Number of Trust Attributable MSSA bacteraemia episodes by Directorate

Directorate	2011/12	2012/13	2013/14	2014/15
Emergency Medicine	5	0	1	0
Respiratory Medicine	1	6	4	6
Diabetes/Endocrine	4	3	6	3
Geriatric/Stroke Medicine	1	6	3	5
Gastroenterology	5	1	2	6
General Surgery	5	6	6	5
Plastic Surgery	0	0	0	0
Urology	3	3	0	0
Orthopaedics	10	4	4	3
Cardiac	11	17	7	2
Renal	2	2	3	2
Vascular	0	2	2	0
Haematology	3	6	2	0
Cancer Services	3	2	0	0
Specialised Rehabilitation	1	0	3	1
Communicable Diseases	1	0	3	1
Specialised Medicine (remainder)	0	1	0	0
Neurosciences	3	4	5	4
ENT	0	0	0	0
Ophthalmology	0	0	0	0
Oral & Dental Services	0	0	0	0
Obs/Gynae	1	1	0	1
Neonatology	7	6	2	3
OSCCA	5	4	0	1
Total	71	74	53	43

Table 5
Number of Likely Healthcare Associated MSSA bacteraemia episodes by Most Likely Source

Directorate	2012/13	2013/14	2014/15
Peripheral line	0	0	2
Central line	12	8	12
Other intravenous line	4	1	3
Post–operative wound	6	2	3
Soft tissue or bone	11	4	8
Respiratory tract	0	1	3
Urinary tract	0	0	3
SCBU – unknown source	0	0	0
Other	4	2	2
Unknown	0	1	1
Total	37	19	37

Table 6
Number of Likely Healthcare Associated MSSA bacteraemia episodes by Directorate

Directorate	2012/13	2013/14	2014/15
Emergency Medicine	0	0	0
Respiratory Medicine	0	0	1
Diabetes/Endocrine	0	0	2
Geriatric/Stroke Medicine	0	0	1
Gastroenterology	0	0	0
General Surgery	2	2	2
Plastic Surgery	0	0	1
Urology	0	1	2
Orthopaedics	3	1	2
Cardiac	7	1	2
Renal	19	6	11
Vascular	1	0	1
Haematology	3	4	8
Cancer Services	1	3	2
Specialised Rehabilitation	0	0	0
Communicable Diseases	0	0	0
Specialised Medicine (remainder)	0	0	1
Neurosciences	0	0	1
ENT	1	0	0
Ophthalmology	0	0	0
Oral & Dental Services	0	0	0
Obs/Gynae	0	1	0
Neonatology	0	0	0
OSCCA	0	0	0
Total	37	19	37

5.23 The IPC Team continue to review patients with Healthcare Associated MSSA bacteraemia, i.e. cases detected within 48 hours of admission but the patient had been within the STH in the past 6 weeks. These reviews help to determine if treatment received during the recent admission, or on-going outpatient treatment, may have contributed to the bacteraemia detected on re-admission. For a significant number of cases there is no evidence for this and it is likely that the MSSA bacteraemia was coincidental to the recent admission. This information is used to determine where best to concentrate actions to reduce 'Healthcare Associated' infections.

5.24 MSSA is carried by approximately 30% of the population and most infections are due to organisms already carried by the patient, although cross infection from other patients and staff can also occur. Preventing infection with MSSA therefore requires a variety of interventions. Details of the actions commenced during previous years and that will be continued into the coming year can be found in the 2015/16 Trust IPC Programme.

5.25 In summary these include:

- Optimising infection prevention and control practice
- Optimising peripheral cannlua care
- Optimising central intravenous line care including peripherally inserted central catheters (PICC) lines
- Optimising management of surgical wounds and reducing infection rates
- Bespoke Directorate level plans

Escherichia coli (E.coli) bacteraemia

5.26 *E.coli* causes a range of infections in hospital and community settings. It is on a par with *S.aureus* as to the number of infections it causes. The normal reservoir for this organism is the human gut and almost all people will carry the organism throughout their life. Infections occur when the organism enters other body cavities e.g. urinary tract infections, peritonitis and blood stream infections. Generally it can be treated with standard antibiotics but resistance to these agents has begun to appear, even in patients in the community who have not had significant exposure to hospitals.

5.27 The commonest means by which *E.coli* strains develops resistance to standard antibiotics, is by acquiring one of a number of enzymes collectively known as extended spectrum beta-lactamases (ESBLs). The reasons why this occurs are not fully understood but exposure to antibiotics is likely to be a key factor.

5.28 Chart 2 shows data for all *E.coli* bacteraemia episodes detected within the Trust laboratories over the past five years. Overall the number of episodes recorded has increased by 18.2 % compared to last year. This may reflect the increasing activity and admissions experienced by the Trust. The number of Trust Attributable cases is similar to last year, the increase being seen in patients who are septic on admission.

Work has continued during the year to collect data on the use of urinary catheters and options for optimising their management. Urinary catheters are known to increase the likelihood of urinary tract infections, some of which spread to the blood stream. Therefore, optimising catheter use may in the longer term reduce *E.coli* bacteraemia.

5.29 Overall this year, 7.7% of strains were ESBL producers. This is a reduction from last year (8.5%) which in turn was a reduction on the previous year's figure.

The percentage of local isolates that were ESBL producers from community acquired cases was 5.4%, healthcare associated cases 8.5% and hospital attributable cases 7.4%. There appears to be year on year variation in these data. The Public Health England/Health Protection Agency report that, nationally in 2014, the rate of blood culture isolates of *E.coli* which were resistant to third generation cephalosporins was approximately 11.8%. Although this parameter is not a strict comparison it is a useful proxy measure.

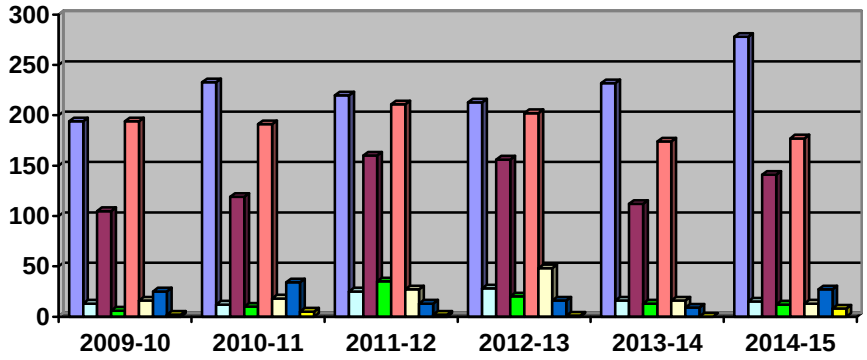
It is thought that exposure to antibiotics increases the likelihood of organisms developing or acquiring resistance, and therefore wise antibiotic use is imperative to keep the level of resistance as low as possible. Microbiology, pharmacy and IPC teams across the health care community within Sheffield are continuing to address this issue and a range of objectives and initiatives are included in the 2015/16 IPC Programme to continue this work.

5.30 Surveillance of *E.coli* bacteraemia became part of the DH national mandatory surveillance scheme from June 2011 onwards. The data released includes all episodes detected and does not take into account whether the episode was associated with care provided by the trust or not. Therefore it is not appropriate to compare local data from this scheme with that observed elsewhere.

5.31 The IPC Team will continue to monitor the situation comparing the local position year on year and how this compares to the national picture.

5.32 At the present time there is little information as to whether there are any interventions that will reduce the number of *E.coli* bacteraemias that occur. *E.coli* carriage in the gastrointestinal tract is universal and the majority of infections are therefore caused by the patient's own body flora. As mentioned above, one area where action might have an effect is in relation to the use and management of urinary catheters. The Catheter Associated Urinary Tract Infection group continue to lead on this issue, see section 4.16 above for a summary of their activities this year.

Chart 2
Details of E.coli bacteraemia episodes detected by the Trust laboratories
(Number of episodes)



E.coli: Community acquired cases – total number	
E.coli: Community acquired cases – number of total that are ESBL producers	
E.coli: Healthcare Associated cases – total number	
E.coli: Healthcare Associated cases – number of total that are ESBL producers	
E.coli: Hospital Attributable cases – total number	
E.coli: Hospital Attributable cases – number of total that are ESBL producers	
E.coli: SCH samples or episode associated with healthcare in another trust – total number	
E.coli: SCH samples or episode associated with healthcare in another trust – number of total that are ESBL producers	

Community Acquired = cases detected within 48 hours of admission and the patient had not been within the STH in the past 6 weeks
Healthcare Associated = cases detected within 48 hours of admission but the patient had been within the STH in the past 6 weeks
Hospital Attributable = cases detected more than 48 hours after admission

Mandatory surveillance data – position in relation to other Acute Teaching Hospitals

5.33 Sections 5.19 to 5.20, 6.6 to 6.13 and 7.4 to 7.8 of this Report provide information relating to the Trust's performance in respect of MSSA bacteraemia, MRSA bacteraemia and CDD, respectively, as measured by the DH mandatory HCAI surveillance scheme. The information from these three modules can be combined to provide an overall picture of the Trust's performance in relation to other similar organisations.

Table 7
STHFT performance in relation to other Acute Teaching Hospitals as measured by combining the position of trusts in relation to MSSA bacteraemia, MRSA bacteraemia and CDD

	National ranking* within Acute Teaching Hospitals Group #
2011/12	14th
2012/13	7th
2013/14	8th
2014/15	5th

* 1st has lowest rate
\# Acute Teaching Hospitals Group of 25 trusts (2011/12 to 2012/13), 27 trusts 2013/14 onwards

Section 6

Meticillin Resistant *Staphylococcus aureus*

6.1 The Trust has determined that the following key indicators will be used to monitor the situation as regards meticillin resistant *Staphylococcus aureus* (MRSA) within the STHFT.

- MRSA screening and follow up
- Number of new MRSA cases
- Data from the Department of Health (DH) mandatory MRSA bacteraemia surveillance scheme

MRSA screening

6.2 Since 2005, the Trust has developed an increasingly comprehensive MRSA screening programme which has been a key element in preventing and controlling MRSA in both acute and community healthcare sectors. This programme preceded, and in many aspects, exceeded the DH MRSA screening requirements which were first published in 2008.

The DH requirements regarding MRSA screening were updated during 2014. The updated guidelines allow trusts more freedom in determining their own screening protocols based on risk assessments and local experience. Following review of this guidance, the IPCT determined that STH protocols should remain largely unchanged, thereby continuing to exceed the DH requirements.

6.3 Chart 3 shows the increase in the number of patients being screened over the past few years. Currently over 10,000 patients per month are screened. Despite this increase in screening, the positivity rate has fallen and then plateaued, see Chart 4. The positivity currently being 0.6% and 0.9% for samples taken and patients screened, respectively. Most of the positive results now come from previously known carriers of this organism.

Audit of compliance with MRSA screening protocols takes place on a Trust-wide and ward level basis.

Follow up of patients found to be positive at pre-admission MRSA screening

6.4 The majority of patients having elective surgery are now screened for MRSA as part of their pre-assessment work-up.

As reported in previous years' Reports a pathway has been developed for the treatment of patients found to be carrying MRSA and their follow up screening. This standardises practice and is also patient focused. Patients found to be colonised with MRSA are seen in a specialised review clinic and given advice and treatment. Each patient is followed up as appropriate depending on the surgery they are to have and their individual circumstances. The pathway has evaluated well and is popular with patients.

Chart 3
Number of patients screened for MRSA each month within the STH
Jan 2005 to Mar 2015

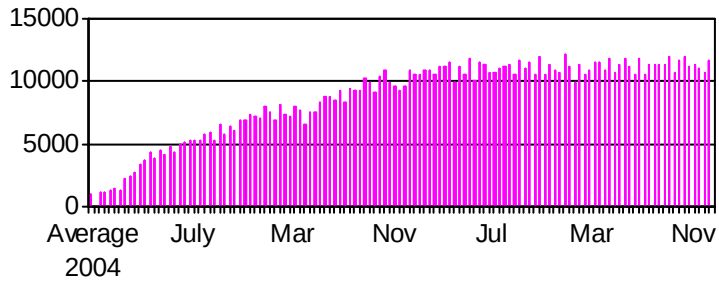
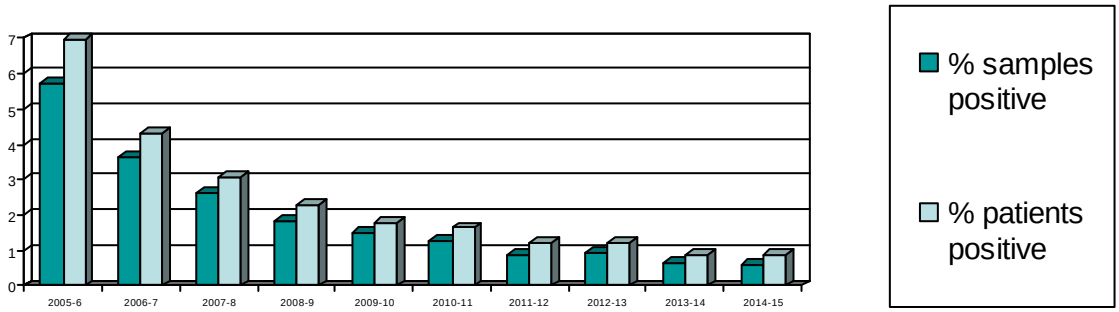


Chart 4
Percentage of samples and patients screened for MRSA that are positive



Number of new MRSA cases

6.5 Overall, the number of new cases of MRSA infection or colonisation has risen this year which is the second year a rise has been noted, see Table 8. However, the percentage of patients screened for MRSA that are positive, see chart 4, has not risen. Therefore the rise in the number of cases probably reflects the increasing activity being undertaken by the Trust rather than a true increase. The majority of new cases detected are detected on admission. These data support the decision to continue with the current MRSA screening strategy despite this exceeding the national requirements; see Section 6.2

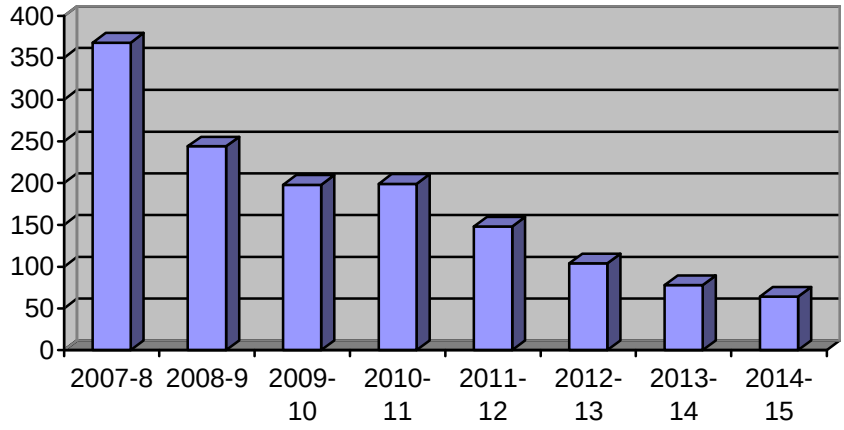
Table 8
Number of new cases of MRSA infection or colonisation, detected by the Trust laboratories

2001/2	2002/3	2003/4	2004/5	2005/6	2006/7	2007/8
1002	1142	1389	1433	1769	1796	1583

2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
1256	1038	954	802	586	621	858

6.6 In addition to monitoring the overall number of MRSA cases, the Infection Prevention and Control (IPC) Team particularly concentrates on those cases deemed to be hospital acquired. The definition for this is any new positive infection or colonisation detected in samples taken greater than 48 hours after admission plus any other cases detected where the patient had been under STHFT care recently. Despite the increase noted above in the overall number of MRSA cases detected during 2014/15, the number of hospital acquired episodes continued to fall year on year, see Chart 5 below.

Chart 5
Annual number of new STH acquired MRSA infections and colonisations detected



6.7 Another useful parameter is the percentage of new *Staphylococcus aureus* (*S.aureus*) isolates that are MRSA. For 2014/15, the STHFT figure is 8.9% for all isolates and 5.2% for blood culture isolates alone; see Tables 8 and 9. National data are available for resistance rates amongst blood culture isolates, which was 7.5% in 2014/15. Therefore, locally the percentage of *S.aureus* isolates for bacteraemia, that are MRSA are lower than the national average. This means that the majority of staphylococcal infections can still be treated with traditional antimicrobial agents, which have fewer side effects and are much cheaper than those required for MRSA. The figures in Tables 9 and 10 show that the percentage of *S.aureus* isolates that are MRSA locally has increased compared to recent years but remains low compared to a decade ago. The reasons for this rise are not immediately apparent but are not related to inpatient acquisition. Contributing factors may include the increased activity undertaken by the Trust plus better ascertainment in the Trust, Community and primary care.

Table 9
Percentage of new *S.aureus* isolates, from all sources and body sites, that are MRSA, for samples submitted to the Trust laboratories

	%
2000/2001	17.6
2001/2002	21.0
2002/2003	24.0
2003/2004	23.9
2004/2005	20.3
2005/2006	26.0
2006/2007	16.8
2007/2008	10.2
2008/2009	9.2
2009/2010	7.7
2010/2011	6.5
2011/2012	5.0
2012/2013	3.1
2013/2014	3.9
2014/2015	8.9

Table 10
Details of *S.aureus* bacteraemia episodes detected by the Trust laboratories

	MSSA (No.)	MRSA (No.)	Total (No.)	MRSA/ Total (%)
2003/2004	234	105	339	31
2004/2005	237	101	338	30
2005/2006	240	79	319	25
2006/2007	218	59	277	21
2007/2008	217	36	253	14
2008/2009	209	24	233	10
2009/2010	190	16	206	7.8
2010/2011	196	16	212	7.5
2011/2012	158	14	172	8.1
2012/2013	176	6	182	3.3
2013/2014	145	7	152	4.6
2014/2015	146	8	154	5.2

MSSA – Methicillin sensitive *Staphylococcus aureus*
MRSA – Methicillin resistant *Staphylococcus aureus*

Mandatory MRSA bacteraemia surveillance scheme

6.8 Since 2001 it has been mandatory for trusts to report MRSA bacteraemia figures to the DH. The results are published and the MRSA bacteraemia rate per 100,000 occupied beds is used as a performance indicator. Since October 2005, the system for reporting MRSA bacteraemias is via a web-based package. Figures are collected monthly and the data signed off and locked down by the Trust Chief Executive's Office.

6.9 Until 2009/2010, all MRSA bacteraemia episodes were allocated to the Trust where the sample was taken regardless of whether the patient had been in the trust for some time or only a few hours. Data reported in previous Reports reflects this allocation.

6.10 From 2010/11 to 2012/13 the scheme had two targets/objectives; the first related to episodes deemed to be attributable to acute trusts and the second to the number of episodes occurring in residents of any particular primary care trust. Data reported in previous Reports reflects this allocation.

Since 2013/14, acute trusts and clinical commissioning groups have taken a zero tolerance approach to MRSA bacteraemia, which is in line with the DH agenda on this issue. Each episode is reviewed to determine if there have been any lapses in care using the DH Post Infection Review tool. The episode is then assigned to either the acute trust or the relevant CCG. Therefore comparing data from 2013/14 onwards with previous years is not straightforward as cases that would previously not have been attributed to trusts (as the sample was taken less than 48 hours after admission) may be assigned to trusts from 2013/14 onwards. This may occur if it is deemed previous care given by the trust was contributory to the current episode.

6.11 A summary of the STHFT results is given in Tables 11 to 13. The STHFT has always been in the top quarter (i.e. amongst those with the lowest rates) of the hospital group to which it has been allocated – Acute Teaching Hospitals Group. It is extremely pleasing to note that for 2014/15 the Trust MRSA bacteraemia rate remains low; the Trust performance compared to similar

hospitals can be seen in Table 12 below. In previous years, the Trust rate has been well below the national average for all types of trusts, and this has continued for 2014/15; the Trust rate being 0.7 episodes per 100,000 bed-days whilst the national average was 0.9. However, the Trust is not complacent in this regard as this standard needs to be maintained and where possible the number and rate reduced further.

Table 11
Episodes of trust-attributable (2008/9 to 2012/13) or trust-assigned (2013/14 onwards) MRSA bacteraemia rate per 100,000 bed-days (number)

Time period	Total STHFT	Trust attributable episodes + Additional Trust assigned episodes
01/04/08-31/03/09	2.1 (14)	
01/04/09-31/03/10	1.4 (9)	
01/04/10-31/03/11	1.4 (9)	
01/04/11-31/03/12	0.3 (2)	
01/04/12-31/03/13	0.5 (3)	
01/04/13-31/04/14	0.7 (4)	4 + 0
01/04/14-31/04/14	0.7 (4)	2 + 2

Trust Attributable = episodes detected in blood cultures taken 48 hours or more after admission
Trust Assigned = episodes detected from samples taken at any time where the care provided by the trust is deemed to have been contributory to the episode

Table 12
STHFT MRSA trust-attributable (2008/9 to 2012/13) or trust assigned (2013/14 onwards) bacteraemia rate and national ranking

	MRSA bacteraemia rate per 10000 bed nights	National ranking within Acute Teaching Hospitals Group*#
2008/9	2.1	1st
2009/10	1.4	3rd
2010/11	1.4	6th
2011/12	0.3	1st
2012/13	0.5	5th
2013/14	0.7	8th
2014/15	0.7	7th

* 1st has lowest rate
\# *Acute Teaching Hospitals Group of 25 trusts (2008/09 to 2012/13), 27 trusts 2013/14 onwards*

Table 13
STHFT reduction targets for MRSA trust-attributable plus trust-assigned episodes

	2010/11	2011/12	2012/13	2013/14	2014/15
STHFT reduction targets	13	10	1	0	0
STHFT actual number detected	9	2	3	4	4

6.12 The objective for 2015/16 will continue to be as few Trust-attributable or Trust-assigned episodes as possible and to take a 'zero tolerance' approach to cases of avoidable MRSA bacteraemia.

6.13 Tables 14 and 15 below show the MRSA bacteraemia data in relation to the monthly and annual target for 2014/15 and the speciality where the episodes occurred.

Table 14
STH-assigned MRSA bacteraemia data 2014/15
Number of episodes

Month	Monthly Total	Cumulative Total	Cumulative Local Indicator Target and National Objective
April	0	0	0
May	0	0	0
June	1	1	0
July	0	1	0
August	0	1	0
September	0	1	0
October	1	2	0
November	1	3	0
December	0	3	0
January	0	3	0
February	0	3	0
March	1	4	0
Total	4	4	0

Table 15
MRSA bacteraemia episodes by specialty

	2010/11	2011/12	2012/13	2013/14	2014/15
Medicine	2	1	2	0	1
Surgery	1	0	0	2	2
GITU/HDU	1	1	0	1	0
SCBU	2	0	0	0	0
Spinal	0	0	0	0	0
Orthopaedics and Plastics	0	0	0	0	0
Renal	0	0	0	0	0
Cardiac	2	0	0	1	0
Neurosciences	1	0	0	0	0
Communicable Diseases	0	0	0	0	0
Haematology	0	0	0	0	1
Obstetrics and Gynaecology	0	0	1	0	0
Weston Park	0	0	0	0	0
Admissions units/A&E	0	0	0	0	0
Total Trust attributable/assigned	09	02	03	04	04
Non-Trust attributable/assigned	07	12	03	03	04
Total	16	14	06	07	08

Surveillance, follow up and action in respect of MRSA cases

6.14 All cases of MRSA bacteraemia are taken extremely seriously. A meeting is held between the IPC Team and the patient's clinical team to determine the series of events that lead to the bacteraemia. The DH Post Infection Review (PIR) tool is used to identify any actions required to improve practice and action plans made to implement these. The results of these meetings are copied to Sheffield CCG who monitor the Trust's performance in this regard. Where cases arise within 48 hours of admission, Sheffield CCG take the lead in undertaking the PIR review but an assessment is made as to any recent care provided by the STHFT and Trust staff participate in these reviews as appropriate. Where appropriate, a summary of key learning points from these meetings is distributed to Nurse and Clinical Directors so that any necessary changes can be implemented throughout the Trust.

6.15 The IPC Team continues to produce data on a monthly basis detailing the number of new MRSA cases detected and the number of probably hospital acquired MRSA infections or colonisations. This data includes the ward on which the infection/colonisation most likely occurred. This information is sent to ward managers, matrons and senior sisters so that appropriate action can be taken locally. These data are also discussed at the Directorate Healthcare Governance meetings.

6.16 A great deal of work has taken place over the past few years designed to reduce the likelihood of patients experiencing MRSA generally and bacteraemia in particular. This work has been detailed in previous Reports and continues to be implemented and reiterated during the current year.

In summary these are

- MRSA screening and follow up detailed above,
- Antimicrobial prescribing; rolling review of antimicrobial prescribing policies, and restriction of certain agents which seem to be associated with better control of MRSA e.g. quinolones
- Insertion and on-going management of peripheral intravenous cannulae; range of initiatives to improve documentation and on-going management of these devices including switching to a chlorhexidine based skin wipe for skin preparation prior to insertion of the device and on-going audit of the use of cannula charts.
- Liaison with primary care colleagues; referral of patients deemed to be at higher than average risk of developing MRSA bacteraemia in the community to community colleagues and protocols for treatment agreed

Section 7

Clostridium difficile toxin associated diarrhoea

7.1 The Trust has determined that the following key indicators be used to monitor the situation as regards *Clostridium difficile* toxin associated diarrhoea (CDD) within STHFT.

- Total number of CDD episodes detected in patients within the Trust
- Number of Trust Attributable CDD episodes/Data from the Department of Health (DH) mandatory CDD surveillance scheme

Number of CDD episodes detected in patients within the Trust

7.2 Overall, comparing 2014/15 with 2013/14 there has been a 14% increase in the number of CDD episodes detected in patients within the Trust. However, the number of episodes is still less than two years ago, see Table 16. These data relate to all episodes detected in patients within the Trust and include both 'Trust attributable' and 'non-Trust attributable' cases. Data relating to 'Trust attributable' episodes only can be found in Sections 7.4 -7.8 of this Report. Data relating to all episodes continues to be included in this Report to enable comparison with previous years when there was no differentiation between 'Trust' and 'non-Trust attributable' cases. It also indicates the continued burden of CDD on Trust facilities and staff regardless of whether the episode was deemed to be attributable to the Trust or not.

7.3 Chart 7 shows the figures for CDD episodes detected in patients within the Trust by quarter over the past nine years. Table 16 shows where these cases occurred within the various Directorates within the Trust. These reflect the significant reductions seen since 2008/9 and, although most areas have detected a small rise in cases this year, the improvements seen compared to previous years have been maintained.

Chart 7
CDD data for episodes detected within the Trust by quarter
(includes episodes detected within 48 hours of admission
i.e. not all episodes are 'Trust attributable')

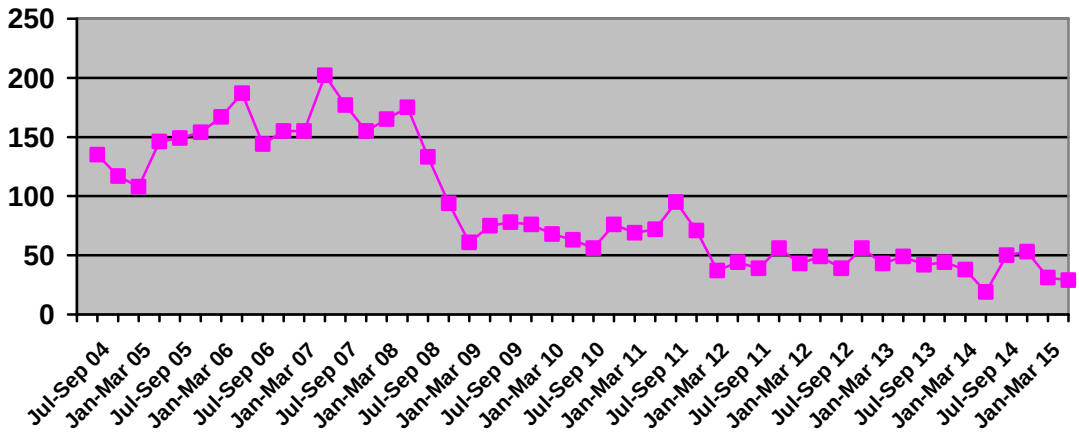


Table 16
CDD data for episodes detected within the Trust

	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Medicine - Total	124	100	78	78	42	40	42
Medicine - Respiratory	N/A	N/A	N/A	12	7	8	6
Medicine – Diabetes & Endocrinology	N/A	N/A	N/A	9	2	3	1
Medicine – Geriatrics & Stroke	N/A	N/A	N/A	45	26	25	24
Medicine - Gastroenterology	N/A	N/A	N/A	9	4	3	4
Medicine – Emergency Care	N/A	N/A	N/A	3	3	1	7
Surgery - Total	46	39	31	40	24	16	8
Surgery – General	N/A	N/A	N/A	28	10	9	2
Surgery - Vascular	N/A	N/A	N/A	9	8	3	3
Surgery - Urology	N/A	N/A	N/A	3	4	2	1
Surgery - Other	N/A	N/A	N/A	0	2	2	2
Orthopaedic and Plastics	21	8	16	8	3	1	9
GITU/HDU	4	8	7	7	1	3	4
Renal	20	19	10	8	5	4	5
Cardiac	18	7	13	9	3	3	3
Neurosciences	9	1	8	6	8	3	5
Communicable Diseases/Dermatology	0	1	3	0	2	1	1
Haematology	11	2	6	8	3	0	6
Spinal	6	7	4	1	5	5	4
Palliative Care	N/A	N/A	N/A	5	1	1	0
Obstetrics and Gynaecology	3	1	0	1	3	1	1
Weston Park	5	9	7	7	4	2	5
Other	0	0	1	0	0	0	0
Total STH Attributable cases	267	202	184	178	104	80	93
Non-STH Attributable cases detected within the STH	96	83	89	81	83	63	70
Total	363	285	273	259	187	143	163

Mandatory CDD surveillance scheme

7.4 Since 2004 it has been mandatory for trusts to report CDD figures to the DH. The results are published and the CDD rate per 100,000 occupied bed days is used as a performance indicator. From 2008/9 onwards CDD episodes have been designated as either 'Trust attributable' or 'non-Trust attributable' depending on when the sample was taken in relation to admission. Episodes detected from samples taken in the community, out-patient departments or within 72 hours of admission are 'non-Trust attributable', the remainder being' Trust attributable'. The system for reporting CDD cases is via a web-based package. Figures are collected monthly and the data have to be signed off and locked down by the Trust Chief Executive's Office.

7.5 Tables 18 and 19 summarise the CDD data for 'Trust attributable' cases. This data set includes all patients two years of age or older and where the episode was detected greater than 72 hours after admission.

The number of 'Trust attributable' CDD episodes detected in 2014/15 has increased by 16% compared to last year although the number of cases remains lower than two years ago. This follows year on year reductions over the past five years. It is pleasing to note the relatively low number of cases compared to previous years has been maintained, following the continued implementation of the *C.difficile* action plan commenced in June 2011. The challenge faced by the Trust going forward is to maintain this improvement and if possible see further reductions. Whether this is possible is still uncertain given that 5-20% of people carry *C.difficile* in their gastrointestinal tracts. These people will be at risk of disease regardless of infection prevention and control measures being optimised within the Trust.

The IPC Team investigated the cases presenting during 2014/15 to determine if any cause for the increase seen this year could be determined. Most of the increase was seen during the first half of the year. It was noted that more cases presented early in their hospital stay (within 7 days of admission) compared to previous years. The Team investigated whether there had been any change in antibiotic prescribing practice by staff within the admissions units or by general practitioners prior to the patient's admission. The cleanliness of the admission units was also reviewed. No change was found in either of these elements of care and therefore the cause for the rise in cases remains elusive. Pleasingly the number of cases fell during the second half of the year and this has continued into 2015/16. The exception to this trend was March 15, where 15 cases were detected. However, no cause for this transient increase was found. It is likely therefore that the increases seen early in 2014/15 and in March 15 were mainly due to normal variation. The above situation was discussed with the Regional Microbiologist who concurred with the Team's view in this regard.

7.6 Since 2008/9 the DH has set year on year reduction targets for 'Trust attributable' cases of CDD.

The target for 2014/15 was 94. The Trust detected 93 cases. Details of the STHFT targets are given below in Table 17.

7.7 Compared to other Acute Teaching Hospitals the Trust has generally compared relatively well being 7th to 9th out of the 27 trusts in this category, apart from 2011/12 when the Trust performed less well compared to other similar trusts.

Over recent years the Trust has once again been in the top 10 best performing Acute Teaching Hospitals coming 10th out of 27 trusts now in this group for 2014/15; see Table 19.

For 2014/15, the average rate of 'Trust attributable' CDD episodes per 100,000 bed-days across the whole of England for all trusts was 15.1 compared to the Trust rate of 16.2.

Table 17
STHFT reduction targets for 2008/9-2014/15

	2008/9	2009/10	2010/11	2011/12	2012/13
STHFT reduction targets	446	375	304	134	134
STHFT actual number detected	267	202	184	178	104

	2013/14	2014/15			
STHFT reduction targets	77	94			
STHFT actual number detected	80	93			

Table 18
Number of 'Trust attributable' CDD episodes in patients 2 years of age or older
1st April – 31st March 2014/15

Month	Monthly Total	Cumulative Total	Target Cumulative Total	Cumulative variance from target
April	7	7	8	-1
May	13	20	16	+4
June	5	25	24	+1
July	9	34	31	+3
August	13	47	39	+ 8
September	12	59	47	+12
October	4	63	55	+8
November	5	68	63	+5
December	5	73	71	+2
January	1	74	78	-4
February	4	78	86	-8
March	15	93	94	-1
Total	93	93	94	-

Table 19
'Trust attributable' CDD data for patients 2 years of age or older
1st April - 31st March

Time period Apr-Mar	Number of episodes	Rate per 100,000 bed days	National ranking within Acute Teaching Hospitals Group**
2007/8	517	81.6	7th*
2008/9	267	42.9	8th*
2009/10	202	33.0	7th*
2010/11	184	30.1	9th*
2011/12	178	30.0	20th*
2012/13	104	17.8	8th*
2013/14	80	13.7	8th*
2014/15	93	16.2	10th*

* 1st has lowest rate
** *Acute Teaching Hospitals Group of 25 trusts (2007/08 to 2012/13), 27 trusts 2013/14 onwards*

7.8 Since April 2014, cases of Trust-attributable *C.difficile* have also been subject to an assessment to determine whether any 'lapse in care' has been identified which may have contributed to the case; section 7.20 below summarises the definitions and process involved in this assessment.

Of the 93 Trust-attributable episodes detected during 2014/15, a possible 'lapse in care' was only identified in 30 instances. The STH will use this information as one of a number of parameters to monitor in-house progress in relation to *C.difficile* year on year. Comparison with other trusts is not meaningful given the variant nature of how these assessments are undertaken.

Actions taken to continue to combat *Clostridium difficile* (*C.difficile*)

7.9 As mentioned above, the challenge faced by the Trust during 2014/15 was to continue to maintain the improvements seen in previous years and determine whether further actions might be successful in driving down the number of cases further. Previous year's Reports have detailed the action plans under taken since 2011.

7.10 These action plans can be summarised under the following headings:

- Reducing environmental contamination of wards and departments
- Optimising infection prevention and control practice
- Optimising antibiotic prescribing
- *C.difficile* case follow up and action
- Raising the profile of infection prevention and control
- Ongoing real time monitoring on cases

7.11 The Infection Prevention and Control Operational Group continues to meet every month to ensure the action plan is implemented and that the benefits are sustained. The Group has representation from Central Nursing, the DIPC, the IPC Team, Estates Department, Hotel Services Department and Antibiotic Pharmacists.

7.12 The majority of the actions within the plan were continued into 2014/15. A summary of key elements can be found in section 7.22 below. Actions are reviewed regularly and changes made as appropriate

For example, the rolling deep clean of wards and departments is by its very nature an on-going activity and will continue for the foreseeable future. During 2014/15 every effort was made to continue the deep clean programme through the busy winter period. However, a break was necessary and during this period enhanced in-situ cleaning was undertaken on the Admissions wards to reduce contamination in these busy areas.

7.13 From January 2015 onwards, the Microbiology Department medical staff began to undertake daily week-day ward rounds on the Frailty Unit specifically to review and advise on any antibiotic therapy that had been prescribed to patients in this area. The Unit was chosen for this initiative as elderly patients are at particular risk of developing CDD. This has been extremely well received by the clinicians and has contributed towards improving antibiotic stewardship. This initiative is unfortunately limited by the time consuming nature of this type of activity.

7.14 The financial investment required to continue to implement the action plan is considerable and is in excess of £1 million. Much of this needs to be recurrent funding for key elements to be continued into the future.

Surveillance, follow up and action in respect of CDD cases

7.15 All cases of CDD are taken extremely seriously. The IPC Team reviews each case every 2-3 days. The frequency and extent of the review varies depending on the patient's clinical status. A formal review of all cases currently within the Trust is undertaken at least once a week. Input from appropriate medical and surgical colleagues is requested as necessary.

7.16 The data set collected for each CDD case includes severity scores and outcome parameters.

7.17 Data on CDD episodes are collected on a daily basis and wards are coded as Red, Amber or Green based on how many cases have been detected on that ward in the past 28 days. Two or more cases within seven days or four or more within 28 days results in a Red coding, two or three within 28 days in an Amber coding and zero or one a Green coding.

7.18 Where a ward flags with a Red or Amber coding the IPC Team undertakes a review of the situation. This review includes details of each case including where on the ward they were nursed, whether they were in contact with other cases on the ward and the antibiotic therapy they had recently received. In addition, a series of audits are undertaken including the infection prevention and control procedures on the ward, general environment and hand hygiene. These audits are repeated weekly for at least 3 weeks. Action is then taken depending on the findings of these reviews. This may include bed closures and extra cleaning, and education of appropriate staff groups. The results of the IPC Team reviews are sent to those responsible for the area, the Domestic Services Department, the DIPC and Chief Nurse's office.

7.19 The IPC Team produces data on a monthly basis detailing the number of new CDD cases detected and the number of probable hospital acquired episodes. These data include the ward on which the infection/colonisation most likely occurred. This information is sent to ward managers, matrons and senior sisters so that appropriate action can be taken locally. The data are also discussed at the Directorate Healthcare Governance meetings.

Weekly emails are also sent by the DIPC to Clinical Directors, Medical Infection Prevention and Control leads, Nurse Directors, Matrons and Lead Nurses regarding the number of Trust Attributable cases of CDD each week.

7.20 A root cause analysis (RCA) is undertaken for every episode of Trust-Attributable *C.difficile*. The clinicians responsible for the patient's care undertake this using an in-house tool which is then reviewed by one of the Infection Control Doctors. The findings are fed back through the local risk and governance pathways and any lessons learnt discussed and actioned as necessary. Any implications for the wider Trust are actioned by the IPC Team.

7.21 These RCAs are also used to assess whether there were any identifiable 'lapses in care' which may have contributed to the episode. Examples of such 'lapses' might be sub-optimal antibiotic prescribing, less than compliant cleanliness audits, presence of other *C.difficile* cases on the ward from whom cross infection might have occurred, lack of compliance with hand hygiene practices etc.

The Infection Control Doctor initially makes the assessment regarding whether a 'lapse in care' may have occurred or not. This assessment is then submitted to Sheffield CCG who review the case and make the final allocation of 'lapse in care' or 'no lapse in care'. The number of cases where a 'lapse in care' was identified is one of the parameters the CCG and other Commissioners use to monitor trusts.

Of note is that there is no national definition as to how to undertake this assessment, information that should be included etc. STH IPC Team members have discussed this with colleagues at other trusts and anecdote would suggest the STH is more stringent than many trusts in making this assessment. This means that, although this parameter may be useful when comparing in-house performance year on year, it cannot meaningfully be used to compare trust with trust.

7.22 A great deal of work continues designed to reduce the likelihood of patients experiencing CDD. A number of key issues are summarised below.

- The IPC Team, Domestic Services, Estates and ward/department staff have continued to work together to undertake the rolling deep clean programme of all areas in addition to those areas where patients with CDD have been detected.
- Enhanced cleaning on the Admission units during the busy winter period, particularly if bed pressures preclude a decanted deep-clean
- Areas at 'high-risk' of on-going contamination with *C.difficile* spores (due to patients carrying the organism), are cleaned with a disinfectant with enhanced activity against *C.difficile*
- The Infection Control Practitioners undertake a range of activities including ward inspections and audit of infection prevention and control practice e.g. commode cleanliness, hand hygiene practice and environmental cleanliness and decontamination.
- To aid in cleaning and decontaminating the environment the Domestic Services and IPC Teams use hydrogen peroxide misting machines. These are used as part of the deep cleaning programme and in response to clusters or outbreaks of various infections on an ad-hoc basis
- Radiator covers on inpatient wards are removed and the radiators cleaned, prior to the heating being turned on each year for winter
- Bed pans washers have been replaced by macerators
- The Microbiology laboratory continues to provide a seven day a week service for *C.difficile* testing. They test stool samples for *C.difficile* carriage as well as whether the organisms were actually producing toxin or not.
- The knowledge of a patient's *C.difficile* carriage status enables the IPC Team to advise appropriate action for patients who are found to be carrying the organism even if it is not the cause of the patient's current episode of diarrhoea. This should reduce the risk of these carriers contaminating the environment with *C.difficile*. In addition, knowing that a patient is carrying the organism enables clinicians to be particularly vigilant when prescribing antibiotics to such carriers. Antibiotic therapy may induce

overgrowth of the *C.difficile* organism and toxin production, resulting in actual *C.difficile* infection in that patient.

- Reviews of the Trust antibiotic policies continue on a rolling basis including policies for surgical prophylaxis.
- The restricted antibiotic prescribing policy continues and has been regularly reviewed. This restricts the prescribing of a small number of antibiotics meaning that they can only be released by pharmacy if sanctioned by a medical microbiologist. The antibiotics on this list have been restricted for a number of reasons, one of which is the propensity to induce CDD.
- The Microbiology medical staff continue to undertake antibiotic review ward rounds on selected units
- The antimicrobial pharmacists continue to audit antibiotic prescribing in number of areas and have developed an expanded programme of such audits. They have also developed an Antibiotic Prescribing web-site and bulletins to feedback prescribing data to wards and departments.
- The specialist unit to care for patients with *C.difficile* infection situated on Robert Hadfield 5 at the Northern campus continues to function. The infection prevention and control, domestic services and clinical staff on the ward work extremely hard to implement the necessary clinical and infection prevention and control care pathways resulting in optimal care for each affected patient. The unit continues to be a great success with positive feedback received from both patients and their relatives.
- The Trust continues to participate in a number of CDD treatment studies to help elucidate the role of new antibiotic regimens for patients suffering with *C.difficile* infection.

Section 8

Outbreaks, Major Incidents and Complaints

Outbreaks and Major Incidents

8.1 No Serious Untoward Incidents related to Infection were reported this year; see Section 5.7 of this Report.

Pseudomonas infection

8.2 Although not reported under the scheme mentioned in sections 5.7/8.1, a review was undertaken of one particular post-operative infection within neurosurgery which occurred in September 2014. This infection was unusual in that it was caused by *Pseudomonas aeruginosa*, appeared to have been acquired at the time of surgery and had a rapid and fatal outcome. Clinical, operating services and infection prevention and control staff participated in this review. No other similar cases were detected and despite an extensive review of the patient's pathway before, during and after surgery, no source for the organism was found. The conclusion was that the source was transient and no longer present to be detected by the investigators. However, a number of practices and protocols were identified where improvements could be made and an action plan has been implemented to address these. Whether these issues were in any way associated with the infection is unknown.

Orthopaedic implant surgery

8.3 Last year's Report contained a summary of concerns that had arisen in 2013/14 in relation to the number of infections occurring at the RHH site following hip and knee joint replacement surgery (otherwise known as arthroplasty); see section 5.8 to 5.10 of the 2013/14 Report.

8.4 The internal and external expert reviews could not fully determine the cause of the increase and the possibility remains that this was normal variation.

However, a number of issues relating to cleaning, clutter, storage and general working practices within the theatre complex were identified. A multi-disciplinary team has continued work to address these during 2014/15.

The design of some of the RHH theatres was also noted to be unusual in that a number of them are configured with a pair of theatres having a joint scrub, storage and disposal area. Whether, or how, this design might increase the infection rate remains elusive but, given the circumstances, the Trust determined to refurbish the complex with a more classic design. The orthopaedic theatres were refurbished during 2014/15 and have now re-opened. The majority of hip and knee replacement surgery has been transferred back from the NGH to the RHH and infection rate surveillance of these procedures is on-going.

A working group is investigating the options for refurbishing the remainder of the theatre complex. Whilst this work is undertaken, a risk-assessment has been undertaken and the type of surgery undertaken within each type of theatre layout at the RHH site has been reviewed. Surgery considered high-risk i.e. involving implants, is now concentrated in the theatres with a classic layout

Fractured neck of femur surgery

8.5 Previous year's Reports have noted the above average infection rate within STH for patients undergoing fractured neck of femur surgery.

8.6 The Trust actioned a package of measures following an internal review of the fractured neck of femur pathway but also commissioned an external expert review. This took place in December 2014 with the report being received in April 2015. The Orthopaedic Directorate and IPC Team are reviewing this to develop an action plan based on the report recommendations.

Clusters/Outbreaks/Sporadic cases requiring IPC Team input

8.7 There have been numerous occasions during the year when the Infection Prevention and Control (IPC) Team have either detected, or been called for advice regarding, a potential outbreak. Some of these situations proved to be false alarms, whilst others could be handled swiftly and any outbreak 'nipped in the bud'. A high index of suspicion on the part of clinical staff is important in this regard, and the IPC Team would ask staff to be continually vigilant. The IPC Team always aims to control an outbreak by causing the minimal disruption possible to the running of the ward or department concerned. However, there are occasions when this is not possible and patient and staff screening and/or bed closures may be necessary.

8.8 A summary of 'major' clusters/outbreaks is given below. It should be noted that the recording of the number of lost bed-days is not an exact science. The term 'bed-days lost' refers to empty beds. Patients with infections generally remain in hospital longer than those without infections and therefore, the true effect of these clusters and outbreaks on patient throughput cannot truly be estimated from the figures below.

8.9 Diarrhoea/Gastro-enteritis:

Norovirus (confirmed or suspected) - the data for the 2014/15 year are included in the Table 20 below.

Table 20
Data for Norovirus clusters detected within the STHFT

	Number of Clusters	Number of Patients	Number of Staff	Number of Bed-days lost*
2008/09	55	637	179	2861
2009/10	126	1105	157	2011
2010/11	64	672	102	1738
2011/12	109	923	85	1932
2012/13	107	913	70	1847
2013/14	82	430	49	650
2014/15	43	225	42	455

* A lost bed-day is counted when an unoccupied bed has to be kept empty in a bay affected by the infection concerned

The number of clusters, patients, staff affected and bed-days lost was significantly less than in previous years and lower than last year which was itself a low activity year. The norovirus activity seen within the Trust varies year by year and generally reflects activity in the community. Please see Section 12 for a more detailed summary of norovirus activity and management during the year.

Clostridium difficile (C.difficile)

- 21 clusters/outbreaks were detected involving 59 patients and 0 staff. The cluster/patient/staff figures for the last five years were 26/55/0 (2013/14), 26/78/0 (2012/13), 56/167/0 (2011/12), 40/103/0 (2010/11) and 32/89/0 (2009/10) respectively.

- Compared to three years ago the number of clusters, and patients affected within these clusters, has fallen. These levels have been maintained once again this year. Investigation of the 21 clusters showed that in many cases the strains involved in individual clusters were different suggesting cross infection was not the cause of the infections. For a full report on *C.difficile*, see Section 7 of this Report.

Other gastrointestinal organisms or no organism detected

- 28 clusters/outbreaks were detected involving 98 patients and 4 staff. These figures are similar to those reported last year.

Meticillin resistant *Staphylococcus aureus* (MRSA):

- One cluster was detected involving two infected or colonised patients. No staff were affected and no bed-days lost. These figures continue to demonstrate the reduction in MRSA clusters seen over recent years.

Antibiotic resistant Gram negative bacteria (*E.coli*, *Klebsiella* etc.):

- Zero clusters and four sporadic cases were detected resulting in 51 bed-days lost. Please see Section 10 for a summary of antibiotic resistant Gram negative bacteria activity and management during the year.

Glycopeptide resistant enterococcus

- One cluster was detected involving 6 infected patients; see Section 5.9. It should be noted these cases were caused by several different strains and do not represent a single cluster of cross infection.

Other organisms (e.g. Influenza, Respiratory Syncytial Virus, Parainfluenza)

- 62 clusters/outbreaks/sporadic cases of respiratory viral infections were detected involving 158 patients and 1 member of staff. This is a significant increase compared to previous years. However the majority of these cases were sporadic cases of influenza detected by improved ascertainment on admission. Please see. Section 11 for a more detailed summary of influenza activity and management during the year.

- 1 sporadic case of infectious tuberculosis was detected in a patient transferred from another hospital; this was an unexpected diagnosis. Appropriate action was taken in that staff contacts were referred to Occupational Health for review; there were no patient contacts

Community Group clusters/outbreaks

Nine outbreaks were detected and managed by Community IPC Team members within the intermediate care facilities overseen by the Trust. Eight of these were attributable to enteric causes and one to a respiratory virus. The IPC Team continues to work with these facilities to optimise the detection and management of infections in their residents.

Complaints, Incidents and Freedom of Information requests

8.10 The IPC Team received ten complaints this year, which is less than in previous years. Some of these were not solely related to infection prevention and control but contained a number of complaints regarding the general care received by patients. Complaints and incidents are generally handled by the clinicians caring for the patient with input as necessary from the IPC Team.

8.11 The infection prevention and control related complaints are summarised below (one such complaint received unless stated otherwise):

- Possible acquisition of *C.difficile* within the Trust - investigations revealed that an alternative source was equally possible
- Alleged acquisition of gastrointestinal infection within the Trust - investigations revealed that this was not likely due to the timing of the infection in relation to the hospital visit
- Alleged lack of IPC Team involvement in the care and advice given to a patient found to have campylobacter shortly after admission - investigations revealed that this was not the case
- Patient unhappy at being swabbed for MRSA as is routine on admission
- A patient was informed that they were MRSA positive; subsequently the laboratory determined that this was an incorrect result but the IPC Team had already informed the patient as per agreed protocols
- Patient complaint as to the consistency of application of standard infection prevention and control procedures i.e. use of gloves, aprons etc.
- Concern as to hygiene/cleanliness/hand hygiene on a ward/department
- Concern regarding the cleanliness of toilets in one area of the Trust
- Patients unhappy regarding communication with them in relation to their being a possible contact of resistant Gram negative organisms plus their subsequent management until they can be determined to be clear or not (three)
- A patient was flagged on the patient management system as being a possible contact of a resistant Gram negative organism but on re-admission was told she had MRSA; this was due to the admitting staff erroneously interpreting the information on the flag
- Visiting professional to one of the intermediate care facilities did not comply with infection prevention and control procedures

The STHFT takes seriously any complaint of acquisition of an organism whilst a patient is being cared for within the Trust. Appropriate lessons learnt from the investigations into these cases are taken on board. However, for some of the cases mentioned above, investigations revealed that it was unlikely that the organism had been acquired within the Trust or that an alternative source was equally probable.

To date most of these complaints have been settled by local resolution although it is likely that more formal proceedings will be initiated in a number of cases. In some instances the complaint was due to a misunderstanding rather than STHFT providing poor care, but some complaints were justified and measures have been taken to improve care and practices within the Trust. Ownership at ward level by all groups of staff is a prerequisite for improvement in this area.

There were four complaints relating to the documentation, management and communication in relation to patients who may have been in contact with resistant Gram negative organisms. The protocols and practices relating to these organisms are in their infancy and the IPC Team have taken these complaints into account in optimising the relevant pathways, documents etc. Please see Section 10 for a more detailed summary of antibiotic resistant Gram negative bacteria activity and management during the year.

8.12 Incidents:

Blockage of pipe-work within the various buildings across the Trust can lead to sewage leaks which cause disruption to the areas concerned and the services provided by the staff in these areas. Dealing with these leaks, and the subsequent cleaning and decontamination, requires a multi-disciplinary team effort. Domestic Services, Estates and Infection Prevention and Control staff, as well as the staff in the area affected, need to react quickly often at the expense of their planned activities for that day. Six sewage incidents occurred during the year thought to be due to a variety of causes including the inappropriate use of macerators, disposal of items e.g. wipes into the Trust sewage system.

The ongoing management of the water system across the Trust results in the occasional necessity to interrupt the water supply to certain areas of the Trust whilst maintenance, repair or upgrade work takes place. Sometimes this occurs as an emergency and sometimes in a planned manner. Estates and Infection Prevention and Control staff, as well as the staff in the area affected, need to ensure appropriate measures are in place during these times to maintain staff and patient safety and dignity e.g. hand hygiene, toilet facilities, equipment and environmental cleaning, hydration etc. Five such incidents occurred during the year.

As part of the on-going maintenance and monitoring of the water systems throughout the Trust, periodic testing for certain organisms is undertaken. Two incidents occurred during 2014/15, where *Legionella species* were detected in samples from Trust facilities. One was an on-going situation in an intermediate care facility, first noted in last year's Report, and the other was on one of the in-patient wards. Both situations were appropriately dealt with by the relevant outlets either being taken out of use or fitted with appropriate filters followed by cleaning and re-testing before being put back into use. Neither incident resulted in any patient harm.

8.13 Freedom of Information requests:

Freedom of information requests (FOIs) are regularly received by the Trust and a number of these relate to infection prevention and control issues. The information requested is often unclear or excessive but the IPC Team aims to provide as much information as possible, as laid out within this scheme.

Three FOI requests relating to infection prevention and control were received during 2014/15. The information requested can be summarised as follows:

- Surgical Site Surveillance information
- *C.difficile* infection rates and information regarding how often certain treatment options are used
- Experience in using macerators

Section 9

Antibiotic Resistance

9.1 The data presented in Table 21 is the local incidence of antibiotic resistance amongst some of the major pathogens. This shows that:

- Amongst *Escherichia coli (E.coli)* the rate of extended spectrum beta-lactamase (ESBL) producing isolates has increased significantly compared to last year. This is concerning although this rise is not reflected in the *E.coli* infections presenting as bacteraemia; see section 6.7. In these severe infections, the rate of ESBL producing isolates has fallen this year. It is likely that most of these infections are at other body sites e.g. urinary tract infections. A more detailed analysis will be undertaken to determine whether the ESBL producing organisms are originating in the community or following care in the acute trusts. This will enable targeted action to attempt to reverse this trend.
- The incidence of penicillin resistant *Streptococcus pneumoniae* has increased compared to previous years and, although this remains at a low level, the trend towards resistance is concerning
- The rate of glycopeptide resistant *Enterococcus spp*. has increased compared to recent years although remains at a low level and is similar to levels seen a decade ago; see also sections 5.8 to 5.10.
- The percentage of *Staphylococcus aureus* isolates that are meticillin/ flucloxacillin resistant i.e. MRSA, has increased compared to recent years although remains at a low level and is similar to levels seen six years ago; see also section 6.7.

Table 21
Selected Antibiotic Resistance Statistics: percentage resistance of local isolates

	2001/2	2002/3	2003/4	2004/5	2005/6	2006/7	2007/8
E.coli							
ESBL producers*				7.4	N/A	6.6	3.6
Staph. aureus							
Methicillin/Fluclox**	21.0	24.0	23.9	20.3	26.0	16.8	10.2
Enterococcus spp.							
Vancomycin#	1.0	5.7	3.0	3.6	2.9	1.9	1.7
Strep. pneumoniae							
Penicillin ##	3.0	3.7	3.6	3.6	4.1	5.2	4.1

	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
E.coli							
ESBL producers*	4.0	4.6	4.1	4.9	5.6	5.0	14.0
Staph. aureus							
Meticillin/Fluclox**	9.2	7.7	6.5	5.0	3.1	3.9	8.9
Enterococcus spp.							
Vancomycin#	0.5	1.3	0.9	2.5	1.3	0.3	2.4
Strep. pneumoniae							
Penicillin ##	5.9	7.1	5.4	5.4	5.1	6.8	7.9

Data from the Health Protection Agency/Public Health England

* 2014 UK data for blood culture isolates estimates 11.8% resistance to third generation cephalosporins which although not a strict comparison is a useful proxy measure

** 2014/15 UK data for blood culture isolates shows .7.5 % resistance

\# 2014 UK data for blood culture isolates shows 12.3 % resistance

2012 UK data for invasive isolates shows 4.9% resistance

9.2 Generally these figures show that resistance rates in Sheffield have seen an upward trend this year although generally levels are similar to the latest national figures. It should be noted that, for some of the organisms, the national figures lag a year or so behind the local ones. Given the increases seen locally this year, there is a possibility that this may also be reflected in the national figures when these are published.

The rise seen within Sheffield will continue to be monitored and where appropriate more in depth assessment made as to where these resistant isolates are arising.

However, the local data allow clinicians to continue to prescribe traditional antibiotics with confidence in the majority of situations. It should be noted that the above data relate to all isolates investigated within the Sheffield laboratories including those from samples submitted from the community.

Section 10

Carbapenemase Producing *Enterobacteriaceae*

10.1 Over the past few years there has been increasing concern worldwide in respect of the development of resistance to the carbapenem group of antibiotics. This group of antibiotics includes imipenem, meropenem, ertapenem and doripenem. These are invaluable for the treatment of infections due to Gram-negative bacteria e.g. *E.coli*, *Klebsiella*, *Serratia species,* otherwise known collectively as *Enterobacteriaceae*. Carbapenems are active against bacteria that are resistant to many other antibiotics, including ESBL producing organisms.

10.2 Carbapenem resistant organisms remain rare within the UK but continue to emerge. Of particular concern are organisms that exhibit resistance due to enzymes called carbapenemases. Their transmission characteristics and the type of infection they cause resemble those of more sensitive strains, but the infections are much more difficult to treat. In addition, the carbapenemase enzyme may be transferred to other species and strains of bacteria. For these reasons, it is vital that spread within health-care establishments is prevented wherever possible. These organisms are known as carbapenemase producing *Enterobacteriaceae* (CPEs).

10.3 Public Health England has published several documents designed to advise trusts on how to detect, manage and control CPEs, the latest being Public Health England guidance on detection, management and control of carbapenemase-producing *Enterobacteriaceae*[4]. The STHFT has for some years had policies and procedures in place for dealing with these organisms based on previous communications. The IPC Team has updated these documents to take account of the new guidance.

Some of the advice may appear restrictive but this is vital to prevent spread to other patients.

These organisms are more common in certain parts of the world and other parts of the UK and patients returning from health-care establishments in these areas should be screened on admission to the Trust. This will help to detect such organisms early in a patient's admission and ensure they receive appropriate antibiotic therapy, if required. Knowledge of who is carrying these organisms will also help prevent spread to other patients.

10.4 The Trust policy includes

a) assessing all admissions as to the risk of the patient being infected or carrying a CPE
b) screening of patients deemed to be a high risk of being infected or carrying a CPE
c) isolation precautions required for patients whilst awaiting screening results
d) isolation precautions required for patients known to be infected with or colonised by CPE
e) protocols for managing contacts of patients found to be colonised or infected with a CPE
f) management and control of clusters/outbreaks caused by CPEs

10.5 The IPC Team are working with clinical colleagues across the Trust to implement the above guidance on a rolling basis. Implementation has already

taken place in the areas where most high-risk patients are likely to be admitted i.e. Spinal Injuries and Primary Pulmonary Hypertension Units.

10.6 Screening for CPEs is not straightforward and the Microbiology Department and the IPC Team undertook as assessment during 2014/15 to determine the various methodologies available for screening and the costs and benefits involved. A preferred screening method has been determined, based on this local assessment and a national study. The practicalities and funding to enable rollout of the preferred screening method are under discussion.

10.7 The IPC Team have worked with those responsible for the current patient management system (Patientcentre) to ensure a mechanism is in place to allow the system to appropriately identify patients known to be carrying or infected with CPEs, should they be re-admitted. Adding these flags to PatientCentre is now managed within the IPC Team by the IPC Systems Manager. Work is on-going to ensure a similar system is in place when Lorenzo replaces the current system.

10.8 As the IPC Team have worked with clinical areas to roll out the CPE policy, one issue has proved less than straightforward to implement. This relates to how to follow up and screen patients who are contacts of patients found to be colonised or infected with a CPE. Follow up and screening to determine if these contacts have acquired the organism requires multiple samples over many weeks. In addition, many of the contacts have already been discharged prior to the CPE being detected in the index patient, which increases the difficulty of appropriate communication.

As noted in section, 8.6, a number of complaints have arisen in relation to this issue. The IPC Team have reviewed the pathways and practices relating to this issue and amended protocols are now in place. The situation will be kept under review during 2015/16.

10.9 To date, CPEs are uncommon locally and Sheffield is not classed as a high-risk area. Table 22 contains information as to the number of cases detected by the laboratories in Sheffield. The IPC Team also try and determine where a patient may have acquired the organism. This is not always possible and unless the source is clearly elsewhere e.g. when a patient is transferred from abroad, the source is allocated to the STH. It should be noted that the patient may have been carrying the organism on admission and the STH may not have been the source but in the absence of information to this effect, allocation remains with the Trust.

Table 22
CPE information 2013/14 to - 2015/16

Number of patients identified by the Sheffield laboratories	2013/14	2014/15
Infected with or carrying CPE	10	16
CPE thought to have been acquired within the STH	4	12

The IPC Team and clinical staff will continue to respond appropriately to each situation and endeavour to optimally manage each case and prevent spread wherever possible. However, as these organisms become more common across the UK, this will become an increasing challenge

Section 11

Influenza

11.1 Influenza activity increases each year during the autumn and winter months, with the predominant strains varying from year to year.

11.2 The 2014/15 influenza season was unusual in that cases continued to be detected into the spring months (particularly influenza B). The data presented below includes these latter cases even though these occurred after the end of March 2015 and therefore fall outside of the time period generally covered by this Report. Overall this season the Trust laboratories tested 9434 samples for influenza of which 1200 (12.7%) were positive. The total number of STHFT in-patients with confirmed influenza was 460. Sadly 56 individuals died within 30 days of being diagnosed i.e. there is a reasonable likelihood that influenza may have contributed to their death. These data reflect the increase in influenza activity seen nationally this year compared to the last few years.

11.3 Relatively few staff became ill with influenza and staff absence did not significantly affect the day to day running of the Trust.

11.4 The overall strategic management of influenza this season was once again led by the Winter Planning Group, see Appendix F. This Group met regularly over the autumn and winter to review guidance from the Department of Health and Public Health England and to implement this as necessary. The group updated the Trust seasonal influenza protocols for managing patients with suspected and confirmed influenza and advised on a range of strategic and operational issues relating to this infection.

The remit and role of the Winter Planning Group is being reviewed during 2015/16. Whatever the outcome of this review, a group will be convened to oversee the Trust's response to the impact of infections such as influenza and norovirus, plus other infections as necessary, throughout the year; the draft name for this new group is the Outbreak and System Resilience Group (OSRG).

11.5 Overall, front line staff and the Infection Prevention and Control Team were able to manage the situation in such a way as to minimise disruption to normal Trust business. However, the number of cases this year was high and patients with influenza contributed significantly to the pressures experienced by the Trust over the winter and spring months. It should be noted that even though Trust business generally continued unabated the impact on specific individuals and groups of staff was not insignificant. The following departments were particularly involved: Virology, Infection Prevention and Control, Clinical Operations, Infectious Diseases, Supplies, Critical Care, Medical Emergency Admissions, Accident & Emergency and Occupational Health.

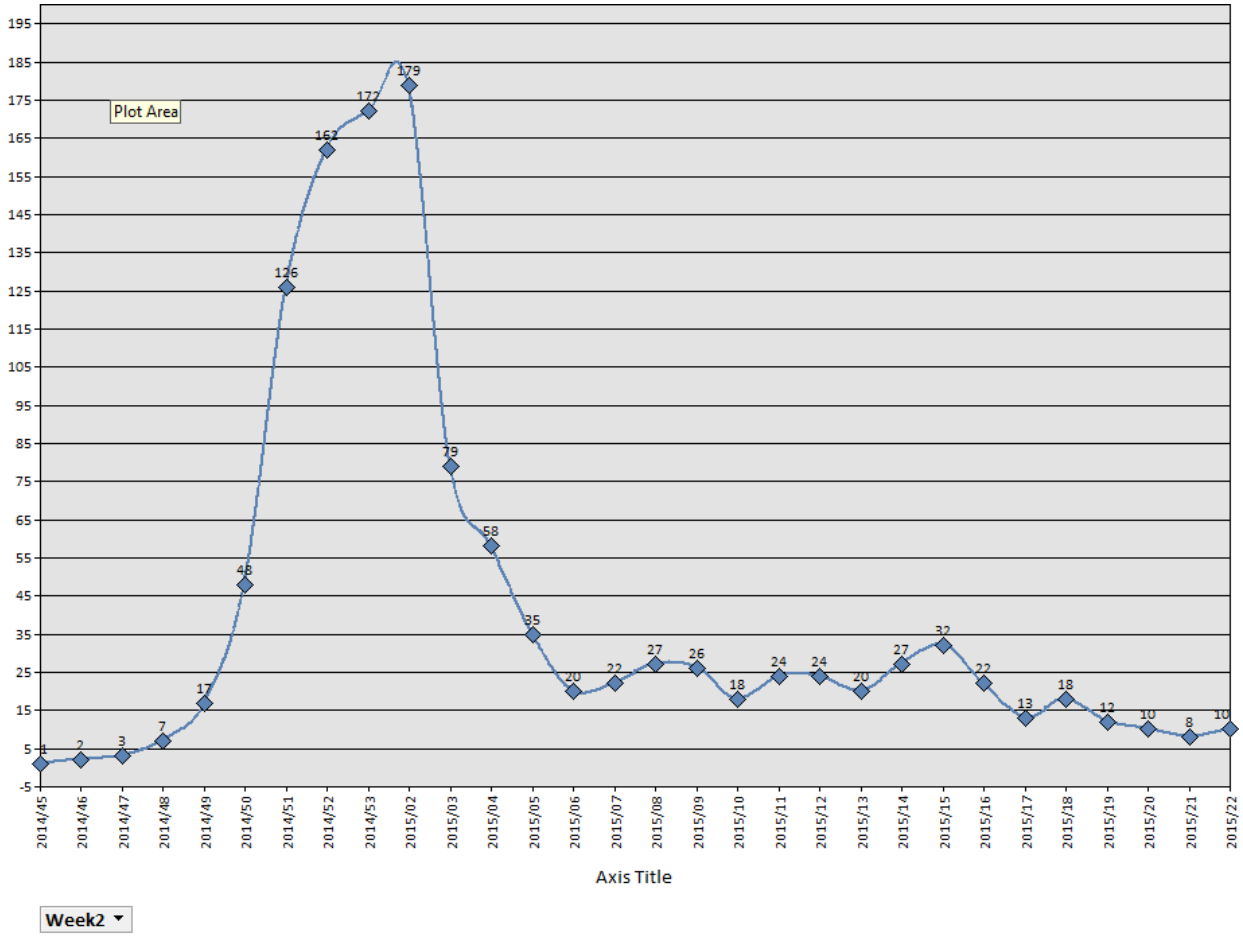
11.6 One of the initiatives trialled during the year was the use of 'near patient testing' kits for the diagnosis of influenza. These kits were made available to a number of admission areas and allowed a rapid test to be undertaken on the ward, thereby expediting appropriate management and infection prevention and control strategies for patients testing positive. The OSRG will determine whether this test will continue to be used for the 2015/16 influenza season.

11.7 During the coming year the OSRG will once again review the options for managing influenza within the Trust to specifically determine areas for improvement locally.

The areas for discussion will include:

- Optimising where influenza cases should be managed
- The use of near patient testing
- Where any influenza cohort wards should be situated and mechanisms for opening and closing such facilities
- Improving staff influenza vaccination rates
- Updating the Trust Influenza Plan

Figure 2
Number of influenza cases detected by the STH laboratory 2014/15



Section 12

Norovirus

12.1 The illness caused by norovirus has historically been known as 'winter vomiting disease' due to its seasonality and typical symptoms. Sporadic cases occur throughout the year but large outbreaks occur each year, generally during the colder months, both in the community, hospitals and other 'closed' environments e.g. hotels, schools, cruise ships.

12.2 Norovirus once again affected the Trust during 2014/15 and, as in previous years, the Trust followed national guidance as to how to manage the situation. This included the Public Health England guidance on managing norovirus in healthcare settings[14] which recommends that, when cases of norovirus are suspected or confirmed, initial management should concentrate on bay by bay closure rather than early full ward closure.

12.3 The overall strategic management of Norovirus this season was lead by the Winter Planning Group; see Appendix F. The day to day management of cases and clusters was a multi-disciplinary task involving the IPC Team, Virology Department and Clinical Operations in addition to clinical staff within Accident & Emergency, the Admissions Units and the various wards across the Trust affected by this virus at various times during the season. For 2015/16 the Winter Planning Group is to be replaced by the Outbreak and Systems Resilience Group (OSRG); see section 11.4.

12.4 Details of the 2014/15 norovirus data can be found in Table 23, copied below.

Table 23
Data for Norovirus clusters detected within the STHFT

	Number of Clusters	Number of Patients	Number of Staff	Number of Bed-days lost*
2008/09	55	637	179	2861
2009/10	126	1105	157	2011
2010/11	64	672	102	1738
2011/12	109	923	85	1932
2012/13	107	913	70	1847
2013/14	82	430	49	650
2014/15	43	225	42	455

* A lost bed-day is counted when an unoccupied bed has to be kept empty in a bay affected by norovirus.

The number of clusters, patients and staff affected and bed-days lost was significantly less than in previous years and lower than last year, which itself was a low activity year. It is extremely pleasing to note the relatively low number of norovirus clusters and cases this year. Once again staff, from across the Trust, have worked extremely hard to keep numbers low whilst minimising the impact of such measures on the rest of Trust business. It should be noted that norovirus activity seen within the Trust varies year by year and generally reflects activity in the community.

12.5 Overall, norovirus has once again been one of the infections which has had a significant impact on the Trust's ability to provide quality and timely care to patients. Addressing this will continue to be a key issue for the coming year and will be one of the main issues on the OSRG agenda.

Section 13

Ebola

13.1 The recent Ebola outbreak in parts of West Africa has been well publicised, as has the possibility of suspected or confirmed cases being detected in returning travellers, healthcare workers and military personnel.

13.2 The STH has had guidelines in place for many years designed to detect and manage patients with severe viral haemorrhagic fevers, of which Ebola is a key example.

As part of the local response to the recent Ebola outbreak, an STH Ebola Task and Finish Group was set up, led by one of the Infectious Diseases consultants, Dr Anne Tunbridge. The aim of the Group was to optimise plans for safely detecting, diagnosing and managing patients suspected or confirmed as being infected with the Ebola virus or other Category 4 pathogens, based on Public Health England advice[6].

13.3 The Group was multi-disciplinary and consisted of staff from the following departments: Infectious Diseases, IPC Team, Emergency Planning, Laboratory Medicine, A&E, Emergency Medicine, Critical Care, Obstetrics, Supplies, Waste Management, Hotel Services, Mortuary and Occupational Health.

13.4 The Group met fortnightly for most of 2014/15. The Group undertook a wide ranging approach reviewing all elements of the pathway including:

- Patient risk assessment
- Various presentation pathways
- Patient transfer
- Clinical assessment and management
- Procedures for taking samples
- Sample transfer
- Laboratory protocols
- Infection prevention and control practices
- Personal protective equipment
- Donning and doffing procedures
- Waste management
- Equipment decontamination
- Environmental decontamination
- Roles and responsibilities of various staff groups
- Staff training
- Communication
- Procedures within Infectious Diseases
- Procedures within Accident & Emergency
- Procedures within Critical Care
- Procedures with Obstetrics
- Procedures within Neonatology
- Impact of cases on the normal business within the aforementioned departments and the rest of the Trust
- Procedures within the Mortuary
- Liaison with other key agencies
- Provision of sufficient supplies and equipment

- Work required to optimise Trust premises to care for suspected or confirmed cases

This is not a complete list and the amount of work undertaken by the Group should not be underestimated.

13.5 The Trust was requested to prepare to manage not only suspected cases of Ebola but also to act as a surge capacity centre, if the units that usually take such cases were full. The work to upgrade the Trust's systems, processes and facilities to allow this was considerable. The Health & Safety Executive visited the Trust on a number of occasions and were very complementary regarding the work carried out. They confirmed the Trust was appropriately prepared to take confirmed cases if the need arose.

13.6 To date, a small number of patients have presented to the Trust who fulfilled the criteria for being a suspected case of Ebola e.g. the patient had a temperature and recent travel to the affected areas of West Africa. None proved to have the illness. It is pleasing to note that the protocols in place to detect and manage such patients worked well, although there are always lessons to learn. The Task and Finish Group reviewed all such cases to help optimise their work.

13.7 Although the Ebola outbreak appears to be on the wane, the above work will place the Trust in a good position for the future. Ebola may re-merge and sporadic cases can present at any time. In addition, Ebola is only one of a number of viruses that cause severe infections that are easily spread to healthcare staff and the procedures now in place can be used for any of these agents. The Task and Finish group will continue to meet in 2015/16 to finalise their work.

Section 14

Conclusion & Plans for the Future

14.1 This Report highlights both the progress made during the past year in relation to infection prevention and control and also the challenges that lie ahead. However, a great deal of hard work has taken place and much has been achieved. The Key Indicators show:

- Compliance with the Health and Social Care Act[1] and the Care Quality Commission registration standards[2] is estimated at 98%
- All Groups/Departments completed a large percentage of the Infection Prevention and Control (IPC) Programme
- The total number of new meticillin resistant *Staphylococcus aureus* (MRSA) cases detected remains at a low level. The majority of cases were detected on admission to the Trust.
- The MRSA bacteraemia rate has continued to be low and below the national average. The total number of episodes assigned to the Trust was 4 and therefore, the Trust did not achieve the target of zero cases, set by the Department of Health.
- The number of *Clostridium difficile* toxin associated diarrhoea episodes (CDD) attributed to the Trust was 93. The Trust therefore achieved the Department of Health target of 94 or less. However this was an increase compared to 2013/14.
- The number of Trust attributable episodes of meticillin sensitive *Staphylococcus aureus* (MSSA) bacteraemia showed an 19% fall compared to last year
- The STH performed 5th best out of 27 similar trusts when combining data from the MSSA bacteraemia, MRSA bacteraemia and CDD mandatory surveillance scheme modules
- The number of infections caused by glycopeptide resistant enterococci has increased this year although this may be part of a national trend
- The local rate of antibiotic resistance in relation to key organisms has increased to nearer historical national levels

14.2 Throughout this Report planned initiatives have been mentioned which are designed to improve the IPC Service further. These will be detailed in the 2015/16 IPC Programme but a number of them are summarised below for information. The list is not exhaustive and, as always, new developments and actions are likely to be added throughout the year. Given that implementation of the 2015/16 IPC Programme will have already begun by the time this Report is published some of these issues will already be in place whilst the rest will be progressed over the coming months.

- Review the Trust's position against the Health and Social Care Act[1] and implement any necessary actions to address non or partial compliances
- Review the implications for infection prevention and control of the Duty of Candour requirement[16]
- Continue to use the Infection Control Accreditation Scheme to standardise, improve and monitor practice. Implementation of the be-spoke modules for Community sector services will continue
- Continue to review and update infection prevention and control related policies and procedures

- Review the appropriateness and availability of patient information regarding managing their own medical devices
- Continue to review and audit antibiotic prescribing across the Trust
- Continue to optimise decontamination facilities, equipment and consumables via the Trust Decontamination Management Group
- Review the cleaning requirements for the increasingly prevalent IT equipment present in clinical areas
- Continue to review the prevention, control and management of CDD including the continued implementation of the *C.difficile* action plan
- Continue to review the prevention, control and management of MRSA, including a zero tolerance approach to MRSA bacteraemia
- Continue to review the prevention, control and management of MSSA bacteraemia
- Review the source of resistant organisms e.g. community or acute trust and any relation to antimicrobial prescribing
- Continue to review the prevention, control and management of carbapenemase producing *Enterobacteriaceae*
- Review the Trust's response to influenza and determine areas for improvement locally
- Review the Trust's response to norovirus and determine areas for improvement locally
- Work with the Trust Safer Care Committee to optimise the use and management of urinary catheters
- Continue to develop surveillance of surgical wound infections
- Continue to implement the Department of Health recommendations for reducing the risk from pseudomonas in the healthcare environment.
- Review, in conjunction with the Education and Training Department, which material to use for the infection prevention and control induction e-learning programmes
- Update the annual refresher infection prevention and control e-learning package for 2015/16 for all staff groups
- Co-operate, as appropriate, with primary care colleagues to optimise infection prevention and control across the primary/secondary care interface
- Participate, where possible, in local and national research studies and evaluations related to infection prevention and control

14.3 Preventing and controlling infection is an on-going issue for any healthcare establishment and the STHFT is no exception in this respect. This Report indicates the substantial progress made during the past year and also indicates the work planned for the coming year to provide a continually improving Service. For a trust the size and complexity of the STHFT and the ever changing and increasing expectations of health care establishments, the Trust, the specialist infection prevention and control personnel and staff working both on the wards and behind the scenes have much to be proud of.

Appendix A

Membership of the STHFT Infection Prevention & Control Committee

Executive Lead for Infection Prevention and Control	Hilary Chapman
Board of Directors Non-Executive Representative	Anthony Weetman
Director of Infection Prevention and Control and Lead Infection Control Doctor	Christine Bates
Infection Control Doctors	Liz McLellan Helena Parsons Dave Partridge Laura Prtak
Lead Infection Control Nurse Specialist	Patty Hempshall
Deputy Chief Nurse	Chris Morley
Assistant Medical Director	Des Breen
Head of Patient and Healthcare Governance	Sandi Carman Debbie Shone
Occupational Health Physician	Alison Rimmer
Infectious Diseases Physician	Katharine Cartwright
Antibiotic Pharmacist	Chris Winnard
Estates Department	Mick Wareing
Sterile Services Manager	Karen Tweed
Domestic Services	Joanne Burgan Gill Thirsk
Matrons	Carol Bedford Jean Clohessy Paula Crosby Jane Sendel
Trust Governors	Anne Eckford Graham Thompson
Consultant in Communicable Disease Control/ Public Health England Representative	Rose Cressey Suzanna Mathew
Primary care trust Representatives	Jane Harriman

Appendix B

STHFT Infection Prevention & Control Team and Attendees of the Trust-wide Infection Prevention & Control Team Meetings

Infection Control Doctors	Christine Bates Liz McLellan Helena Parsons Dave Partridge Laura Prtak
Infection Control Nurse Specialists	Patty Hempshall Diane Allender Jackie Anderson Rachael Duckworth Andy Garner Katie Grayson (until January 2015) Sue Hillis Melissa Jeffs (on secondment to IPCT from April 2014; substantive post offered in Feb 2015) Amy Leese (on secondment to IPCT from April 2014; substantive post offered in Oct 2014) Julie Parker (until August 2014) Kim Tomlin Beverley Wade
SSI Surveillance Coordinator SSI Surveillance Nurse	Maggie Bacon Beverley Almond (from August 2014) Marcia Bennett (from August 2014) Rose Sackey (on secondment Dec 2014 – March 2015) Cecilia Tawiah
Infection Control Systems Manager	Glenn Radford
Infection Control Assistant Practitioners	Eric Moulds Dawn Shevlin Anna Green Natalie Greaves Sharon Grindle Wendy Ibbotson Jane Marsh (until Sept 2014) Julie Taff Aimee Turner
Consultant Virologists	Mohammed Raza
Deputy Chief Nurse	Chris Morley
Occupational Health Department Staff	Alison Rimmer Helen Hough
Supplies	Michaela Fairest
Primary care representatives	Nikki Littlewood
Secretaries	Jan Waddingham Pat Brooks Elaine Leonard

Appendix C

Decontamination of medical Devices IPC Report 2014/15

PURPOSE OF THE REPORT:

This paper provides the IPC Committee with the current position of:

- The Sheffield Teaching Hospital NHS Foundation Trust (STH) off site Decontamination Service Provider
- The STH in house decontamination and sterilisation facilities and practice.

KEY POINTS:

- The offsite Decontamination Service Provider Synergy Healthcare, reached steady state with regard to their KPI's December 2013. The performance of Synergy Healthcare is continuously monitored contractually against the Decontamination Services Agreement (DSA) by the Joint Management Group (JMB) who meets bi-monthly. A sub group of the JMB, the Service Review Committee meet bi-monthly and ensure the service is optimised and that any service issues identified have corrective actions taken.
- The offsite Decontamination Provider is accredited with a notified body against the requirements of the Medical Device Directive 03/42/EEC and BS EN ISO 13485:2003 and is audited annually against this standard.
- In house provision of decontamination and disinfection services for flexible endoscopes is provided in two compliant units, one on the Northern General Hospital (NGH) site and one on the Royal Hallamshire Hospital (RHH) site.
- The endoscopy decontamination units are audited annually against British Society of Gastroenterologists (BSG) guidelines and the track and traceability of the scopes is audited biannually in accordance with current guidance and recommendations.
- Reprocessing of transoesophageal echo probes (TOE) was moved from the Cardiac Echo Lab into the compliant endoscope decontamination unit NGH February 2015.
- The Dental Practice Unit (DPU) has decontamination and sterilisation equipment used for student training purposes. Deepcar Dental Clinic also uses bench top decontamination equipment. From mid 2015 this equipment will come under the same audit process as the DPU and the central endoscopy decontamination units.
- The STH Authorised Engineer decontamination (AEd) provides an external independent audit of the Trust decontamination facilities and the decontamination equipment maintenance and validation records.
- The Decontamination Management Group meet bi-monthly and ensure that local decontamination of re-usable medical devices and patient shared equipment is now effectively managed and arrangements are in place, and that there are policies and procedures available for all aspects of decontamination work.

1. OUTLINE

The paper outlines four areas of re-usable medical device decontamination:

- Reusable invasive medical devices, reprocessed at Synergy Healthcare, the offsite Decontamination Provider
- Flexible endoscopes and transoesophageal echo probe (TOE) scopes, reprocessed at STH
- The bench top decontamination and sterilisation equipment used in The Dental Practise Unit (DPU) and the Community.

- Local decontamination of reusable medical devices and patient shared equipment in Clinical areas throughout STH

- The Care Quality Commission Regulations 12 and 15 state that there must be maintenance of appropriate standards of cleanliness and hygiene in relation to:
    - Premises occupied for the purpose of carrying out regulated activity.
    - Equipment and re-usable medical devices used for the purpose of carrying out the regulated activity.
    - Materials to be used in the treatment of service users where such materials are at risk of being contaminated with a heath care associated infection.

2. REPORT

Synergy Healthcare

In August 2012 STH completed their sterile service migration to Synergy Healthcare the offsite decontamination service provider. The service required a considerable bedding in period but in December 2013 the unit reached steady state where the performance criteria were met. This state is continuously monitored via the Decontamination Service Agreement (DSA) which is the legal contract between STH and Synergy Healthcare. The executive group who oversee the DSA is the Joint Management Board (JMB) and is made up of senior STH managers and Synergy Healthcare senior managers. The terms of reference for this group are set out in the DSA.

Flexible Endoscopes

In house provision of decontamination and disinfection services for flexible endoscopes is provided in two compliant units, one on the NGH site and one on the RHH site. The endoscopy decontamination units are audited annually against British Society of Gastroenterologists (BSG) guidelines and the track and traceability of the scopes is audited biannually in accordance with current guidance and recommendations.

The STH Authorised Engineer decontamination (AEd) provides an external independent audit of all the Trust decontamination facilities (excluding the off-site provider) and the decontamination equipment maintenance and validation records. The AEd contract has been expanded in 2015 to include the Stella chemical bath in GI physiology and the benchtop decontamination equipment used in the Community.

The transoesophageal echo probe (TOE) automated decontamination and disinfection service in the Cardio ECG Lab NGH has now been moved to the compliant NGH endoscopy decontamination unit in February 2015. A new automated endoscope washer was purchased to support this move which is compatible for TOE reprocessing. There are still issues around the electrical connections for the TOE scopes which must be placed in pressurised units to prevent water ingress; this part of the TOE must be manually disinfected.

Service issues arising from the managed endoscopy decontamination service are discussed at the bi-monthly Endoscopy Decontamination User Group (EDUG) who report to the Decontamination Management Group. The membership of this group includes all clinical areas who have their flexible scopes reprocessed through the central units.

A rolling annual audit program is performed by the Endoscopy Decontamination Manager to ensure that both central units and the associated equipment and drying cabinets are managed and used correctly. The audit results are fed back to the Decontamination Management Group for approval.

The endoscopy decontamination team are working towards accreditation against standard BS EN ISO 13485:2003 quality standard; this is hoped to be achieved by mid-2015. This will allow the service to be "sold" to external parties.

Benchtop sterilisation equipment

Charles Clifford Dental Hospital (CCDH) and the Dental Practise Unit (DPU) have decontamination and sterilisation equipment used for student training purposes and small implant trials used in the CCDH. This equipment is validated and maintained by the equipment manufacturer and is managed by the CCDH staff. The CCDH requested that this equipment be used for some out of hours lists early 2015, the Decontamination Management Group recommended that the validation regime be amended from HTM 01-06 to meet the CFPP standard if this work was to go ahead.

Deepcar Community dental clinic has a benchtop washer / disinfector and a benchtop porous load autoclave. This equipment is tested and validated in accordance with HTM 01-06 and auditing of this test regime will be done by the AEd from mid-2015. All other areas using sterile instrumentation within community services are provided with a decontamination service from Synergy Healthcare.

Decontamination Management Group

The Decontamination Management Group (DMG) meet bi-monthly to ensure that robust processes are in place to oversee the organisation, management and quality assurance of all aspects regarding the local decontamination of re-usable medical devices and patient shared equipment in the STH. The DMG have been reviewing the Decontamination Policy which was circulated in draft format April 2015 for approval. The Decontamination Policy now includes the decontamination of fixtures and fittings and links have now been made with the Hotel Services team. The DMG have been working on a shared computer drive to allow the group to work with the Supplies Department on assessing the cleaning and reprocessing instructions for new devices and equipment.
Membership of this group is attached below. The DMG feed back to the IPC Committee meeting on their actions and progress.

This group has two active sub groups, the Chemical Review Group and the CJD Management Group.

- The Chemical Review Group (CRG) meet on a regular basis and are looking at ways to standardise the cleaning and disinfection chemicals used in the STHFT and the Community. The CRG have been reviewing the disinfection of invasive ultrasound probes to ensure that the trust is compliant with MDA alert MDA/2012/037. The CRG are also looking at rationalising chemicals and wipes used in clinical areas to clean and disinfect reusable medical devices and patient shared equipment.

- The CJD management group have been working towards the correct management of surgical reusable medical devices used on patients deemed at risk of CJD. The group are looking at quarantine, assessment, reprocessing issues and flow charts to help with the management.
  The group are also looking at the management of equipment used on Post 1997 patients who are having procedures involving high risk tissue.

3. SUMMARY / OVERALL COMPLIANCE

STH is able to demonstrate compliance in most areas with he Care Quality Commission Regulations 12 and 15 and the standards described in HTM 01-01 and the best practice requirements detailed in CFPP 01-06 for the decontamination of reusable instrumentation and equipment.

The offsite decontamination provider is accredited with a notified body against the requirements of the Medical Device Directive. The annual audit by their notified body demonstrates to STH that Synergy Healthcare are compliant to Medical Device Directive 03/42/EEC and BS EN ISO 13485:2003. The JMB ensures that Synergy Healthcare maintain steady state and the agreement set out in the DSA via performance figures; regular meeting held with stakeholder also ensure that issues with the service are promptly resolved.

The decontamination and management of flexible endoscopes and TOE scopes are performed in compliant units in accordance with HTM01-01 CFPP 01-06 and the service is audited against BSG recommendations and standards; this is independently audited by the STH AEd. A business plan is being written to support an upgrade of the NGH unit to make it a centre of excellence standardising it with the RHH.

The Decontamination Management Group ensure that robust processes are in place to oversee the organisation, management and quality assurance of all aspects regarding the decontamination of re-usable medical devices and patient shared equipment.

Decontamination Management Group Membership

Name	Designation	Role/Interest
Karen Tweed	Deputy General Manager Decontamination	Chair
Nigel Martin	Trust Decontamination Manager	Deputy Chair
Dr Christine Bates	Director of Infection Prevention and Control	Microbiology IPC
Patty Hempshall	Lead Infection Control Nurse	IPC
Glyn Elliot	Assistant Supplies Manager - Capital and Equipment	Medical Devices
Michaela Fairest	Clinical Procurement Specialist	Chemicals
Andrew Scott	Patient and Healthcare Governance	Risk
Simon Richardson	Governance Lead Critical Care and Operating Services	Risk
Liz Seymour	Deputy Group Finance Manager	Finance
Andrew Flood	Clinical Educator / Trainer	Training
David Guymer	Clinical Engineering	Medical Devices
Mick Wareing	Estates Manager /Engineering Manager	Decontamination Equipment

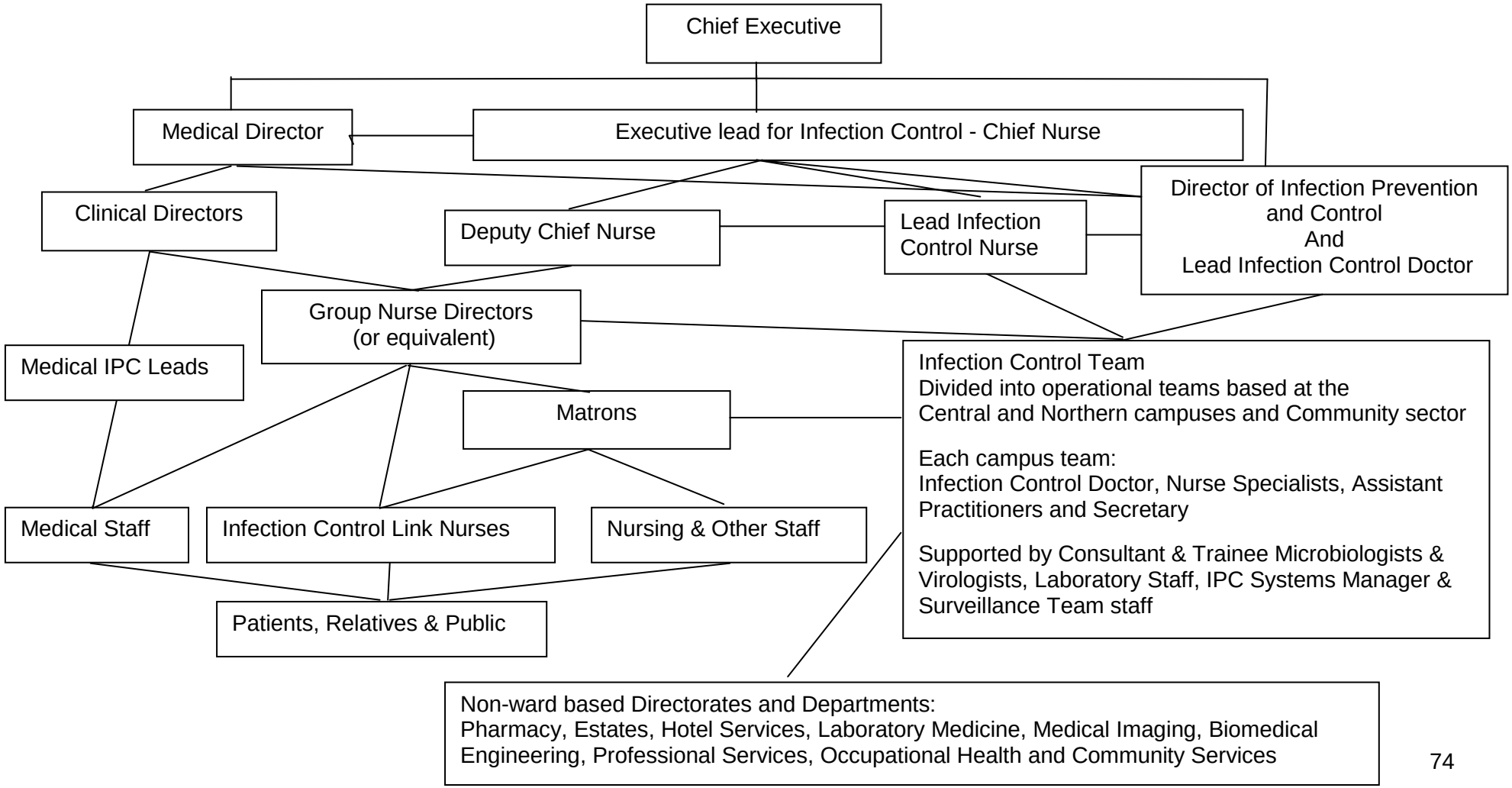
Standing invitation

Sandi Carman	Head of Healthcare Governance
Helen Stanley	Supplies Manager
Gill Thirsk	Domestic Services
Joanne Burgan	Domestic Services

Appendix D

Line of operational accountability for Infection Prevention and Control

(NB This diagram indicates the official channels of communication but in reality communication is not confined to these channels and any group can communicate to any other)



Appendix E

List of Trust Infection Prevention and Control Related Policies and Guidelines

General Infection Prevention and Control (IPC) documents
IPC Standard Precautions, Prevention of Sharps Injuries and Prevention of Exposure to Blood and Body Fluids
Hand Hygiene Policy
Aseptic Technique
Care of the Deceased Patient

Patient Placement, Isolation Protocols, Ward Closure and Outbreak Management
Major Outbreaks of Communicable Infection - Outbreak Control Plan
Closure of Wards, Departments and Premises to New Admissions **a) Patient Placement Guidelines** **b) Closure of Beds Due to Outbreak/IPC Concern**

Equipment, Devices, Environment etc. related policies/guidance
Linen Policy
Computer Keyboards & Equipment Cleaning Policy
Decontamination including Hospital Equipment and Medical Devices Policy

Invasive Procedures
Bladder Management and Catheterisation Policy for Adults
IPC Policy for Central Venous Catheters (CVC) including PICC and long lines
IPC Policy for Peripheral cannula
Taking Blood Cultures Procedure

Specific organism policies/guidance

Specific organisms
Meticillin-Resistant Staphylococcus aureus [MRSA]
Transmissible Spongiform Encephalopathies - Creutzfeldt-Jacob Disease [CJD] and Related Disorders
Glycopeptide Resistant Enterococci
Carbapenemase Resistant Gram-Negative bacteria
Tuberculosis, including MDRTB
Respiratory Viruses: Severe Acute Respiratory Syndrome [SARS], Human Cases of Avian Influenza Policy and Severe Respiratory Infection suspected to be caused by a Novel Infective Agent (SRINIA)
Viral Haemorrhagic Fevers
Anthrax
Smallpox
Chickenpox
Scabies
Lice, Fleas and Bed Bugs

Diarrhoea related policies/guidance
Suspected Infective Diarrhoea
Norovirus
Clostridium difficile
Protocol for use of Faecal Transplant in the management of *Clostridium difficile* disease at STH

Antimicrobial Prescribing
Antibiotic Review Policy
Antibiotic Prescribing Guidelines
Restricted Antibiotic Policy
Chest Infection & Pneumonia Guidelines

Occupational Health related policies/guidance
Management of Healthcare workers with Infections
Management of Occupational Exposure to Blood Borne Viruses [BBVs] and Post-Exposure Prophylaxis

Water Related policies/guidelines
Legionella Control & Management Policy and Procedures
Regular flushing of taps
Birthing Pools
Hydrotherapy pools
Drinking Water Coolers
Ice Machines

Other IPC Related Policies and Guidelines
Completing Death Certificates in Respect of MRSA, *C. difficile* and Other HCAI
Animals and Pets in Hospital
Statutory Notification of Infectious Diseases and Reporting of Healthcare Associated Diseases and Infection Related Serious Untoward Incidents

IPC Service Documents
STH IPC Strategy
The Structure of the IPC Service for the STH
Procedure for the Production of the Trust-wide IPC Programme
DIPC Job Description
DIPC Personal Specification

Appendix F

Membership of the STHFT Winter Planning Group

Membership consists of a core group of permanent members supplemented by powers of co-option as required.

Members

DESIGNATION	NAME
Chief Operating Officer and Chair	Ellen Ryabov (Apr to Nov 14) Michael Harper (Dec 14 onwards)
Personal Secretary	Victoria Lister
Lead Nurse Clinical Operations	Rachel Bird
Consultant Microbiologist	Dave Partridge
Consultant Virologist	Mohammed Raza
Consultant Infectious diseases	Anne Tunbridge
Lead Infection Control Nurse	Patty Hempshall
Emergency Planning Manager	Carole Mistry
Nurse Director Community and Acute Care	Mandy Yates
Nurse Director Emergency Care	Jane Hopkins
Communications Director	Julie Phelan
Head of Domestic Services	Gill Thirsk
Occupational Health Director	Various

Standing invitation

DESIGNATION	NAME
Matron Emergency Dept	Richard Kemp
Clinical Procurement Specialist	Michaela Fairest
Domestic Services Manager	Mrs Joanne Burgan
Sister Emergency Dept	Chris Davey
Assistant Domestic Services Manager	Jane Howden
Matron Infectious Diseases	Jean Clohessy
Matron MAU1	Mrs Diane Wilson
Chief Services Manager Critical Care	Ms Catherine Bailey
Human Resources Dept	Mrs Debbie Padwick
Consultant/Clinical Lead for Diabetes	Dr Adrian Scott
Consultant Respiratory Medicine	Dr Rodney Hughes
Consultant Respiratory Medicine	Dr Jennifer Hill
Consultant Physician & Geriatrician	Dr Peter Lawson

Serviced by

DESIGNATION	NAME
Emergency Planning Assistant	Victoria Lister