

Infection control report 2012/13

Innovation and excellence in health and care



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Summary and progress against infection control objectives for 2012/13

This report has been written as a summary of the key initiatives in the Trust relating to healthcare associated infection. It has been produced for all those who use the Trust, either as patients, relatives of patients, visitors, or members of staff. The report collates and summarises information that has been presented to commissioners of healthcare and the Trust Board throughout the year.

NHS Cambridgeshire, acting as the Trust's commissioners, set very challenging targets for reportable healthcare associated infections in 2012/13 (MRSA blood stream infection and *Clostridium difficile* diarrhoea). For the first time since reporting began in 2004/5, the Trust did not meet these targets, although the number of cases being monitored is now very small and overall the huge improvements seen since monitoring began in 2004/5 have been maintained.

I would like to thank everyone in the Trust for their continuing efforts to avoid all preventable infections in our hospitals. This is a key priority for us and over several years it is an area where we have been able to demonstrate real improvement to the care that we provide.

Key infection control objectives for 2012/13 were to:

- 1. Reduce MRSA blood stream infections and *C. difficile*-associated diarrhoea**
In 2012/13 there were six MRSA blood stream infections, a slight increase from the five infections identified in 2011/12, and 73 cases of *C difficile* infection. Further detail on both these is given within this report.
- 2. Improve hospital cleanliness**
A revised specification for cleaning was produced and implemented during 2012/13 as part of the cleaning contract re-tender process. This gives heightened levels of cleaning and monitoring of the standard of cleanliness in the higher risk clinical areas in the Trust.
- 3. Improve staff education and training**
A process for the formal assessment staff competencies in key areas relating to infection control was developed in 2012/13 and is being implemented across the Trust.
- 4. Minimise the impact of norovirus and influenza on the Trust during the winter epidemic season**
Planning for these predictable winter infections was very successful in 2012/13. Influenza vaccination rates amongst staff were better than in previous years (49%) and norovirus transmission on wards was low, despite significant outbreaks in local schools and neighboring hospitals. There was minimal disruption of Trust activities due to infection throughout the winter.
- 5. Implement monitoring of hospital water supplies for *Pseudomonas aeruginosa*.**
This was done and no significant issues were identified on the new neonatal unit in the Rosie Hospital or on other critical care units in the Trust. The issue continues to be overseen by the water quality group, which reports to the control of infection committee.

Dr J Ahluwalia

Medical Director/Director of Infection Prevention & Control

Introduction

Tackling infections is a key priority for Cambridge University Hospitals NHS Foundation Trust and our goal is that not a single preventable infection is allowed to develop.

Trust Objectives:

Improving the **experience of patients**

Improving **patient care and safety**

Ensuring **clinical excellence and effectiveness**

Valuing **staff and partners**

Striving for **innovation in all that we do**

This report provides an overview of the management structures, standards, policies and procedures supporting the prevention and control of infection at Cambridge University Hospitals NHS Foundation Trust. Infection control objectives have been set and incorporate the Trust values of being **kind, safe and excellent** in all that we do.

More detail is outlined in the Trust's *Strategy for the Management of Risks Associated with Infection Prevention and Control*.

The *Strategy* is approved by the control of infection committee and compliance is monitored by the Trust board of directors and the Trust's clinical governance structures.

The *Strategy* is based on the criteria contained within *The Health and Social Care Act 2008* and the *Code Of Practice for the NHS on the Prevention and Control of Infections and Related Guidance* (Department of Health, 2009) and draws on previous and current advice from the Department of Health and Care Quality Commission including:

- *Getting Ahead of the Curve;*
- *Winning Ways: working together to reduce healthcare associated infection in England;*
- *Towards Cleaner Hospitals and Lower Rates of Infection: a summary of action;*
- *Saving Lives: a delivery programme to reduce healthcare associated infection including MRSA;*
- *Essential Steps to Safe Clean Care: Reducing Healthcare Associated Infection;*
- *Cooperation with Other Providers* (December 2009).

The Trust's *Infection Control Annual Priorities and Audit Programme* has been developed to identify and monitor the implementation of national guidance and evidence based practice that will enable the Trust to achieve further reductions in healthcare associated infections (HCAI) and to meet the MRSA and *C. difficile* targets, as agreed with commissioners of healthcare services, in 2012/13, particularly NHS Cambridgeshire.

Context and compliance with the Code of Practice for the NHS on the Prevention and Control of Healthcare Associated Infections (2009)

The Care Quality Commission (CQC) was established by the *Health and Social Care Act 2008* to regulate the quality of health and social care and look after the interests of people detained under the Mental Health Act. In April 2009 the CQC took over the work of the Healthcare Commission, the Commission for Social Care Inspection and the Mental Health Act Commission.

The self-assessment in the *Saving Lives* balanced scorecard is used to monitor compliance with the *Code of Practice for the NHS on the prevention and control of infections and related guidance*.

The Trust has registered with the CQC and declared full compliance with the nine compliance criteria detailed in the revised *Code of Practice*. CQC has a programme of unannounced visits to Trusts to assure compliance, but no visit was made to the Trust in 2012/13. The compliance criteria are listed below:

- Criterion 1 Have in place and operate effective management systems for the prevention and control of HCAI which are informed by risk assessments and analysis of infection incidents.
- Criterion 2 Provide and maintain a clean and appropriate environment which facilitates the prevention and control of HCAI.
- Criterion 3 Provide suitable and sufficient information on HCAI to the patient, the public and other service providers when patients move to the care of another healthcare or social care provider.
- Criterion 4 Ensure that patients presenting with an infection or who acquire an infection during their care are identified promptly and receive the appropriate management and treatment to reduce the risk of transmission.
- Criterion 5 Gain the cooperation of staff, contractors and others in the provision of healthcare in preventing and controlling infection.
- Criterion 6 Provide or secure adequate isolation facilities.
- Criterion 7 Secure adequate access to laboratory support.
- Criterion 8 Have and adhere to appropriate policies and protocols for the prevention and control of HCAI.
- Criterion 9 Ensure, so far as is reasonably practicable, that healthcare workers are free of and are protected from exposure to communicable infections during the course of their work, and that all staff are suitably educated in the prevention and control of HCAI.

Management structure

The chief executive has overall responsibility for the control of infection within Cambridge University Hospitals NHS Foundation Trust. Dr Jag Ahluwalia, medical director, is the Trust designated director of infection prevention and control (DIPC). He reports directly to the chief executive. Dr Susan Robinson acts as deputy medical director with infection control responsibilities. In addition, during 2012/13, Professor Martin Bobrow was a non-executive director with oversight of infection control. He has subsequently retired from the Trust board. Infection control is discussed at every meeting of the board of directors, operational executive forum, divisional clinical meetings and board of governors.

The day-to-day business of infection prevention and control is carried out by the infection control team (ICT). The ICT sit within the patient safety directorate and report directly to the medical director (DIPC) and Sharon McNally, the interim deputy chief nurse.

The main work of the ICT is to produce and implement the *Infection Control Annual Priorities and Audit Programme* and to resolve current infection control problems in the Trust by appropriate action or issue of advice. The content of the annual programme is based on the standards set out in the *Code of Practice for the NHS on the Prevention and Control of Infections and Related Guidance*, supported by corporate and local assessments of risk and surveillance and audit activity.

The ICT is led by Cheryl Trundle, senior nurse infection control, and comprises 5.6 wte infection control nurses (ICN), 1 wte performance information analyst, 0.54 wte audit and surveillance nurse, 1.8 wte surgical site surveillance nurses, 1 wte healthcare assistant and 0.4 wte secretarial support.

Consultant medical microbiology support is provided by Dr Nick Brown (also the designated infection control doctor (ICD)), Dr Jumoke Sule (as deputy ICD) and Dr Mark Farrington (also acts as deputy ICD, with particular responsibility for operating theatres). Specialist support is provided by the other consultant microbiologists and virologists as required.

The Trust control of infection committee is chaired by Dr Susan Robinson, deputy medical director. The committee meets six times each year and has wide representation throughout the Trust. The control of infection committee reports to the Trust quality committee. Minutes of the control of infection committee are circulated widely.

Each division within the Trust has a dedicated infection control group to review infection control performance and facilitate the implementation of infection control initiatives. Each clinical directorate has a designated medical consultant lead and senior clinical nurse lead for infection control, with clear roles and responsibilities. Infection control is a standing agenda item at divisional meetings. It is also included in staff induction, annual mandatory training and appraisal. Divisional directors are responsible for achieving the targets set for their clinical departments and performance against Trust and divisional targets is monitored within the monthly infection control performance reports at Trust and divisional meetings.

Further detail about reporting structures and the assurance framework is outlined in the Trust's *Strategy for the Management of Risks Associated with Infection Prevention and Control*.

Nursing quality metrics, including hand hygiene and High Impact Interventions

The Trust's nursing audit programme has continued throughout 2012/13 using the nursing documentation audit tool and patient experience questionnaire. The senior nursing team (senior clinical nurses and senior sisters) are responsible for undertaking the nursing documentation audit on five sets of patient notes on each ward weekly, and the patient experience questionnaire with up to five patients on each ward weekly. The audit tools, which were reviewed in April 2011, include:

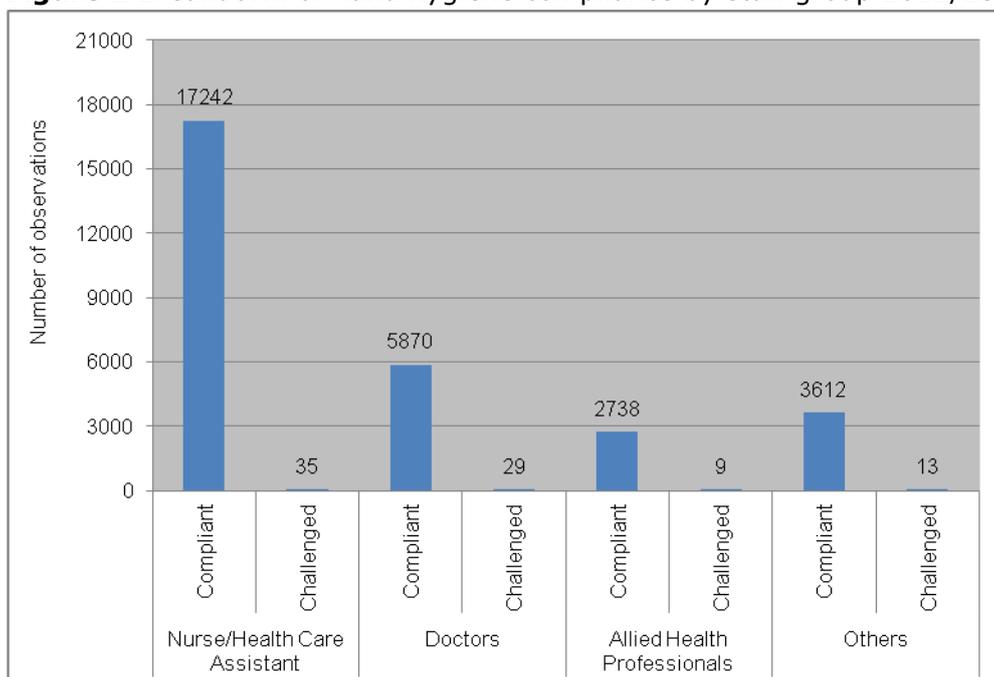
Nursing Audit Tool to review appropriate completion of documentation and compliance with standards for patient care including monitoring of patient observations, nutrition, fluid balance, diabetes management, falls management pressure area care, oxygen administration, resuscitation equipment and infection control (intravascular catheter care and urinary catheter care).

Patient Experience Audit including staff attitude, communication, discharge planning, privacy & dignity, pain management, nutrition and the infection control elements of hand hygiene and environmental cleanliness.

The nursing audit and patient experience audit results are reported in a Heat Scorecard, broken down to Trust/Divisional level and Ward/Divisional level using the red/amber/green traffic light system. The heat scorecards enable Wards/Divisions to quickly identify areas of good practice and areas where compliance is poor.

Green - good **95% - 100%**
Amber - fair **85% - 94%**
Red - poor **0% - 84%**

Figure 1 Breakdown of hand hygiene compliance by staff group 2012/13



The heat scorecards are included within a monthly **Nursing Quality Metrics (NQM) report**. The NQM report includes Trust data (productivity, human resources, patient safety) and infection control data (hand hygiene, *C. difficile*, MRSA blood stream infection, ward cleanliness). The reports are also available on the trust electronic intelligence system (CHEQS) which enables easy access and a view of trend data.

In addition to the nursing documentation audits and the patient experience questionnaire, wards continued to undertake weekly **hand hygiene observational audits** of hand hygiene before patient contact. The results from the hand hygiene audits are reported monthly by staff group/ward/division/Trust and the overall results included within the Trust data section of the Nursing Quality Metrics report. A total of 29,548 hand hygiene opportunities were observed in 2012/13 and the overall compliance rate for the year was 99.7% (Figure 1).

The Department of Health High Impact Intervention (HII) care bundles set out the practical actions that clinical staff need to undertake to significantly reduce HCAI. Compliance with the HII is audited weekly within the nursing documentation audits and separate monthly audits; results are reported within the infection control performance report. The HII include guidance on:

1. Central venous catheter care
2. Peripheral intravenous cannula care
3. Renal dialysis catheter care
4. Prevention of surgical site infection
5. Care for ventilated patients
6. Urinary catheter care
7. Reducing the risk of *Clostridium difficile*
8. Cleaning and decontamination of clinical equipment

Table 1 Overall summary of Trust-wide compliance with Infection Control Elements of Nursing Documentation Audits:

	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13
HII 1 & 2 Central and peripheral iv cannula care bundle	97.0%	97.4%	97.6%	97.2%	97.1%	97.6%	97.3%	98.6%	97.7%	97.3%	97.7%	97.5%
HII 3 Renal dialysis catheter care bundle	97.6%	91.3%	96.7%	98.0%	96.6%	97.5%	96.3%	92.5%	95.8%	94.4%	96.7%	93.3%
HII 4 Surgical MRSA management	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
HII 5 Care bundle for ventilated patients	79.7%	89.4%	82.6%	83.3%	81.3%	83.1%	86.4%	81.2%	80.8%	84.6%	91.2%	90.0%
HII 6 Urinary Catheter care bundle	96.8%	98.7%	96.5%	97.5%	98.1%	98.1%	98.6%	98.9%	98.0%	99.0%	96.5%	96.5%
HII 7 Prevention of spread of <i>Clostridium difficile</i>	100.0%	77.8%	83.3%	100.0%	83.3%	77.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
HII 8 Cleaning and decontamination of equipment	66.0%	66.0%	69.0%	81.0%	70.0%	71.0%	65.0%	71.0%	69.0%	71.0%	58.0%	64.0%

Compliance with the completion of documentation is audited within the nursing audit tool. The Trust-wide results of the infection control-related questions in the nursing audit for 2012/13 are shown in Table 1. Compliance with HII 5 is a problem because of the high number of neurosurgical and trauma patients in the Trust, who

have restrictions on their positioning as a result of their underlying medical problems. Likewise, showing compliance with documentation of cleaning of medical equipment (HII 8) has been difficult and various labeling solutions have been trialed.

Part of the Commissioning for Quality and Innovation (CQUIN) programme, the **NHS Safety Thermometer (ST)** was introduced nationally in April 2012. The Safety Thermometer is used as an improvement tool for measuring, monitoring and analysing patient harms and 'harm free care'. The Safety Thermometer is a monthly point prevalence audit (auditing all patients on a given day each month) and involves four outcomes – falls, pressure ulcers, venous thromboembolism and urine infections in patients with catheters. The 2012/13 data relating to harm recorded for patients with urine infections with catheters is shown in table 2 below. The number of hospital acquired infections remains small.

Table 2 NHS Safety Thermometer results for patients with urinary catheters

	Apr 12	May 12	Jun 12	Jul 12	Aug 12	Sep 12	Oct 12	Nov 12	Dec 12	Jan 13	Feb 13	Mar 13
Number of Catheter Associated Urine Infections (All)	12	13	11	16	13	20	13	13	16	12	13	13
Number of Catheter Associated Urine Infections (Hospital Acquired)	12	3	5	9	9	11	6	4	4	0	6	5
Number of Catheter Associated Urine Infections (Community Acquired)	0	10	6	7	4	9	7	9	12	12	7	8

Mandatory surveillance

Methicillin-resistant *Staphylococcus aureus* (MRSA) blood stream infections, the most serious MRSA infections, are reported by the Trust to the Department of Health as part of the national mandatory surveillance programme. Positive tests for *Clostridium difficile* toxin and blood stream infections due to methicillin-sensitive *S. aureus* (MSSA) and *Escherichia coli* are also reported.

Each year a new local target for a reduction in MRSA and *C. difficile* cases is agreed with the local healthcare commissioners. In 2012/13 this was NHS Cambridgeshire. Currently, there are no hospital targets for MSSA or *E. coli* infections.

In 2012/13, for the first time since the surveillance became mandatory, the Trust did not see on-going reductions in MRSA blood stream infection and *C. difficile* and the agreed targets were not met. There was a small increase in MRSA blood stream infection, as detailed below, and a larger increase in *C. difficile* cases compared to 2011/12, which was a concern even though the number of cases was lower than in the previous year, 2010/11.

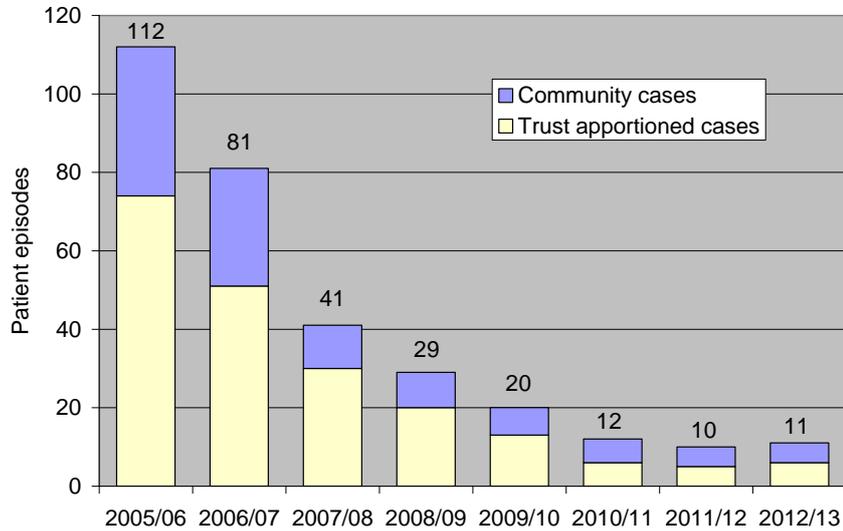
Methicillin-resistant *Staphylococcus aureus* (MRSA)

The Trust works closely with community and other healthcare providers to prevent all MRSA infections wherever they occur. The aim is that no preventable MRSA blood stream infection should occur.

Since historical data produced by the Trust included both hospital and community onset infections, for clarity, the total number of cases reported previously is shown together with the Trust acquired cases (Figure 2). The targets agreed with NHS Cambridgeshire apply to Trust acquired infections only.

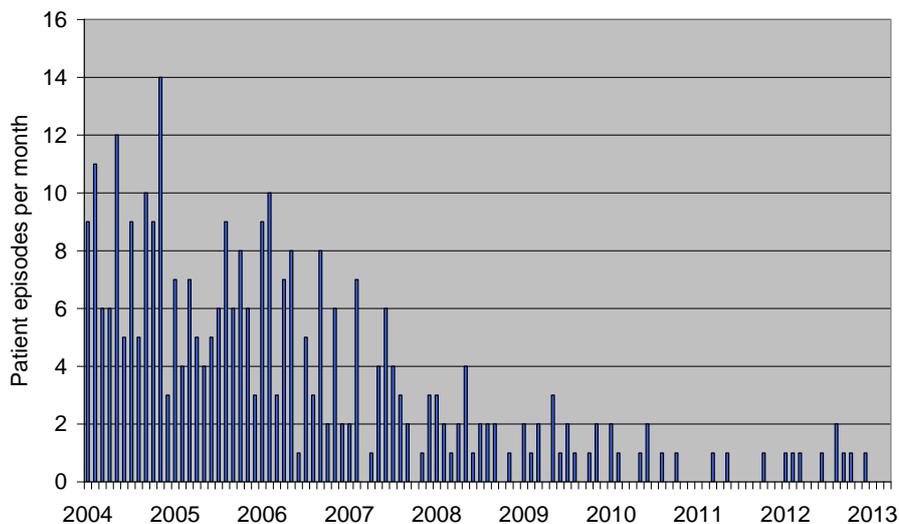
In 2012/13 there were 11 MRSA blood stream infections in total and six of these were hospital acquired (defined as being diagnosed after 48h of hospital stay). The agreed ceiling was to have no more than two hospital acquired cases and therefore this was exceeded. However, the context is one of large year-on-year reductions up to this point.

Figure 2 Number of MRSA blood stream infections per year



All cases of MRSA blood stream infection are examined in detail in order to establish the underlying predisposing factors and address these to prevent future infections. Of the six hospital blood stream infections in 2012/13, three were associated with intravenous devices and therefore were potentially preventable. As in previous years, the major risk factor for this was advanced liver disease. One blood stream infection resulted from septic arthritis and one from severe skin infection. Both of these may have been unavoidable. One reported positive MRSA culture was considered to be a contaminant on clinical grounds. Although this was not a genuine infection, the Trust considers contamination to be potentially preventable if the correct procedures are followed when taking blood culture samples.

Figure 3 Number of Trust apportioned MRSA blood stream infections per month

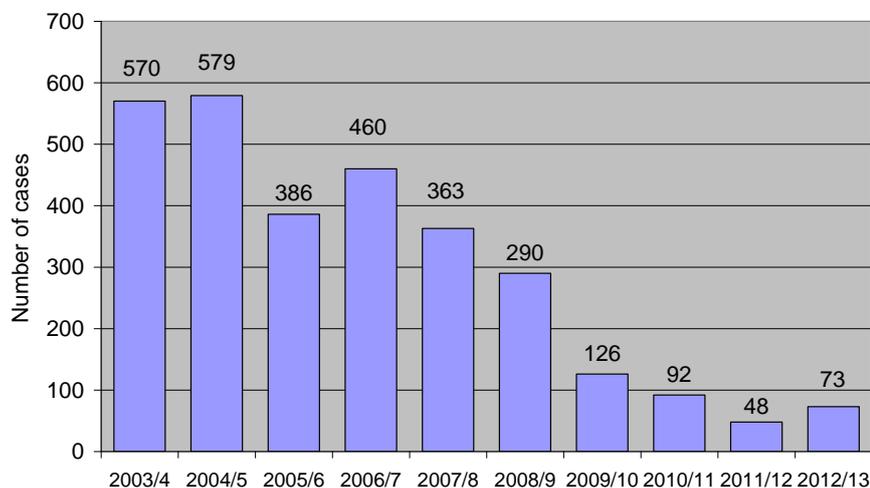


As was noted in last year's annual report, now that the number of MRSA infections is very small, the challenge for the Trust is to prevent patients with MRSA colonisation of the skin developing subsequent infection when they have severe underlying medical conditions, poor skin, or require the insertion of intravascular lines and other devices as part of their treatment. Regimens to apply topical antiseptics to the skin of at-risk patients and to use body washes with antibacterial activity routinely have been introduced on wards in some areas of the Trust with the most vulnerable patients. More frequent screening for MRSA was introduced for patients staying in hospital for a long period of time, but did not show evidence of transmission on the wards.

***Clostridium difficile* diarrhoea**

As with MRSA, the Trust has agreed targets for reductions in *C. difficile* infection. There were 73 patients with *C. difficile* infection in 2012/13, compared to 48 in 2011/12 and 92 in 2010/11 (Figure 4). The agreed ceiling was to have no more than 41 cases in 2012/13 and therefore this was exceeded.

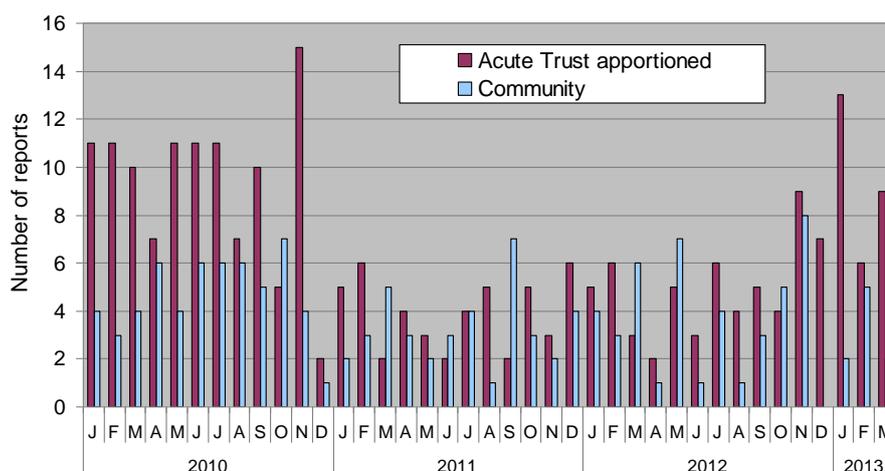
Figure 4 Number of Trust-acquired *Clostridium difficile* infections per year



Cases of *C. difficile* infection are reviewed in detail by a multi-disciplinary review panel. Figure 5 shows the monthly incidence of *C. difficile*. The number of new cases each month remained low throughout 2011 and 2012 until November 2012, when it started to increase. The reasons for this have been explored in great detail. Outside opinion of the Trust's approach was obtained from other peer group Trusts. During the year, the majority of infections were sporadic. That is, there was no obvious connection between them to suggest that they were the result of transmission of *C. difficile* from one patient to another. Where two or more cases were identified on the same clinical area, further genetic characterisation was performed to compare the organisms. In very few occasions was there evidence of spread. However, this continues to be an area of great interest both in the Trust and at a national level, as our understanding of the epidemiology of *C difficile* disease is limited.

The Trust's deep clean programme is still considered to be a major factor contributing to the reduced incidence of *C. difficile* infection. It is likely that it also reduces the transmission of other organisms in the hospital environment. The deep clean programme continues to include the formal rolling programme of decanting wards in rotation to a dedicated vacant facility. Cleaning is more thorough when the ward is empty and hydrogen peroxide vapour (HPV) can be used to improve cleaning efficacy.

Figure 5 Number of *Clostridium difficile* infections per month



Ongoing problems with bed capacity in the Trust mean that there is great pressure on wards at times when admissions increase. The deep clean programme had to be interrupted or postponed on several occasions throughout the year. Nevertheless, it is still recognised to be an important component of the Trust's infection control strategy.

It seems likely that several factors led to the increase in *C. difficile* cases in 2012/13. Some of these appear to have been related to the bed capacity problems experienced by the Trust during autumn 2012. The temporary suspension of the decant deep clean programme on the wards and problems with prompt isolation of patients with *C. difficile* infection have been common themes in root cause analysis of cases. Nevertheless, control of *C. difficile* remains a key priority for the Trust. A detailed programme of actions to reduce the number of cases has been implemented and progress with this is being monitored on a weekly basis.

Methicillin-sensitive *Staphylococcus aureus* (MSSA) and *Escherichia coli*

MSSA and *E. coli* blood stream infections are part of the national mandatory surveillance and therefore these infections are reported to the Department of Health each month.

These data are shown in Figures 6 and 7 below for completeness. Currently, no targets are applied to these infections.

Figure 6 Number of methicillin-sensitive *Staphylococcus aureus* blood stream infections per month

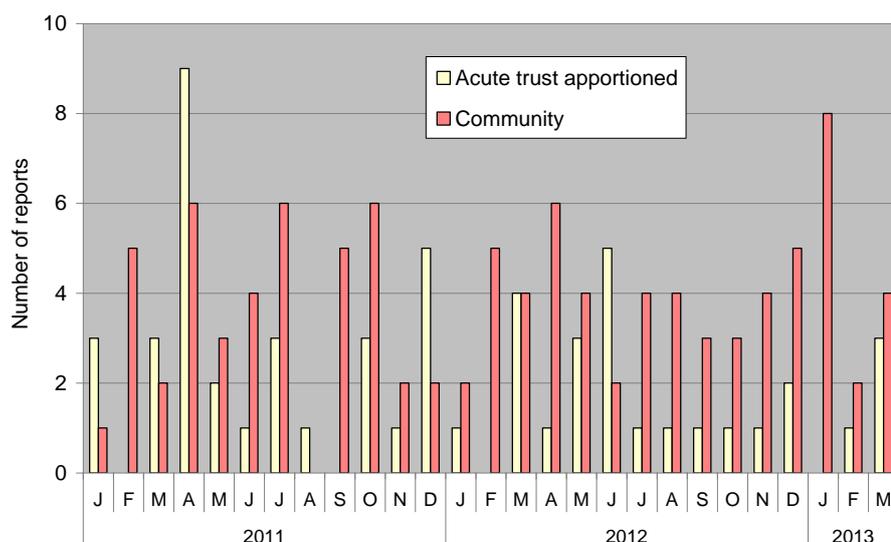
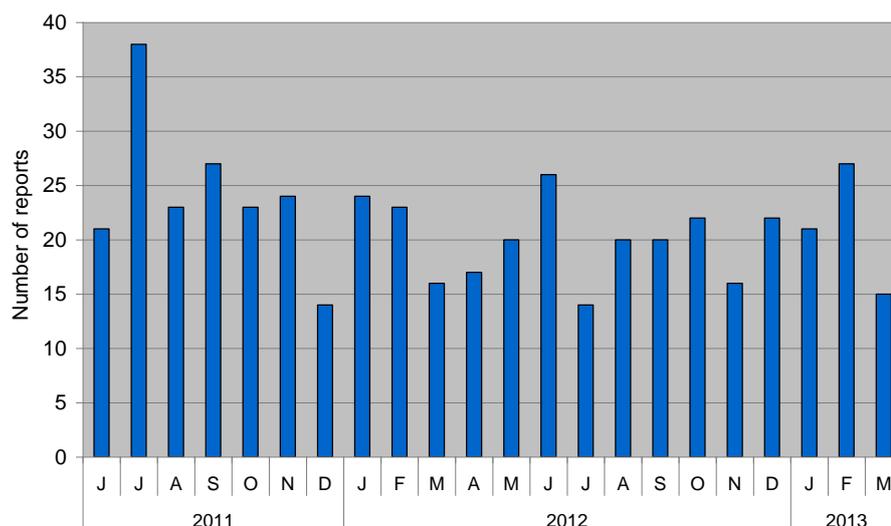


Figure 7 Number of *Escherichia coli* blood stream infections per month



Surgical site infection surveillance

Surgical procedures can be complicated by infection. Most commonly this is a minor infection of the surgical wound, although more serious infection occasionally occurs. The risk of infection varies with the particular type and site of surgery. Therefore, surgery associated with the gastrointestinal tract, for example, has a much higher infection rate than 'clean' surgery, such as insertion of a prosthetic hip joint.

On-going surveillance of surgical site infection for various types of surgery is used within the Trust as one measure of the quality of surgery, to identify areas where further investigation or improvements might be required, and to inform the Department of Health mandatory reporting of hip and knee replacement surgery infections.

Surgical site infection surveillance is performed for individual types of surgery in blocks of three months at a time. For the high profile categories of surgery, surveillance is performed for at least two quarters in each year.

During 2012/13, surveillance was performed continuously for hip and knee replacement surgery and for large and small bowel surgery (Table 3 and Figures 8 and 9).

For many years, surgical site infection rates for orthopaedic hip and knee surgery have been equivalent to or below the national mean rate for all participating Trusts. The number of infections seen following this type of surgery is very small and therefore the percentages reported fluctuate widely from one year to the next. In the year 2012/13, the rate for hip and neck of femur procedures was above the national mean, but this is not considered significant. Analysis of the surveillance data showed that patients undergoing surgery in the Trust had more serious underlying medical conditions than those in some other Trusts and were more likely to undergo complex surgery. This in part reflects the nature of the specialist activity of the Trust. The infection rates for individual surgeons were similar.

Rates of infection following large bowel surgery (Figure 8) and small bowel surgery (Figure 9) appear to have fallen following a period of increased scrutiny and review of procedures to minimise the risk of post-operative infection by the division of surgery.

Table 3 Surgical site infection surveillance results for orthopaedic hip and knee surgery 2012/13

Category of surgery	Number of procedures	Number of infections	Infection rate	Mean infection rate for all participating Trusts
Total hip replacement	366	6	1.6%	0.7%
Total knee replacement	276	2	0.7%	0.6%
Repair of neck of femur	423	9	2.1%	1.6%

Figure 8 Surgical site infection rates for large bowel surgery 2008-2013

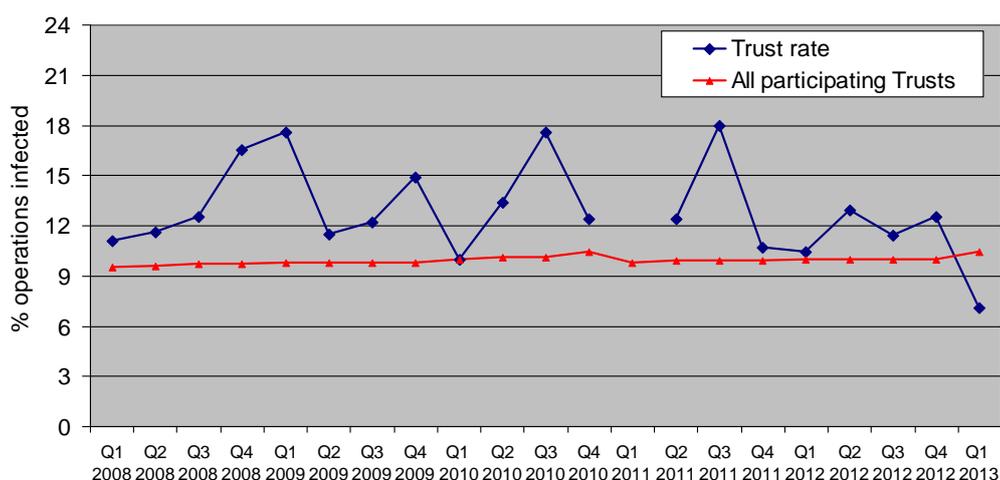
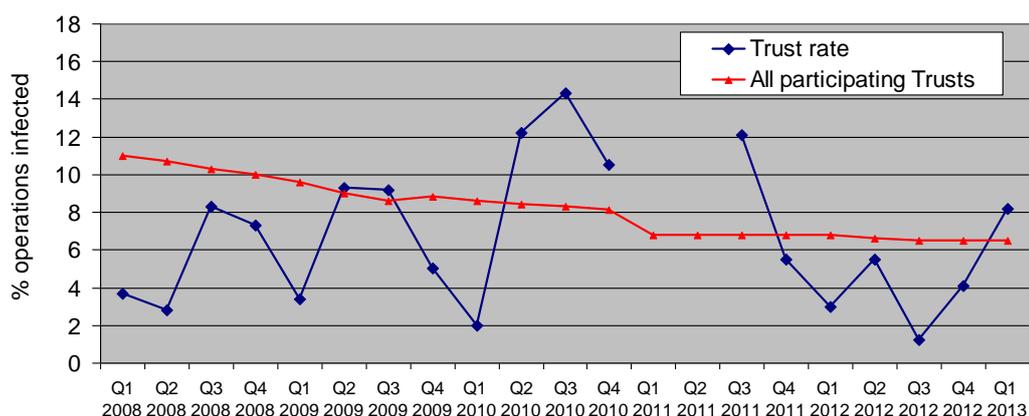


Figure 9 Surgical site infection rates for large bowel surgery 2008-2013



Antibiotic stewardship

Prudent use of antibiotics

Appropriate use of antibiotics is essential to make sure that patients get prompt treatment of infections when they need it, while avoiding unnecessary and potentially harmful exposure to broad spectrum antibiotics. The Trust has an active programme of antibiotic stewardship with the objectives of promoting judicious antimicrobial prescribing and actively supporting initiatives aimed at reducing healthcare associated infections. The programme is overseen by the Trust antimicrobial stewardship group (ASG), which is a sub-committee of the joint drugs and therapeutics committee. The group meets quarterly. The group is chaired by a consultant microbiologist, supported by the Trust antibiotic pharmacist. Recommendations from the group are implemented with the assistance of the pharmacy and microbiology teams.

Antibiotic guidelines and policies

Revised Trust antimicrobial guidelines were launched in June 2011. The guidelines are easily accessible electronically on the Trust's intranet and provide a good summary of the pathogenesis of infection, likely infecting organisms, recommended diagnostic tests, treatment recommendations and IV to oral switch options. The guidelines also maintain restrictions on cephalosporin and quinolone use. The governance process for surgical antibiotic prophylaxis is currently being reviewed and a plan of work is underway to ensure that all prophylaxis guidelines are available on the intranet.

Antibiotic audits and performance reports

A Trust-wide rolling programme of antibiotic audit has been in place since December 2007, with an emphasis on assessing compliance with local guidelines. Information regarding appropriate antibiotic choice, dose, route and documentation is assessed by the antibiotic pharmacist and microbiologist. Feedback is provided by the ward pharmacist, the consultant microbiologist or the antibiotic pharmacist during departmental clinical governance meetings. In 2012-13, detailed antibiotic audits were conducted for neurosciences, the division of surgery, neurocritical care unit and the emergency admissions unit. More specific audits looking at vancomycin use in adults, gentamicin use in neonates and the treatment of infective exacerbations of chronic obstructive pulmonary disease (COPD), community

acquired pneumonia and cellulitis were also completed and presented to the relevant departments during this period.

Antibiotic performance data for the documentation of antibiotic indication and stop review dates have been collected on a monthly basis since February 2012. The data show a progressive improvement throughout the year, from 70% of prescriptions having the indication for the prescription documented to 87% in March 2013. For stop/review dates, the data show an improvement from 40% in February 2012 to 84% in March 2013. The collection of data for allergy status and missed doses started in January 2013 and so far shows excellent (>95%) compliance. As part of efforts to improve antibiotic prescribing, the antibiotic section of the drug chart was amended to highlight the record of the clinical team, stop/review dates and indication. The new version of the drug chart (version 6) will be launched Trust-wide from April/May 2013.

Antibiotic support rounds

Antibiotic support ward rounds, run by Dr Sani Aliyu, consultant medical microbiologist, have been in place since 2007. This is a weekly commitment which involves reviewing antibiotic prescriptions, dealing with complex infection issues and creating teaching opportunities on prudent antibiotic prescribing. The rounds also have the additional purpose of providing oversight and serve as an early warning system for detecting poor prescribing practice. The rounds target areas identified as high incidence of *C difficile* and/or high usage of antibiotics, which at the present time include medical (respiratory, diabetes and gastroenterology) and surgical (colorectal, vascular and hepatobiliary) units.

Antibiotic consumption monitoring

Defined daily doses (DDD) represent a measure of antibiotic consumption and assume that an average antibiotic dose is prescribed per day in adults. Information obtained from DDD data enables the antibiotic stewardship group to identify trends in antibiotic consumption and provides a basis for reviewing prescribing practice in some areas. The data is reported quarterly by directorate and for the Trust as a whole, using 1000 occupied bed days as the denominator.

Antifungal stewardship

Antifungal stewardship has been a recent focus for the antibiotic stewardship group, with the appointment of a consultant medical microbiologist with a remit for antifungal stewardship. There is now a defined pathway for managing neutropenic sepsis and invasive fungal infections in haemato-oncology patients that is fully embedded in practice. Substantial cost savings have been realised following the introduction of new diagnostics such as serum galactomannan and aspergillus PCR testing, the change to micafungin as the echinocandin of first choice in the Trust as well as the initiation of weekly clinical reviews of all patients on high cost antifungal drugs.

Education and training

Training in antibiotic prescribing is delivered to all medical and pharmacy staff at induction. A new format involving multiple choice questions has been approved by the ASG for medical staff induction. More recently, an online resource has been created for antibiotic stewardship which will be incorporated into the mandatory training manual for junior doctors.

Regular presentations are delivered to medical and pharmacy teams. In addition to invited talks for specific departments, the lead microbiology consultant for antibiotics has regular slots for lectures on antibiotic prescribing for undergraduate doctors, foundation year doctors and department of medicine medical staff

(educational half days). The lead pharmacist for antibiotics has regular teachings for Pharmacists and technical staff.

The Trust participated in the European Awareness Day on 19 November 2012 for the third successive year, in a bid to improve antibiotic prescribing and address patient expectation. An exhibition stand was set up in the main concourse, with posters and leaflets. A dedicated page was also available on the intranet with links to relevant websites and documents.

Further details about antibiotic stewardship activities can be obtained from the Annual Report of the ASG 2012-13.

Norovirus

Winter vomiting disease is a term used to describe diarrhoea and/or vomiting caused by norovirus. It is common in the colder months and responsible for outbreaks in institutions such as hospitals, schools and cruise ships. Norovirus spreads rapidly through close contact with affected individuals, the environment or shared equipment that has become contaminated with the virus. Trust management of norovirus is based on the national *Guidelines for the management of norovirus outbreaks in acute and community health and social care settings* (March 2012).

In hospitals large numbers of patients, staff and visitors may be affected which can disturb the normal working of the hospital and cause distress to those affected. When there are high numbers of infected people in the community it is difficult to prevent the infection coming into the hospital.

The winter vomiting season in England commenced earlier than usual in 2012, probably due to the circulation of a new norovirus genogroup II.4 Sydney strain in the community. There was a prominent national awareness-raising campaign, due to exceptional numbers of affected individuals in the community and various healthcare facilities. Several local higher education colleges experienced outbreaks that were widely reported in the local press. Despite this, the Trust escaped lightly and was less affected by norovirus in 2012/13 than in previous years. This is seen as a major success.

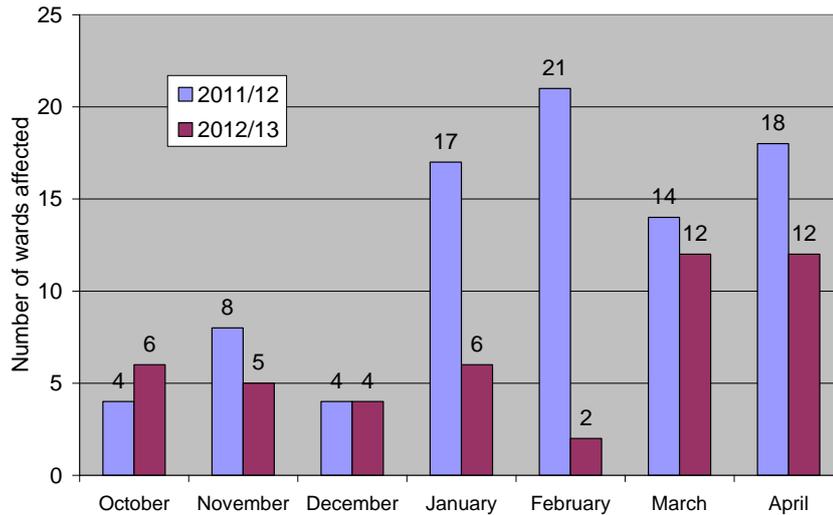
The key messages relating to norovirus are:-

- the importance of scrupulous hand hygiene;
- not to visit hospitals or come to work if unwell;
- the early recognition and reporting of symptoms;
- effective triage of patients with possible viral diarrhoea & vomiting in the Emergency Department and appropriate placement in a side rooms;
- the maintenance of high standards of environmental cleanliness;
- limiting patient and staff transfers between wards;
- closing affected wards to visitors to minimise spread.

Trust preparation for norovirus management was more proactive during 2012/13 than in previous years. An escalation plan was devised to improve communication to staff. Children under 12 years of age were excluded from visiting throughout the months of January to April 2013 (unless under exceptional circumstances).

There were clear differences in the impact of norovirus infection on the Trust between 2011/12 and 2012/13. During 2012/13 fewer wards were affected than in 2011/12, having either single bays or the whole ward closed. In 2011/12 the whole ward was closed on 18 occasions (2 wards closed twice in a month) compared to only six occasions in 2012/13.

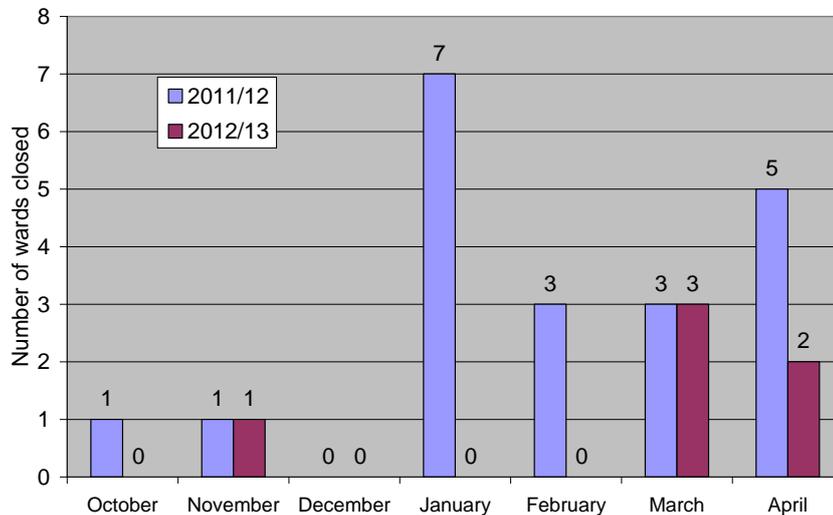
Figure 10 Number of wards affected by norovirus each month



Single bays were closed on 103 occasions in 2011/12 compared to 55 occasions in 2012/13. In 2012/13, single bay closure was followed by total ward closure on only 6% of occasions, suggesting that bay closure was an effective means of limiting spread and disruption to services.

The total number of bed days lost in 2012/13 because of norovirus was 153, compared to 1,226 in 2011/12. The average number of beds empty and unavailable for use each day between October 2012 to March 2013 was 0.85 (range 0-24 beds), compared to 6.7 (range 0-36 beds) in the same time period 2011/12.

Figure 11 Number of wards closed because of norovirus each month



Incidents related to infection

The Trust reports outbreaks of infection as serious incidents, as requested by NHS East of England. These include incidents where there has been an impact on the running of the hospital (ward closure, for example), or where there has been a severe impact on patient outcome.

Many of these incidents highlight the emerging problems faced by the Trust (and indeed the wider NHS) relating to patients transferred from other hospitals or areas of the world where the incidence of antibiotic resistance is much higher than it is locally. The Trust has particular expertise in the detection of these antibiotic resistance problems and had had considerable success in managing patients with multiply resistant organisms.

Communication issues are also highlighted, as the patients are often transferred to the Trust without potential infection issues being mentioned.

Carbapenam-resistant *Escherichia coli*

A patient transferred from a hospital in the Region was found to be colonised with a *E. coli* strain resistant to meropenem. This was due to the production of a carbapenemase (NDM) enzyme. This is a relatively new mechanism of antibiotic resistance, but one that is considered very important, because its prevalence appears to be increasing rapidly and the carbapenem antibiotics, such as meropenem, are considered the antibiotics of last resort for the treatment of drug-resistant microorganisms. All patient contacts were screened and no further cases were detected. The patient has since been transferred back to the referring hospital.

Multi-drug resistant *Acinetobacter baumannii*

Four separate incidents relating multiply-resistant *Acinetobacter baumannii* were managed in the Trust in 2012/13.

This organism is well known to the Trust, as it was responsible for a large outbreak on the ICU and neurosurgical critical care unit (NCCU) in 2006. Therefore considerable effort was made to ensure that it did not spread to cause a further outbreak.

Firstly, a patient was admitted to the NCCU following repatriation from a hospital in the Middle East, and was found to be colonised with *A. baumannii* resistant to most commonly used antibiotics. All patient contacts on the unit and those discharged to other wards across the Trust were followed up and screened for carriage of the organism. No further screen-positive patients were identified.

The second incident concerned a patient transferred from a hospital in London and found to be colonised with an antibiotic-resistant *A. baumannii* after admission. The patient had been on several different wards in the hospital. The hospital in London was already managing an outbreak due to the organism, but this information was not passed on to the Trust. All patient contacts were screened and no spread was identified.

The third was a patient transferred from Greece following a road traffic accident. The patient was transferred directly into a side room. All patient contacts were screened and no spread was identified.

In the fourth incident, a patient with necrotising pancreatitis was transferred from Greece to a hospital in the Region and then to this Trust. He was known to be colonised with a multiply resistant *A. baumannii* before transfer. He was barrier nursed in a side room from admission. Patient contacts were screened at regular intervals. Probable transmission was identified to two further patients. The incident was managed formally as an outbreak. No further cases were identified. No beds were closed as a result of the outbreak, but there was considerable disruption on the ward as a result of the barrier precautions that were implemented to prevent further spread and the repeated screening of patients for carriage of the organism.

The common theme in all of these incidents is the transfer of a patient from another hospital, often from overseas, where the prevalence of antibiotic-resistance is higher than locally in the Trust. This has been recognized as a national priority and the Trust contributed to national guidance to increase awareness of the issue, ensure patients are managed appropriately, ensure that there is good

communication between healthcare facilities, and that antibiotic resistant organisms are identified promptly and further transmission is prevented.

Vancomycin-resistant enterococci (VRE)

An increase in the number of patients colonised or infected with vancomycin-resistant enterococci (VRE) was noted on wards F5/G5 from January to June 2012. Nineteen patients with newly-acquired VRE were identified, suggesting that there had been transmission on the wards. There was one blood stream infection, but otherwise most patients were colonised rather than infected with the organism. Staff practices were reviewed and found to be satisfactory. Screening of all patients was undertaken. Increased environmental cleaning was instituted and patients were monitored regularly for evidence of infection. No further increases have been noted.

Multiply drug resistant tuberculosis (MDR-TB)

A patient from Eastern Europe was diagnosed with MDR-TB in Birmingham. They had been a patient in the Trust during 2012. Contacts were identified and are being followed up by the TB service. No onwards transmission has been identified to date.

Chicken Pox on Lady Mary Ward (a post natal ward)

A mother developed chicken pox post-delivery. Both mother and baby were treated with antiviral therapy and were discharged home well. Maternal and child contacts of the case were identified and ante-natal women contacts were followed up to ensure they remained well. In future, mothers will be asked their chicken pox history at booking.

Legionella at Hinchingsbrooke Satellite Dialysis Unit

The haemodialysis satellite unit is situated at Hinchingsbrooke Hospital, but is part of Cambridge University Hospitals Trust. Routine testing by Hinchingsbrooke estates department showed high levels of *Legionella pneumophila* in the water supply. There were no cases of Legionella infection in patients. A risk assessment was undertaken and the unit continued to function with additional measures in place to further reduce the risk to patients. These included increased flushing of taps and remedial work to the water distribution system. Regular monitoring continued in line with agreed protocols.

The incident highlighted issues where units are sited remotely from the Trust in premises managed by other organisations. Practice in other satellite dialysis units (West Suffolk and Kings Lynn) was also reviewed. No problems were identified.

Panton Valentine Leukocidin (PVL)-positive *Staphylococcus aureus*

A patient was transferred from a London hospital for ventilation on PICU with a diagnosis of PVL *S. aureus* infection. National PVL guidelines were followed. There was good liaison between local and London Health Protections Units to ensure timely treatment of the family and follow-up of contacts at a local sports club. No onwards transmission was identified.

MRSA

A five-bedded bay on MSEU remained closed for six days where there were three patients known to be MRSA-positive. These patients could not be accommodated in side rooms due to bed pressures and the risk of transmission to new patients admitted to the area was deemed to be unacceptably high.

Influenza A

The High Dependency Respiratory Bay on N3 was closed for six days as three patients were found to have influenza A (one patient probably acquiring the organism prior to transfer to N3) and side room isolation was clinically unsafe. All patient contacts were given prophylaxis and barrier nursed. No further infections were identified.

In a separate incident, a patient was admitted from an Essex nursing home and found to have influenza A infection. The Essex Health Protection Unit (HPU) had already closed the nursing home and an outbreak investigation was underway, as several staff and patients had flu-like symptoms. The Trust had not been informed and a look back exercise found 10 further admissions from the nursing home across the Trust. This raised concern about patient isolation, treatment, possible secondary transmission and the need for bay closure. Eight of the ten patients were found to have influenza. No cases of secondary transmission were found.

Publications

During 2012/13 the Trust was involved with a number of studies relating to outbreak investigation and management. These included studies led by Professor Sharon Peacock, Professor of Clinical Microbiology and colleagues in collaboration with the University of Cambridge and the Wellcome Sanger Institute.

1. Köser CU, Holden MTG, Ellington MJ, Cartwright EJP, Brown NM, Ogilvy-Stuart AL, Hsu L-Y, Chewapreecha C, Croucher NJ, Harris SR, Sanders M, Enright MC, Dougan G, Bentley SD, Parkhill J, Fraser LJ, Betley JR, Schulz-Trieglaff OB, Smith GP, Peacock SJ. A neonatal MRSA outbreak investigation using rapid whole genome sequencing. *New England Journal of Medicine* 2012; 366: 2267-75.
2. Köser CU, Ellington MJ, Cartwright EJP, Gillespie SH, Brown NM, Farrington M, Holden MTG, Dougan G, Bentley SD, Parkhill J, Peacock SJ. Routine use of microbial whole genome sequencing in diagnostic and public health microbiology. *PLoS Pathogens* 2012; 8(8): e1002824. doi:10.1371/journal.ppat.1002824. Epub 2012, Aug 2.
3. Harris SR, Cartwright EJ, Török ME, Holden MT, Brown NM, Ogilvy-Stuart AL, Ellington MJ, Quail MA, Bentley SD, Parkhill J, Peacock SJ. Whole-genome sequencing for analysis of an outbreak of methicillin-resistant *Staphylococcus aureus*: a descriptive study. *Lancet Infectious Diseases*. 2013; 13: 130-6.
4. He M, Miyajima F, Roberts P, Ellison L, Pickard DJ, Martin MJ, Connor TR, Harris SR, Fairley D, Bamford KB, D'Arc S, Brazier J, Brown D, Coia JE, Douce G, Gerding D, Kim HJ, Koh TH, Kato H, Senoh M, Louie T, Michell S, Butt E, Peacock SJ, Brown NM, Riley T, Songer G, Wilcox M, Pirmohamed M, Kuijper E, Hawkey P, Wren BW, Dougan G, Parkhill J, Lawley TD. Emergence and global spread of epidemic healthcare-associated *Clostridium difficile*. *Nature Genetics*. 2012 Dec 16;45:109-13.
5. Hughes GJ, Nickerson E, Enoch DA, Ahluwalia J, Wilkinson C, Ayers R, Brown NM. Impact of cleaning and other interventions on the reduction of hospital-acquired *Clostridium difficile* infections in two hospitals in England assessed using a breakpoint model. *Journal of Hospital Infection* 2013; 84: 227-234.
6. Reuter S, Ellington MJ, Cartwright EJP, Koser CU, Torok ME, Gouliouris T, Harris SR, Brown NM, Holden MTG, Quail M, Parkhill J, Smith GP, Bentley SD, Peacock SJ. Rapid bacterial whole-genome sequencing to enhance diagnostic and public health microbiology. *JAMA Intern Med*. 2013; 173: 1397-1404.

Infection control priorities and progress 2013/14

This action plan outlines the high level actions required to reduce the number of HCAI across the Trust and incorporates all individual plans developed for the different commissioning and regulatory authorities. Each high level action within the plan is supported by more detailed work plan.

Lead for Action Plan: Dr Ahluwalia
Owner: Sharon McNally/ James Fincham

RAG status ratings:

Red	Delayed	Green	On track
Amber	Not started/slipped against plan	Blue	Complete/embedded as business as usual

Area	Objective	Action	Target date	Progress update	Assurance	Progress RAG rating
C. difficile	1 To assure continued high standards of environmental cleanliness	1A Formal ward deep clean/decant programme re-instituted	Sept 2012	Re-instituted Sept 2012 Decant ward used as contingency area for five week period over March / April. Ward back in operation April 13, June 24th - 2nd decant ward in place to ensure complete & timely deep clean of all wards facilitated 2 decant wards in place from July 13 Reviewing options to maximize efficiency over winter	Programme of cleaning and monthly infection control performance report Daily infection control report	Turned Blue 20.6.13
		1B Complete summary of cleaning compliance report for review at monthly senior ICT review meeting with medical director	June 2013	Report drafted & circulated for comment. Final format of report to be tabled monthly from July 13. Regular report circulated	All wards receive clinical cleaning compliance score	Blue

Area	Objective	Action	Target date	Progress update	Assurance	Progress RAG rating
C. difficile	1 To assure continued high standards of environmental cleanliness (continued)	1C 1.Estates to review options for bed service & implement incl. communications role out 2.Consider availability at peak time 3. Explore 'bed chamber' which will facilitate automated bed washing	1. July 13 2.Sept 13 3. TBC	1.Bed exchange process implemented July 13 2.SL reviewing bed capacity - complete 3. Option identified, case to be worked up & date agreed	To ensure beds are thoroughly cleaned before admission of next patients establish process for 'bed team' to remove bed from ward and clean prior to next use	Turned Blue 3.9.13
		1D Develop programme to deep clean all ward areas	Agreed programme in place by July 2013	Agreed to utilise F6 capacity whilst available (from by July). Hotel services can mobilise from by July. Deep clean team in place & operational from 24th June.	To accelerate deep clean programme whilst capacity permits and aim to deep clean entire estate	Blue
	2 Enable the continuation of organisational learning and sharing of best practice	2A Institute monthly formal review of all <i>C. difficile</i> cases with the Trust's commissioners	Jan 2013	Commenced Jan 2013	Minutes of review meetings. Evidence of investigation into potential clusters. Evidence of actions taken where escalation required	Blue

Area	Objective	Action	Target date	Progress update	Assurance	Progress RAG rating
C. difficile	2 Enable the continuation of organisational learning and sharing of best practice (continued)	2B To renew the communications strategy regarding HCAI with particular emphasis on expectations, peer challenge, absolute commitment to reducing HCAI.	June 13	1.Comms strategy implemented 2. Staff resource issue identified & finance agreed 3. Forced screen saver solution identified & rolled out 24th June 4. ICN & comms team - Interview phase	Feedback via NMEC meetings standing agenda item	Turned Green 5.9.13
		2C Detailed external review of practice by PH England	Request by Mid June 13	Review requested & process of review commenced Draft report received		Blue
		2D Formal themed analysis of all cases which have undergone a RCA over the last year to include analysis of demographic and clinical data including epidemiology of <i>C difficile</i> cases	July 13	Resource to undertake review identified Review completed, no new findings	Feedback through IPC team	Turned Blue 5.9.13
		2E Learning & refreshed action following visits/teleconference with UK centres who appear to be have low numbers of <i>C difficile</i>	1. 4th June 2. 13th June 3. 13th June	1.Complete 2. Complete 3.MESS data identifies G & ST for review. CT in contact to arrange conference call.		Blue
		2F Deliver Trust-wide HCAI learning events to brief staff of current problem, highlight what we need them to do and to invite their ideas.	July 13	Dates agreed as 1st & 4th July Completed		Blue

Area	Objective	Action	Target date	Progress update	Assurance	Progress RAG rating
C. difficile		2G To have considered possibility of routine screening to understand the asymptomatic carriage rate	Oct 13	Research proposal in discussions for Autumn submission Proposal submitted September 13		Blue
	3 Ensure all staff receive necessary training	3A Increase the formal staff training updates. In addition, introduce formal update sessions to facilitate the sharing of feedback from RCAs and Link Nurse meetings for all staff to attend including domestic assistants where possible.	Dec 13	Review the use of care bundles, and involve the support workers in their monitoring and use as appropriate. Feedback to staff results of monthly audit from high impact intervention (HII) number 7 to monitor consistency of use. Feedback following RCA sent to ward to be displayed on staff board	Feedback through IPC and NMEC	Green
	4 Ensure best possible patient care	4A Improve process for daily review of <i>C. difficile</i> cases by dedicated <i>C. difficile</i> team including consultant in infectious diseases	Jan 2013	Process reviewed Dec 2012 and commenced Jan 2013	Revised procedure document (policy and checklist) Individual case review with evidence of review in patients' records	Blue
	5 To minimise the level of <i>C. difficile</i> across the health economy	5A Improve link between Trust antibiotic stewardship group and community prescribing leads. Community action list to be agreed and taken forward	Apr 2013	Contact made - Dec 2012 Community pharmacist in attendance & links strengthening. Need to establish regular GP representation. GP membership established Updated anti biotic prescribing chart introduced July 2013 Update following release of CMO Strategy Autumn 2013	Minutes of antibiotic stewardship group meetings Evidence of action plan being implemented	Green

Area	Objective	Action	Target date	Progress update	Assurance	Progress RAG rating
C. difficile	<p>5 To minimise the level of <i>C. difficile</i> across the health economy (continued)</p>	<p>5B Active participation by an appropriate CCG representative in root cause analysis (RCA) of <i>C. difficile</i> infection patients</p>	Apr 2013	<p>7.2.13 Agreed IPC Matron will liaise with GPs and invite them to RCA meetings. Names of patients GPs to be sent each month.</p> <p>Weekly scrutiny meeting commenced (May)</p>	<p>Collection of data regarding antibiotic history</p> <p>Minutes of RCA meeting</p>	Turned Blue 2.5.13
	<p>6 Ensure patients isolated within 2 hours of symptoms starting</p>	<p>6A Increase availability of numbers of side rooms to ensure ability to comply with hospital policy</p>	Aug-13	<p>Continuing initiatives to manage capacity, but additional single rooms unlikely in near future. Capacity Summit completed April. Temporary ward with all sideroom facilities costed & in options for business case. Requirement to ensure divisions always maintain a sideroom for IC agreed. N2 protected <i>C. difficile</i> bed established. SR to discuss at Quality Committee - Chairman request Non Executive Directors to discuss issues with SR - completed July. Escalated as part of Board review</p>	<p>Improvement in time to isolation Audit of time to isolation Daily FM</p>	Amber

Area	Objective	Action	Target date	Progress update	Assurance	Progress RAG rating
C. difficile	6 Ensure patients isolated within 2 hours of symptoms starting (continued)	6B Optimise time to isolation with improved compliance of the agreed standards. Aim for 100% of patients isolated within 2 hours (where clinically appropriate)	Nov 2012	<p>Commenced Nov 2012</p> <p>Enhanced clinical review of patient by ICT and clinical team to commence Jan 2013</p> <p>Action has been changed to reflect the aim to improve performance, this is particularly challenging given current occupancy rates.</p> <p>Daily IC DFM messaging changed to push isolation importance message and minutes captures time to isolation delays (April)</p> <p>C Diff beds on ward N2 ring-fenced May 13</p> <p>Infection control visits by DIPC and Deputy Chief Nurse commenced to reinforce isolation message</p>	<p>Monthly re-audit of time to isolation and appropriate placement and review of each case with PCT</p> <p>Daily infection control report</p> <p>Copies of correspondence to consultants and operations staff</p>	Turned Green 5.9.13
	7 Ensure all sampling is clinically appropriate	7A Establish a process by which a member of the IPC team attends the medical morning report to capture any new admissions with diarrhoea	Feb 2013	<p>In place since 27 January 2013</p>	<p>Evidence of patient review in case notes</p> <p>Decrease in <i>C.difficile</i> numbers</p> <p>Decrease in inappropriate +ve numbers</p>	Blue

Area	Objective	Action	Target date	Progress update	Assurance	Progress RAG rating
C. difficile	7 Ensure all sampling is clinically appropriate (continued)	7B All inpatients admitted with diarrhoea to be discussed by the IPC Nurse and Microbiologist to ensure appropriate diagnosis made	March 2013 to recruit In post July 2013	Funding for additional IC nurse agreed Jan 2013 and recruitment process underway. 6.2.13 IPC nurses are reviewing patients identified via the operational matrons reports and attending morning report.	Evidence of patient review in case notes Decrease in <i>C.difficile</i> numbers Decrease in inappropriate +ve numbers	Green to Blue 20.6.13
		7C Re-issue guidelines for patient selection and collection of samples	Feb 2013	Diarrhoea information sessions started in January. Additional sessions arranged. Guidance re-issued to staff via connect. Included in communications strategy inc. screen savers	Decrease in <i>C.difficile</i> numbers Decrease in inappropriate +ve samples	Green
		7D Within their daily ward rounds Matrons to incorporate identification of patients that are symptomatic and may require testing and ensure appropriate action has been taken	Feb 2013	Communication sent to Matrons. Discussed at senior nurse forum (6.2.13).	Decrease in <i>C.difficile</i> numbers Decrease in inappropriate +ve samples	Turned Blue 4.9.13
	8 Review against best performing institutions	8A External Review of IPC measures within the Trust	Apr 2013	Review organised for 15.2.13. Report received and resulting actions incorporated within taskforce actions. Additional scoping with external trusts established - Leicester and G & St.T. Teleconference held on 3rd July with Public Health England	Evidence of Reviewers Reports Evidence of implementation of recommended actions where appropriate	Turned Blue 20.6.13

Area	Objective	Action	Target date	Progress update	Assurance	Progress RAG rating
C. difficile	8 Review against best performing institutions (continued)	8B Benchmarking with European Hospitals and visits to identify best practice	Apr 2013	European HCAI data being reviewed to benchmark - not possible to identify appropriate data to benchmark. Visit to the Netherlands (Nijmegen) - visit complete May 2013, report of visit complete & resulting recommendation discussed.	Feedback on visit Evidence of change in practice where appropriate	Turned Blue 20.6.13
	9 Staffing Review	9A Review staffing model of the Infection Control Team and develop proposals to increase the size using benchmarking data from the Shelford Group	Apr-13	Early discussion with Chief Executive have been supportive. Job descriptions currently being developed Business case approved Additional band 6 and 2x band 7 infection control nurses Recruitment in place September 13	Commitment to increase the size of the team, recruitment commenced, and team in place. Additional resource identified in the business plan	Turned Green 5.9.13
	10 System review	10A Call a clinical summit for <i>C.difficile</i> - to include representatives from CUH, CCG, PHE and other interested individuals/organisations	Apr-13	Summit complete, draft minutes and recommendations circulated. Final actions required.	Jointly agreed agenda Post clinical summit improvement plan agreed and action being taken.	Turned Blue 25.7.13
		10B Review epidemiology of <i>C.difficile</i> cases using CUH and primary care data	Apr-13	local PHE team who have SpR resource to support. CUH and primary care data need to be extrapolated Complete.	Report compiled by PHE team Presentation to the Clinical Summit in April. Recommendations already included in existing action plans.	Turned Blue 2.5.13

Area	Objective	Action	Target date	Progress update	Assurance	Progress RAG rating
MRSA	11 Review management of all intravascular lines to improve care	11A Audit of all lines undertaken with feedback across the trust	Dec-13	Audit completed, results being collated CVATCarmel Streater tabled report & actions agreed at taskforce June 13.	Completed auditReview of action plan	Turned Green 18.7.13
	12 Identify patients at increased risk of MRSA infection	12A Proactive review and labeling of notes	Oct-12	Complete and embedded in practice	ICN review documentation and HISS alerting	Blue
	13 Provide GP information on patients receiving topical treatment and necessary follow up	13A Letters to all GPs	Oct-12	Complete and embedded in practice	ICN records and EMR records	Blue
	14 MRSA screening of attendees at Hepatology Clinic it ensure early identification of positive patients	14A Screening by clinic specialist nurses	Oct-12	Complete and embedded in practice	3 monthly audit of compliance, feedback of results and action plan to address deficiencies	Blue
	15 Measure whether secondary transmission is occurring amongst hepatology in-patients Measure whether secondary transmission is occurring in wards with an above average LOS	15A Two weekly screening of all patients on hepatology specialities Monthly screening of additional 13 wards	Oct 2012 April 13	Complete and embedded in practice	Three month pilot completed, no transmission. Monthly screening instituted	Blue

Area	Objective	Action	Target date	Progress update	Assurance	Progress RAG rating
MRSA	16 Improve knowledge and practice of Trust MRSA and blood culture standards	16A Issue patient safety alert, reissue Trust guideline via Connect	Nov-12	Completed	Patient Safety Notice, Audit of Blood Culture procedures, additional information via Connect	Blue
	17 Embrace whole genome sequencing opportunities to investigate the epidemiology of MRSA within the Trust and surrounding area	17A Liaison with Sharon Peacock and the Wellcome Sanger Institute	Mar-14	On-going since April 2011	Publication of specific examples of investigations using sequencing leading to better understanding of the transmission of infection	Blue
NOROVIRUS	18 Reduce numbers of cases and minimise disruption to organisational function	18A Update Communications Strategy	Nov-12	In place	Evidence of communications	Blue
		18B Restrict visiting by children <12y during Jan-Feb	Jan-13	In place	Evidence of Communications	Blue
		18C Daily monitoring of cases	Nov-12	In place	Daily Operations Centre meetings, Monthly Performance Report	Blue
	19 Improved staff awareness of the problem	19A Education sessions to all clinical staff, information via Connect, ICN visits as required	Nov-12	Completed	Attendance figures, updated information on Connect	Blue

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