NHS
Cambridge University Hospitals
NHS Foundation Trust

Infection Control Annual Report 2016/2017

Addenbrooke's Hospital | Rosie Hospital

Contents

Infection control annual report 2016 – 17

1 Executive summary

1.1 This annual report collates and summarises information related to healthcare associated infection for the period from April 2016 until the end of March 2017.

1.2 It also describes the management structure and oversight of the approach we take to prevent and control infection, the policies and procedures we use and the methodologies employed for assurance.

1.3 We aim to have zero healthcare associated MRSA bloodstream infections in the Trust. However, two occurred in 2016-17; one was related to use of a central venous catheter and one was in a very sick neonate. Review of these identified opportunities to further improve our processes and practises; these have been acted upon and implemented. Our rate of MRSA bacteraemia is similar to other similar trusts.

1.4 We have noted a rise in the number of patients who acquired MRSA in 2016/17 compared to 2015/16. This is likely to have been related to a change in practise within the Trust whereby there is now routine screening of in-patients staying longer than 40 days.

1.5 A key priority for the Trust in 2016/17 was to continue to control the number of cases of *Clostridium difficile* infection (CDI). The trust kept the number of CDIs below the ceiling set by our local clinical commissioning group. Every case of healthcare associated *C. difficile* is reviewed. Lapses in care were identified by a multidisciplinary team in only 16 cases, compared to 35 cases in 2014/15 and 27 cases in 2015/16. This was despite the decant ward facility (with associated deep clean programme of wards) being unavailable for the whole of 2016/17 due to capacity issues. This is seen as a significant risk for the coming year. Previous experience has shown that thorough cleaning is a key control measure for *C. difficile* and that the number of cases increases when wards cannot be deep cleaned.

1.6 Antibiotic resistance has been an increasingly important issue in recent years. The Trust has implemented national guidance for the identification and management of the most resistant microorganisms. We had two outbreaks with carbapenemase producing Enterobacteriaceae (CPE) involving patients on one our intensive care units, a medical ward and a surgical ward. These were both dealt with promptly and aggressively. Further cases were identified in the trust but no further on-going transmission was noted.

1.7 Work by the Estates and Facilities department continues to ensure that the risk of infection resulting from exposure to water remains as low as possible. This

includes the risk of infection from legionella. No confirmed infections were seen in 2016/17, but the age of the hospital water distribution system has meant that a significant amount of maintenance work is required on an on-going basis and additional major work is required to update or replace the existing infrastructure. A strategy for dealing with this has been developed. Implementation will be challenging, but needs to be done as soon as possible.

1.8 We had unprecedented numbers of patients admitted with influenza in the latter part of the 2016. A total of 72 bays (280 days) and 5 wards (23 days) were closed.

1.9 I would like to thank everyone in the Trust for their persistent efforts to avoid all preventable infections in our hospitals. This is a key priority for us and we will continue to work in order to demonstrate real improvement to the care that we provide.

Dr J Ahluwalia

Medical Director and Director of Infection Prevention & Control

2 Introduction

2.1 This annual report aims to summarise and inform the Board, staff and public of the work the Trust has completed to ensure we discharge our statutory duty in meeting the standards for the prevention and control of infection described in the Care Quality Commission (CQC) Code of Practice. More importantly it describes the work of the infection control team and wider staff, both clinical and operational, to reduce the harm associated with infection.

2.2 Cambridge University Hospitals NHS Foundation Trust (CUH) is a 1,000 bedded hospital with 9,243 staff. In 2016-17 CUH cared for a total of 1,047,189 patients. There were 41,504 non-elective admissions, 139,463 elective admissions and 743,752 out-patients, whilst 110,067 patients attended our emergency department. The Rosie delivered 5,572 babies and admitted 6,832 mothers in this period. Across the whole site, 38,800 surgical elective and emergency procedures were performed.

2.3 The Trust is registered with the CQC. The ten criteria required in the CQCs revised Code of Practice is detailed in Appendix 1; the Trust's Strategy for the management of risks associated with Infection Prevention and Control sets out how the Trust achieves compliance with these requirements. The CQC has a programme of unannounced visits to Trusts to assure compliance, but no infection prevention and control visit was made to the Trust in 2016/17.

3 How we prevent and control infection

3.1 Management Structure and oversight

3.1.1 The Chief Executive has overall corporate responsibility for the control of infection within Cambridge University Hospitals NHS Foundation Trust (CUH). The Medical Director (MD) is the Trust designated Director of Infection Prevention & Control (DIPC) and is supported in this role by one of the Deputy Medical Directors who acts as Deputy DIPC. The infection control team is comprised of a number of infection control nurses (6.7 WTE), a full time clinical educator, a full time data information analyst, surgical site surveillance nurses (2.1 WTE), a full time healthcare assistant and secretarial support (0.4 WTE). They are supported by a consultant microbiologist. The team is further supported by other consultants in microbiology and virology, hotel services and an antimicrobial pharmacist.

3.1.2 This multi-disciplinary team have oversight of all matters related to the prevention of infection and its control. The team meet weekly to discuss progress against objectives, current concerns and performance in any area related to infection and meet monthly with the MD.

3.1.3 Local review of matters related to infection control sit with the specialty, directorate and divisional committees for the prevention and control of

infection. These groups report to the Trust's Infection Prevention & Control Committee (IPCC). Other committees that report to the IPCC include the decontamination committee, the antimicrobial stewardship group and the water safety committee, all of which have key roles in the prevention and control of infection. The IPCC is chaired by a Consultant Microbiologist and has representation from Public Health England (PHE), Central Sterile Services Department, Occupational Health, Estates and members of the senior divisional teams. This committee reports to the Trust's Quality Committee, via the Clinical Governance Monitoring Committee.

3.2 Policies and Procedures

3.2.1 We have a number of up to date policies and procedures that describes in detail how we as an organisation aim to prevent and control infection. These are available on the intranet.

3.3 Training

3.3.1 All trust staff joining the trust attend corporate induction; infection control is part of this. They are also required to undertake mandatory training every 2 years.

3.4 Environment and cleaning

3.4.1 Ward nurses are responsible for cleaning medical equipment and the immediate bed-space. Environmental cleaning is provided by Medirest. A system is currently in place whereby different levels of cleaning are provided using a RAG rating scheme, depending on the infection status of the patient. As an example, non-infected patients receive a 'green clean' which involves the bed space being cleaned with a chlorine-based product. A patient infected with *C. difficile* will have their bed space cleaned with a chlorine-based product and then cleaned using hydrogen peroxide vapour (HPV), known as a 'red clean'.

3.4.2 In addition to routine cleaning, the infection control team can request additional cleaning in the event of an outbreak or period of increased incidence of an infection. This 'reactive cleaning' can take the form of:

- *Enhanced clean*: When additional Medirest staff are allocated to an area to clean communal areas such as patient bays, toilets, dirty utility rooms and touch points.
- *Rolling clean*: When an empty bay is used to decant patients within that given ward so that each bay is cleaned on rotation. Depending on the reason for the clean and time available the bays may undergo an HPV or Ultraviolet light clean in addition to cleaning with a chlorine based product.
- *Deep clean*: When a bay or side room is empty for sufficient time to allow for a full red clean. There was, until December 2015, the availability of a spare

'decant' ward where a whole ward would be proactively moved to a decant facility so that the home ward could undergo a deep clean. This facility was not available for the period 2016/17 due to capacity issues and as a result the formal deep clean programme was suspended. This is seen as a significant risk, particularly for the control of *C. difficile* infection, and the intention is to reinstate the programme as soon as possible.

3.5 Methodologies for Assurance

3.5.1 A number of methods are in use to provide reassurance and assurance, both internally and externally, and to demonstrate our infection control programme is compliant and fit for purpose. These are described in detail in Appendix 2 but include audit of documentation and observation of practice, case note review and external scrutiny.

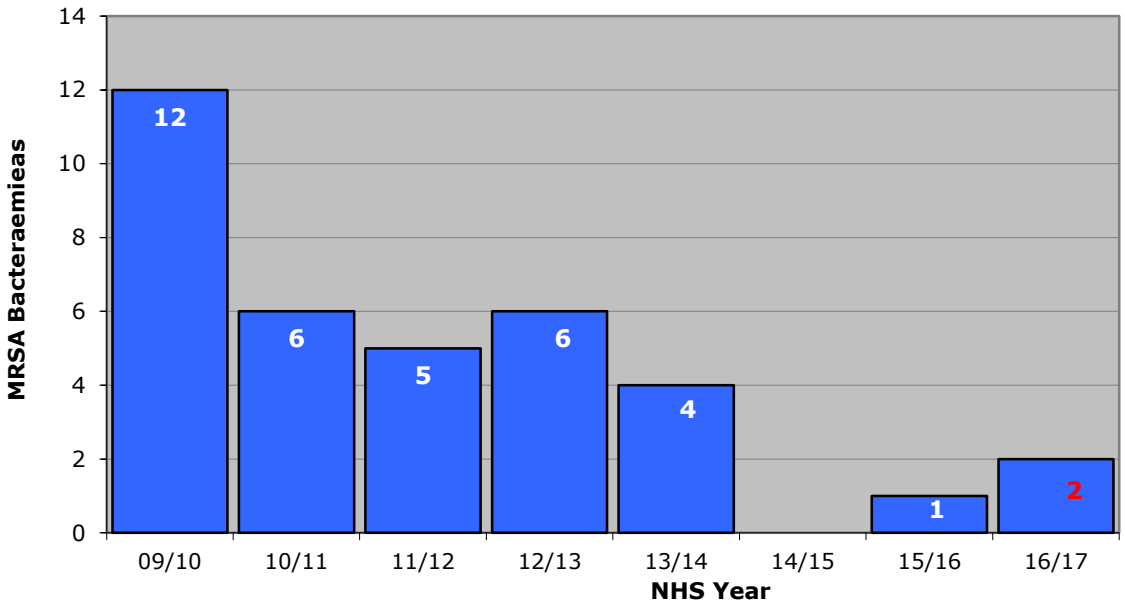
4 Key Infections

4.1 Meticillin Resistant *Staphylococcus aureus* (MRSA)

4.1.1 Bacteraemias

There were two hospital-onset MRSA blood stream infections (bacteraemias) attributed to CUH in 2016/17 which is higher than previous years (see Figure 1). One occurred in a premature baby who acquired MRSA on the neonatal intensive care unit (NICU) and whose skin could not be decolonised because of the baby's clinical condition. The second occurred in an elderly patient with complex medical needs and was associated with use of a central venous catheter required to treat their medical problems.

Figure 1: MRSA Bacteraemias by Year



It is of interest to note the figures and trends reported at CUH follow those reported nationally by Public Health England at:

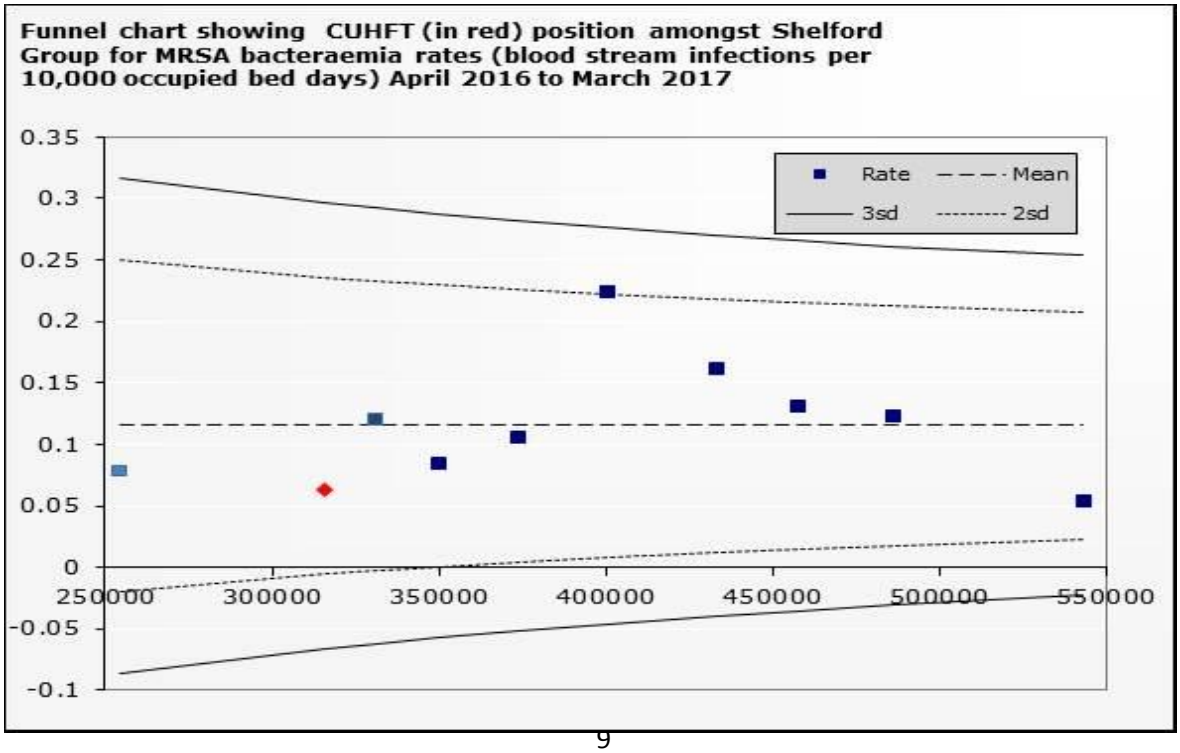
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/634675/Annual_epidemiological_commentary_2017.pdf

Compared to our peers in the Shelford Group, the Trust had the 2nd lowest MRSA bacteraemia rate (Table 1 and Figure 2).

Table 1 **CUHFT Position Amongst the Shelford Group April 2016 - March 2017 for MRSA Bacteraemias.**

Rank	Name of NHS Trust	Bed Days	Number	Rate
1	Sheffield Teaching Hospitals	542543	3	0.06
2	Cambridge University Hospitals	315751	2	0.06
3	University College London Hospitals	254301	2	0.08
4	Imperial College Healthcare	349380	3	0.09
5	University Hospitals Birmingham	373625	4	0.11
6	Guy's & St. Thomas'	331097	4	0.12
8	King's College Hospital	456981	6	0.13
9	Oxford University Hospitals	432553	6	0.14
7	The Newcastle Upon Tyne Hospitals	485915	8	0.16
10	Central Manchester University Hospitals	400297	10	0.25

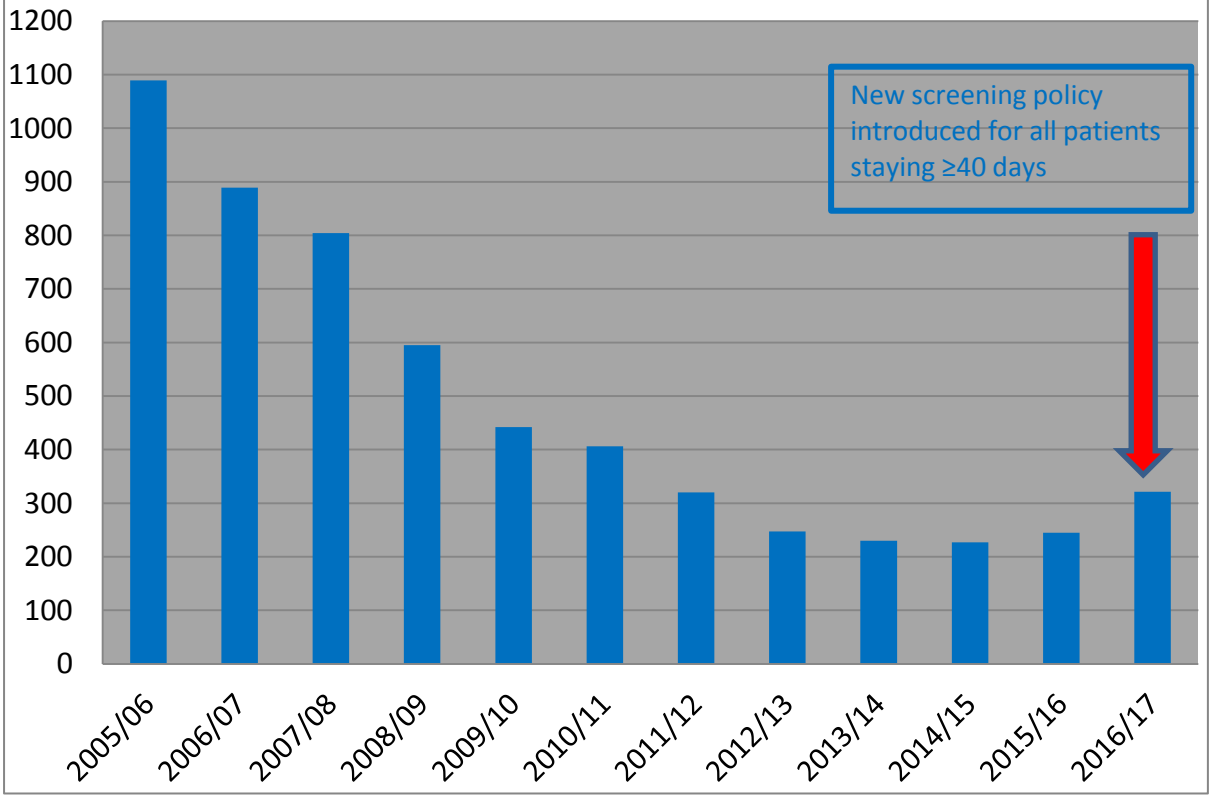
Figure 2



4.1.2 Acquisitions

The term acquisition refers to someone who has been found to be MRSA-positive for the first time and includes isolates from samples taken for clinical purposes (e.g. wounds, urine, sputum etc.) and also routine swabs taken of the skin during MRSA screening of patients (representing colonisation i.e. present on the skin). Figure 3 shows the number of new acquisitions of MRSA. There was a rise in numbers in 2016/17 to 321 compared to 245 in 2015/16. This partly reflects changes in policy that requires enhanced screening in higher risk areas and long stay patients and active screening in outbreak situations. The MRSA policy was changed in August 2016 to increase screening in higher risk patients, following an outbreak in June 2016 (see below): all patients admitted for prolonged periods (defined as ≥40 days) are now routinely screened. In addition, the whole ward is also screened for MRSA if a patient acquires MRSA during their stay; previously we screened the bay they had resided in.

Figure 3: Newly identified MRSA-positive patients



4.1.3 Outbreaks

In June a long-stay patient was identified as MRSA positive in a clinical specimen on a medical ward. The patient had no evidence of infection and did not require treatment. A further ten patients were subsequently identified as being colonised with MRSA from increased screening. The ward was closed

to new admissions for over a week whilst further swabbing and deep cleaning of the environment was undertaken; this had a significant impact on available capacity (i.e. beds) within the organisation. Screening of staff was undertaken as part of the investigation. The learning acquired as a result of this outbreak was that long-stay patients (40 days) should be identified by the ICT and re swabbed.

In September of 2016 an outbreak was declared following a bacteraemia (mentioned above) on NICU. Eleven babies colonised with the same MRSA strain were identified between this date and March 2017. None of the other patients had evidence of infection and all were successfully decolonised.

Internal review of this outbreak highlighted the following issues:

- Recognition of the outbreak – differentiation of the abnormal when there is a background rate
- Generic outbreak policy - procedure for escalation, how and when does the minor issue become more significant?
- Formation and function of the incident management team (IMT) – previously somewhat informal, a need to clarify roles and requirement of a senior presence, availability of administrative support, recording of a formal risk assessment.
- Staff screening – clear process, consent, defined actions as a result of findings

External assurance was also obtained. They highlighted the following issues:

- The initial escalation of the outbreak and instigation of the IMT could have been more prompt. The IMT meetings should have been more formal in terms of membership, roles, case definitions and administration.
- There was a lack of continuity in the IMT in that the membership was not defined and staff attended when they were able. As a result, actions recorded did not always have documented ownership or completion. Audit data or other information should have been obtained to give the IMT assurance that actions had been completed.
- There appeared to be delays in getting some issues resolved. For example, additional alcohol dispensers for hand hygiene were required and should have been obtained immediately.
- There was inconsistency of practice in some areas across the unit. For example, relating to the use of personal protective equipment, which product to use for hand washing and staff understanding of the different levels of cleaning (deep clean, rolling clean, enhanced clean).

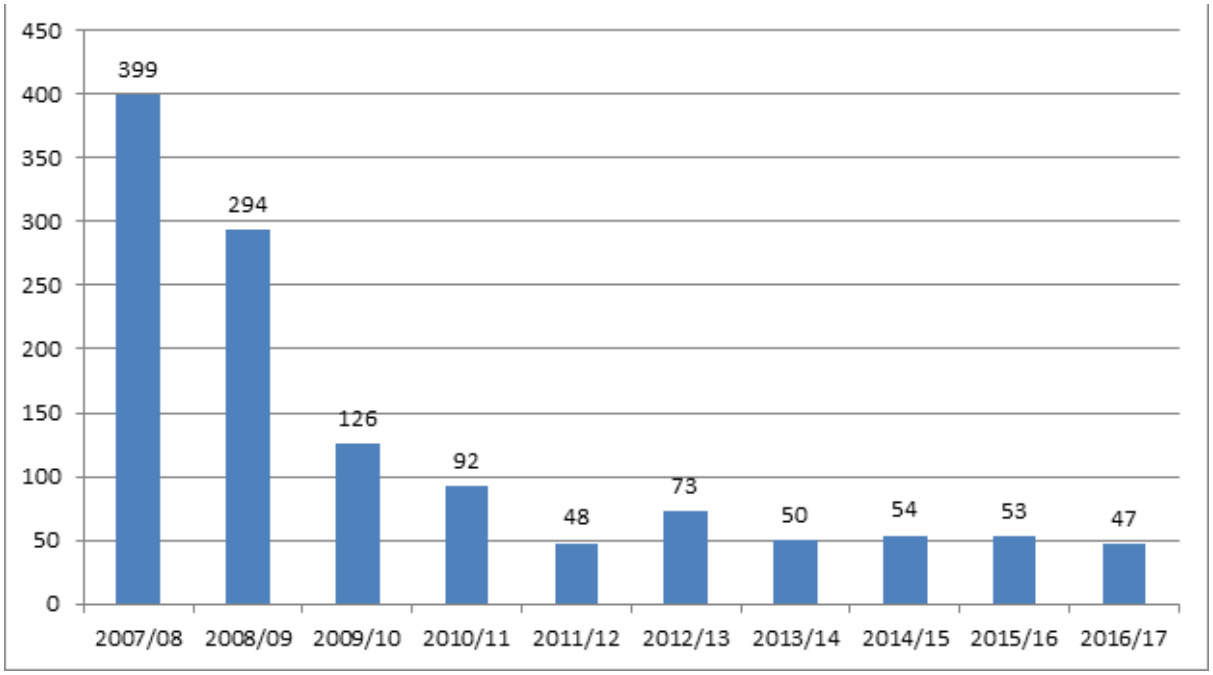
All of these issues have been addressed within the HCAI action plan. Key changes include a revised outbreak policy, changes to the MRSA screening policy which now requires repeat screening of patients who have been in

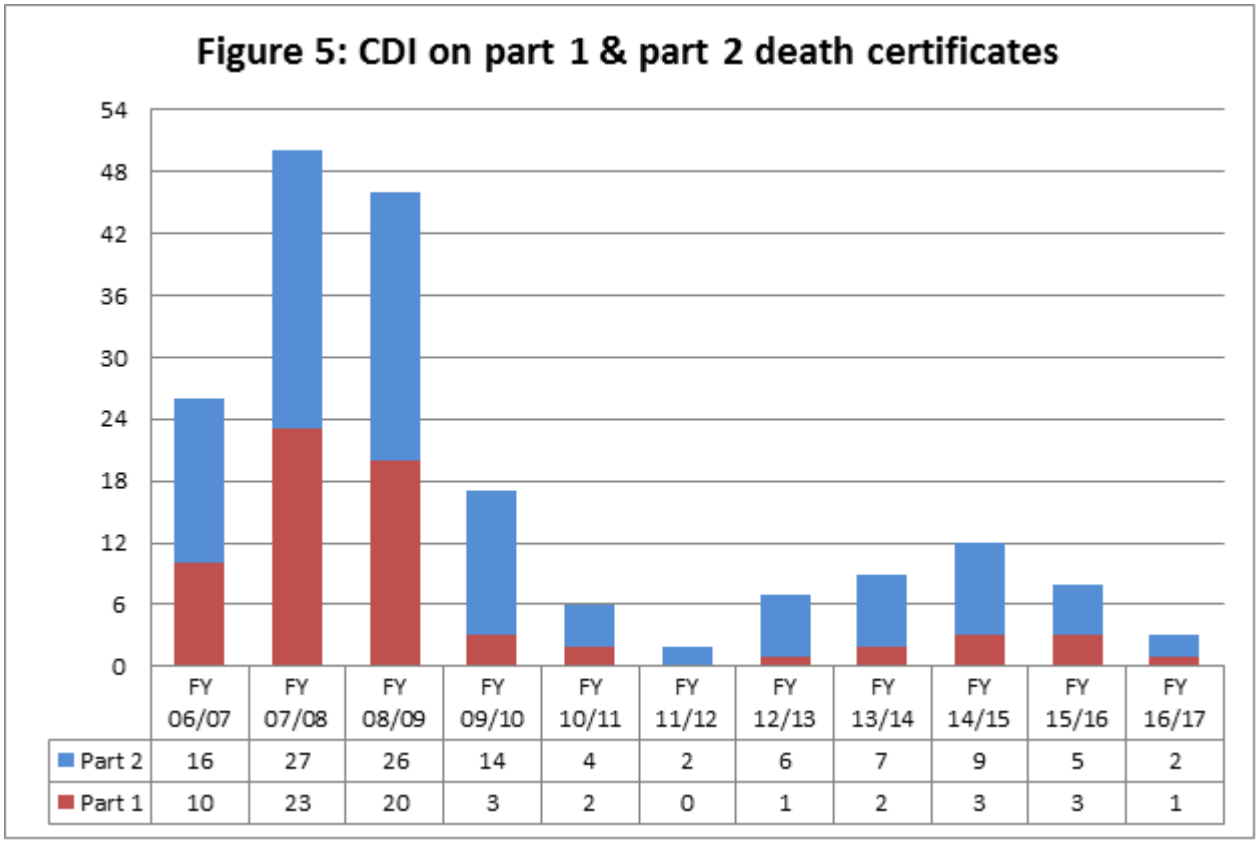
hospital for longer than 40 days, the development of a staff MRSA screening policy, enhanced staffing within the microbiology and the ICT team and a new hand hygiene campaign. Many of these have been successfully incorporated into subsequent outbreaks.

4.2 Clostridium difficile

4.2.1 There were 47 cases of hospital-onset *C. difficile* in 2016/17 (figure 4). This is lower than in recent years. This infection can be life-threatening and in one patient the infection was recorded in part one of their death certificate (figure 5). As with MRSA the figures and trends reported at CUH for CDI also follow those reported nationally by Public Health England.

Figure 4 *Clostridium difficile* by Year



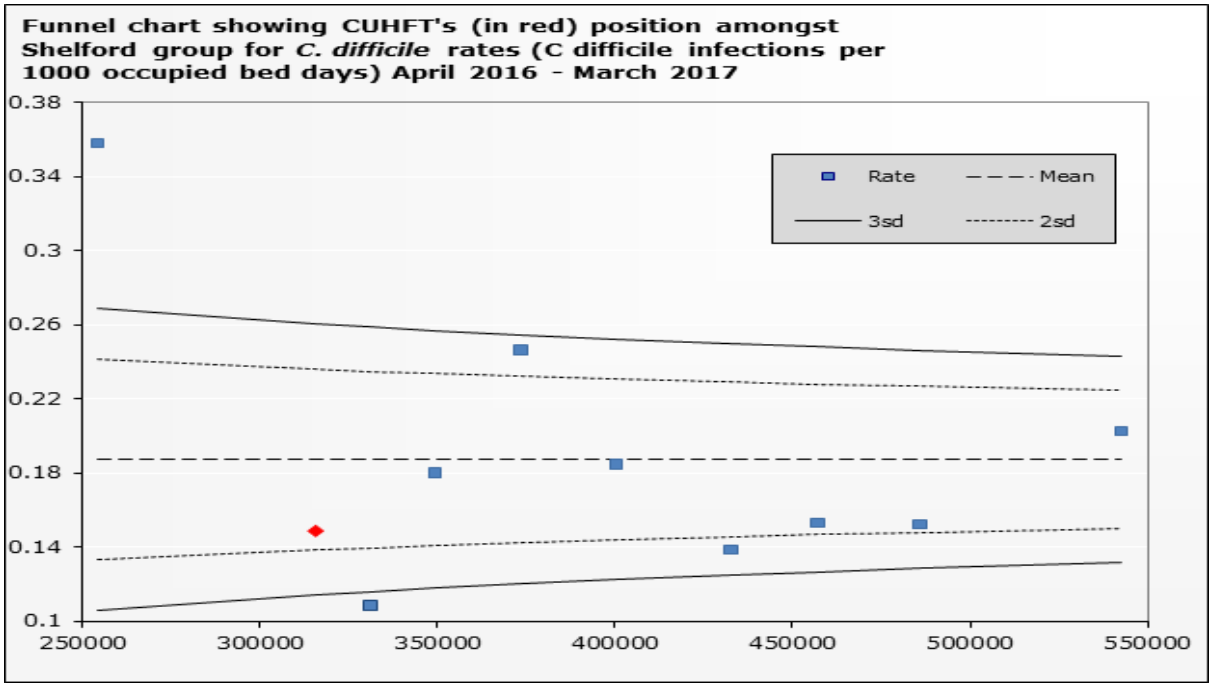


Within the Shelford Group, CUH was 3rd for the year 2016 / 17 for C. *difficile* (table 2 and figure 6).

Table 2 - CUHFT Position amongst the Shelford Group April 2016 - March 2017 for CDI

Rank	Name of NHS Trust	Bed Days	Number	Rate
1	Guy's & St. Thomas'	331097	36	0.11
2	Oxford University Hospitals	432553	60	0.14
3	Cambridge University Hospitals	315751	47	0.15
5	The Newcastle Upon Tyne Hospitals	485915	74	0.15
3	King's College Hospital	456981	70	0.15
6	Imperial College Healthcare	349380	63	0.18
7	Central Manchester University Hospitals	400297	74	0.18
8	Sheffield Teaching Hospitals	542543	110	0.20
9	University Hospitals Birmingham	373625	92	0.25
10	University College London Hospitals	254301	91	0.36

Figure 6



4.2.2 Of these 47 cases, case note review and multidisciplinary discussion demonstrated no lapse in care in 31. Delays in isolating patients, an inability to isolate due to lack of side rooms and delays in sending a sample constituted the majority of the identified lapses in care for the remaining 16 cases. These findings are shown in table 3 which also demonstrates the progress in improving process and procedures over the last three years.

Table 3: Reasons given for lapses in care for patients with C. *difficile* infection

	2014/15	2015/16	2016/17	Total
Delay in sample collection	12	10	4	26
Delay in sample collection and isolation	11	7	5	23
Delay in isolation	6	8	4	18
Issues with antibiotic stewardship	1	0	2	3
Poor hand hygiene	1	1	0	2
No clinician attended the meeting to discuss the antibiotic usage and failure to identify that this patient was at risk of C.*difficile* earlier in this admission	0	0	1	1
Delay in sample collection and ward cleaning	1	0	0	1
Delay in sample collection and issues with antibiotic stewardship	1	0	0	1
Wrong sample collection	1	0	0	1
Wrong sample collection and antibiotic stewardship	1	0	0	1
Inappropriate CDT management from previous admission	0	1	0	1
Total	**35**	**27**	**16**	**78**

4.3 Carbapenemase Producing Enterobacteriaceae (CPE)

4.3.1 Carbapenemase producing Enterobacteriaceae (CPE) are Gram negative bacteria that are resistant to most antibiotics. They can cause colonisation (with no evidence of infection) or infections. They have emerged as a problem in the UK (particularly in London and Manchester/north west England) in the last 5 years. There were 17 cases of CPE in the year 2016/17. *Klebsiella pneumoniae* was grown from a screening swab taken from a patient on the intensive care unit (ICU) with a type of CPE (an NDM-1 producing) which was resistant to all antibiotics tested apart from colistin. The screening on ICU was initially performed as part of a study looking for multidrug resistant bacteria. Screening and epidemiological investigation identified a further five patients (on ICU and a surgical ward) with epidemiological links to this index case. Five months after the last case, four further carriers of the *K. pneumoniae* were identified on ICU (screened as part of the same study) and subsequently a medical ward suggesting reappearance of the outbreak strain. Environmental testing revealed contamination of the ward sink and sluice. The outbreak was identified promptly and stopped by enhanced cleaning, increased screening and isolation. None of these patients had recognised risk factors for CPE.

4.3.2 The remaining 7 patients had a variety of organisms (*E. coli, Enterobacter* spp. and *Citrobacter* spp. and a variety of resistance mechanisms (OXA-48, IMP-1 and NDM-1). Some patients had been admitted to hospitals overseas (France, Romania and Pakistan) and had been barrier nursed appropriately since admission.

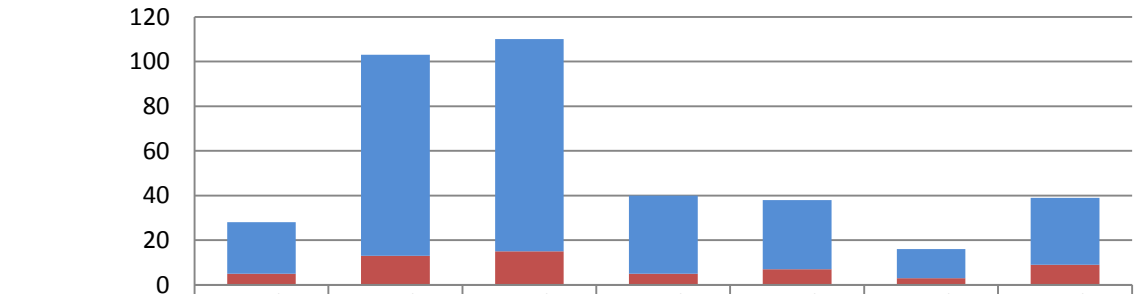
4.4 Norovirus

4.4.1 Norovirus infection is a short-lived vomiting and diarrhoeal illness, which is readily transmitted from one person to another. The virus can be caught from the environment or shared equipment that has become contaminated. 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. It is difficult to prevent infection coming into the hospital when there are high numbers of infected people in the community who need admission and when patients incubating the virus may be transferred from referring hospitals.

4.4.2 The 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 (2012). An escalation plan devised in 2012 is updated annually and continues to improve communication to staff and provide a clear stepped management plan to response to increasing numbers of areas affected and the impact on the Trust's activity at that given time.

4.4.3 Nine wards were closed to admissions for a total of 64 days in 2016/17. There were also 24 wards affected that required bays to be closed to admissions for a total of 114 days. The numbers of patients affected fluctuates year by year, as shown below so it is difficult to estimate the impact on the Trust.

Figure 7: Ward/Bay Closures due to Norovirus



	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Bay closures	23	90	95	35	31	13	30
Ward closures	5	13	15	5	7	3	9

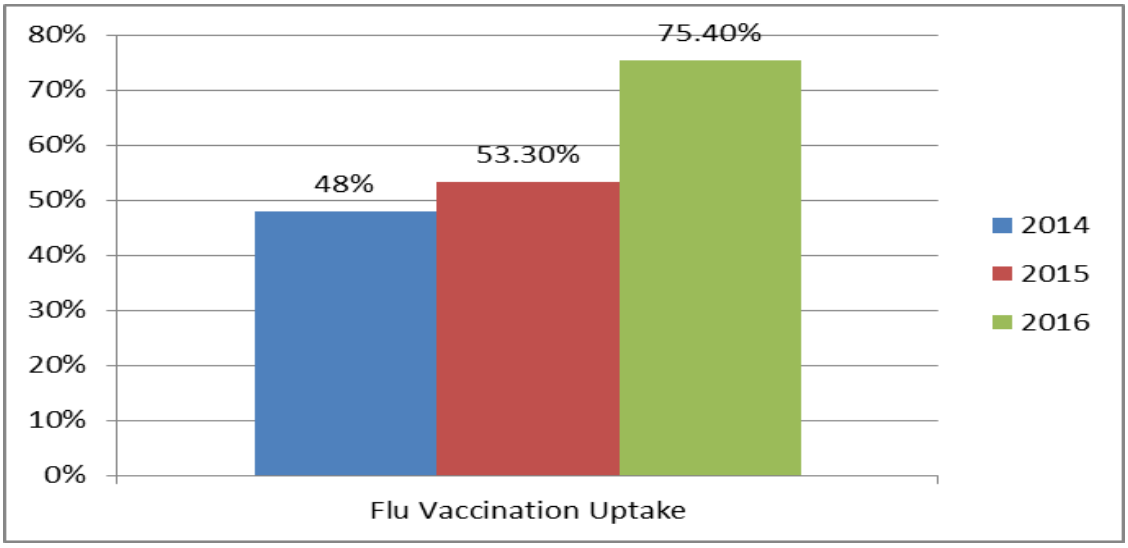
4.5 Influenza

4.5.1 The numbers of influenza cases have historically been small and manageable for the Trust resulting in small number of bay closures and occasional ward closures. In 2015/16 there were 16 bays closed and one ward closure due to influenza. However, during the 2016/17 season, unprecedented numbers of patients were admitted with influenza. A total of 72 bays (280 days) and 5 wards (23 days) were closed.

4.5.2 In response to this an isolation ward on N2 was created so that patients admitted with respiratory symptoms could be admitted directly to a side room until their virology results were available. Point of care testing for influenza was made available so that patients admitted via the ED could be swabbed and then managed more appropriately. The absolute requirement to establish a single room isolation ward before the onset of influenza season was a key learning point.

4.5.3 A further action identified was related to staff vaccination. The Trust added additional rapid access flu vaccination clinics late in the season to encourage staff members who had not yet been immunised, to take up immunisation. The Trust had already performed well during the 16/17 season and had encouraged early uptake (see figure 8) and subsequently achieved over 75% uptake. For the 17/18 season, communications will play a key role in demonstrating to staff members the impact of an influenza outbreak using last year's data to ensure we maintain high early uptake during October and November 2017.

Figure 8 Uptake of Influenza Vaccination Amongst Staff



5 Water safety

5.1 Criterion 2 of the Hygiene Code states that a hospital should be able to provide and maintain a clean and appropriate environment in managed premises that facilitates the prevention and control of infections. *Legionella* spp. and *Pseudomonas aeruginosa* are two bacteria that are capable of living in hospital water systems and are then able to cause clinical infections in patients. The water quality team meet regularly to discuss matters related principally to *Legionella* spp. and *Pseudomonas aeruginosa*. Microbiological control of Legionella is achieved by:

- *Temperature*: the Trust employs temperature control as the primary method of Legionella control within the domestic water systems (as far as is reasonably practicable). This is achieved by maintaining temperatures of:
  Cold water at temperatures of < 20°C
  Stored hot water at >60°C (where exceeding 15 litres storage)
- *Avoidance of Stagnation*: experience has shown that avoiding stagnation is highly important in keeping bacterial counts within acceptable limits. This is achieved by the following:
  Removing any 'blind ends' on distribution pipework so far as is practicable
  Ensure all 'Dead-Legs' (e.g. low use taps) are either flushed or removed including any associated pipework
- *Minimising Stored Water*
  Designing and installing new or modified systems so that the risk of stagnation is minimised
- *Maintain Cleanliness*
  Pipework, distribution, storage, plant and outlets shall be maintained in a clean condition at all times as far as is reasonably practicable to avoid providing nutrients to bacteria.

5.2 Legionella continues to be a problem in outlets across the Trust, suggesting the above methods are failing. This is caused by the water heaters being 40 years old, piping being made of galvanised steel, which in parts is heavily corroded, and areas with poor circulation remain. Some of the piping in C & D block has been replaced but the piping in other wards still require urgent replacement. Therefore, silver-copper ionisation has recently been reintroduced due to its antibacterial properties, in order to reduce the growth of these organisms. This is achieved by injecting the copper and silver ions into various parts of the system and maintaining levels of silver and copper ions to the supplier's specifications. In addition to this, flushing is also performed across the trust. Despite the risks associated with an aging water system no patient contracted a hospital onset legionella infection in 2016-17.

5.3 Testing for *Pseudomonas aeruginosa* in augmented care areas (i.e. dialysis units and intensive care units) is also performed. Positive results were recorded from the John Farman intensive care unit (JVF). The problem was thought to be due to the taps so these have been replaced over the last year. This has led reductions in patients with infections due to *P. aeruginosa* and also to reductions in a related organism called *Elizabethkingia meningoseptica*.

5.4 A hospital-wide engineering and estates strategy to reduce the risk of infection from *Legionella* spp. and *Pseudomonas aeruginosa* was identified as necessary in 2016/17. This has been now been published and presented to the Board of Directors. In 2017/18 this will be implemented providing sufficient resource is available.

6 Surgical site infection (SSI)

6.1 Surgical procedures can be complicated by infection. This is usually a minor infection of the surgical wound, although more serious infections do occasionally occur. The risk of infection varies with the particular type and site of surgery. Surgery associated with the gastrointestinal tract, for example, has a much higher infection rate than 'clean' surgery, such as the elective insertion of a prosthetic hip joint.

6.2 On-going surveillance of surgical site infection is used within the Trust as one measure of the quality of surgery, to identify areas where further investigation or improvement might be required. Currently the Department of Health requires all trusts to provide data from elective orthopaedic implant surgery (either hip *or* knee), repair of neck of femur or reduction of long bone fracture for one 3-month time period. We therefore contribute to the mandatory reporting of orthopaedic implant surgery surveillance.

6.3 Surgical Site Surveillance (SSS) is performed for individual types of surgery in blocks of three months at a time. During 2016/17, (period ending March 2017) surveillance was performed for total knee replacement surgery, large and small bowel surgery and bile duct surgery.

6.4 For many years, surgical site infection rates in the Trust for orthopaedic knee replacement surgery have been equivalent to or below the national mean rate for all participating NHS Trusts (<1%). The number of infections seen following this type of surgery is very low. The latest data for total knee replacement surgery was 1.0% (mandatory). This compares to a national average of 0.7% (range 0 - 5.3%). Rates for small bowel surgery were 3.6% (national average 7.2%), large bowel surgery was 11.4% (9.8%) and bile duct surgery was 9.8% (5.6%). These latter categories were optional and not mandated by Department of Health. Meetings occurred with infection control and the surgeons when rates were higher than the national average in order to identify any actions necessary to reduce the incidence of SSI. No remediable actions were identified.

7 Objectives for 2017-18

Objective	Completion date
Optimise antimicrobial prescribing using 'Start smart, then focus' criteria	March 2019
MRSA bacteraemia – no avoidable cases of trust acquired MRSA bacteraemia	March 2018
C. difficile – no avoidable cases of trust acquired *C. difficile*	March 2018
E. coli bacteraemia– reduce hospital onset E.Coli bacteraemia by 20%	March 2019
MSSA bacteraemia– reduce hospital onset of MSSA bacteraemia to 0	March 2019
In conjunction with operations staff identify a method to re-commence the deep clean programme	March 2018
Record the number of bed days lost to infection	March 2018
Re-launch the hand hygiene programme and introduce new hand hygiene products	September 2017
Update the isolation signage	March 2018
In conjunction with operations staff identify a permanent isolation ward (100% single rooms)	September 2017
Perform a CPE point prevalence survey	September 2017
Water safety – to agree and implement a hospital-wide engineering and estates strategy to reduce the risk of infection from *Legionella* spp. no avoidable case of trust acquired Legionella infection	March 2018
Review the resources for the infection control team and occupational health teams	September 2017
Update the Strategy for infection prevention and control	March 2018

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Appendix 1 CQC Code of Practice for the Prevention and Control of Infection

Criterion 1

Have systems to manage and monitor the prevention and control of infection. These systems use risk assessments and consider how susceptible service users are and any risks that their environment and other users may pose to them.

Criterion 2

Provide and maintain a clean and appropriate environment in managed premises that facilitates the prevention and control of infections.

Criterion 3

Ensure appropriate antimicrobial use to optimise patient outcomes and to reduce the risk of adverse events and antimicrobial resistance.

Criterion 4

Provide suitable accurate information on infections to service users and their visitors and any person concerned with providing further support or nursing/ medical care in a timely fashion.

Criterion 5

Ensure that people who have or develop an infection are identified promptly and receive the appropriate treatment and care to reduce the risk of passing on the infection to other people.

Criterion 6

Ensure that all staff and those employed to provide care in all settings are fully involved in the process of preventing and controlling infection.

Criterion 7

Provide or secure adequate isolation facilities.

Criterion 8

Secure adequate access to laboratory support as appropriate.

Criterion 9

Have and adhere to policies, designed for the individual's care and provider organisations, which will help to prevent and control infections.

Criterion 10

Ensure, so far as is reasonably practicable, that care workers are free of and are protected from exposure to infections that can be caught at work and that all staff

are suitably educated in the prevention and control of infection associated with the provision of health and social care.

Appendix 2 Methodologies used for Assurance

	Method	Practice	Frequency	Outcomes	Reported to
Internal	Audit	Hand hygiene	Fortnightly	Any serious lapses reported to Senior staff	All Senior staff via CHEQS and discussed at divisional monthly meetings meeting
	Audit	Cleaning Scores	Weekly for high risk areas. Fortnightly for medium risk areas Monthly for low risk areas	Reasons behind areas falling below standards investigated by Root Cause Analysis and problems rectified	Senior Nursing staff via email. Also, discussed at monthly cleaning meetings
	Report generated from Epic to monitor compliance with VIP score documentation	Intravascular catheter sites	Monthly		Senior Nurses via CHEQS
	Root Cause Analysis – scrutiny meetings with IPCT, clinical team and the CCG	CDI or MRSA	Monthly (where they occur)	Lapse in care identified in 16 patients with CDI 2 MRSA bacteraemias attributed to the Trust	Learning shared across the organisation
	Audit of practice documented on Epic.	Care bundles for urinary catheter care, MRSA decolonisation, C. difficile management and ventilator associated pneumonia	Monthly	Any lapses identified fed back to wards involved.	CCG via the quality dashboard. Reported in Infection Control Performance Report. Specific issues discussed at monthly divisional meetings
	Audit/ Service Evaluation	Evaluation of any processes undertaken, observations of practice and condition of furniture and fittings	Yearly for clinics and departments such as theatres, quarterly for critical care areas.	Audit or service evaluation reports and action plan generated.	Report to Senior staff in area visited. Specific issues discussed at monthly divisional meetings

	Method	Practice	Frequency	Outcomes	Reported to
Internal	Audit	Practical aspects of Infection Control such as isolation nursing management and equipment cleaning	Varies from monthly to six monthly	Any lapses identified fed back to Wards involved. Audit frequency increased if indicated	Ward Managers , Divisional monthly meetings and Infection Prevention and Control Committee
	Mini PLACE visits	Service evaluation including food quality	Monthly	Report generated by team.	Areas visited and presented at monthly cleaning meeting.
Benchmarking	Audit data	Numbers of HCAI	Monthly	Report produced and outcomes of RCA Meetings detailed.	Infection Control Performance Report and Board of Directors report.
External	Visit from NHS improvements lead	Outbreak management review	Invited to visit Trust following outbreak	Report provided and action plan generated from recommendations.	Outbreak meetings. Infection Prevention & Control Committee and Board Report.
	Mandatory reporting of HCAI - triangulation with national surveillance data	National surveillance data held by PHE compared with Trust reports	Quarterly	Reconciliation of mandatory reporting data to ensure accuracy	PHE and DH
	Monthly review of MRSA, C diff, E.coli and MSSA by PHE	PHE surveillance data for each Trust in East of England reviewed	Monthly	Trends monitored and any high numbers reviewed with Trust ICT to ensure actions taken	PHE and Trust ICT
	Feedback of any CPE confirmed by national reference lab	Weekly feedback of reference lab data relating to the Trust to ensure action taken	Weekly	Trust ICT were aware of all confirmed CPE.	Trust ICT