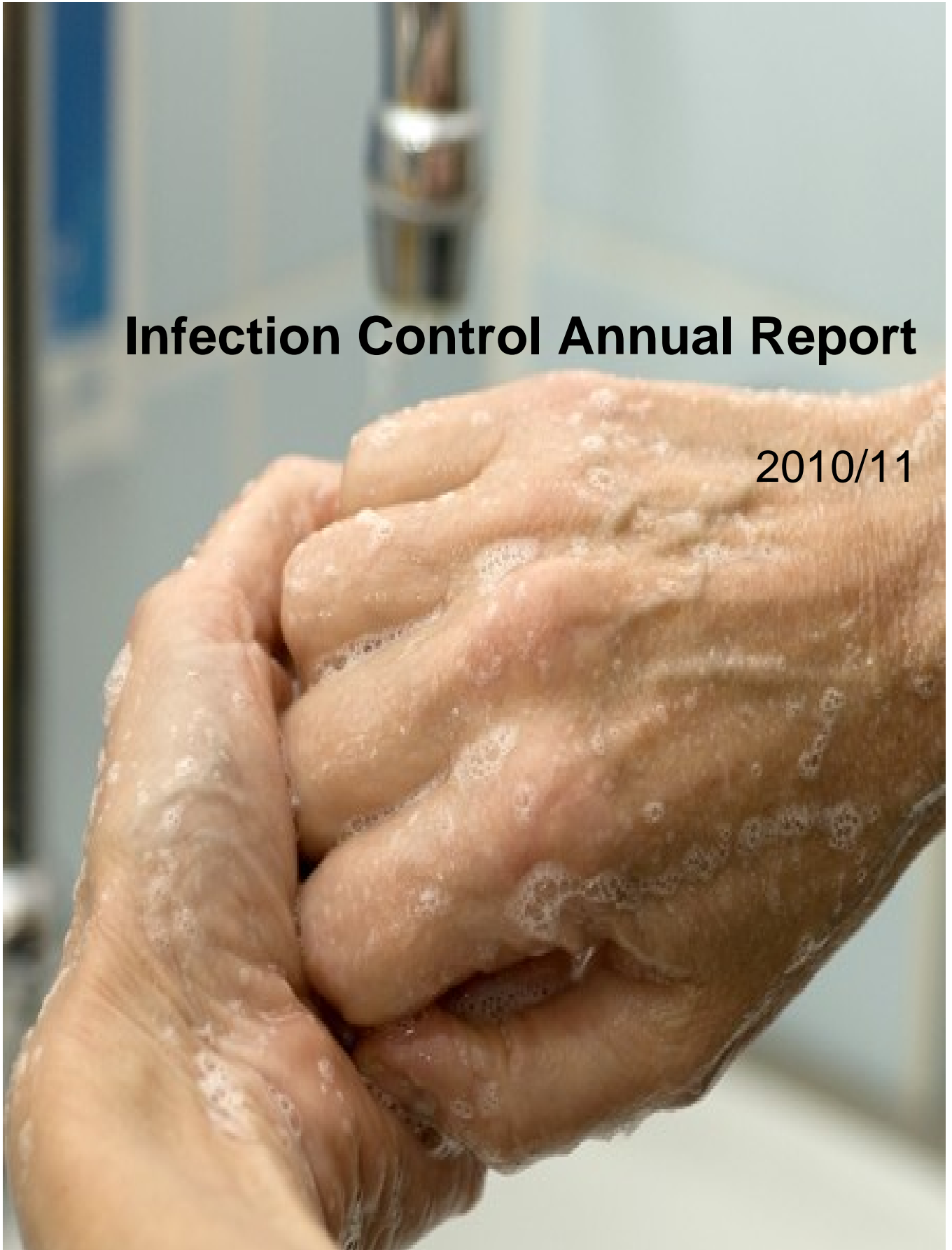


# Infection Control Annual Report

2010/11



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## Preface

I am delighted to report that we have been able to meet and indeed exceed tough infection control targets set by NHS Cambridgeshire. Figures for 2010/11 show significant improvements in the number of cases of methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile* infection. Our targets for this year were no more than 108 cases of *C. difficile* infection and 10 cases of MRSA blood stream infection (bacteraemia). Results show that we had 92 cases of *C. difficile* and six cases of MRSA – improvements of 27 per cent and 50 per cent compared to last year's figures (2009/10).

This is a superb performance and I would personally like to thank all staff for their efforts and support in this important area of clinical care.

It is worth recalling that as recently as the year ending 2006/07 we had 81 cases of MRSA bacteraemia and 460 cases of *C. difficile* infection. The dramatic reductions we have seen in these two very serious conditions over the last few years are testament to everybody's hard work. This represents huge improvements in the quality of care we provide to our patients.

Next year even tougher targets have been set – no more than seven cases of MRSA and 85 cases of *C. difficile*. Our goal is that not a single preventable infection should be allowed to develop in our hospitals.

Dr Jag Ahluwalia  
Medical Director

## 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 describes 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.

Further detail of reporting structures 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 NHS Cambridgeshire.

## **General assessment of 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 2010/11. 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. In addition, Professor Martin Bobrow is a non-executive director with oversight of infection control and Dr Susan Robinson acts as deputy medical director with infection control responsibilities. Infection control is discussed at every meeting of the board of directors, executive forum, clinical executive forum and board of governors.

The Trust control of infection committee is chaired by Professor Andrew Lever, consultant in infectious diseases. 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.

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

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 service delivery unit (SDU) 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 2010/11 using the nursing documentation audit tool and patient experience questionnaire. The audit tools were reviewed in April 2010 and included:

**Nursing Audit Tool** to review appropriate completion of documentation and compliance with standards for patient care including falls, pain management, nutrition, pressure area care, medicines administration, observations, communication, discharge planning and infection control (intravascular catheter care, urinary catheter care, MRSA screening/decolonisation and *C. difficile*).

**Patient Experience Audit** including staffing, communication, privacy, dignity, pain management, nutrition, medicines administration and infection control.

The senior clinical nurses are responsible for undertaking the nursing audit on five patients on each ward weekly and the patient experience questionnaire with up to five patients on each ward weekly.

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

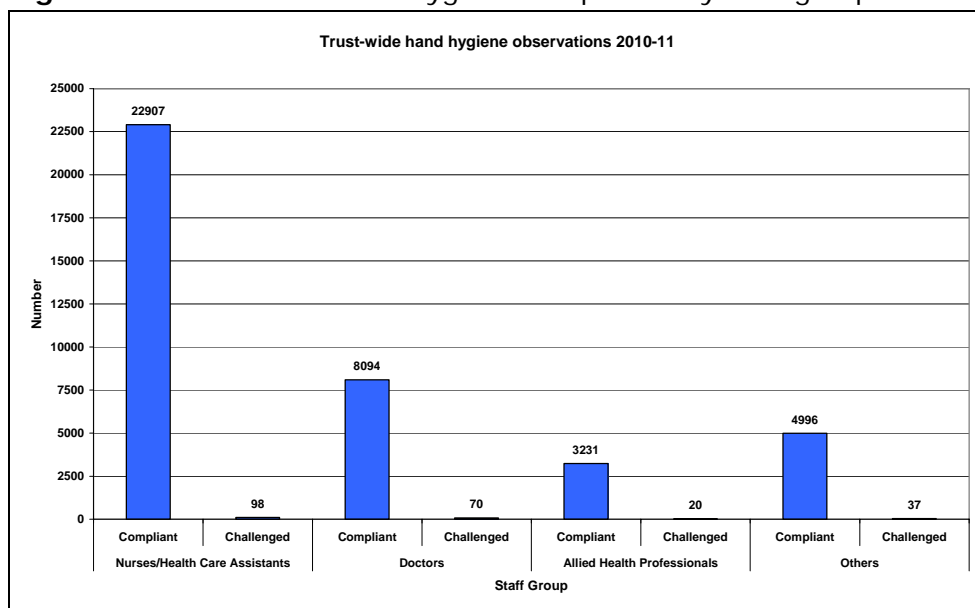
the red/amber/green traffic light system. The heat scorecards enable Wards/Divisions to quickly identify areas of good practice and areas where compliance is poor.

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

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).

In addition to the nursing documentation audits and the patient experience questionnaire, wards continue to undertake weekly **hand hygiene observational audits**. 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 39,453 hand hygiene opportunities were observed in 2010/11 and the overall compliance rate for the year was 99.43% (Figure 1).

**Figure 1** Breakdown of hand hygiene compliance by staff group 2010/11



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

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 July 2009-March 2010 are shown below. It should be noted that these audits are of completion of documentation and may not reflect care that has been provided but not documented.

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

	2010							2011				
	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March
	%	%	%	%	%	%	%	%	%	%	%	%
HII 1&2 Central venous/peripheral IV cannula care bundle	96	96	96	96.5	96.0	97.1	96.8	95.5	96.9	96.9	96.4	97.9
HII 3 Renal dialysis catheter care bundle	100	100	94	100.0	96.0	95.0	97.5	99.2	100.0	100.0	96.7	96.7
HII 4 Care bundle to prevent SSI - pre-op	100	100	97	94.0	93.8	100.0	100.0	100.0	100.0	100.0	100.0	97.8
HII 4 Care bundle to prevent SSI - peri-op	85	89	NP	81.0	90.0	71.0	98.0	91.4	96.2	96.1	92.1	100.0
HII 5 Care bundle for ventilated patients - regular obs.	77	81	81	68.0	72.0	91.0	86.0	81.6	95.2	84.0	85.7	90.6
HII 6 Urinary catheter care bundle	96	96	97	97.4	98.0	97.4	96.1	95.8	96.7	96.7	96.5	98.6
HII 7 Prevention of spread of <i>Clostridium difficile</i>	100	98	100	93.1	89.0	100.0	92.6	NA	100.0	100.0	46.6	83.3
HII 8 Cleaning and decontamination of equipment		73	81	49.0	51.0	59.0	54.0	58.1	50.7	60.8	53.5	60.0

## Mandatory surveillance

Some infections and microorganisms are reported by the Trust to the Department of Health as part of the national mandatory surveillance programme. Each year a new local target for a reduction in cases is agreed with NHS Cambridgeshire, acting as the local healthcare commissioner. Targets are set for blood stream infections due to MRSA and *C. difficile* infections. From January 2011, blood stream infections due to methicillin-sensitive *S. aureus* (MSSA) have been added to the national mandatory surveillance. In addition, it has been announced that, from summer 2011, there will be further expansion to include blood stream infection due to *Escherichia coli*.

In 2010/11 there were on-going reductions in MRSA blood stream infection and *C. difficile* infection and this represented a significant achievement for the Trust.

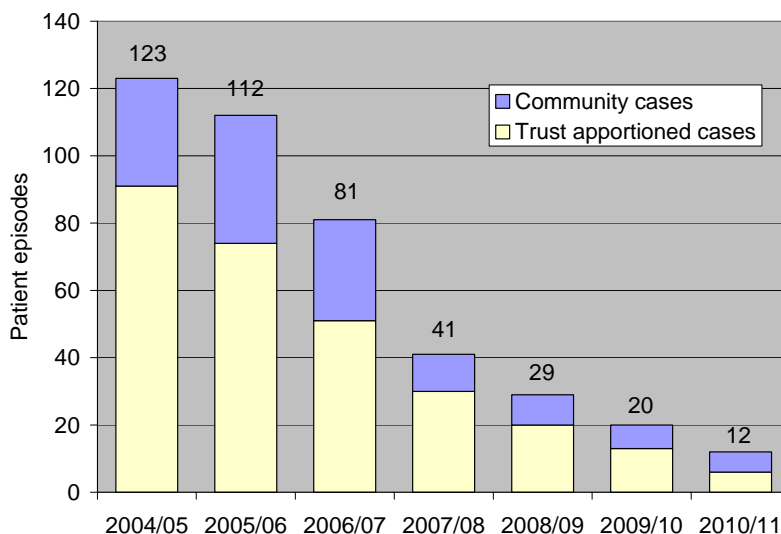
### Methicillin-resistant *Staphylococcus aureus* (MRSA)

Mandatory reporting of MRSA blood stream infections, the most serious form of MRSA infection, began on 1 April 2001. For 2010/11, the national reporting format changed slightly so that infections acquired within the Trust were separated from those acquired in the community. Agreed targets for reducing these infections were applied to the Trust-acquired cases only, although the Trust continues to work closely with others to prevent all infections wherever they occur.

However, this means that it is now more complicated to compare current figures with those from previous years. In the last annual report it was reported that there were 20 MRSA blood stream infections in 2009/10, which was less than the agreed ceiling of 24 cases and a 31% reduction from 2008/09. Of the 20 cases, 12 were acquired within the Trust and eight were community acquired (Figure 2).

In 2010/11 there were six MRSA blood stream infections acquired in the Trust, a 50% reduction from last year, and a further six diagnosed from the community. The target for Trust-acquired cases was to have no more than ten infections and therefore the Trust achieved this.

**Figure 2** Number of MRSA blood stream infections per year

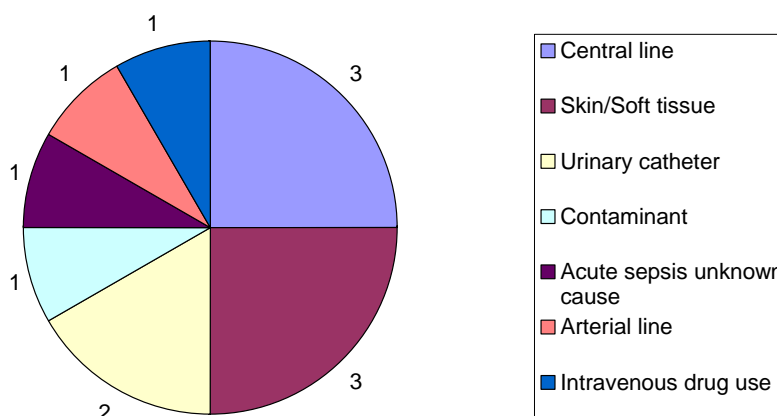


The main underlying source of infection for MRSA blood stream infections is shown in Figure 3. Root cause analysis identified that most of the Trust-acquired infections were related to care of indwelling intra-vascular devices (blocked Portacath (1), infected peripherally inserted central catheter site (1), infected Hickman line (1), infected arterial line site (1)), but with no common theme or connection between them. One infection was related to a urinary catheter and one MRSA isolate was thought to reflect contamination of the blood culture and not a genuine infection.

Although infection of prosthetic devices breaching the skin remained the major risk factor for MRSA blood stream infection in 2010/11, it was notable that there were no peripheral intra-vascular device (Venflon)-related blood stream infections in the year. This compares to five of the 12 MRSA blood stream infections in 2009/10.

For community-acquired infections, the main infections were skin or soft tissue infections.

**Figure 3** Identified underlying infective cause for all MRSA blood stream infections 2010/11



### ***Clostridium difficile* diarrhoea**

The number of *C. difficile* infections each month acquired within the Trust is shown in Figure 4. As with MRSA, the Trust has agreed targets for reductions in *C. difficile* infection. In 2010/11 these targets were achieved.

During 2010/11 there were 92 patients with hospital-acquired *C. difficile* infection, which was a reduction of 27% compared to the 126 in 2009/10. This is on top of the 57% reduction seen the year before and is below the target of no more than 108 cases agreed with NHS Cambridgeshire.

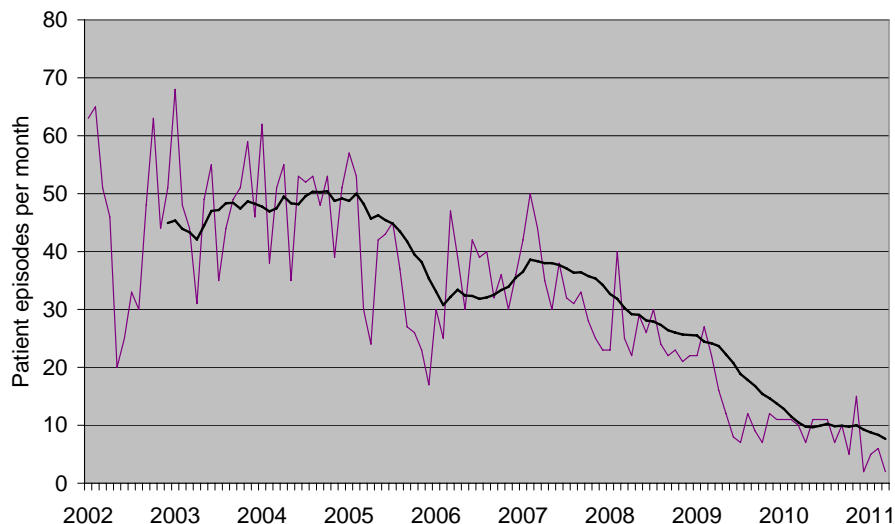
Any infection has the potential to have serious implications for vulnerable patients. Some unintended consequences, such as a more prolonged hospital stay, are difficult to measure accurately, but it has been very encouraging that the number of patients with *C. difficile* mentioned on Part 1 of the death certificate has decreased markedly from 20 in 2008/09 to three in 2009/10 and two in 2010/11.

It has also been noticeable that the pattern of *C. difficile* infection in the Trust has changed in recent months. Historically, since age is a major risk factor for *C. difficile*, infection was regarded as something seen mainly in elderly patients on medical wards. This year, relatively more patients were identified on surgical wards. This may be in part due to strong medical engagement in prudent antibiotic prescribing and active participation in the deep clean programme across the division of medicine.

Assuring appropriate use of antibiotics is a major priority for the Trust and a programme of audit and education is overseen by the antibiotic stewardship group. Audits have shown improvements in prescribing over the year and this has been facilitated by the introduction of a new antibiotic section on the Trust drug prescription charts.

Another potential risk factor for *C. difficile* infection, use of proton pump inhibitors (PPI), has been addressed in the last year. New prescription guidelines have been issued after review by gastroenterologists.

**Figure 4** Number of Trust-acquired Clostridium difficile infections (with 12 month moving average)



On-going reductions in the incidence of *C. difficile* over several years have been linked to successive improvements in the cleaning process within the Trust. In particular, the formal deep clean programme introduced in 2008 has been associated with much lower numbers of infections. Wards are deep cleaned as part of a continuing rolling programme. This process involves moving a whole ward into a designated decant area for up to five days while it is cleaned thoroughly and fumigated with hydrogen peroxide vapour. It also provides an opportunity for minor ward maintenance or refurbishment to be done at the same time.

In addition to the changes in ward distribution of *C. difficile*, there has also been evidence of a change in the molecular epidemiology of the infection in the Trust. Fingerprinting of *C. difficile* isolates by a method known as PCR ribotyping, showed a change in distribution of *C. difficile* subtypes in 2010/11. In particular, there was a change from PCR ribotype 027 as the predominant type across the Trust to a more mixed picture with multiple different types. This suggests that spread of *C. difficile* within the hospital environment is not occurring, which is very encouraging. In previous years, a root cause analysis was undertaken for any patients with severe *C. difficile* infection. Since the number of infections has fallen so dramatically, it is now possible to undertake root cause analysis on all infections. In particular, there is analysis of any potential cluster of cases that might represent an outbreak. A summary of these is shown in Appendix II.

## 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. In 2010/11 the Trust reported seven serious incidents related to infection. This included the two patients with *C. difficile* mentioned on Part I of the death certificate. The others are summarised below:

### **Legionnaires' disease**

In December 2010, a case of Legionnaires' disease was identified in an immunocompromised hospital in-patient. The case was complex and the clinical course was atypical for Legionnaires' disease. In particular, since the diagnosis was not confirmed until after the patient had gone home, it appears that they recovered without receiving any specific treatment. It is not clear where this presumed infection was acquired, but it is possible that it was acquired in hospital. This was taken into account during a review of the Trust's measures to prevent Legionnaires' disease undertaken by the Legionella steering group. A programme to refurbish and re-pipe water supplies to wards is on-going. This is considered important for further risk reduction in the future.

### **Conjunctivitis in eye clinic**

In July 2010, seven staff members from ophthalmology out-patients presented with symptoms of conjunctivitis. This was presumed most likely to be a viral outbreak. No patients developed any symptoms. The clinic areas were deep cleaned to prevent any further spread of the infection, but were not closed. No organism was identified from swabs taken at the time and therefore the cause of the infections remains unknown.

### ***Clostridium difficile* infection on ward C7**

Three patients on ward C7 were diagnosed with *C. difficile* infection over a three day period. This was considered an unusually high number for this ward. Two patients were in the same bay on the ward and the third was in an adjacent bay. All shared the same sanitary facilities, raising the possibility of cross infection. The ward was closed to new admissions until it had been deep cleaned. Subsequent typing results showed that two different strains of *C. difficile* were present, suggesting that only two of the cases were linked.

### **Respiratory syncytial virus on ward C10**

In February 2011, five immunocompromised patients on a haematology ward were diagnosed with respiratory syncytial virus (RSV) infection over a period of 9 days. The ward was closed to new admissions for a total of ten days until it was clear that transmission had stopped and it had been deep cleaned. In addition, four members of staff with respiratory symptoms were excluded from work.

### **MRSA on ward F6**

Ongoing routine surveillance identified ten patients on ward F6 who appeared to have become colonised with, what appeared to be, a similar strain of MRSA. The ward was closed to new admissions until transmission of MRSA to new patients stopped and the MRSA-colonised patients could be isolated as a cohort in a single bay or in side rooms. The risk factors for transmission were considered to be environmental factors on the ward, which included cramped accommodation, suboptimal positioning of sinks in bays and cleaning standards. There were no infections as a result of this MRSA colonisation during the period of the outbreak. The ward was closed to outside admissions for a period of nine days.

Further details of other incidents related to infection are given in Appendix II.

### Infection control priorities and progress 2010/11

Objective/SAP	Action	Criteria for Achievement	Director Lead	Target Date	Update on progress
<b>Reducing MRSA bacteraemia</b>  [Target: no more than 7 post-48 hr MRSA bacteraemias 2011-12]	<b>To continue to implement the DH MRSA screening and decolonisation management:</b>				
	Strategy for monitoring compliance with MRSA screening guidance in place for day case, elective admissions and ED with audit of compliance	Audits of MRSA screening and decolonisation achieve 100% target	DIPC	On-going	Overall screening compliance 92% in March 2010
	Review MRSA screening requirements in light of national audit of prevalence and revised guidance	Updated screening programme	DIPC	Oct 2011	
	SI reporting for any MRSA bacteraemia death on Part 1 of certificate	SI reports completed for any MRSA bacteraemia death on part 1 of death certificate	DIPC	On-going	No deaths in 2010/11
	RCA undertaken for all bacteraemia and review meeting held twice monthly, actions identified and implemented at ward and Trust level	RCA produced for all MRSA bacteraemias, meetings held with actions identified and implemented. Minutes of meetings available and MRSA action plan regularly updated	DIPC	On-going	Pre-48 hour bacteraemia meetings led by PCT with acute Trust input as required
	Implementation of High Impact Interventions and audit of compliance as part of Nursing Quality Metrics	95% compliance as audited in programme	Deputy Chief Nurse	On-going	
<b>Reducing the incidence of <i>Clostridium difficile</i> associated diarrhea</b>	<b>Management of <i>Clostridium difficile</i> &amp; reducing antibiotic load:</b>  Monitor time to isolation of patients from suspected <i>C. difficile</i>	Monthly monitoring of time to isolation, aim to isolate within two hours.	DIPC	On-going	

Objective/SAP	Action	Criteria for Achievement	Director Lead	Target Date	Update on progress
[Target: no more than 85 <i>C difficile</i> infections 2011-12]	Audit of compliance with <i>C. difficile</i> care plan and policy undertaken	Audits undertaken monthly and results reported in monthly performance report.	DIPC	On-going	Reported in infection control performance report
	RCA undertaken for all <i>C difficile</i> cases from Aug. 2010	RCA produced for all confirmed <i>C difficile</i> cases. Meetings held with actions identified and implemented. Minutes of meetings available. Documented action plan.	DIPC	On-going	Action plan following <i>C difficile</i> RCA meetings.
	SI reporting for all part 1 deaths with review meeting held monthly to discuss and identify learning points and actions for wards/Trust	SI reports produced as required.	DIPC	On-going	
	Trust-wide audits of compliance with Antibiotic Policy [Antibiotic usage report sent out monthly to Clinical Directors, Divisional IC Leads, DLNs & SCNs]	Trust-wide audit of compliance with Antibiotic Policy available.	DIPC	On-going	Recent audits: Medicine Directorate (Oct. 2010)
	Daily medical review of all <i>C diff</i> positive patients	Documented daily medical review of all <i>C diff</i> positive patients	DIPC	On-going	
	Monthly antibiotic reporting of Divided Daily Doses by Division	Reduction in antibiotic prescription and evidence of adherence with Trust antibiotic policies	DIPC	On-going	
	Dual testing (VIDAS + cell culture) for <i>Clostridium difficile</i> in line with DH recommendations. Review testing algorithms in line with awaited DH Guidance	Dual testing in place in line with DH recommendations	DIPC		Awaiting DH guidance

Objective/SAP	Action	Criteria for Achievement	Director Lead	Target Date	Update on progress
	Monthly audit of antibiotic reconciliation (accurate prescribing information with reasons, start & stop dates)	New prescription charts in place including specific section for antibiotic prescription	DIPC	On-going	Reported in Care Quality Metrics and on CHEQS/QlikView.
<b>Improving cleanliness</b>	<b>Equipment cleaning</b> Rolling programme in place for cleaning large equipment items in equipment washer e.g. commodes. Equipment tracked manually with identification tags to provide an audit trail of cleaning.	Equipment cleaned in accordance with programme and manual record of cleaning available	Director Estates and Facilities/Deputy Chief Nurse	Ongoing	
	Labeling system rolled out across the Trust to evidence equipment cleaning in line with DH HII No 8	Identified areas for cleaning equipment storage. Staff trained. Monthly audit	Infection Control Nurses	Ongoing	Reported via Care Quality Metrics
	<b>Environmental cleaning</b> Continue to use HPV technology and verification using ATP as part of the inspection/audit process.	HPV technology and use of ATP as part of audit process. Reporting mechanism in place	Director Estates and Facilities /IC Doctor	Ongoing	Results reported at monthly ward cleanliness meetings and Divisional IP&C meetings
	<b>Decant Deep Clean Programme</b> One ward per week decanted for deep clean as per identified decant deep clean programme. Ad hoc prioritised deep cleans undertaken for clusters/outbreaks. Enhanced cleaning of prioritised wards undertaken by deep clean team if decant ward is not available.	Deep cleans undertaken as per identified programme held by Estates and Facilities and Infection Control Team.	Director of Estates and Facilities	Deep clean programme recommenced Mid-Sept 2010	Enhanced cleaning programme/rolling deep cleans with ward in situ.
	<b>Cleaning Liaison Meetings</b> Monthly meetings held to discuss cleaning issues, written report produced. Representation from cleaning contractor, Hotel Services, senior nursing and operational staff.	Monthly meetings held and minutes produced.	Director of Estates and Facilities	Ongoing	

Objective/SAP	Action	Criteria for Achievement	Director Lead	Target Date	Update on progress
<b>Education and Training</b>	Continue roll-out of Trust-wide competency training programme and ward accreditation scheme	Ward staff assessed as competent via HCAI competency programme	DIPC/ Lead Nurse IC		Assessments reported in IC performance report
	Programme of training as per Training Needs Analysis - Induction training and mandatory training	Programme of training delivered as per TNA including induction and mandatory training; attendance monitored and reported	DIPC/ Lead Nurse IC		IC mandatory training e-learning for staff; re-launch IC Link Nurse training. Specific <i>C difficile</i> guidance for staff.
	Compliance with training reported in Strategic Dashboard quarterly	Compliance with attendance at IC training reported quarterly in Strategic Dashboard	DIPC/ Lead Nurse IC		
<b>Communication</b>	Improved access to CHEQS for all staff to access infection control information	CHEQS available to staff to access infection control information	DIPC	On-going	All staff band 7 & above have access
	Provision of ward boards to display IC information to staff, patients and the public	Ward boards in place and contents regularly updated by ward staff	DIPC/Deputy Chief Nurse	In place On-going	6-monthly audit to be undertaken Feb 2011.
	Update patient transfer/discharge information documentation	Updated patient transfer/discharge information documentation in place	DIPC/ Lead Nurse IC	June 2010	Refreshed communications to staff, IC Team Brief, planning for National infection control week. Regular updates on Connect, Team Briefings, Internet as required.

Objective/SAP	Action	Criteria for Achievement	Director Lead	Target Date	Update on progress
<b>Influenza preparedness</b>	Increased vaccination of staff through an enhanced flu vaccination programme	% staff vaccinated increased from 28% to at least 40%	Deputy Chief Nurse/Director of Ops	Nov 2011	
<b>Norovirus and other outbreak preparedness</b>	Minimise the operational impact of infection outbreaks in the Trust through the implementation of updated national guidance on norovirus outbreak management	Reduced ward closure, bed days lost and admissions cancelled	Deputy Chief Nurse/Director of Ops	On-going	
<b>Expansion of mandatory surveillance to include MSSA and E coli bacteraemias</b>	Collate RCA information about MSSA and E coli blood stream infections acquired in hospital to identify potentially preventable infections	Action plan in advance of implementation of targets in 2012/13	DIPC	March 2012	

### Summary of outbreaks and incidents relating to infection

April 2010	C10	Type: Specialty: Details:  Actions:	<i>Legionella pneumophila</i> Haematology One patient diagnosed by culture of the organism. Outbreak committee convened. Extensive daily water testing already in place and no positive results were found from patient's room. Sub-typing showed the patient isolate to be the commonest environmental strain and therefore the source is uncertain. Reported as a Serious Incident (SI) but later downgraded. Recorded as probable community onset with no evidence of hospital acquisition.
	D6H	Type: Specialty: Details:  Actions:	Parainfluenza virus Haematology Four positive patients identified. Two bays closed, patients either moved to isolation facilities or discharged. All remaining patients re-screened twice. Both closed bays emptied, cleaned and underwent hydrogen peroxide vapour (HPV) fumigation before re-opening.
	C5	Type: Specialty: Details:  Actions:	Possible <i>Clostridium difficile</i> cluster Medical Services - Nephrology Three patients diagnosed within a two week period. Two cases had the same PCR ribotype but were not linked by location and were different sexes. One case was a relapse of a previous infection. Lack of bed capacity and single sex accommodation (SSA) issues may have had an impact on side room availability. The ward underwent a deep clean at the end of April.
May 2010	MSEU	Type: Specialty: Details:  Actions:	Possible <i>Clostridium difficile</i> cluster Peri-Operative Services Five cases identified over a four week period. PCR ribotyping identified three different strains. Two patients had the same strain. No direct links in time or place were demonstrated on investigation. Hand hygiene and environmental cleanliness satisfactory. Outbreak meetings held, remaining patients closely monitored. Ward decanted and deep cleaned with use of HPV.
	C2	Type: Specialty: Details:  Actions:	Possible <i>Clostridium difficile</i> cluster Women & Children Services - Paediatrics Two cases identified within eight days, no links in location and both children were barrier nursed for the duration of their stay. One child was relapse of a previous infection. PCR ribotyping showed different strains. No further actions.

	N3	Type: Specialty: Details: Actions:	<i>Legionella pneumophila</i> Medical Services – Respiratory Patient admitted with respiratory symptoms, Legionella antibody positive, clear indication of acquisition abroad. Reported to the HPA for further action
June 2010	D6H	Type: Specialty: Details: Actions:	Possible <i>Clostridium difficile</i> cluster Haematology Two patients identified within two days. Not linked by location and one patient also norovirus positive. Patients in receipt of multiple antibiotics and symptoms expected as a symptom of underlying disease and its treatment. Both patients isolated. PCR ribotyping showed different strains. Ward underwent a deep clean including HPV fumigation.
	D9	Type: Specialty: Details: Actions:	Possible <i>Clostridium difficile</i> cluster Haematology/Oncology Three patients identified within 10 days of each other. One patient symptomatic on admission, and other cases not linked by location as different sexes. PCR ribotyping showed three different strains. All patients isolated. No further actions.
July 2010	C8	Type: Specialty: Details: Actions:	Possible <i>Clostridium difficile</i> cluster Trauma & Orthopaedics Two patients investigated, one in side room since admission, no contact with the second patient PCR ribotyping showed two different strains
	Eye Clinic	Type: Specialty: Details: Actions:	Conjunctivitis (presumed viral) Surgical Services - Ophthalmology Seven staff member with symptoms of conjunctivitis. Outbreak meeting convened Reported as an SI Some high risk patients contacted and monitored. Clinic areas deep cleaned, swab results showed no bacterial growth and no virus identified
	G5	Type: Specialty: Details: Actions:	Increase in number of patients with infectious organisms Surgical Services – Transplantation Surgery Noted increase in cases of <i>C difficile</i> , vancomycin-resistant enterococci (VRE), extended spectrum beta-lactamase producers (ESBLs) and MRSA in transplant patients since January 2010. In addition the ward had several outbreaks of norovirus. Meeting held with medical and ward staff. Observations of practice undertaken; audit of antibiotic practice; discussion re required improvements in documentation. Actions plan agreed and implemented.
	Staff	Type: Specialty: Details: Actions:	Parotitis (mumps) N/A One staff member diagnosed with mumps, second staff member with similar symptoms two days later although no laboratory confirmation. Patients and staff monitored. Any staff unsure of

			immunity status attended occupational health for checking and MMR vaccine as required. No further cases noted.
August 2010	C6	Type: Specialty: Details: Actions:	Outbreak of D&V – Norovirus Medical Services - Gastroenterology Onset 30/08/10, in total 10 patients, seven staff and one relative affected. Total closure seven days. Ward closed. Cleaned using HPV fumigation and re-opened.
	G6	Type: Specialty: Details: Actions:	MRSA outbreak Medical Services – Rehabilitation/Stroke Eight patients identified as colonized with MRSA, of whom two were known past MRSA-positive. Not a single strain outbreak. Ward closed for 6 days, all patients re-screened, ward deep cleaned prior to re-opening.
September 2010	L4	Type: Specialty: Details: Actions:	Possible <i>Clostridium difficile</i> cluster Women & Children Services – Gynaecology Two patients investigated, both nursed in the same bed space although with a gap in between. PCR ribotyping showed two different strains. Ward underwent a deep clean including HPV fumigation.
	L5	Type: Specialty: Details: Actions:	Possible <i>Clostridium difficile</i> cluster Surgical Services - Plastic surgery Three patients identified, two of them had diarrhoea on admission and were isolated immediately. PCR ribotyping showed two different strains; <i>C. difficile</i> could not be isolated in the third case Ward underwent a deep clean including HPV fumigation.
October 2010	PICU	Type: Specialty: Details: Actions:	Panton-Valentin Leucocidin (PVL) <i>S. aureus</i> bacteraemia Paediatric Intensive care Unit (PICU) Two cases of PVL bacteraemia dealt with by ICT in conjunction with the HPA. Both patients were inter-hospital transfers with known PVL. Nursed in side rooms with appropriate precautions. Family screening and follow-up undertaken by HPA
	G5	Type: Specialty: Details: Action:	Outbreak of D&V – Confirmed Norovirus Surgical Services – Transplantation Surgery Onset 24/10/10, four patients affected and ward closed to admissions. Possible spread from chronic long term virus carriers (bowel transplant patients). Full deep clean including HPV fumigation and re-opened after six days closure
November 2010	C7	Type: Specialty: Details:	<i>Clostridium difficile</i> cluster Surgical Services - General surgery Three patients diagnosed with <i>C difficile</i> PCR ribotyping showed two different strains, One patient was not symptomatic and may have been colonized only.

		Action:	Reported as an SI Multi-disciplinary meeting held and agreed to close ward. Agreed actions undertaken, root-cause analysis performed, meeting held with PCT. Ward deep cleaned with HPV fumigation before re-opening. PCR ribotyping showed two different strains so reclassified as a 'cluster' not an outbreak.
	C5	Type: Specialty: Details: Actions:	Possible <i>Clostridium difficile</i> cluster Medical Services – Nephrology Two patients investigated, both in the same bay. PCR ribotyping showed the same strain. Observations of practice were satisfactory; hand hygiene and environmental cleanliness were acceptable and the ward underwent a deep clean and HPV fumigation.
	F5/G5	Type: Specialty: Details: Actions:	Outbreak of D&V – Confirmed Norovirus Surgical Services – Transplantation Surgery Onset: 24/11/10, nine patients and four staff affected, ward closed for eight days. Ward cleaned with HPV fumigation and reopened.
December 2010	F6	Type: Specialty: Details: Actions:	Outbreak of D&V – Confirmed Norovirus Medical Services – Medicine for the Elderly Onset 10/12/10, 11 patients and two staff affected, ward closure for seven days. Ward cleaned and HPV fumigation undertaken.
	C5/D4ID A	Type: Specialty: Details: Actions:	<i>Legionella pneumophila</i> Medical Services - Nephrology Complex, immunocompromised patient found to have a positive <i>L. pneumophila</i> culture although the clinical course of the disease was atypical. Reported as an SI Outbreak management team convened and investigations and subsequent actions based on the assumption of hospital acquisition although it is not clear where this infection was acquired.
January 2011	C4	Type: Specialty: Details: Actions:	Possible <i>Clostridium difficile</i> cluster Medical Services – Hepatology Two patients identified over three weeks, not linked in location within the ward. PCR ribotyping showed two different strains Ward deep cleaned using HPV fumigation.
	C5	Type: Specialty: Details: Actions:	Parainfluenza virus Medical Services – Nephrology Four patients diagnosed with paraflu' between January to February. Delay in isolating index case. Bays closed; enhanced cleaning in place; and all patients closely monitored. Bays deep cleaned and partially HPV fumigated.

February 2011	C10	Type: Specialty: Details:  Actions:	Respiratory Syncytial Virus (RSV) outbreak Haematology Five patients diagnosed with RSV, all isolated in negative pressure rooms off the ward and treated with ribavarin. Four symptomatic staff members excluded from work. Reported as an SI Outbreak meeting convened and all infection control measures and agreed actions taken. Ward closed for a total of ten days. Deep cleaned with HPV fumigation before re-opening.
	Lewin Rehab	Type: Specialty: Details:  Actions:	Possible <i>Clostridium difficile</i> cluster Medical Services – Rehabilitation Two cases identified four weeks apart with first case always nursed in a side room prior to diagnosis. Not linked in location on the ward or by ribotyping No further actions required.
	Ward A5	Type: Specialty: Details:  Actions:	Sharps injury to visiting child Neurosciences Child put hand into sharps bin which had not been removed after procedure. Child and parents seen in ED and dealt with in line with policy. Staff member given further education. No further action.
	JVF ICU	Type: Specialty: Details:  Actions:	Possible <i>Clostridium difficile</i> cluster Intensive Care Unit Three patients diagnosed with <i>C difficile</i> within 4 weeks. All patients have clinical reasons for acquiring CDT. All specimens sent for PCR ribotyping, but two specimens failed to show the presence of <i>C. difficile</i> . All rooms cleaned and HPV fumigated on patient discharge, no further actions required.
March 2011	F6	Type: Specialty: Details:  Actions:	MRSA Outbreak Medical Services – Medicine for the Elderly Total of eight patients acquired MRSA colonisation during their admission. This was in addition to seven known positive patients on the ward at the time. Incident declared as an SI Outbreak meeting convened, ward closed to admissions and actions agreed. Positive patients barrier nursed in side rooms and a cohort bay. Regular patient screening; enhanced cleaning in place; observations of care carried out. Ward deep cleaned with HPV fumigation and reopened after eight days of closure.
	G3	Type: Specialty: Details:  Action:	Outbreak of D&V – Confirmed Norovirus Medical Services – Medicine for the Elderly Onset 21/03/11, 20 patients and four staff affected, ward closed for 10 days. Ward deep cleaned and partially HPV fumigated.

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