

# Infection Prevention and Control

## Annual Report 2010/11



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*Front Cover: Trolley Wash (detail). Bedford Hospital NHS Trust Sterile Services Department*

## Executive Summary

Infection prevention and control is a priority at Bedford Hospital NHS Trust and our aim is that no avoidable infections occur. This year was a successful one, which includes infection prevention and control at Bedford Hospital NHS Trust.

We reduced our *Clostridium difficile* by 60% from the previous year and maintained our reduction in MRSA bacteraemias.

Our rates for both MRSA bacteraemia and *Clostridium difficile* are **lower** than the national average rate, which is an excellent achievement for the hospital. Overall, this was the **best performance year** since these infection prevention and control indicators were introduced. We are committed to strive for “*No Avoidable Infections*” and provide the best possible service for our patients and staff.

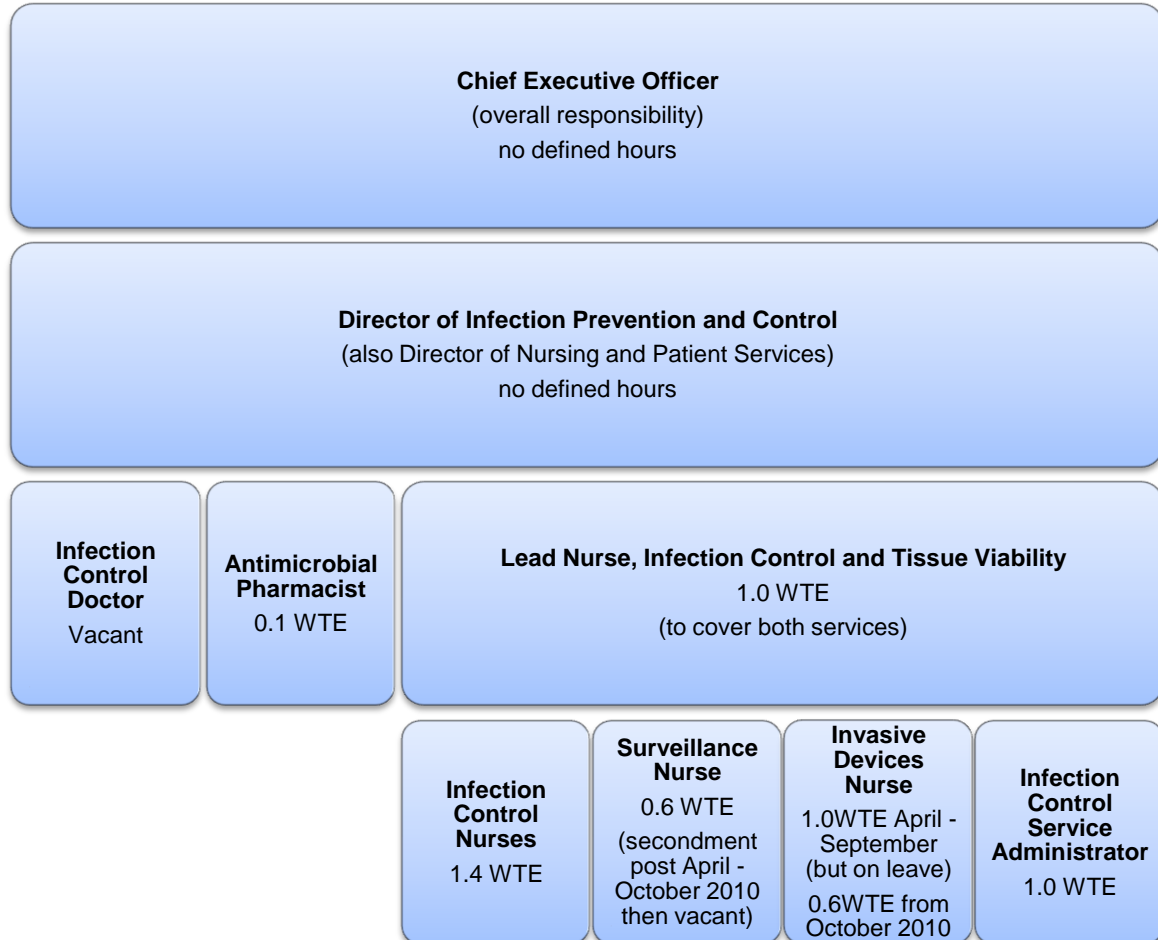
We were proud to win the “Cleanest Hospital” category in the national Health Excellence and Leadership (HEAL) awards, voted for by healthcare professionals and the public.

The Secretary of State for Health formally opened our state of the art Sterile Services Department. This now provides a fully accredited service to the hospital and has the capacity to provide a decontamination service to the wider health community in the future.

Our focus for the forthcoming year is to improve outcomes for our patients with regard to safety, clinical effectiveness, and patient experience in relation to infection prevention and control.

# Infection Prevention and Control Arrangements and Budget Allocation

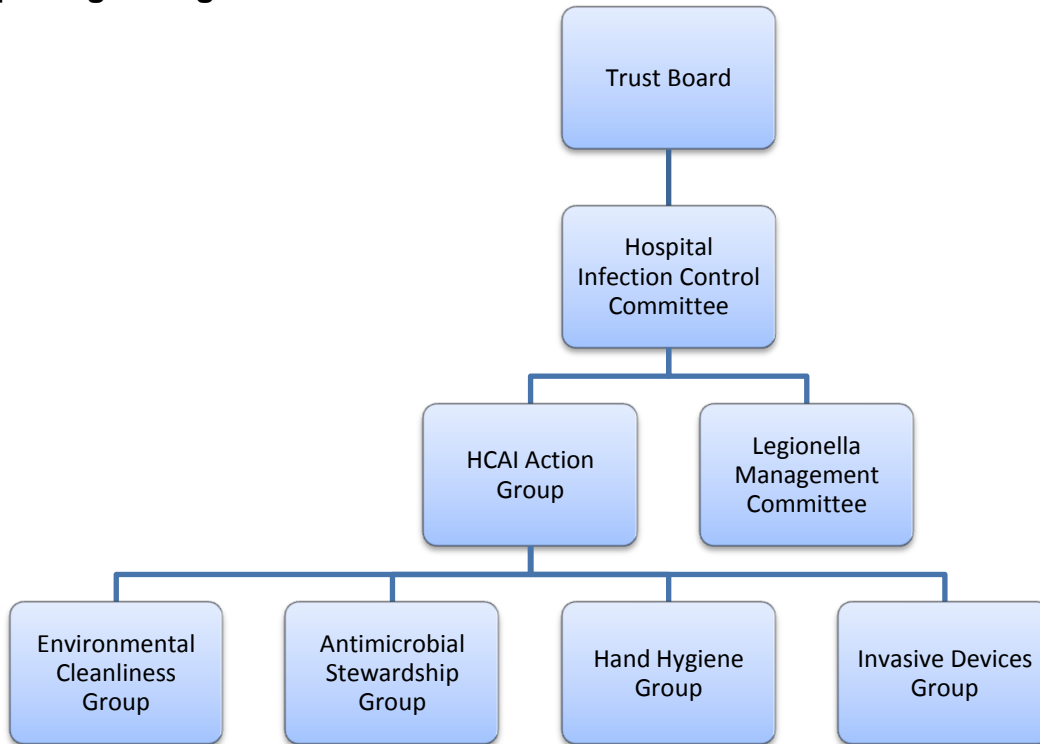
## Staff resource



The budget allocation for 2010/11 covered the salaries of the nurses and administrator, as well as a small stationery budget.

The governance and reporting framework for infection prevention and control during 2010/11 was as shown overleaf. The reporting arrangements will change during 2011/12 to reflect the new trust arrangements.

## Reporting arrangements



The Hospital Infection Control Committee (HIPCC) met every two months and as well as hospital representatives, included patient representatives (LINKs) and representation from our commissioners and the local Health Protection Agency.

## Costs and Savings of Healthcare Associated Infection

The financial burden imposed on the NHS by HCAI is complex to calculate and multi-factorial. This is not a unique situation; non-UK countries also report difficulty in estimating the cost of HCAI.

The Department of Health published an “HCAI Productivity Tool” (Department of Health, 2006). This tool allows Trusts to estimate the current financial and operational costs directly attributable to MRSA bacteraemias and healthcare-associated infection more widely. It also estimates the number of additional bed days attributable to healthcare associated infection. This is a mathematical model that makes assumptions about the cost attributable to HCAI, based on various published sources. Actual MRSA bacteraemia numbers are shown for 2003/4 – 2010/11. It is important to note that this tool is for guidance only and is a general estimate.

	2007/08	2008/9	2009/10	2009/10	2010/11
<b>MRSA Bacteraemias</b>	16	10	7	6	2
<b>Excess Cost- MRSA</b>	£68,523	£42,827	£ 29,979	£ 25,696	£8,565
<b>Additional Bed Days- MRSA</b>	181	113	79	68	23
<b>All HCAs</b>	665	416	291	250	83
<b>Excess Cost- All HCAI</b>	£2,849,565	£1,780,978	£1,246,685	£1,068,587	£356,196
<b>Additional Bed Days- All HCAI</b>	7,519	4,699	3,289	2,820	940

Some of the assumptions made are as follows:

- As the total number of HCAI in each Trust is unknown, the tool uses an estimate of 300,000 as the total number of HCAI in England annually, as estimated by the National Audit Office.
- It is assumed that the HCAI are distributed across Trusts in proportion to the Trust level distribution of MRSA bacteraemias. Therefore, if a Trust accounts for 1% of all MRSA bacteraemias in England, it is assumed that it will also account for 1% of total HCAI.
- The tool presents two scenarios. The first scenario looks only at MRSA bacteraemias and assesses the cost and bed days associated with these bacteraemias.
- In the second scenario, *all* HCAs are estimated on the basis that, if MRSA bacteraemias are reduced, all HCAI will be reduced in proportion. This is a fairly strong assumption, although it is logical to state that many policies that influence MRSA will also reduce other HCAI.
- Each HCAI is assumed to impose an additional hospital cost of £4,300.
- Each HCAI is assumed to increase length of stay by 11.3 days.

There is no comparison in this tool against the cost of a prevention programme, and indeed, there is little literature to help to explore this. One French case-control study in a medical ICU (Chaix *et al*, 1999) estimated that the mean attributable cost associated with MRSA infection was \$9275 (£5032) and the total cost of an MRSA control programme ranged between \$340 (£184) and \$1480 (£803) per patient. This, and similar studies, demonstrate that prevention is more cost-effective than treatment, although robust cost/benefit analyses are lacking.

## Infection Prevention and Control Programme

The infection prevention and control programme for 2010/11 was delivered with ongoing items carried over to the programme for 2011/12. The infection prevention and control programme for the forthcoming year is built around the trust objectives, particularly with regard to patient safety, clinical effectiveness, and improving patient experience.

1. To improve patient experience
  - a. Involve patients in prevention and surveillance of surgical site infection, including post-discharge surveillance
  - b. Continue to work collaboratively with national healthcare-associated infection related charities
  - c. Improve available information and communication regarding the prevention and treatment of healthcare-associated infection
  
2. To improve patient safety
  - a. The requirement for the Care Quality Commission Outcome 8 “Cleanliness and Infection Control” is compliance with the “Hygiene Code” (The Health and Social Care Act 2008: Code of Practice on the prevention and control of infections and related guidance, revised 2010). All our operational and strategic work for infection prevention and control covers takes the statutory requirements and essential standards for care into account.
  - b. Ongoing gap analysis against the hygiene code governs the prioritisation of work for the infection prevention and control team, although much work is ongoing.
  
3. To improve clinical effectiveness
  - a. Strengthen feedback from our processes and outcomes to increase the value of quality metrics
  - b. Support the clinical business units to embed evidence based-practice and high quality care in infection prevention and control.

## Audit Activity

Clinical audit is a process that has been defined as "a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change" (National Institute for Clinical Excellence, 2002 p.10).

The following audits were undertaken in 2010/11:

- Antibiotic prescribing audits
- Blood culture contamination
- Hand hygiene audits
- Hand hygiene observational audits
- HSSD set quality audit
- MRSA decolonisation and documentation
- MRSA screening audits
- Orthopaedic surgical site infection audit
- Patient equipment audits
- Saving Lives High Impact interventional audits
- Sharps audit
- Ward/Department Environmental audits

Most of our audits are "standards-based". This is a cycle that involves defining standards, collecting data to measure current practice against those standards, and implementing any changes deemed necessary.

## Surveillance of Alert Organisms and Conditions

### MRSA bacteraemia

MRSA bacteraemia has significant associated morbidity and mortality and is an important patient safety issue. A bacteraemia is defined as the presence of bacteria in the blood.

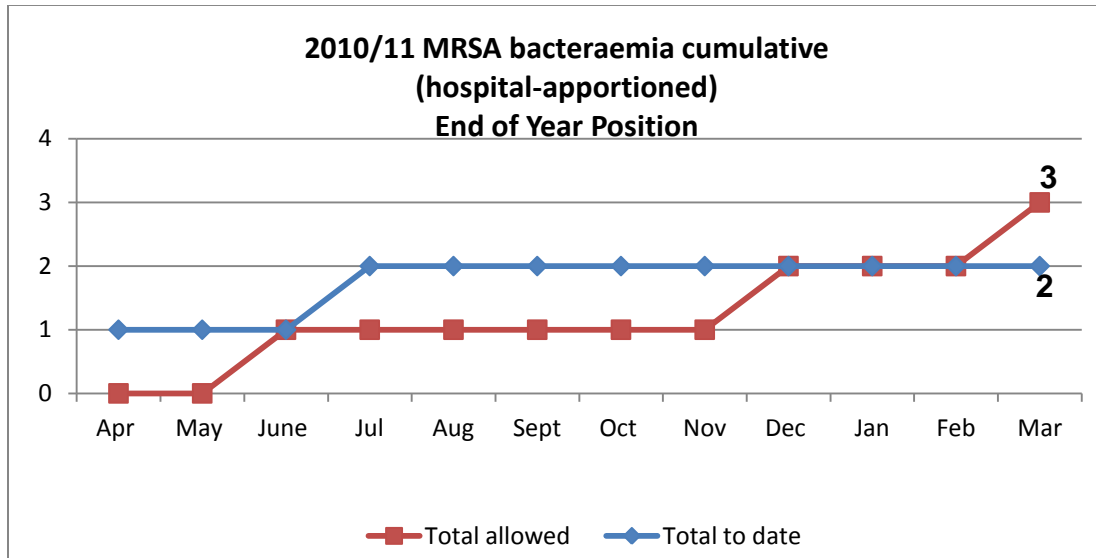
Bacteraemias may arise in the hospital or detected when the patient is admitted. Any MRSA positive bacteraemia processed in the hospital laboratory is reportable. Since its introduction in 2003/4, the reduction target is a health economy target although reported as Bedford Hospital NHS Trust. From April 1<sup>st</sup> 2010, the reduction targets for MRSA bacteraemia was split between the hospital and community trusts, and therefore patients arriving at the hospital with MRSA bacteraemia are no longer counted against our performance.

Performance on MRSA bacteraemia reduction was **one below the reduction target** (end of year = 2 bacteraemias against a ceiling of 3).

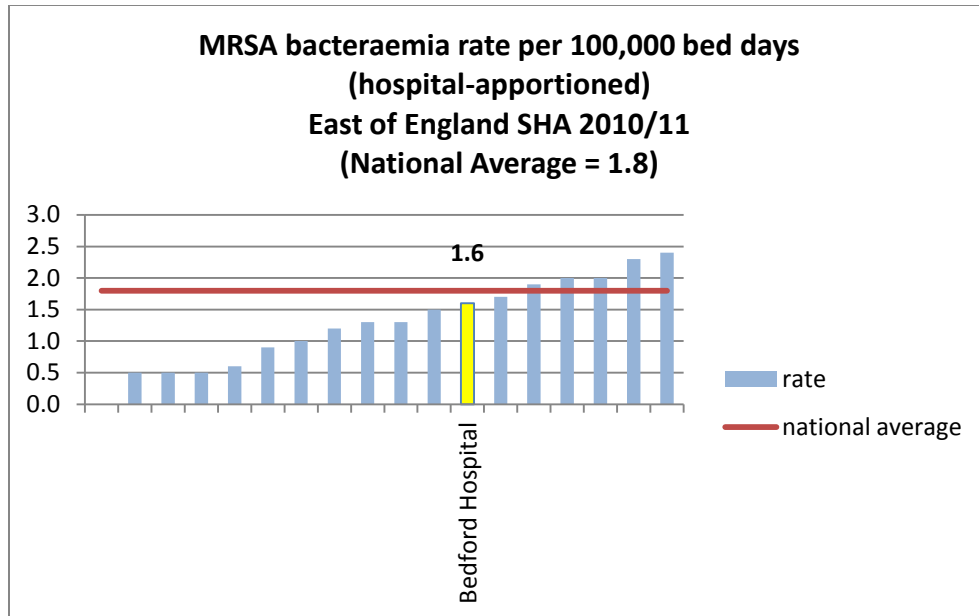
We undertook root cause analysis on both cases and concluded that one case was avoidable and one case unavoidable.

We made strong recommendations to improve urinary catheter care following our investigation of the avoidable case and refreshed our trust policy, and provided training to support this.

Neither patient suffered long-term harm from their episode of MRSA bacteraemia.



The chart below shows our performance compared to other hospitals in our Strategic Health Authority (SHA) and against the national average rate per 100,000 bed days.

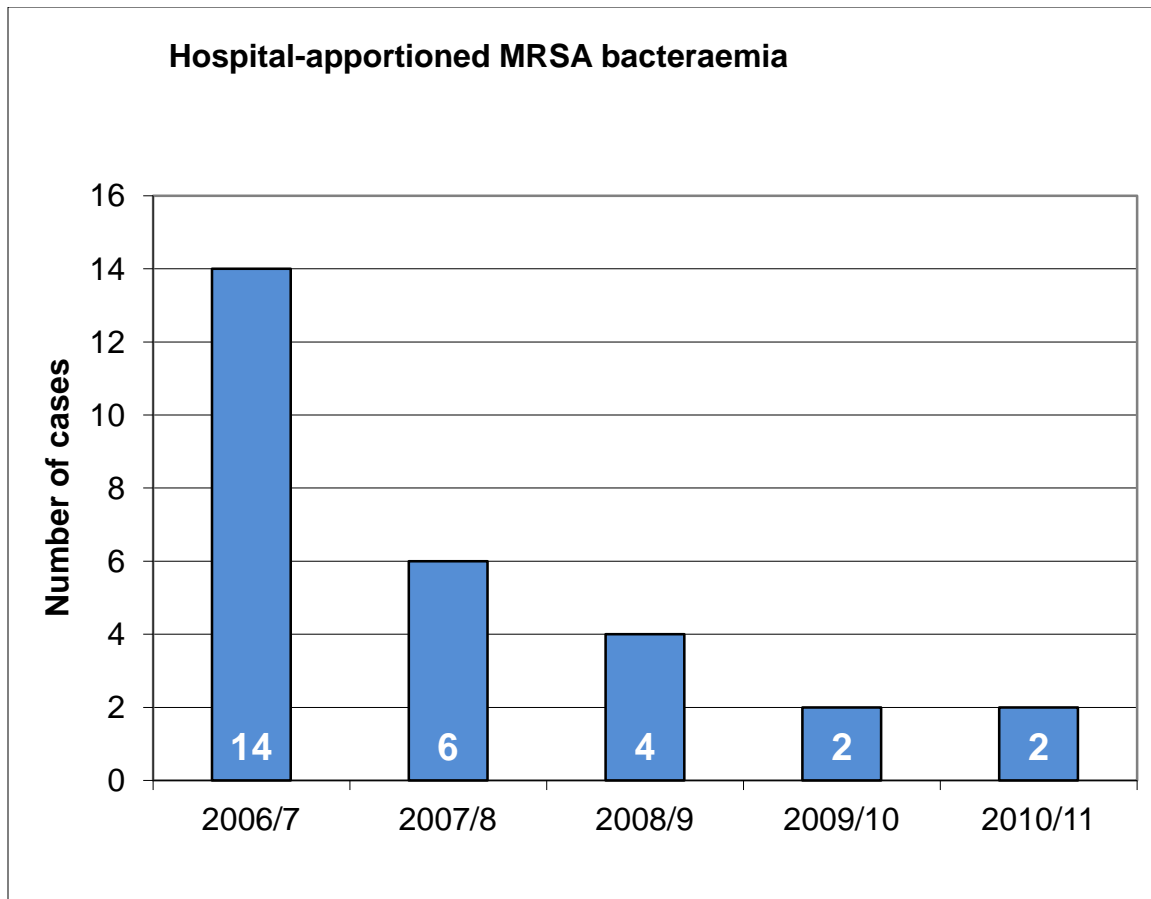


Compared with other English hospitals, we were in position 45/167 (range 0 – 27 mean average = 4) for the number of bacteraemias that we had. Twenty-three hospitals recorded no MRSA bacteraemias, twenty hospitals recorded one bacteraemia, and thirty-one hospitals recorded two bacteraemias.

Regarding the rate per 100,000 bed days, which provides more meaningful and comparative data, we finished 87/167 (range 0.0 – 8.7 average 1.8).

This indicates that we have fewer MRSA bacteraemias than the average hospital in England. We continue to strive for **no avoidable infections**.

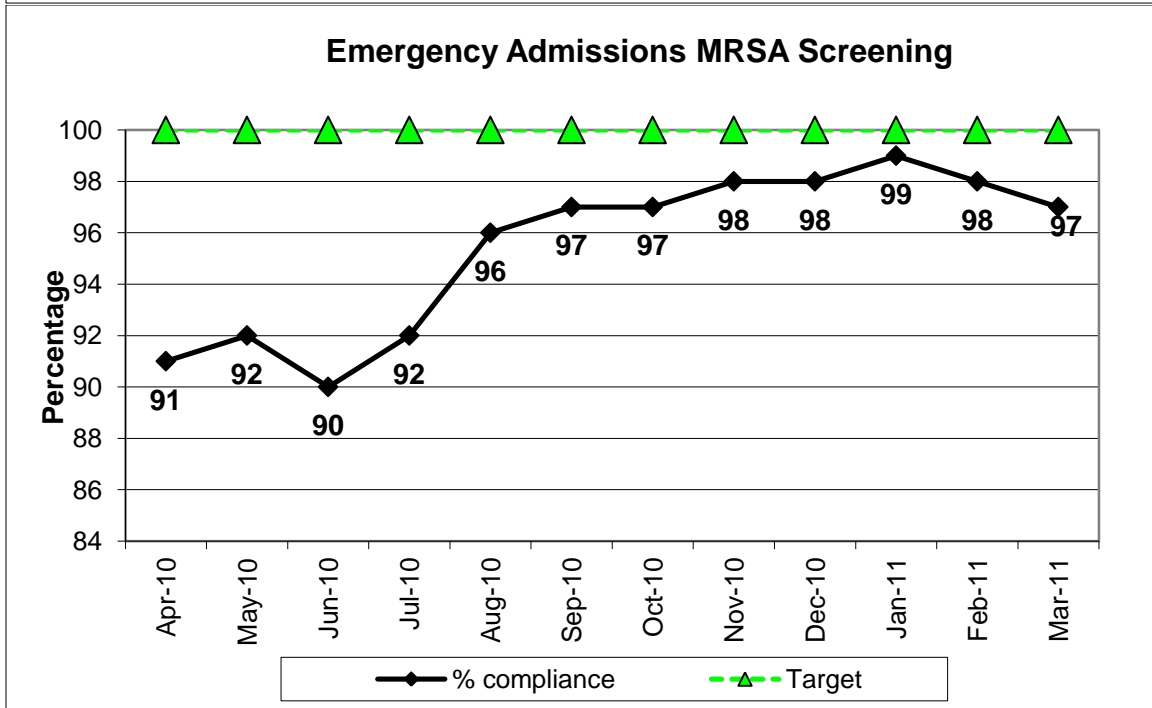
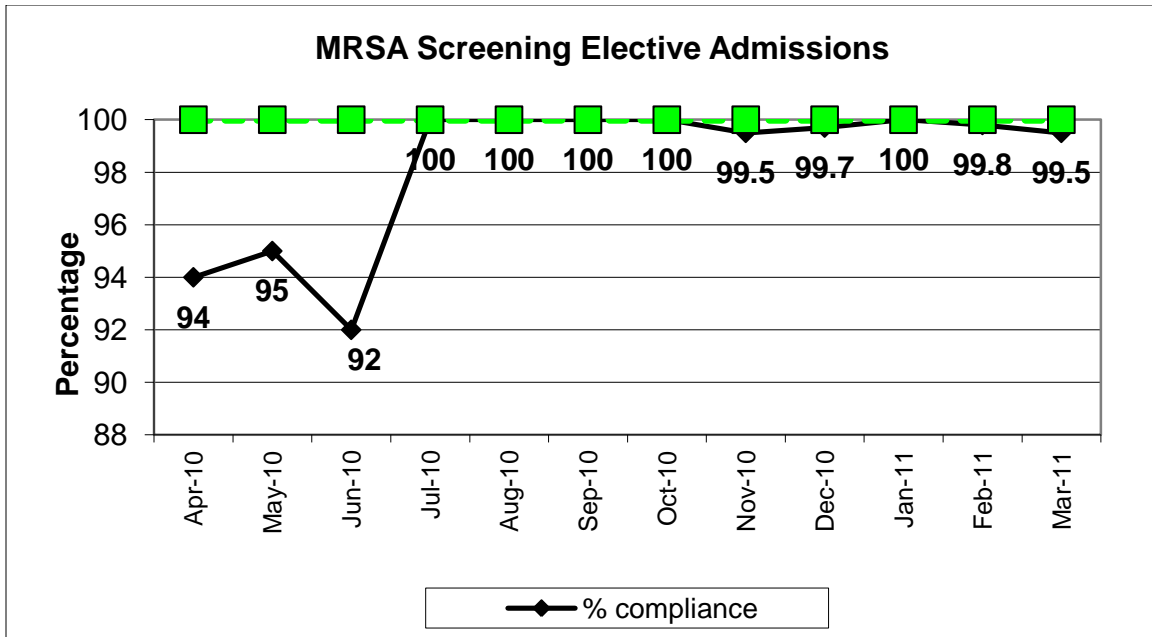
The most valuable analysis of performance is our own year-on-year performance, shown below:



Our work around invasive devices and hand hygiene has been essential to our success in reducing MRSA bacteraemias, and we will continue to focus on these areas.

### MRSA screening

The Department of Health introduced a requirement for “universal” screening of both elective and emergency inpatient admissions for MRSA (with a few defined exceptions). This was a performance indicator during 2010/11.



Our performance with regard to MRSA screening was strong and our Strategic Health Authority cited the hospital as an exemplar site for screening.

#### MSSA bacteraemias

*Staphylococcus aureus* is a bacterium that is frequently part of the commensal (normal) flora found in the nose and on skin in humans.

*Staphylococcus aureus* can cause a range of illnesses from minor skin infections, such as pimples, impetigo, boils (furuncles), cellulitis, folliculitis, carbuncles, scalded skin syndrome, and abscesses, to life-threatening diseases such as pneumonia, meningitis, osteomyelitis, endocarditis, toxic shock syndrome, bacteraemia, and sepsis. Its incidence is from skin, soft tissue, respiratory, bone, joint, endovascular to wound infections.

From January 1<sup>st</sup> 2011, it was a mandatory requirement to report **meticillin-sensitive *Staphylococcus aureus* (MSSA)** to the Health Protection Agency (HPA) in the same way as we do MRSA bacteraemias.

Voluntary national surveillance data indicate that the numbers of MSSA bacteraemia are higher than they were ten years ago. The Department of Health has now made this surveillance mandatory in order to establish the extent of which these are healthcare-associated. The Department of Health states, "The availability of a robust and accurate picture of the scale of MSSA infections, nationally and locally, will also support patients in making meaningful choices about their healthcare" (Department of Health, 2011). They further state that further direction will be published in due course regarding the frequency of publication of these data. There is no reduction target associated with this at present.

During 2010/11, we identified 35 MSSA bacteraemias from 29 patients. If the same methodology is applied for apportioning as used for MRSA, the data can be broken down as follows:

$n = 35$

Community-apportioned = 27

Hospital-apportioned = 8 (but 3 of these were repeated specimens from community-apportioned cases)

Our local enhanced surveillance indicates that there is a range of MSSA infections in the patients with bacteraemias that have developed in hospital, although the sample size is too small to allow any meaningful interpretation.

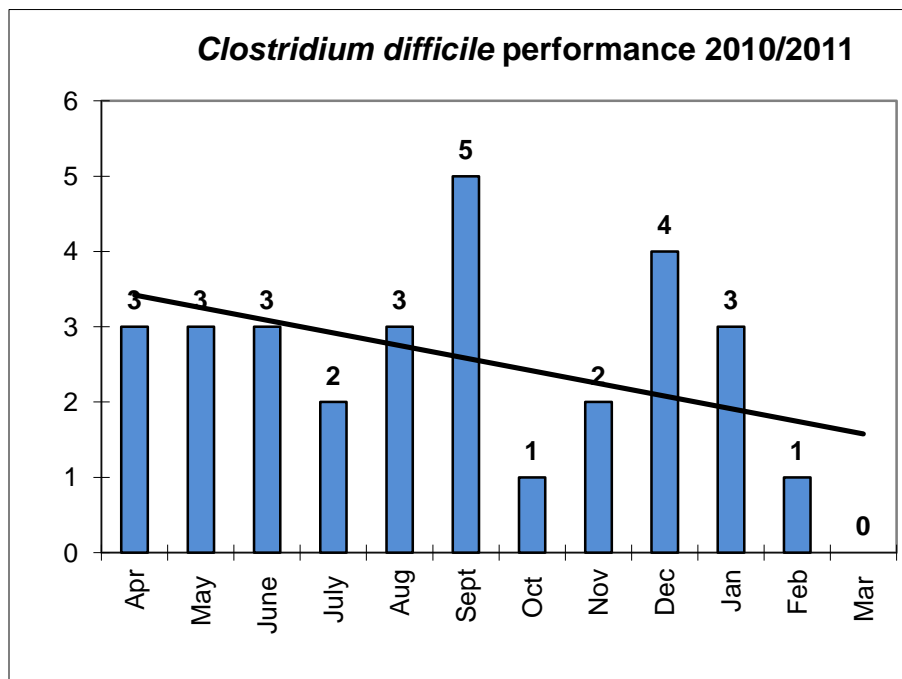
We have commenced root cause analysis on all cases arising in the hospital.

## ***Clostridium difficile***

*Clostridium difficile* is an important cause of healthcare-associated infection. It is the most important cause of antibiotic-associated diarrhoea and can cause serious and sometimes life-threatening disease.

Those most at risk of *Clostridium difficile* associated disease (CDAD) are older patients and those who have had a recent course of antibiotics. It is spread between individuals by both direct and indirect contact. CDAD is transmitted by clostridial spores capable of surviving for long periods of time in the environment and which are shed in large numbers by infected patients. Current best practice in England suggests that patients with symptoms of *Clostridium difficile* disease, specifically diarrhoea, must be nursed away from patients without disease, preferably in a single room.

The following chart shows the monthly totals for the hospital during 2010/11:

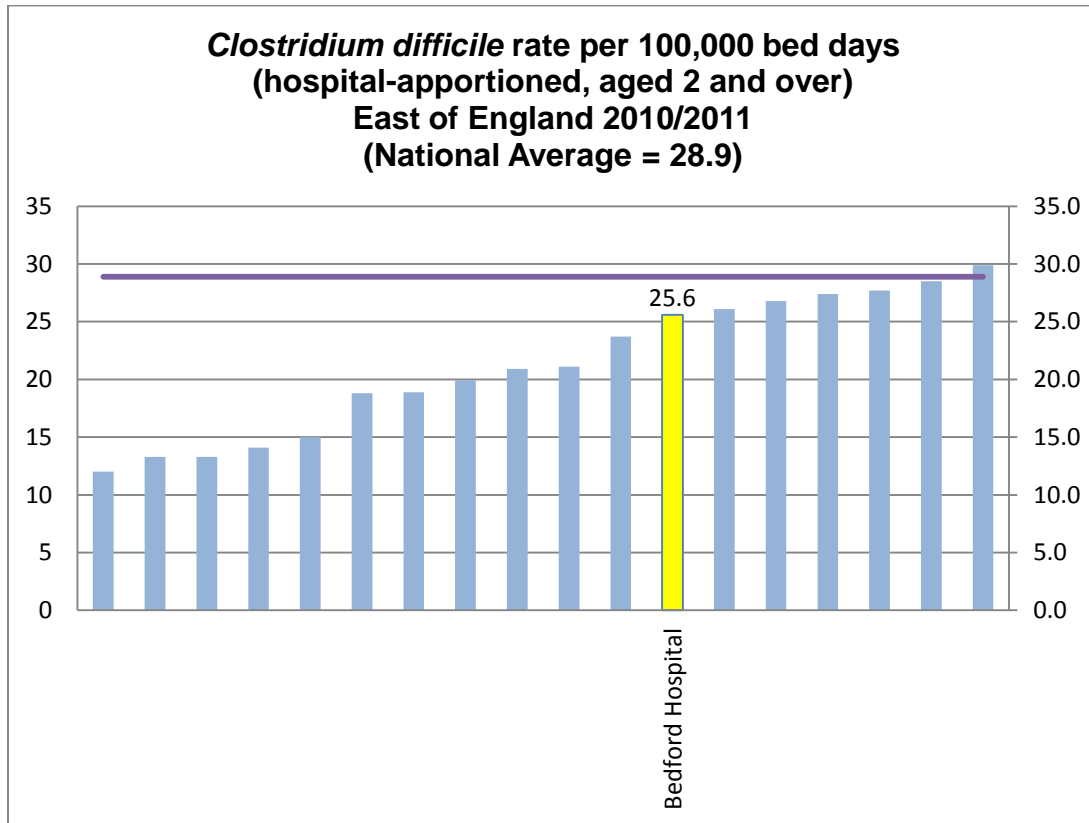


This demonstrates **60% reduction** in the number of cases since 2009/10.

We undertook root cause analysis of all cases of *Clostridium difficile* that arose in the hospital. Common themes from these reflected what we know from the published literature about patients most likely to acquire *Clostridium difficile*:

- Antibiotic exposure
- Advanced age
- Presence of comorbidities

Our relative performance in 2010/11 within our SHA and compared to the national average rate per 100,000 bed days is shown below:

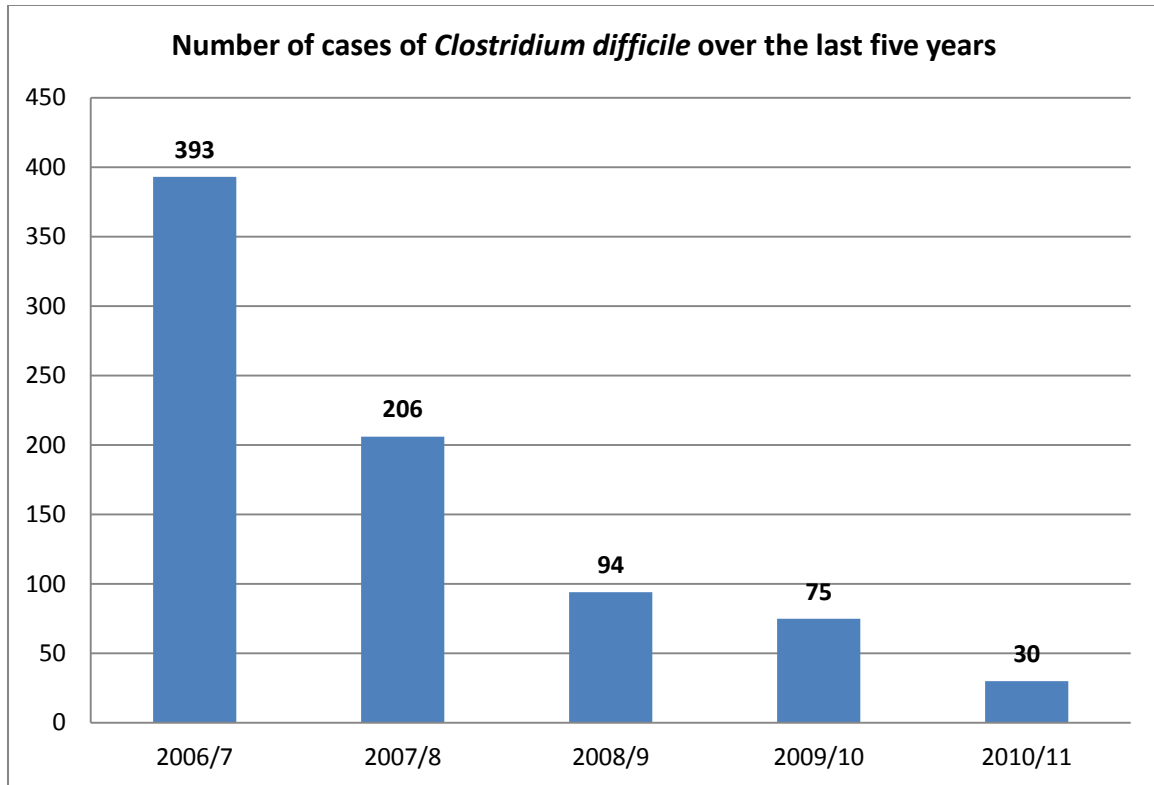


Compared with other English hospitals, we were in position 46/167 (range 0 – 247 mean average = 62) for the number of cases that we had in 2010/11.

Regarding the rate per 100,000 bed days, which provides more meaningful and comparative data, we finished 81/167 (range 0.0 – 73.6 average 25.6).

This indicates that we have fewer *Clostridium difficile* cases than the average hospital in England. We continue to strive for **no avoidable infections**.

The most valuable analysis of performance is our own year-on-year performance, shown overleaf:



Reporting requirements changed in April 2008, and from then on only cases arising in the hospital were used for performance management of the hospital. Prior to that all specimens tested in our microbiology laboratory, including primary care, were counted against the hospital. Therefore, the data shown are not directly comparable. However, there has also been a large decline in the number of outpatient cases, and genuine and substantial improvement attained and sustained.

Work addressing issues such as antimicrobial stewardship, and improving this in collaboration with our primary care colleagues, is ongoing and remains a priority for the trust.

### **Outbreaks and clusters of infection**

August 2010

We investigated and treated a possible outbreak of gastroenteritis on the Critical Care Unit at the beginning of August. Nine staff members and five patients were reported as possible cases. Confirmation of the causative organism was not established, although clinical presentation suggested norovirus.

No harm occurred to any patients. The Critical Care Unit continued activity with strict infection control precautions. External transfers in were halted in liaison with

the regional Critical Care network. This was reported and investigated as a “serious incident”.

August 2010

We investigated and treated a possible outbreak of viral gastroenteritis on Reginald Hart ward. Six patients were reported as possible cases. Confirmation of the causative organism was not established.

No serious harm occurred to any patients. The ward was closed to external admission and transfers and strict infection control precautions recommended in accordance with the viral gastroenteritis policy.

September 2010

We investigated a cluster of three *Clostridium difficile* positive stool specimens from three different patients to ascertain whether there was cross-infection. The patients were all on the same medical ward. We took actions to reduce the risk of further cross-infection immediately a potential problem was detected.

Ribotyping of the three *Clostridium difficile* positive specimens showed unlikely connection between the cases (Case A = not sent as had already been disposed of, Case B = strain 1, Case C = strain 2).

No further incidence of *Clostridium difficile* occurred on the medical ward during 2010/11.

November 2010

We investigated a cluster of an organism called *Pseudomonas aeruginosa* identified in routine clinical specimens from five patients on the Critical Care Unit. *Pseudomonas aeruginosa* is a common bacterium that can cause opportunistic infection in humans. It is found in soil, water, skin flora, and most man-made environments throughout the world.

Ribotyping (DNA testing) of the different specimens indicated three different strains of *Pseudomonas aeruginosa*. No patients suffered adverse effects. Additional infection control precautions were implemented and there was no evidence of onward transmission.

March 2011

We investigated and treated a possible outbreak of gastroenteritis on Reginald Hart ward. Six patients and two staff members were reported as symptomatic.

No serious harm occurred to any of those with symptoms. The ward was closed to external admission and transfers and strict infection control precautions recommended in accordance with the viral gastroenteritis policy.

## Surgical site infection

Surgical site infection (SSI) is a significant burden on the affected patients and on the healthcare system in generally, and has increasing attention nationally as the numbers of MRSA bacteraemia and *Clostridium difficile* cases reduce.

We take part in national surveillance of some categories of surgery. There is a mandatory requirement to undertaken three months (one quarter year) of surveillance per annum in an orthopaedic category. We undertake significantly more surveillance than this and the results are shown below.

Interpretation of the results shows higher than average infection rates in some categories (hip and knee replacement, repair of neck of femur, and large bowel surgery). There are many possible reasons for this; including a higher proportion of complex cases (these data are not risk-adjusted).

We have the opportunity to review and improve our systems and processes for the reduction and surveillance of surgical site infection, and this is a priority for the infection control team this year.

## Hip Replacement

Our infection rate for this category is slightly above average:

	No. operations	Pt. questionnaire (PQ)		Surgical Site Infection							
				Inpatients and readmissions		Post discharge confirmed		Patients reported		Total infections	
				No.	%	No.	%	No.	%	No.	%
		No. given	No. complete								
<b>Bedford Hospital</b>	<b>156</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1.3</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1.3</b>
All hospitals (no PQ)	137731	No data	No data	1087	0.8	238	0.2	No data	No data	1355	1.00
All hospitals (PQ)	40331	40331	63.5	200	0.5	122	0.3	349	0.9	671	1.7
All hospitals (total)	178062	40331	0.0	1287	0.7	360	0.2	379	0.2	2026	1.1

## Knee Replacement

Our knee replacement surgical site infection rate is above average:

	No. operations	Pt. questionnaire (PQ)		Surgical Site Infection							
				Inpatients and readmissions		Post discharge confirmed		Patients reported		Total infections	
				No.	%	No.	%	No.	%	No.	%
<b>Bedford Hospital</b>	<b>134</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>3</b>
All hospitals (no PQ)	143183	No data	No data	817	0.6	368	0.3	No data	No data	1248	0.9
All hospitals (PQ)	44733	44733	61.5	187	0.4	237	0.5	791	1.8	1215	2.7
All hospitals (total)	187916	44733	0.0	1004	0.5	605	0.3	854	0.5	2463	1.3

## Repair of Neck of Femur

Our repair of neck of femur surgical site infection rate is above average:

	No. operations	Pt. questionnaire (PQ)		Surgical Site Infection							
				Inpatients and readmissions		Post discharge confirmed		Patients reported		Total infections	
				No.	%	No.	%	No.	%	No.	%
<b>Bedford Hospital</b>	<b>124</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2.4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2.4</b>
All hospitals (no PQ)	33042	No data	No data	608	1.8	47	0.1	No data	No data	658	2.0
All hospitals (PQ)	6789	6789	69.5	50	0.7	12	0.2	32	0.5	94	1.4
All hospitals (total)	39831	6789	0.0	658	1.7	59	0.1	35	0.1	752	1.9

## Reduction of long-bone fracture

This procedure has a higher risk of infection than elective hip or knee replacement. We have a lower than average infection rate:

	No. operations	Pt. questionnaire (PQ)		Surgical Site Infection							
				Inpatients and readmissions		Post discharge confirmed		Patients reported		Total infections	
				No.	%	No.	%	No.	%	No.	%
<b>Bedford Hospital</b>	<b>160</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0.6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0.6</b>
All hospitals (no PQ)	4930	No data	No data	87	1.8	15	0.3	No data	No data	108	2.2
All hospitals (PQ)	2651	2651	53.0	23	0.9	7	0.3	16	0.6	46	1.7
All hospitals (total)	7581	2651	0	110	1.5	22	0.3	22	0.3	154	2.0

## Large Bowel surgery

Our infection rate for large bowel surgery is above average:

	No. operations	Pt. questionnaire (PQ)		Surgical Site Infection							
				Inpatients and readmissions		Post discharge confirmed		Patients reported		Total infections	
				No.	%	No.	%	No.	%	No.	%
<b>Bedford Hospital</b>	<b>102</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>19.6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>19.6</b>
All hospitals (no PQ)	11407	No data	No data	1232	10.8	74	0.6	No data	No data	1323	11.6
All hospitals (PQ)	2712	2712	73.5	150	5.5	24	0.9	132	4.9	306	11.3
All hospitals (total)	14119	2712	0	1382	9.8	98	0.7	149	1.1	1629	11.5

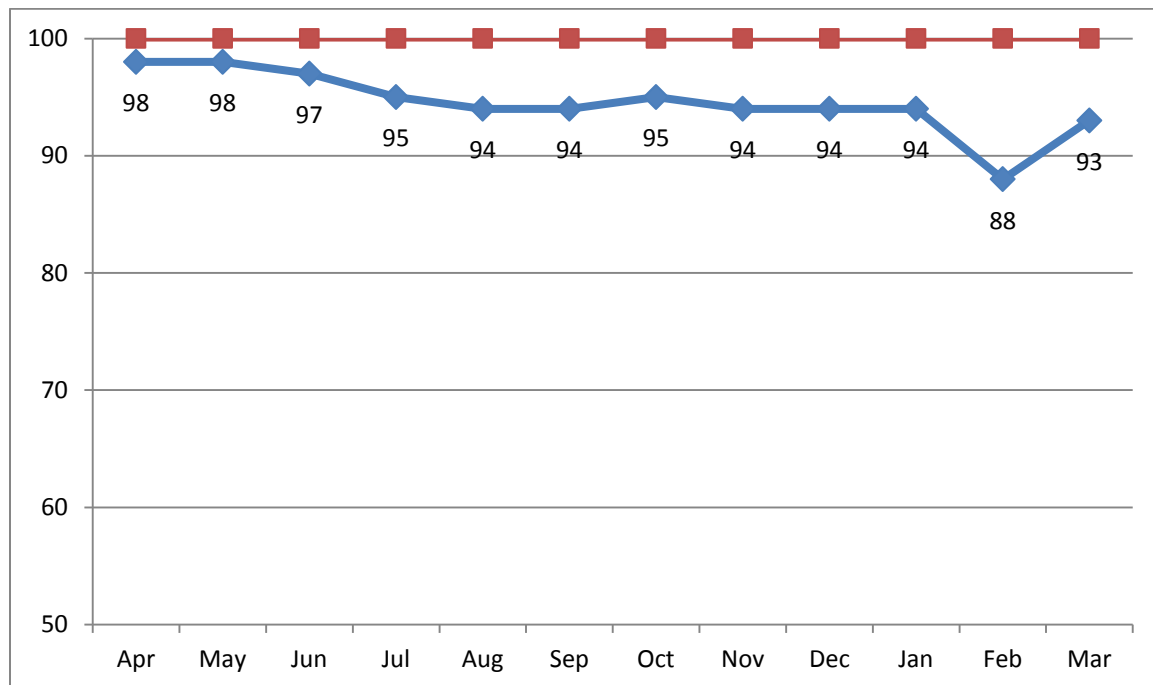
## Vascular

We have a lower than average infection rate for this category:

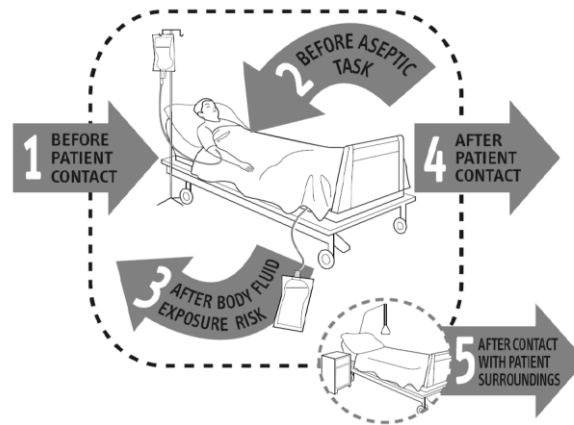
	No. operations	Pt. questionnaire (PQ)		Surgical Site Infection							
		No. given	No. complete	Inpatients and readmissions		Post discharge confirmed		Patients reported		Total infections	
				No.	%	No.	%	No.	%	No.	%
<b>Bedford Hospital</b>	<b>134</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2.2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2.2</b>
All hospitals (no PQ)	6811	No data	No data	215	3.2	5	0.1	No data	No data	221	3.2
All hospitals (PQ)	987	987	65.7	16	1.6	10	1.0	30	3.0	56	5.7
All hospitals (total)	7798	987	0	231	3.0	15	0.2	31	0.4	277	3.6

## Hand hygiene

Effective hand hygiene is the cornerstone of good infection prevention and control practice. We monitored our hand hygiene in 2010/11 using weekly observational audit of the patient-centred indications for hand hygiene (“My Five Moments for Hand Hygiene”) staff. We published the weekly results in the CEO bulletin for all staff, and published the monthly summaries on the entrance door of each participating ward or department. These collated results are shown below:



## Your 5 moments for HAND HYGIENE



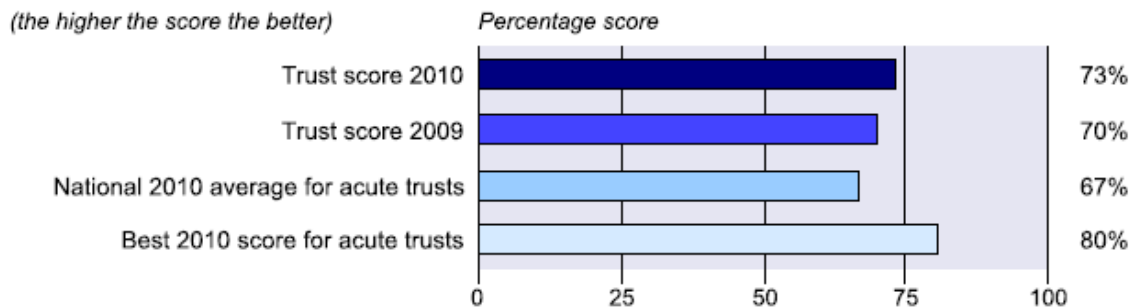
The challenge for the organisation is to ensure that hand hygiene

- Is innovative and intuitive to apply
- Appealing and ergonomic
- Associated with professionalism, security and efficiency
- Respected by all staff at all levels
- Valued and understood by patients and the public

### National NHS Staff Survey 2010

This is undertaken annually on a random sample of around eight hundred staff. It covers a number of key issues for staff including an indicator concerning hand hygiene:

**KEY FINDING 19.** Percentage of staff saying hand washing materials are always available



73% of staff at the trust said that hand washing materials, such as hot water, soap and paper towels, or alcohol rubs, are always available to staff, patients or service users, and visitors to the trust.

- **The trust's score of 73% was in the highest (best) 20%** when compared with trusts of a similar type.
- It has not changed significantly since the 2009 survey when the trust scored 70%.

Work during 2010/11 will focus on improving our feedback about quality of hand hygiene. This includes reviewing systems, processes, and outcomes for hand hygiene in line with the World Health Organisation Hand Hygiene Guidelines (2009).

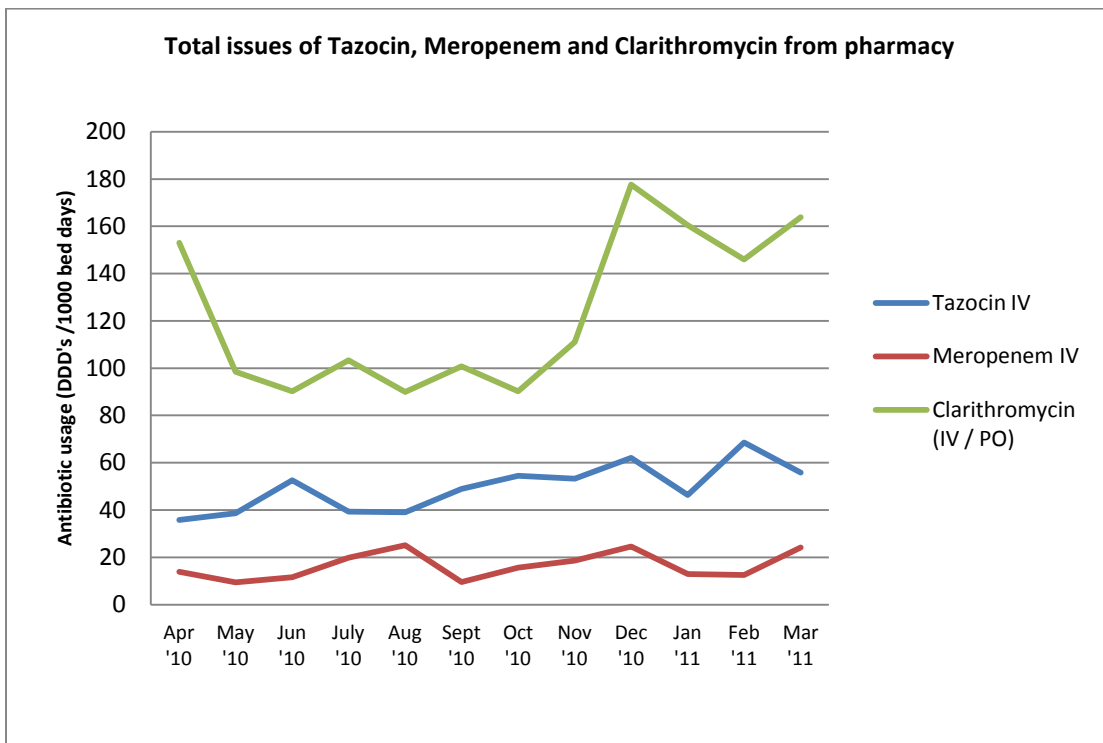
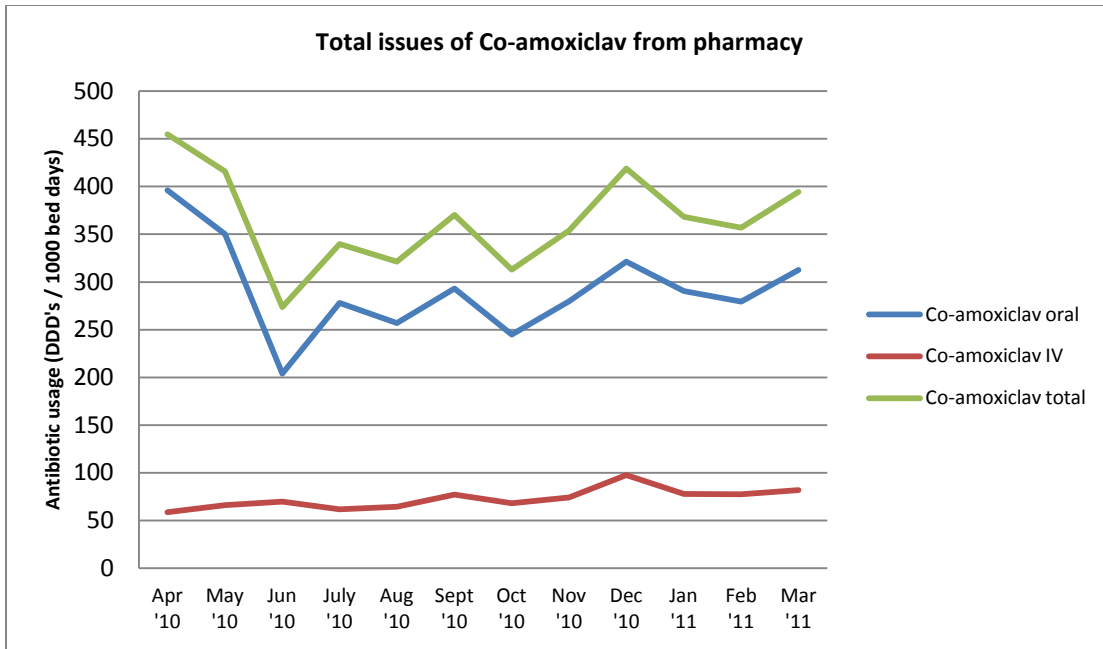
## Use of antimicrobial therapy

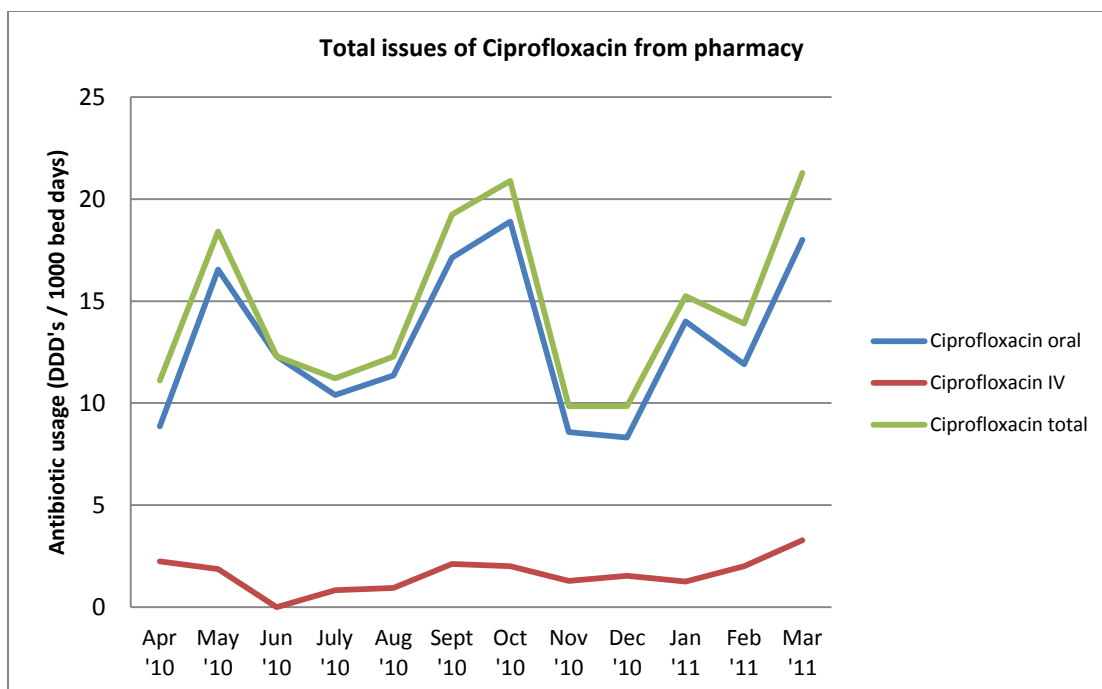
### Antibiotic Ward Rounds

The consultant medical microbiologist and antibiotic pharmacist piloted a weekly antibiotic ward round in addition to a daily microbiologist round on the Critical Care Unit and attendance at the paediatric “grand round” once a week. The ward round has resulted in rationalisation of antibiotic treatment and in a few cases discontinuation of treatment.

### Antibiotic Usage

Usage of restricted and commonly seen antibiotics is reported below. Seasonal variation is observed with clarithromycin due to increased numbers of lower respiratory tract infection in the winter months. The use of ciprofloxacin (restricted antibiotic), although low in comparison to other antibiotics, increased towards the end of the year. The antimicrobial pharmacist and consultant medical microbiologist will continue to monitor usage.





### Antibiotic Point Prevalence Audit – November 2010

An audit of all available drug charts across the medical and surgical divisions was carried out by the pharmacy team on the 23rd/24th November 2010. All patients on antibiotics were recorded and the prescribed antimicrobial and documented indication were noted. The table below outlines the basic findings of this audit.

Sample size (number of drug charts reviewed)	<b><i>n</i> = 303</b>
% of patients on anti-infectives	30%
% of anti-infectives prescribed-oral	36%
% of anti-infectives prescribed-IV	64%
Compliance to antibiotic policy	91%

### Antibiotic Prescribing Audits

Antibiotic prescribing audits are carried out each month on 4 wards in a rolling program such that each ward in the medical and surgical divisions are audited at least once every 3 months. Average results for the year from April '10 - March '11 are shown overleaf:

<b>Audit Criteria</b>	<b>Target</b>	<b>Result</b>
<b>Allergy status documentation</b>	100%	88%
<b>Indication documented in medical notes</b>	100%	91%
<b>Antibiotic prescribed as per hospital guidelines / micro advice</b>	100%	92%
<b>Antibiotic prescribed in capitals / approved names used</b>	100%	61%
<b>Review evident in medical notes after 48 hours for IV and 5 days for oral prescription</b>	100%	86%
<b>Review date stated on prescription (SURGERY and ORTHOPAEDICS)</b>	100%	30%
<b>Review date stated on prescription (MEDICINE)</b>	100%	29%
<b>Review date stated on prescription (MEDICAL ADMISSIONS)</b>	100%	11%

These audits give the infection control team direction for education for our prescribing colleagues for the forthcoming year.

## **Quality initiatives**

### **High Impact Actions**

The High Impact Actions for Nursing and Midwifery (NHS Institute for Innovation and Improvement, 2010) were developed following a 'call for action' which asked frontline staff to submit examples of high quality and cost effective care that, if adopted widely across the NHS, would make a transformational difference.

Eight areas for action were identified, including "Protection from Infection", which concentrates on reducing the incidence of catheter-associated urinary tract infection (CAUTI) by minimising the inappropriate use of urinary catheters.

We developed a pathway that brought together all the local and national quality initiatives that we have implemented over recent years.

We launched this at the International Nurses' Day event in May 2011.



*Urology Nurse Ann Britchford and Invasive Devices Nurse Alison Carter take nursing staff along the new pathway*

## **High Impact Interventions**

The high impact interventions are an evidence-based approach that relate to key clinical procedures or care processes that can reduce the risk of infection if performed appropriately. They were developed in 2006 as part of the “Saving Lives” initiative (Department of Health, 2006) and provide a practical way of highlighting the critical elements of a particular procedure or care process (a care bundle), the key actions required, and a means of demonstrating reliability.

The high impact interventions incorporate care bundles based on best-identified practice and care process and actions associated with quality patient care. Patient outcomes can be systematically improved when all elements of the care bundles are performed correctly and consistently.

We have the following high impact interventions in place:

- Insertion of central venous catheter
- Ongoing care of central venous catheter
- Insertion of peripheral (venous) cannula
- Ongoing care of peripheral (venous) cannula
- Reduction of ventilator-acquired pneumonia
- Insertion of urinary catheter
- Ongoing care of urinary catheter

We monitor the high impact interventions by review of the documentation that demonstrates whether every element of the care bundle is used every time.

## Patient Safety Day

October 2010 saw the inaugural "Patient Safety Open Day" at the hospital.

This was open to the public as well as people using the hospital and was an opportunity to share the work we do in the hospital to keep our patients safe.

The infection control team staffed a stand that focused on hand hygiene and MRSA screening and decolonisation.

MRSA Action UK kindly took part and offered information and support to visitors to the day.



*Left to right: Derek Butler,  
Chairman MRSA Action UK,  
Maria Cann, Secretary MRSA  
Action UK,  
Eiri Jones, Director of Infection  
Prevention and Control*

*Demonstrating safety*



## Risk management and clinical governance

### Care Quality Commission

All Trusts were required to register infection prevention and control with the Care Quality Commission from April 2009.

The Trust gained unconditional registration for infection prevention and control with the Care Quality Commission at this time.

We did not have an inspection of infection prevention and control by the Care Quality Commission during 2010/11. The inspection during 2009/10 raised no concerns.

### Risk Register

Our highest rated risks were of not meeting performance targets for MRSA bacteraemia and MRSA screening. We took robust remedial action to mitigate these risks and managed them well.

## Environmental cleanliness

### HEAL cleanest hospital award

We won the “Cleanest Hospital” award in the Health, Excellence, and Leadership Awards that recognise excellence in the public healthcare sector.

Other healthcare professionals, patients and the public vote for these awards.

Eiri Jones, Director of Infection Prevention and Control, and Director of Nursing and Patient Services, accepted the award from Derek Butler, Chairman of MRSA Action UK.



**on**<sup>BEDFORDSHIRE</sup>**sunday**  
UPDATED DAILY WITH NEWS, VIEWS, SPORT & LEISURE

Home News Sport Home/Garden Health/Beauty Wedding Education Leis

Bedfordshire News Luton on Sunday Business Features UK & World News

Published: 26/10/2010 12:23 - Updated: 26/10/2010 12:30

**Cleanest hospital scoops top award**



Bedford has been voted 'cleanest hospital' in the Healthcare Excellence and Leadership (HEAL) Awards 2010.

The award was won on public votes alone, with Bedford pitted against Lancashire Teaching Hospitals NHS Foundation Trust and Southport and Ormskirk NHS Trust.

Accepting the award at a ceremony held at Royal College of Surgeons in London last night, director of nursing and patient services, Eiri Jones thanked staff across

the hospital for their dedication to the highest standards of cleanliness and hygiene.

*"I am very proud that Bedford has been voted 'Cleanest Hospital' and can assure those who pledged their support to us that we will continue to work hard to maintain our high standards. This award is a real tribute to the commitment of all our staff, but particularly those unsung heroes of the hospital – our cleaning teams – who work so hard to ensure we deliver a high standard of cleanliness and hygiene in every part of the hospital. We know we can never afford to become complacent about cleanliness and hygiene and we are committed to continuing to improve. We always welcome feedback from patients and visitors and are pleased to have excellent relationships with patient groups including MRSA Action UK, who kindly nominated us for this award."*  
*Eiri Jones, Director of Infection Prevention and Control*

## **Management arrangements for environmental cleanliness**

Cleaning services are 'in-house' and part of Operational Support Services. The standard and frequency of cleaning is in accordance with the NPSA '49 steps' as detailed in their National Specification for Cleanliness in the NHS (2007).

The department also provides several other services to improve environmental cleanliness as follows:

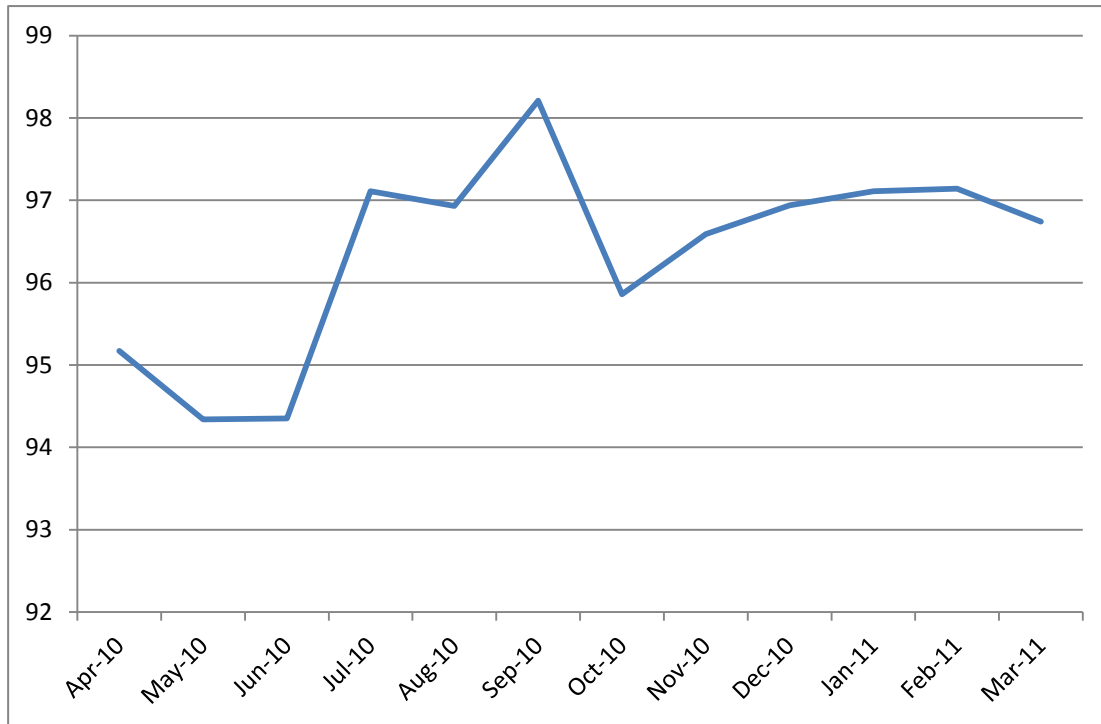
- Special Cleans team for terminal cleans of wards, bays, bed-spaces, and single rooms after occupation by patients with known infections. This team also cleans pressure-relieving mattresses and pumps thus facilitating a quicker turnaround of this equipment than if it had to be sent away for cleaning.
- Bed cleaning through use of a bed washing machine, which is also used for other items of ward equipment such as trolleys, and drip stands.
- A "Deep Clean" programme is undertaken in partnership with the Trust's Maintenance Department to provide a targeted, enhanced level of cleaning.
- The Domestic Services Department employs a Clinical Equipment Cleaning Team to help ward nursing staff by releasing their time for direct patient care. Items such as blood pressure monitors, scales, and drip stands are cleaned on a regular basis using a sporicidal cleaning solution. Nursing staff are responsible for cleaning equipment that is attached to patients.

## **Environmental Cleanliness Group**

This group meets fortnightly, chaired by the Director of Operational Support Services, and has representation from the Matrons, Maintenance, Estates, Infection Control, Procurement, and Domestic Services. The group addresses topics such as environmental audits, service changes, PEAT results, waste management, equipment storage, and new products. The group has also introduced regular "mini PEAT" assessments to review compliance with the PEAT criteria and identify areas requiring expenditure e.g. new flooring.

## **Monitoring arrangements**

Cleaning standards are monitored by Domestic Services staff against the NPSA '49 steps'. The graph overleaf shows our performance against these standards over the year:



## Training

All 140 domestic staff receive infection control training from the ICT. Staff are also issued with a pocket card illustrating essential infection control points such as the correct colour code for mops, buckets, and gloves for particular areas, which waste disposal bags to use and key hand washing circumstances.

## PEAT 2011 (Patient Environment Action Team)

PEAT is an annual assessment of inpatient healthcare sites in England with more than ten beds.

PEAT is self-assessed and inspects standards across a range of services including food, maintenance and repairs, cleanliness, infection control, and patient environment (including bathroom areas, décor, lighting, floors, and patient areas).

The assessment was established in 2000 (managed by the NPSA since 2006) and is a benchmarking tool to ensure improvements are made in the non-clinical aspects of a patient's healthcare experience. PEAT highlights areas for improvement and shares best practice across the NHS.

NHS organisations are each given scores from 1 (unacceptable) to 5 (excellent) for standards of privacy and dignity, environment, and food within their buildings.

The NPSA publish these results every year to all NHS organisations, as well as stakeholders, the media and the public.

The annual PEAT assessment was carried out on 4th February 2010. Team members included matrons, ward managers, the maintenance manager, the lead nurse for infection control, the catering manager, the voluntary services manager, the director of support services and the hotel services manager. Mr. Peter Metherall (NHS East of England Patient Champion) and Mr. Max Coleman (Chair Bedfordshire LINK) kindly joined us as patient representatives.

Areas visited included Accident and Emergency, Acute Assessment Unit, Critical Care Complex, Riverbank Ward, Elizabeth Ward, Howard Ward, Tavistock Day Surgery, Russell Ward, Harpur Ward, Breast and Bowel OPD Clinics, Cardiology OPD plus bereavement facilities, and public areas. Results from NPSA (National Patient Safety Agency) were received in April and are listed below.

### **PEAT Assessment Scores Summary**

<b>Year</b>	<b>Environment</b>
2011	Good
2010	Good
2009	Good
2008	Good
2007	Excellent

The Environmental Cleanliness Group has an action plan to deal with items noted during the course of the PEAT assessment and this is reviewed at ECG meetings.

### **Service improvements in 2010-2011**

- A Clinical Equipment Cleaning service was introduced to the Cygnet Wing and this includes a seven day per week service to the neonatal unit.
- In November 2010, temporary night cleaning staff were employed to clean side rooms so speedy admission of patients with known or suspected infections could be effected. This initiative was taken to avoid anticipated pressures on single room cleaning in the event of any outbreaks of viral gastroenteritis. Although outbreaks were minimal this the winter, the service proved very successful in keeping beds available for patients, particularly in the Critical Care Complex, and also avoiding breaches and consequent penalties. This service was funded from the Domestic Department budget.

## Environmental cleanliness issues to resolve in 2011/12

- The Domestic Services Department continues to monitor the standard of cleaning against the NPSA '49 steps'. This includes all the items the domestic staff clean in clinical and public areas of the hospital. Compared to other hospitals, there are insufficient hours allocated to monitor the cleaning service and provide comprehensive reports
- Pigeons. The number of birds on site is increasing and they have, on occasions, invaded the empty escalation wards through open windows. Quotes to deal with these equate to the Domestic Services Department's entire annual pest control budget of £6,000. The cost of controlling pigeons will be included as cost pressure in future budget setting.
- Improve ward housekeeper cover during periods of annual leave or sickness so domestic staff can maintain their cleaning and not have to carry out work usually assigned to the housekeeper e.g. tea trolley duties and serving meals.
- Replace the bed washer. The bed washer is now eleven years old and in constant use. Breakdowns disrupt cleaning and extend the time bed spaces can be made available for admissions because beds have to be washed *in situ*. If the bed washer breaks down in a future widespread gastroenteritis outbreak, then the Domestic Services Department will not be able to cope with bed space turnaround requirements. The need to replace the bed washer is rated "red" in the departmental risk register.
- Inclusive work with the estates department to ensure that the Domestic Services Department is consulted in the design and hotel service requirements for any areas that are new builds or refurbishments.

## Estates

### Decontamination

Decontamination is a process that removes or destroys contamination and thereby prevents microorganisms or other contaminants reaching a susceptible site in sufficient quantities to initiate an infection or any other harmful response (Medical Advisory Committee, 1999). Correct decontamination is essential to render reusable medical equipment safe for use. Three levels of decontamination are used; cleaning, disinfection and sterilisation. The level of decontamination used depends on the intended use of the instrument.

## **Arrangements for Decontamination**

Decontamination is organised centrally, and the Decontamination Lead for the Trust is the Head of Estates. He chairs the Decontamination Committee and is a member of the HIPCC. The lead nurse represents the infection control team on the Decontamination Committee.

The Sterile Services Department is responsible for the sterilisation of reusable medical devices. The Director of Support Services, who is a member of the HIPCC, manages the department. The infection control team acts as a resource for the department and provides infection control training.

### **Sterile Services Department**

In December 2009, construction commenced of a new sterile services department that provides appropriate state of the art facilities for the provision of safe decontamination services to the hospital.

The design of the department, selection of equipment and ergonomics of the workflow ensured that the department achieves or surpasses the current range of national standards for decontamination and the required standards for Health Building Notes. The project team achieved a Building Research Establishment Environmental Assessment Method (BREEAM) “excellent” rating for the environmental performance of the building.

The construction of the new decontamination facility was completed in November 2010, with the new unit being handed over to the Trust. Following this successful phase of the project both within the agreed period and under budget at £5.3m, the Sterile Services team then implemented the transition from the old facility located in the theatre complex.

This transition was undertaken over a period of four months during which time the staff within the unit and the management implemented new ways of working and gathered the evidence and assurance needed to enable the service to gain the full accreditation.

The new facility is equipped with the latest equipment and services including full track and traceability of the instrumentation within the system. The equipment within the building includes three autoclaves, three washer disinfectors, and a trolley washer. This equipment has been selected to provide the capacity and reliance to enable the Trust to maintain the service to the Trust for the present workload and future expansion when required.

The unit was officially opened by Mr Andrew Lansley, Secretary of State for Health on April 2011 followed by the accreditation achieved in July 2011. In achieving

the success of the project, the Trust acknowledged the input of the project group including members from the Support Services and Estate Management.



## Legionella Control

The Legionella Management Committee oversees the control of legionella in the hospital.

The Estates Department employs specialist water hygiene consultants to periodically audit the Trust's legionella management programme, advice on all water-related matters and provide ongoing training and instruction to all involved personnel. Monthly meetings are held between members of the Estates Team and their water hygiene consultants to discuss and ensure the current issues are addressed. The water hygiene consultants consider the hospital an **exemplar site** for legionella control.

There is a comprehensive risk assessment for the site, which is under continual review. The procedural documentation is continually updated in line with current legislation and guidelines. The legionella policy is reviewed and updated on a regular basis.

User evaluation of water facilities and a comprehensive flushing region of outlets is monitored and recorded by Estates with the assistance of an electronic data management system.

A comprehensive planned preventative maintenance program is in place that is concentrated in these areas of greatest risk, which are considered to be the inpatient areas.

The primary method of legionella control is high temperature storage and circulation of hot water and low temperature of cold water alongside the removal of little used outlets and dead legs.

Considering the risk assessments and local knowledge, the Legionella Management Committee elected to install a chlorine dioxide continual dosing set as an additional control measure to temperature control on some of the water systems. In the longer term this will assist in the removal of biofilm from internal pipe work surfaces. Biofilm is known to harbour and encourage legionella colonisation of water systems.

A comprehensive program of sampling has been introduced to patient areas all results both positive and negative are recorded to give an overview of the quality of the domestic water systems within the Hospital.

#### Time line of Legionella Management

- 2000 - First outlet temperature checks.
- 2000 - Legionella Management Committee set up
- 2001 - Hydrop Water Management Consultants appointed.
- 2001 - Legionella Audit Implemented, Quarterly.
- 2002 - PPM System introduced.
- 2003 - First defect log set up to record identified problems
- 2004 - Comprehensive Risk Assessments carried out by Water Management Consultants
- 2007 - Flushing responsibility transferred to the local user in line with new guidelines.  
Estates took on monitoring and reminder role
- 2009 - Testing program recommended first formal meeting to discuss implementation of sampling.  
Introduction of the Legionella specific electronic data collection and management system
- 2010 - First areas for comprehensive sampling identified.
- 2010 - Chlorine dioxide chosen as the dosing media by Legionella Management Committee.
- 2010 - Action and reaction set up.
- 2010 - First samples taken  
Comprehensive recording of test results.

## Educational activity

### Barbican October 2010

Our Lead Nurse for Infection Control, Juliet Magee, presented the transformational work that has transformed infection prevention and control at Bedford Hospital at a national conference *Infection Control: working together to fight infection* held at the Barbican in London. This was well received by delegates and led to a number of enquiries regarding our work, particularly the in-house senior staff training course that we developed.

### River Festival

Bedford River Festival is held every other year on the banks of the River Great Ouse. It was founded in 1978 to celebrate the completion of a navigable route, by water, between Bedford and the coast and is held over a weekend, normally in July (originally it was held annually on the late May bank holiday). It is the main tourist-attracting event in the town.

The 2010 Festival was held in July 2010 and attracted in excess of 350,000 visitors. The local health community hosted a tent and we enjoyed demonstrating hand hygiene and discussing a wide variety of questions with many festival visitors.

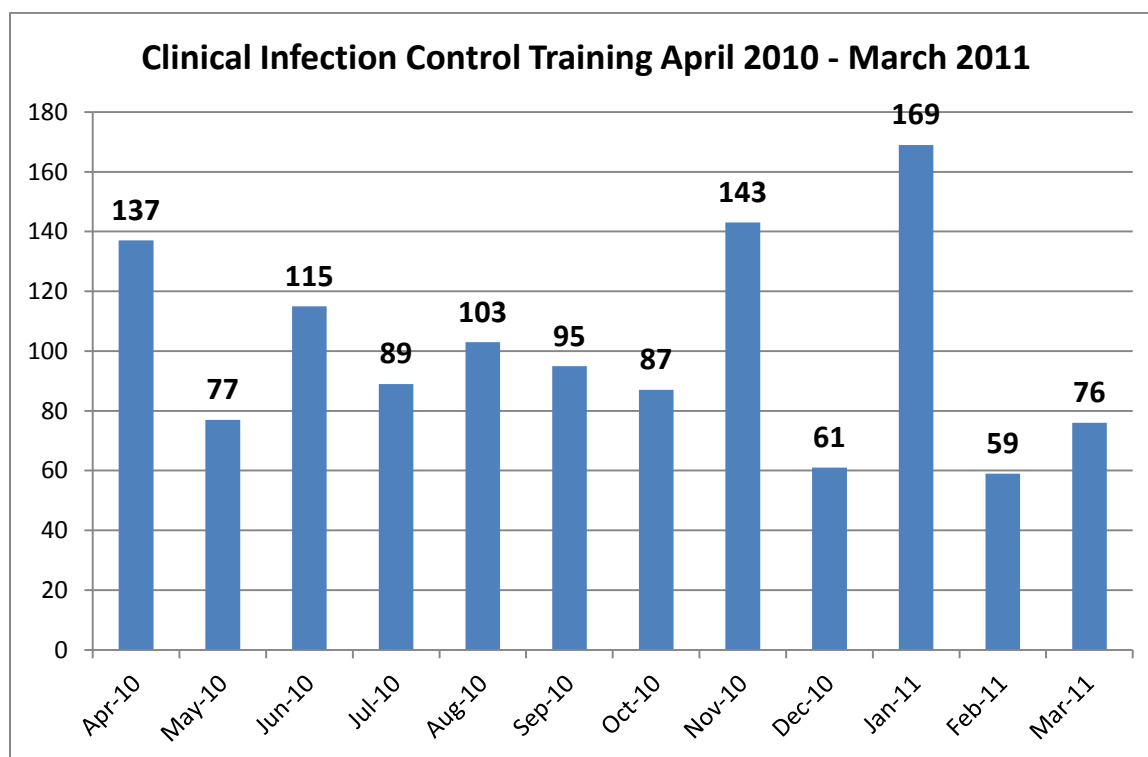
*Michael Ryan, Orthopaedic Specialist Practitioner, ready to show visitors how to clean their hands*



## Staff Training

The infection control team continued to provide educational sessions for all staff at the hospital. In 2010/11, 1211 clinical staff members received formal training, supplemented by practical “road-shows” on the wards; for example hand hygiene technique using ultraviolet cream. We also provided training for allied health professionals, domestic staff, porters, catering staff, volunteers, and other staff with patient contact.

Clinical Staff Group	Percentage trained
Consultants	74
Specialist Registrars, Senior House Officers and House Officers	39
Foundation Year One and Two Doctors	100
Nurses	99
Clinical Support Workers	100



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