

# **Infection Prevention & Control Team**

## **Annual Report April 2008 – March 2009**



**Infection  
Prevention  
&  
Control**

Plymouth Hospitals NHS Trust

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## Key achievements

The key achievements for the year April 2008-March 2009 were as follows:

- New cases of MRSA – 137 cases recorded, a 79% reduction of from the baseline of 647 cases in 2003-04
- MRSA bacteraemias – 28 cases recorded, a 71% reduction from the baseline of 98 cases in 2003-04 and 11 under the target of 39 cases
- *Clostridium difficile* – 160 ‘hospital-acquired’ cases recorded, 4 under the target of 164
- Norovirus – only 5 ward closures with mean ward-closure time of 5.2 days
- Hand Hygiene compliance – increase to 92% from 74% the previous year
- Saving Lives High Impact Interventions rolled out across Trust
- Expansion of surgical site surveillance with post-discharge questionnaire and/or telephone follow up. Post-operative wound infection rates below the national mean for most procedures
- Introduction of a balanced scorecard of reporting for Healthcare-Associated Infections
- Further development with the Peninsular School of Medicine and Dentistry of the Masters Module in Infection Prevention and Control, which provides the only postgraduate training in infection control in the South West.

## Executive summary

The Infection Prevention and Control Team (IPCT) at Plymouth Hospitals NHS Trust (PHNT) has made significant progress towards modernising the service it provides and meeting the challenging new agenda being set at both local and national levels. This has led to improvements in clinical practice, with concomitant reduction in rates of healthcare-associated infection. Since the baseline target year, 2003-04, new clinical cases of Meticillin-Resistant *Staphylococcus aureus* (MRSA) have fallen by 79%, MRSA bacteraemias have been reduced by 71% and there has also been a fall of 29% in the number of cases of Meticillin-Sensitive *S. aureus* bacteraemias. The Trust already has one of the lowest *Clostridium difficile* rates in the country and the last recorded year fewer cases than its agreed target figure. There were 5 ward closures due to viral gastroenteritis with a mean ward-closure time of 5.2 days. The cleanyourhands and other awareness campaigns continued across the Trust and hand hygiene compliance improved significantly from 74% to 92%. The programme for implementation of the Saving Lives High Impact Interventions was successfully rolled out across the Trust. Considerable work has gone into meeting compliance with national guidelines and standards, including the Code of Practice for the Prevention and Control of Healthcare Associated Infections, NHS Litigation Authority and Standards for Better Health. In June 2008, the Department of Health Healthcare Associated Infections Team revisited the Trust and noted that the Trust had made significant progress in lowering infection rates and identified many areas of good practice. The Trust can be justifiably proud of its achievements in reducing infection rates and improving clinical practice. Considerable Trust-wide effort is required to sustain these improvements and achieve the challenging ‘stretch’ targets set by the Strategic Health Authority (SHA) MRSA bacteraemia and *C. difficile* reduction.

## Progress towards achieving Key Targets, April 2008 – March 2009

The fourth and final review of the progress of the Annual Programme of Work for the period 1<sup>st</sup> April 2008 to 31<sup>st</sup> March 2009 was presented to the Infection Control Committee in June 2009 and the Clinical Governance Steering Group in May 2009. The progress made against the Key Targets set in the Annual Programme of Work is given below:

Key Targets	
<b>Clinical Targets</b>	<ol style="list-style-type: none"> <li>1. To maintain rates of MRSA bacteraemia at 60% of the baseline year of April 2003 – March 2004 (i.e. 3.25 cases/month). <b>There were 28 MRSA bacteraemias between April 2008 and March 2009, a reduction of 71% (target 39).</b></li> <li>2. To reduce rates of <i>Clostridium difficile</i> infection by 10% compared to April 2007 – March 2008. <b>There were 160 post-48 hour cases of <i>C. difficile</i> between April 2008 and March 2009 (target 164).</b></li> <li>3. To maintain the mean ward closure time due to epidemic gastroenteritis below 7 days. <b>There were 5 ward closures due to viral gastroenteritis between April and December 2008 (mean ward closure time of 5.2 days).</b></li> <li>4. Expand MRSA screening to cover all elective admissions by March 2009. <b>Completed.</b></li> <li>5. Produce a balanced scorecard of reporting of infection control to the Board, Directorates and clinical areas. <b>Completed.</b></li> <li>6. Produce Directorate infection control performance reports with appropriate targets and/or control limits. <b>Completed.</b></li> <li>7. Develop the Infection Prevention Board to deliver improvements in infection control. <b>Completed.</b></li> <li>8. Assist Directorates in performing Root Cause Analysis (RCA) on all MRSA bacteraemias, cases of <i>C. difficile</i>, line and catheter-related bacteraemias and preventable surgical site infections. <b>Completed.</b></li> <li>9. Report findings of RCAs to the Infection Prevention Board and monitor recommendations made. <b>Completed.</b></li> </ol>

<p><b>Audit and surveillance targets</b></p>	<ol style="list-style-type: none"> <li>1. An infection control clinical audit return rate of 100% from all Trust clinical areas. <b>Completed.</b></li> <li>2. Trust clinical areas to achieve an average infection control clinical audit score of 90%. <b>Mean score 85%.</b></li> <li>3. Quarterly Hand Hygiene audits to be performed in all clinical areas. <b>Monthly audits completed for all areas.</b></li> <li>4. Trust clinical areas to increase average Hand Hygiene compliance to 85%. <b>Overall Trust compliance of 92%.</b></li> <li>5. Availability of alcohol hand gel in clinical areas to be maintained as close to 100% as possible. <b>Availability of 96%.</b></li> <li>6. Continue to expand post-operative surgical site surveillance to cover all major SSISS procedures, including post-discharge surveillance, on a continuous basis. <b>Completed.</b></li> </ol>
<p><b>Educational targets</b></p>	<ol style="list-style-type: none"> <li>1. Produce an annual Education Plan. <b>Completed.</b></li> <li>2. Audit the use of the Professional Portfolio for Infection Control Link Practitioners. <b>Deferred.</b></li> <li>3. Continue to implement the National Infection Control Training Programme. <b>Ongoing.</b></li> <li>4. In partnership with the Peninsula Medical School, develop further the Masters Module in Infection Control. <b>Approval for PGCert being considered for delivery in September 2009.</b></li> </ol>
<p><b>Compliance with National Guidance and Standards</b></p>	<ol style="list-style-type: none"> <li>1. Comply with NHS Litigation Authority. <b>Completed.</b></li> <li>2. Comply with the national Healthcare Commission Standards for Better Health (Standard 4a). <b>Completed.</b></li> <li>3. Implement and audit the impact of the 'Saving Lives' programme. <b>Completed.</b></li> <li>4. Comply with the Code of Practice for the Prevention and Control of Healthcare Associated Infections. <b>Completed.</b></li> </ol>

## Introduction

This Annual Report details the activities undertaken by the Infection Prevention and Control Team (IPCT) during the period 1<sup>st</sup> April 2008 to 31<sup>st</sup> March 2009 and should be read in conjunction with the Infection Control Annual Programme of Work and quarterly reviews for the same period. The report has been compiled according to guidelines issued by the Department of Health (<http://www.dh.gov.uk/assetRoot/04/10/25/52/04102552.pdf>) and will be presented to the Trust Board, Infection Control Committee (ICC) and the Clinical Governance Steering Group in June 2009.

The aim of the IPCT, through the compilation and achievement of a robust Annual Programme of Work, is to devise, implement and evaluate strategies to reduce hospital-associated infection by working in collaboration with each Directorate. The Annual Programme of Work is also now supplemented by individual Action Plans that are agreed by the Ward Manager, Matron, Director of Infection Prevention and Control (DIPC), Lead Nurse in Infection Control, Directors of Nursing and the Medical Director. The IPCT performs a number of activities that minimise the risk of infection to patients, staff and visitors, including:

1. Providing advice on all aspects of infection control
2. Managing outbreaks of infection
3. Conducting programmes of education
4. Undertaking audit and targeted surveillance
5. Formulating policies and procedures
6. Interpreting and implementing national guidance at local level
7. Involvement with refurbishment, new building and equipment projects.

The IPCT now has a far more proactive approach, with a greater emphasis on clinical work and the direct management of patients with hospital-associated infections. The enhanced presence of the IPCT in the clinical environment has greatly increased their accessibility for guidance and advice and has improved the management of hospital-associated infection across the Trust.

## Reporting line to the Trust Board

The IPCT meets on a weekly basis to discuss current infection control issues and formulate the day-to-day working programme for the team. The ICC meets bimonthly, is chaired by the DIPC, and reports via the Clinical Governance Steering Group to the Board. There is representation on the ICC from members of each Directorate and senior management, as well as external groups such as the Health Protection Agency (HPA), Primary Care Trusts and patient and public involvement groups. External links are well maintained with the Consultants for Communicable Disease Control for Devon and Cornwall, who are also members of the ICC. The IPCT collaborates extensively with other Trusts across the South-West Peninsula and participate in the activities of local and national groups (e.g. Hospital Infection Society, South West Infection Control Forum and Infection Prevention Society). The lead Consultant Medical Microbiologist for antimicrobial prescribing is a member of the Drugs and Therapeutics Committee.

Significant infection control issues are also dealt with at the monthly Infection Prevention Board, which is chaired by the Chief Executive. All MRSA bacteraemias, cases of *C. difficile* and other serious Healthcare-Associated Infection (HCAI), as well as recent audit results are reviewed at this meeting. The results of RCAs are reported to the Board and appropriate recommendations made. These are then reviewed at subsequent meetings. Matrons report on infection control to the Infection Prevention Board on a quarterly basis.

The Board member with responsibility for infection control is the Medical Director with responsibility for Professional Practice, Alex Mayor, and the non-executive member is the Chairman, John Bull. The DIPC meets monthly with the Medical Director, and the DIPC and Lead Nurse also meet monthly with the two Directors of Nursing. The Department of Health document 'Winning Ways' states that the DIPC will 'report directly to the Chief Executive and the Board and not through any officer'. The DIPC meets regularly with the Chief Executive and reports to the Trust Board as required.

Trust-wide reporting of HCAs is through a balanced scorecard of reporting that is produced and circulated to all clinical areas, Directorates and the Trust Board. This includes surveillance and outbreak data, audit results, compliance with policy, link practitioner activity and information on antimicrobial prescribing. The scorecard is produced on a monthly basis for Directorates and quarterly for Departments, and is incorporated into the Trust Board and Directorate performance management process.

The IPCT is represented on the following committees:

- a) Clinical Governance Committee
- b) Clinical Governance Steering Group
- c) Clinical Risk Management Group
- d) Legionella and Safe Hot Water Group
- e) Decontamination and Sterilisation Group
- f) Clinical and Practice Education
- g) Patient Environment Action Team
- h) Matrons Clinical Focus Group
- i) Operational Nurse Management Group
- j) Care Standards Action Group
- k) Daily Operational Team Meeting
- l) South West Infection Control Forum
- m) Devon Health Advisory Group
- n) Cornwall and IOS Community Infection Control Meeting
- o) Devon Community Infection Control Meeting
- p) Plymouth cross-community Infection Control Committee.

## **Infection control arrangements**

### **1. Budget and staffing**

The IPCT provides an infection control service for PHNT (~1050 beds) and last year had annual pay and non-pay budgets of £480,672 and £23,974 respectively. Income

generated through service level agreements with other local healthcare providers (approximately 500 community beds) is given in Table 1.

**Table 1. Income from Service Level Agreements**

Organisation	2005-06	2006-07	2007-08	2008-09
Plymouth PCT	£28,447:98	£29,444:00	£30,874:00	£30,874:00
Devon PCT	£10,153:06	£10,404:00	£10,909:00	£10,909:00
Cornwall PCT	£10,407:00	£10,406:00	£10,911:00	£10,911:00
Peninsula Treatment Centre	£15,000:00	£15,375:00	£15,759:00	£16,882:50
Diving Diseases Res Centre	£00:00	£00:00	£5,000:00	£5,000:00
<b>Total</b>	<b>£64,008:04</b>	<b>£65,629:00</b>	<b>£73,454:00</b>	<b>£74,576:50</b>

## 2. Team development

The members of the IPCT are shown in Table 2. There has been a significant expansion of the IPCT over recent years and the compliment of staff now includes Staff Nurses and Health Care Assistants. Over the last 12 months the following replacement appointments have been made: Marie Whitley (previously a staff nurse on Monkswell Ward), Sophie Reid and Lynn Sugg. In addition Lesley Lees and Kirsty Davis were appointed as replacement Band 2 Healthcare Assistants (HCAs) to the Surgical Site Infection Surveillance Service.

The increase in the establishment reflects the change in both workload and increased focus on the prevention of infection. This approach to workforce development has led to unique skill mix within the Team, which has allowed effective working at different levels across the Trust. This approach also permits personal development and succession planning within the Team. The latter has been illustrated by the promotion of members of staff within the Team. The revised and innovative establishment has broadened the scope of opportunity to specialise in infection control, whilst enhancing the IPCT performance through an increased range of knowledge, skills and experience. The IPCT is been divided into three teams to effectively cover the Directorates, with each team consisting of a Sister, Staff Nurse and a HCA.

**Table 2. Infection Prevention and Control Team members**

Role	Name
Infection Control Doctor/ Director of Infection Prevention and Control	Dr Peter Jenks (0.65 WTE)
Lead Nurse	Claire Haill
Senior Sister	Gill Sargeant
Senior Sister	Cathy Ford (0.80 WTE)
Junior Sister	Susan Hunt
Junior Sister	Georgina Vincencova
Junior Sister	Marie Whitley
Staff Nurse	Jill Horn
Staff Nurse	Susanna Pine (0.80 WTE)
Staff Nurse	Tamasin Davis/Suzanne Price
Healthcare Assistant	Dilys Hill
Healthcare Assistant	Lisa Dyer
Healthcare Assistant	Linda Mole (0.6 WTE)

Healthcare Assistant	Charlene French
Healthcare Assistant	Jacqueline East (0.4 WTE)
Healthcare Assistant	Lesley Lees
Healthcare Assistant	Kirsty Davis (0.8 WTE)
Senior Surveillance and Audit Coordinator	Sophie Reid
Surveillance Administrator	Lynn Sugg
Administrator/Medical Secretary	Glynis Webster

Given the expansion of the Team and the different training requirements, the personal development of individual team members remains a key priority. The IPCT at PHNT is unusual in the skill-mix it and developing training programmes for all members of the Team is led by the Education Lead for the Team, Gill Sargeant and Dr Peter Jenks. These include diploma- and degree-level infection control modules for post-registration healthcare professionals and the Team has just run its first Level 2 course for Healthcare Assistants. In addition, the Team runs a Masters Module in Infection Prevention and Control with the Peninsula School of Medicine and Dentistry and this is currently being developed into a full MSc, which will provide the only post-graduate infection control training in the region. All members of the Team received Individual Performance and Development Reviews last year. Over the next 12 months, personal objectives will be integrated into the Annual Programme of Work to develop ownership of Trust objectives and facilitate achievement of key outcomes.

Over the last year, Jill Horn completed the 'Practices and Principles of Infection Control' Level 3 module. Lisa Dyer and Linda Mole completed the HCA level 2 module in Infection, Prevention and Control. Gill Sargeant attended the Infection Prevention Society's Conference, held at Harrogate. Gill Sargeant and Cathy Ford attended the Productive Ward and Root Cause Analysis training days. Sophie Reid, Dilys Hill, Lisa Dyer and Lesley Lees attended the HPA Surgical Site Infection training day at their headquarters in London. Members of the Team are actively involved with the Infection Prevention Society, with regular attendance at conferences. Dr Peter Jenks is a member of the Department of Health Expert Advisory Group on MRSA and the MRSA Enhanced Surveillance System Group. These groups have produced national guidelines on MRSA screening and surveillance. He is a member of the Council of the Hospital Infection Forum and is a Clinical Advisor to the Department of Health Healthcare Associated Infection Improvement Team.

## Surveillance

### 1. Background

Surveillance of healthcare-associated infection can be defined as the systematic recording of infections using agreed definitions, with analysis, interpretation and dissemination of the results so that appropriate action can be taken. Surveillance is necessary to monitor trends in infection rates over time, detect outbreaks, provide information for the planning of services and allocation of resources, and to evaluate the impact of any interventions aimed at reducing infection risks. By targeting appropriate interventions, surveillance contributes significantly to reducing rates of infection and is recognised as an important contributor to good infection control practice.

In October 2000, the Department of Health announced that some aspects of surveillance would be compulsory. In April 2001, a mandatory scheme for reporting Staphylococcal bacteraemias (including MRSA) commenced and the results of that surveillance are published regularly. In an attempt to account for variations in hospital activity, absolute numbers of MRSA bacteraemias are converted into a rate using the bed availability and occupancy (KH03) annual return. From 1<sup>st</sup> September 2003, Acute Trusts have also had to report bacteraemias due to glycopeptide resistant enterococci (GRE) and since January 2004, alert organism surveillance was extended to *Clostridium difficile*. The national surveillance scheme also includes orthopaedic surgical site infections and the reporting of 'serious untoward incidents associated with infection'. The infection rates for PHNT are published in comparison with other Acute Teaching Trusts.

## **2. Mandatory surveillance reporting**

Plymouth Hospitals NHS Trust complies fully with the mandatory surveillance system for healthcare-associated infections including staphylococcal (including MRSA) and GRE bacteraemias, *C. difficile* and orthopaedic surgical site infections. All 'serious untoward incidents associated with infection' are reported to the Strategic Health Authority (SHA) and HPA. Monthly surveillance reports are circulated to all clinical areas, Directorates and the Trust Board, and reports are also produced on a quarterly basis for Departments. The reports include surveillance and outbreak data, audit results, compliance with policy, link practitioner activity and information on antimicrobial prescribing. As well as being incorporated into the Trust Board and Directorate performance management process, they are also reviewed at the Infection Prevention Board via the ICC and Clinical Governance Steering Group. In addition, the IPCT also produces monthly reports that include surveillance data on new cases of MRSA, MRSA bacteraemias, all other hospital-acquired bacteraemias, *C. difficile*, gentamicin- and quinolone-resistant gram-negative infections, GREs and ESBL-producing coliforms.

## **3. New clinical cases of MRSA**

As well as mandatory reporting of MRSA bacteraemias, all new cases ('first isolates') of MRSA are also recorded. These can be divided into 'infections', where MRSA is isolated from clinical specimens, and 'colonisation', where MRSA is isolated from screening swabs from patients who are harmlessly carrying the organism. Many hospitals use such data as a useful marker of the overall burden of MRSA.

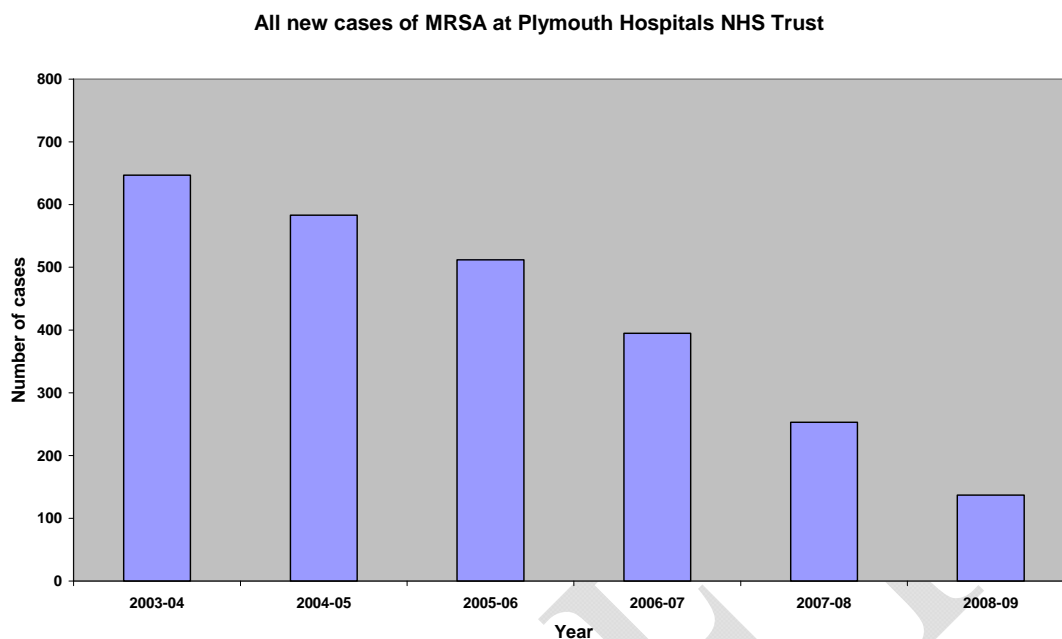
Patients admitted to PHNT who are known to be colonised with MRSA are identified by an alert on their electronic record and in their clinical notes. These patients, as well as all newly identified inpatient cases, are visited by the IPCT who instigate appropriate infection control measures and prescribe topical MRSA suppression therapy through a Patient Group Direction.

Over the last year targeted screening and suppression of MRSA currently occurs in the following high-risk patient groups:

1. Patients transferred from other hospitals or long term healthcare facilities, including nursing homes
2. Patients known to be previously colonised with MRSA
3. Admissions to the Critical Care Unit
4. Pre-operative orthopaedic joint replacements and patients on Stannon Ward
5. Pre-operative orthopaedic trauma patients
6. Pre-operative vascular, cardiothoracic, high risk plastic, and neurosurgery
7. All admissions to the renal, haematology and oncology wards
8. All patients seen in pre-assessment clinic
9. Haemodialysis patients every three months
10. All emergency admissions over the age of 60 years.

The recently revised version of the Code of Practice for the Prevention and Control of Healthcare Associated Infections makes it a legal requirement for Trusts to introduce MRSA screening of all elective (including day case) admissions by March 2009 and all emergency admissions as soon as possible, but no later than by March 2009. The Trust expects to be fully compliant with these requirements.

Plymouth Hospitals NHS Trust reported a total of 137 new 'infections' due to MRSA between April 2008 and March 2009, compared to 253 the year before. This represents a fall of 79% since 2003-04 (Figure 1) and 46% over the last 12 months.

**Figure 1. New cases of MRSA, April 2002 – March 2009**

The total number of new MRSA isolates (i.e. those isolated from screening samples as well as clinical specimens) was 703, compared to 665, 576 and 701 cases recorded during the previous two years. A much higher proportion of cases, 566 (81%), were identified by screening patients on admission to hospital.

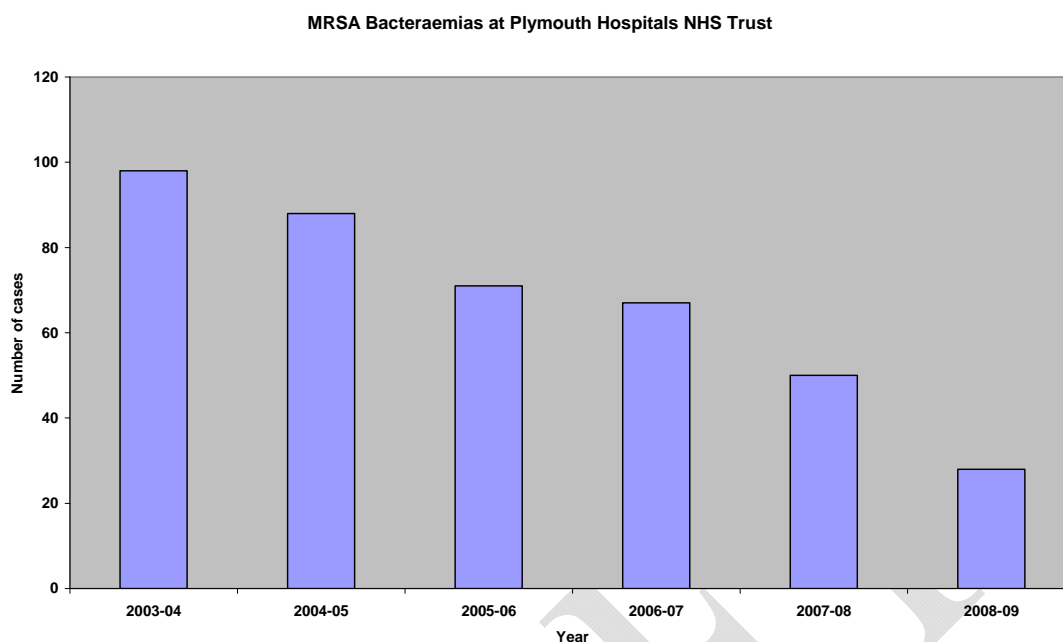
#### **4. MRSA bacteraemias**

There are three key Department of Health targets relating to MRSA bacteraemias:

1. Acute NHS Trusts to reduce MRSA bacteraemias by 60% by March 2008 (using the 2003-04 figures as the baseline). For PHNT this represented 39 cases.
2. Acute NHS Trusts to maintain this 60% reduction through to March 2011 (using the 2003-04 figures as the baseline). For PHNT this represents 39 cases.
3. Acute NHS Trusts to achieve year-on-year reductions in MRSA.

In addition, Strategic Health Authorities and Primary Care Trust commissioners have set local 'stretch' targets. The local target for PHNT is 24 cases for 2009-10 and 12 cases for 2010-11.

Plymouth Hospitals NHS Trust reported a total of 28 MRSA bacteraemias between April 2008 and March 2009 (Figure 2, Table 3), 11 fewer than the target of 39 cases. This is a year-on-year reduction, is the lowest number recorded by the Trust and represents a 71% reduction against the target set by the Department of Health.

**Figure 2. MRSA bacteraemias, April 2003 – March 2009**

Using a KH03 return of 829, this is equivalent to a rate of 1.65 bacteraemias per 10,000 bed-days (Table 4).

**Table 3. Mandatory reporting of Staphylococcal bacteraemias, 2003-09**

Characteristic	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Total cultures	15,085	15,977	15,675	15,150	15,674	16,212
Positive cultures	2,839	3,103	2,953	2,828	2,629	2,415
Total <i>S. aureus</i>	302	299	232	210	172	165
Total MRSA	98	88	71	68	50	28
KH03	912	903	893	852	829	?
<b>Rate*</b>	<b>2.94</b>	<b>2.67</b>	<b>2.18</b>	<b>2.19</b>	<b>1.65</b>	<b>0.92</b>
Position**	19=	20	14	14	18	?
Ratio 1***	32.5	29.4	30.6	32.4	29.1	17.0
Ratio 2****	3.5	2.8	2.4	2.4	1.9	1.2

\* Per 10,000 bed days

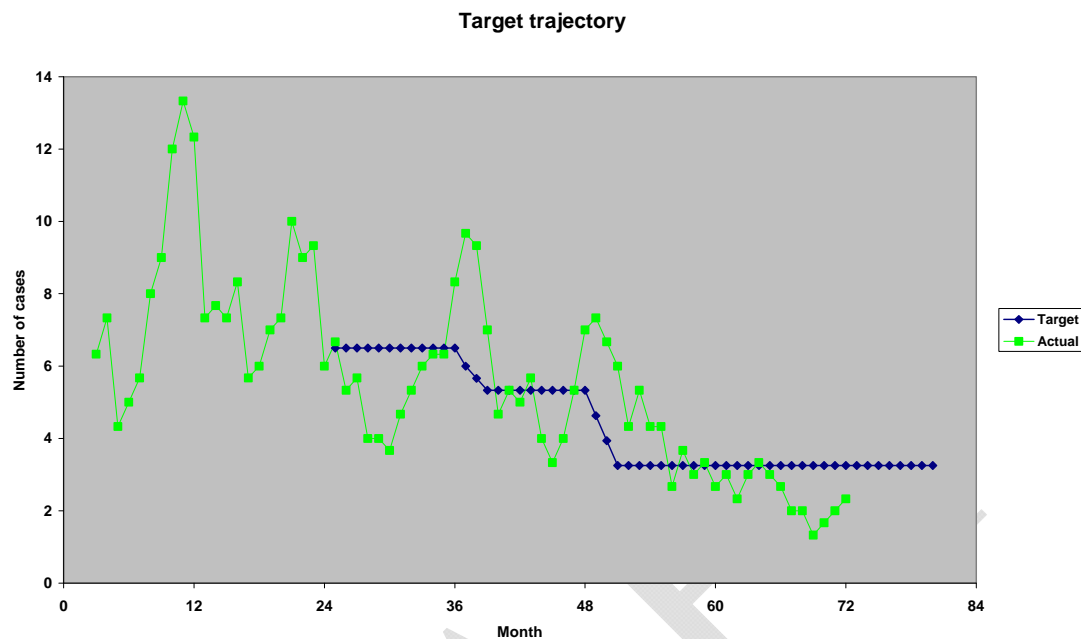
\*\* Position compared to other Acute Teaching Trust (total of 24).

\*\*\* Ratio 1, MRSA bacteraemias as a percentage of all staphylococcal bacteraemias

\*\*\*\*Ratio 2, MRSA bacteraemias as a percentage of all positive bacteraemias.

The target for PHNT for 2007-08 was 39 cases, which is equivalent to a target trajectory of 3.25 cases per month. For the last 24 months, the Trust has averaged 3.25 cases per month. One way to monitor whether Trusts are on trajectory is using a three-month rolling monthly mean (Figure 3). By the end of the year, the Trust was on trajectory.

**Figure 3. Three-month rolling mean of MRSA bacteraemias, 2004-09**



Root Cause Analysis is carried out on all MRSA bacteraemias at PHNT and is performed by the clinical team caring for the patient with support from the IPCT. The results of these RCAs are reported to the Infection Prevention Board and series of recommendations made. Monitoring of actions arising from RCAs is also monitored by the Infection Prevention Board.

One MRSA bacteraemias was from a patient in a Community Hospital to which PHNT provides Microbiology services. Although these cases were not sent from this Trust, the rules of reporting mean that they contribute towards the overall figure for PHNT.

‘Community-acquired’ bacteraemias are defined as those occurring in patients who have been in hospital for less than 48 hours. Many patients fulfilling this criterion will have acquired MRSA through previous contact with the healthcare system. Using this definition, 13 (46%) of the 28 reported MRSA bacteraemia episodes would be classified as ‘community-acquired’. This is a similar proportion to last year, but a significant increase on the proportion of ‘community-acquired’ bacteraemias recorded in previous years (e.g. 25% for 2004-05). Of these 13 ‘community-acquired’ cases, 3 patients had not been admitted to PHNT for at least the previous 3 months.

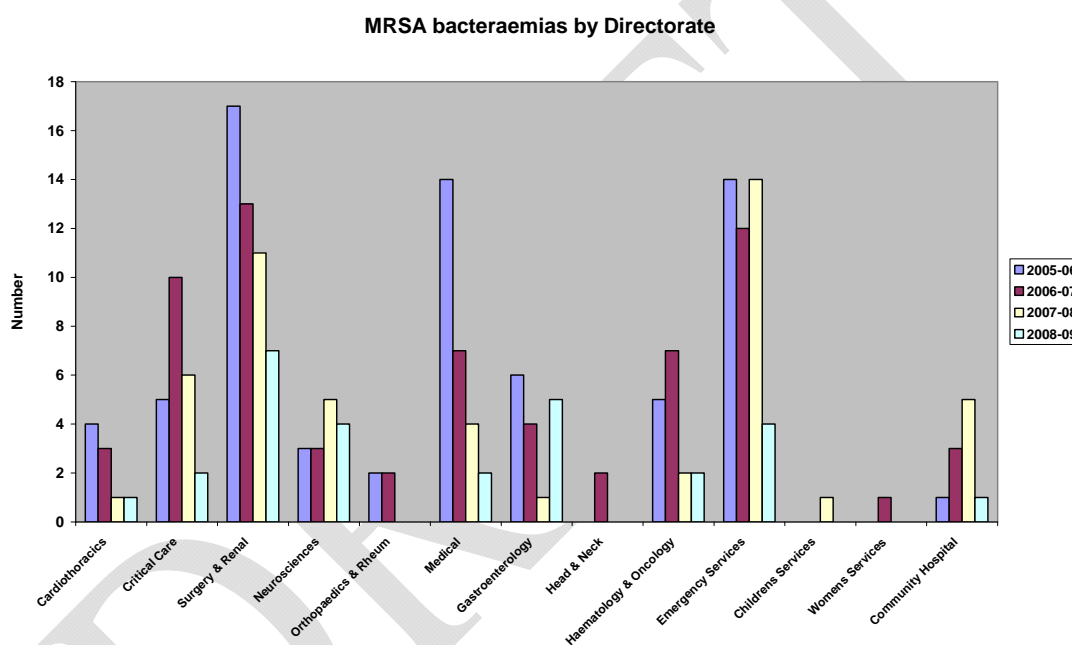
Of the 28 cases of MRSA bacteraemia reported, 16 (57%) were in male patients, a similar proportion to previous years. The mean age of affected patients was 69 years, with a range of 40 – 96 years. In total, 71% of patients were over 60 years and 50% were over 70 years.

Of the 28 cases reported, 7 (25%) were in patients who were not previously known to be MRSA-positive (i.e. the bacteraemia was their first MRSA-positive isolate). This is

a reduction from 40% on the previous year and suggests that screening and suppression programme has been successful in identifying and decolonising carriers prior to development of a bacteraemia. Prevention of further cases may be possible by the expansion of the current MRSA screening and suppression programme. Two patients accounted for four MRSA bacteraemia episodes.

The 'source' clinical area is defined as the speciality from which the blood culture was sent and does not mean that MRSA was acquired in this area. The distribution of cases by Directorate over the last four years is given in Figure 4. Changes to Directorate structures means that comparison to figures from earlier years is not possible.

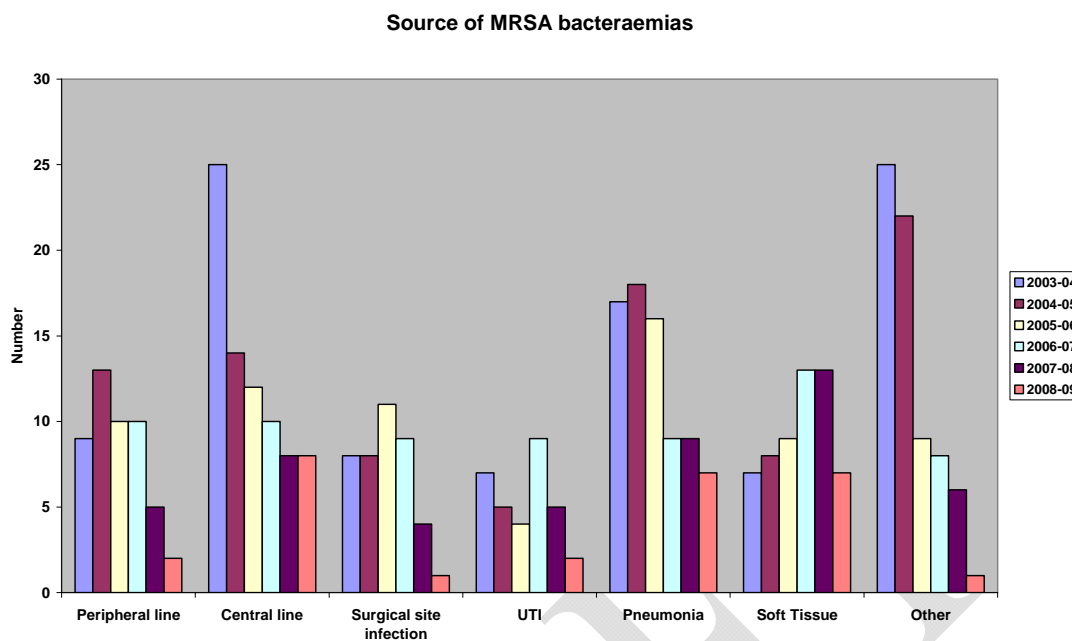
**Figure 4. Distribution of MRSA bacteraemias by Directorate**



Over this period, there has been a decrease in the number of cases of MRSA bacteraemia in all Directorates with the exception of Gastroenterology and Neurosciences. These reductions are likely to be due to the targeting of intensive infection control efforts in these areas which have included MRSA screening and decolonisation. Of the 7 bacteraemias in the Surgery and Renal Directorate, 4 were from the Renal Unit, which recorded 5, 10 and 11 cases in the previous three years. In the Neurosciences Directorate, 3 of the 4 bacteraemias were associated with neurosurgical procedures and 1 was from a Neurology patient.

The distribution of cases over the last 5 years by underlying condition or source is given in Figure 5.

Figure 5. Distribution of MRSA bacteraemias by source



Of the 28 recorded MRSA bacteraemias, most (8 cases) were associated with infection of central vascular catheters. Six of these cases were recorded prior to the introduction of a Vascular Access Team in August 2008, with only 2 recorded since. There was a further decrease in the number of peripheral line-associated MRSA bacteraemias (2 cases) and this is likely to reflect work done to improve the management of these devices. Although the number of bacteraemias due to underlying soft tissue infection was similar, there was a further marked reduction in the number arising from surgical site infections, with only a single case recorded. This is likely to be due to an increase in screening pre-operative patients for MRSA and the expansion of the Surgical Site Surveillance Service, with feedback of infection rates to Directorates and individual surgeons. Seven of the MRSA bacteraemias were secondary to pneumonia. Of the 2 bacteraemias that were secondary to infections of the urinary tract, 1 was associated with an indwelling urinary catheter.

In order to further reduce MRSA at PHNT, the following strategies are planned:

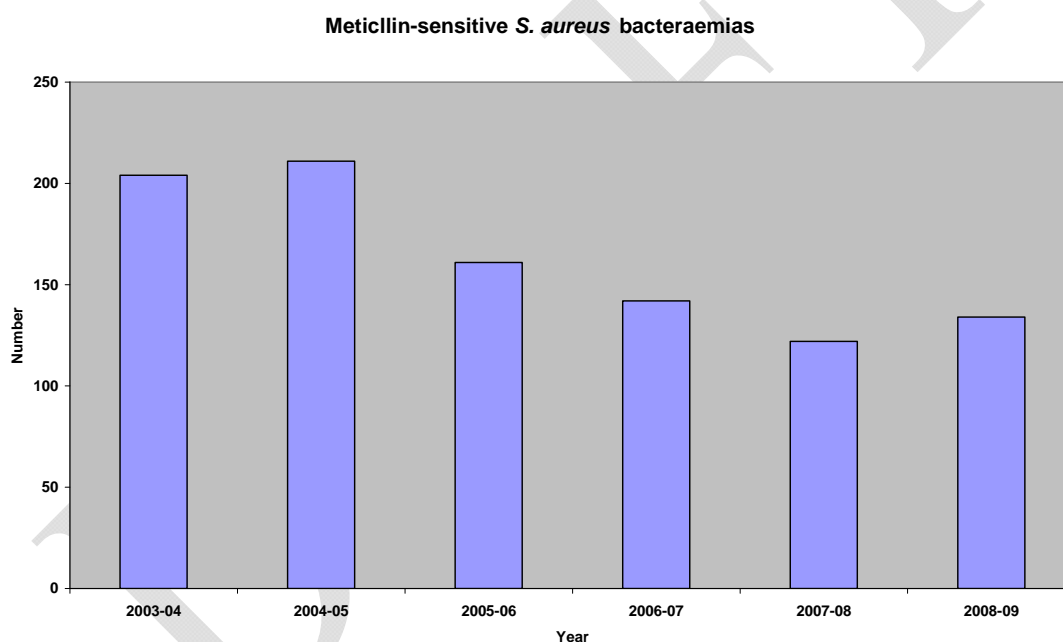
1. Universal screening of all Elective Admissions for MRSA will be performed by March 2009
2. Universal screening of all Emergency Admissions for MRSA will be performed by March 2011
3. There will be continued effort to reduce the number of infections associated with medical devices, including intravascular and urinary catheters. This will include use of a Daily Peripheral Line and Urinary Catheter Management Tool, supporting the 'Saving Lives' programme across the Trust and working in collaboration with the Vascular Access Team

4. The surveillance of post-operative wound infections, including post-discharge follow up, will continue for most surgical procedures performed at PHNT
5. Root Cause Analysis (RCA) will be performed on all MRSA bacteraemias and the results of these investigations and their recommendations will be monitored by the Infection Prevention Board

### 5. Meticillin-Sensitive *S. aureus* (MSSA) bacteraemias

Although there was an increase in the number of bacteraemias due to Meticillin-Sensitive *S. aureus* (MSSA) from 12 to 134, this still represents a 29% decrease in the number of cases since 2003-04 (Figure 6). The interventions that have been implemented to reduce cases of MRSA are also effective against MSSA and this is likely to explain this fall.

**Figure 6. MSSA bacteraemias, April 2003 – March 2009**



### 6. Hospital-Acquired Bacteraemias

Over the last 12 months, there has also been surveillance of all hospital-acquired bacteraemias. Patients with a bacteraemia were identified by daily review of all positive blood cultures, followed by clinical confirmation using standard definitions. The main criterion for a bacteraemia to be recorded as hospital-acquired is that it was taken more than two days after admission. Information from patients with bacteraemia was collected by the IPCT, reviewed by a Consultant Microbiologist and included demographic, infection and risk factor data.

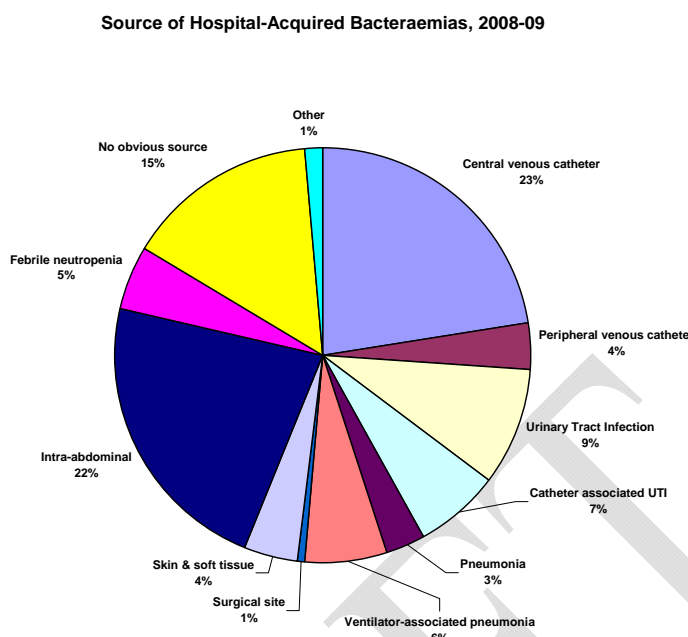
Between April 2008 and March 2009, 16,212 blood culture sets were taken at PHNT. Of these 2,415 (14.9%) were positive and 911 (5.6%) were considered to be

contaminants. Once repeat isolates were removed, 267 patients were considered to have developed one or more episodes of hospital-acquired bacteraemia, which is equivalent to 2.8 patients per 1,000 admissions. Over the 12-month period, 298,560 patient-days were reported for the Trust, giving a mean pooled rate of 0.93 bacteraemia per 1,000 patient-days. A national surveillance study of hospital-acquired bacteraemias in English hospitals covering 3 million patients between 1997 and 2002, reported 3.5 patients with bacteraemias per 1000 admissions and a mean rate of 0.6 bacteraemias per 1,000 patient-days.

The majority of hospital-acquired bacteraemias occurred in the Critical Care, Haematology and Oncology, Gastroenterology, and Surgery and Renal Directorates. This is likely to reflect factors that influence risk of bacteraemia such as severity of illness, immunosuppression and invasive devices.

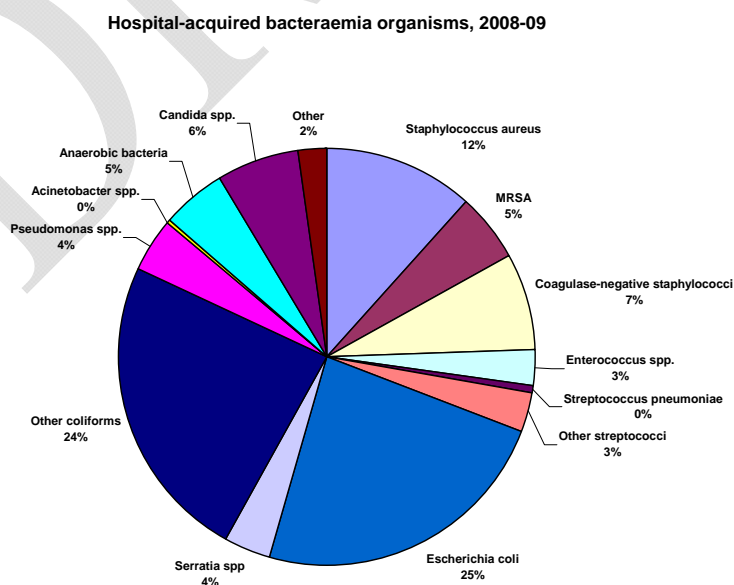
The underlying sources of hospital-acquired bacteraemias for the whole hospital are shown in Figure 7. Although central venous catheters remained the commonest source, the number of cases fell from 83 to 60, reflecting the work done to improve the management of these devices.. While the number of bacteraemias secondary to peripheral lines remained similar, those associated with urinary catheters fell from 29 to 18. Although the number of bacteraemias due to underlying soft tissue infection was virtually unchanged, there was a marked reduction in the number arising from surgical site infections, with only 2 cases recorded. This is likely to be due to the expansion of the Surgical Site Surveillance Service, with feedback of infection rates to Directorates and individual surgeons.

**Figure 7. Sources of hospital-acquired bacteraemia**



Information on the micro-organisms causing hospital-acquired bacteraemias is given in Figure 8. The commonest individual species was *Escherichia coli*, which accounted for 25% of cases. Other coliforms and *Serratia* spp. were responsible for a further 28% of cases. Staphylococci accounted for 24% of cases, with 12% due to Methicillin-Sensitive *Staphylococcus aureus*, 5% due to MRSA and 7% due to coagulase-negative staphylococci.

**Figure 8. Micro-organisms causing hospital-acquired bacteraemia**



## 7. Cases of *Clostridium difficile*

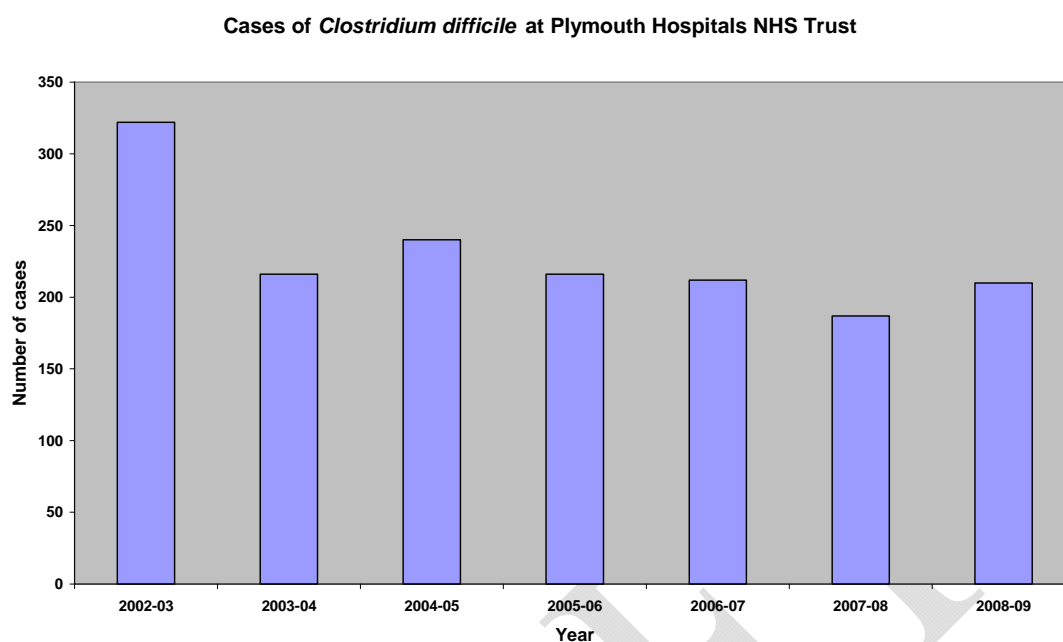
For the year April 2007-08, PHNT was set a *C. difficile* target by Plymouth Teaching Primary Care Trust to reduce cases by 10% from the previous year's figure of 212 cases. This gave a target figure of 191 cases and the Trust achieved this, recording 187 cases and in doing so reported the second lowest rate for any Teaching Hospital Trust in England.

In June 2008 further reduction targets were issued by the South West Strategic Health Authority. Using an estimated baseline attributable to the Trust of 170 cases in 2007-08, this set a 10% reduction target over 3 years equivalent to 164 cases in 2008-09, 159 cases in 2009-10 and 153 cases in 2010-11. In December 2008, all Trusts were asked by the Health Protection Agency to input additional data relating to all cases of *C. difficile* from April 2007 and at the same time the definition of 'hospital-acquired' was changed to include those cases occurring 3 days or more after admission to hospital. This data cleansing and change of definition changed the 2007-08 baseline figure for PHNT from 170 to 143. Using this new definition, the 143 cases was equivalent to a rate of 0.47 per 1000 bed days, which was still the second lowest rate of any Teaching Hospital Trust in England.

Over the last 12 months, PHNT has recorded 160 'hospital-acquired' cases of *C. difficile*. Although a total of 160 cases meant the Trust reported 4 fewer cases than the pre-agreed target, there were 17 more 'hospital-acquired' cases in the last 12 months than in the previous year.

The Strategic Health Authorities and Primary Care Trust commissioners have now set local 'stretch' targets for further reduction of *C. difficile*. The local target for PHNT is 132 cases for 2009-10 and 117 cases for 2010-11

The IPCT also records all cases of *C. difficile* occurring at any time during admission to PHNT and this allows comparison with a longer historical period. Although there were 210 cases of *C. difficile* infection at PHNT between 1<sup>st</sup> April 2008 and 31<sup>st</sup> March 2009 compared with 187 for the previous year (an increase of 12%; Figure 9), this was the second lowest figure on record. There were no major outbreaks due to *C. difficile* during the year.

**Figure 9. Cases of *Clostridium difficile* infection, 2002-09**

Significant efforts to reduce *C. difficile* were introduced in March 2009, including multidisciplinary review of all cases, a weekly ward round, improved diagnosis, RCA of all cases and continuing antibiotic controls. This has had a marked impact, with only 9 cases reported in the 8 weeks since its implementation.

## 8. GRE bacteraemias

GRE bacteraemias occur mainly in specialist clinical areas, particularly transplantation, renal, haematological malignancy and critical care units. Between April 2008 and March 2009, PHNT reported a total of 4 GRE bacteraemias, compared to 14, 8, 7 and 9 for the previous three years.

To date, two full years of mandatory GRE figures have been published (Table 4). During the most recent twelve-month period to be published (October 2006 – September 2007) PHNT reported 17 cases. The numbers of GRE reported by any Trust is small and caution should be used when comparing individual Trusts.

**Table 4. Mandatory reporting of GRE, October 2003 – September 2007**

Characteristic	Oct 2003 – Sep 2004	Oct 2004 – Sep 2005	Oct 2005 – Sep 2006	Oct 2006 – Sep 2007
Number of cases	6	9	13	17
Position*	7=	8=	13=	15

\* Position compared to other Acute Teaching Trusts (total of 24).

## 9. Orthopaedic and other surgical site infections

The Surgical Site Infection Surveillance Service (SSISS) assesses speciality-specific surgical site infections on a quarterly basis. Plymouth Hospitals NHS Trust has participated with this scheme since its introduction in 1997. Standard case definitions and surveillance methodology are provided to enable comparable rates to be produced. Although the reporting of orthopaedic surgical site infections has recently become compulsory, other components of this scheme remain voluntary.

Over the last year surgical site surveillance has been performed on all major surgical procedures carried out at PHNT. Post-discharge surveillance is carried out for most procedures using a standard questionnaire that is returned 28 days after the procedure with telephone follow up of selected cases. Reports are produced and fed back to individual surgeons and Directorates on a quarterly basis. Feeding back infection data is a crucial component of a quality improvement programme and is known to reduce post-operative wound infection rates. Significant reductions in surgical site infections have been achieved at PHNT in those surgical procedures for which surveillance has been established for some time (notably in cardiac and vascular surgery). The number of MRSA bacteraemias associated with surgical site infections has been reduced by 87.5% over the last four years. In addition, there were only 2 all hospital-acquired bacteraemias (i.e. not just MRSA) attributable to surgical site infections last year compared to 17 the year before. The cumulative infection rates at PHNT for all surgical specialities are compared with the cumulative national rates in Table 5.

**Table 5. Surgical site infection rates**

<b>Operation</b>	<b>PHNT rate</b>	<b>National rate</b>
Coronary Artery Bypass Graft	4.3	6.0
Vascular surgery	2.9	6.4
Limb amputation	6.2	9.5
Total Hip Replacement (last 5 years)	1.2	1.2
Total Knee Replacement (last 5 years)	0.9	0.9
Hip hemiarthroplasty (last 5 years)	3.1	3.7
Repair of neck of femur	0.0	2.4
Long bone open reduction	1.0	3.3
Open reduction long bone fracture	1.5	1.8
Large bowel surgery	7.3	10.3
Small bowel surgery	9.2	10.1
Cholecystectomy	0.0	3.5
Bile duct, liver, pancreatic surgery	6.7	10.90
Gastric	14.3	9.8
Abdominal hysterectomy	0.9	2.8
Lower Segment Caesarean Surgery	1.21	NA
Breast Surgery	2.4	NA

Over the next year, it is planned to increase the number of procedures on which post-discharge surveillance is performed.

## Untoward incidents including outbreaks

### 1. Outbreaks of Diarrhoea and Vomiting

Between April 2008 and March 2009, 5 wards were closed due to outbreaks of vomiting and diarrhoea at PHNT (Tables 6 and 7). This is the lowest number for 5 years and is in contrast to other hospitals in the South West which suffered considerable disruption due to norovirus. A total of 84 patients and 25 healthcare workers were affected. Stool samples from all 5 wards were positive for norovirus. These outbreaks accounted for 26 ward-closure days (defined as one ward closed for one day) with a mean period of ward closure of 5.2 days (range 4-6 days). A further 16 wards had a bay restricted or closed for periods that ranged from 4-6 days.

**Table 6. Outbreaks of diarrhoea and vomiting, 2008 – 09**

Date	Ward	Beds	Norovirus	Patients	Staff	Days closed
16.07.08	Carey	26	Positive	17	4	4
08.12.08	Tavy	33	Positive	14	2	5
12.12.08	Hexworthy	34	Positive	19	11	6
15.12.08	Hound	35	Positive	17	8	6
31.12.08	Hexworthy	34	Positive	17	0	5

**Table 7. Outbreaks of diarrhoea and vomiting, April 2008 – March 2009**

Month	Wards	Patients	Staff	Norovirus positive	Days
April 2007	0	0	0	0	0
May 2007	0	0	0	0	0
June 2007	0	0	0	0	0
July 2007	1	17	4	1	4
August 2007	0	0	0	0	0
September 2007	0	0	0	0	0
October 2007	0	0	0	0	0
November 2007	0	0	0	0	0
December 2007	3	50	21	3	17
January 2008	1	17	0	1	5
February 2008	0	0	0	0	0
March 2008	0	0	0	0	0
<b>Total</b>	<b>5</b>	<b>84</b>	<b>25</b>	<b>5</b>	<b>26</b>

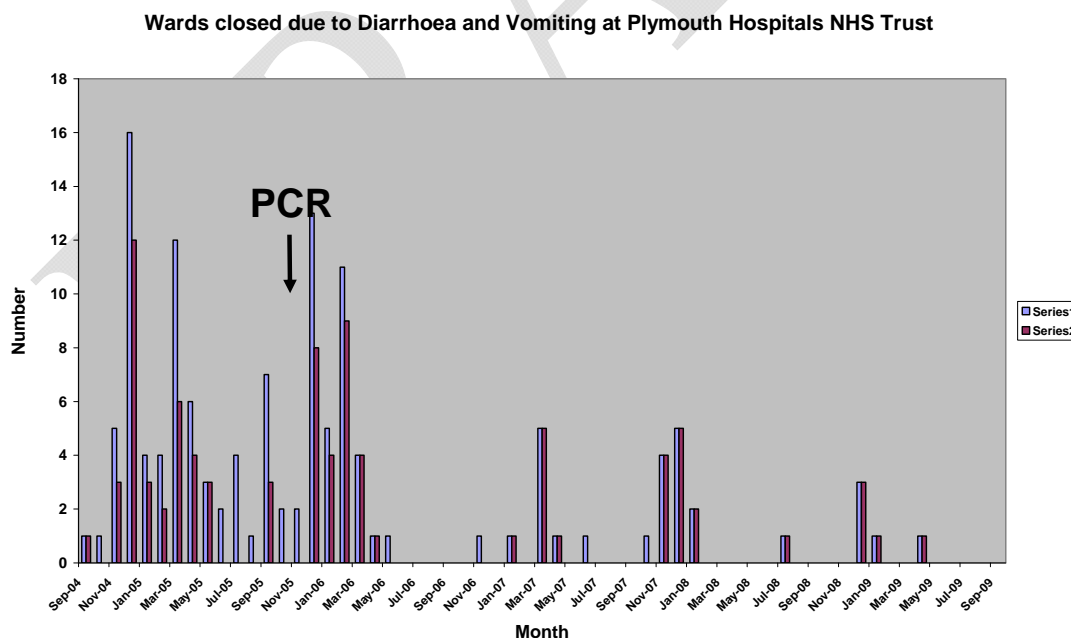
The management of outbreaks by the IPCT has been greatly facilitated by the introduction of rapid diagnostic technology (Polymerase Chain Reaction, PCR). Whereas previously wards were closed as a precaution as soon as patients developed symptoms of diarrhoea and vomiting, it is now possible to determine on the same day whether norovirus is implicated or not. When the PCR test is positive, wards are normally closed and standard control measures put in place (see below). When the test is negative, it has been safe to leave wards open. Consequently, the number of

unnecessary ward closures has been dramatically reduced, with substantially less disruption to the operational running of the hospital (Figure 10).

The outbreaks were controlled by containment, enhanced infection control procedures, and environmental cleaning and decontamination. The following control measures were taken:

1. Outbreak meetings were convened and were generally attended by ‘key players’, including representatives from ISS Mediclean, affected wards, the operational team as well as the IPCT. The IPCT regularly attends the daily operational meetings
2. Information was disseminated throughout the Trust via daily ‘Ward Closure’ and ‘Outbreak Update’ emails.
3. Symptomatic patients were isolated or cohorted
4. Staff movements were restricted
5. Enhanced infection control measures were implemented
6. Symptomatic staff remained off work until 48 hours after their last symptoms
7. Enhanced environmental cleaning and decontamination was implemented in affected areas. Wards were deep-cleaned 48 hours after the last symptoms were reported.

**Figure 10. Monthly ward-closure before and after the introduction of norovirus PCR.**



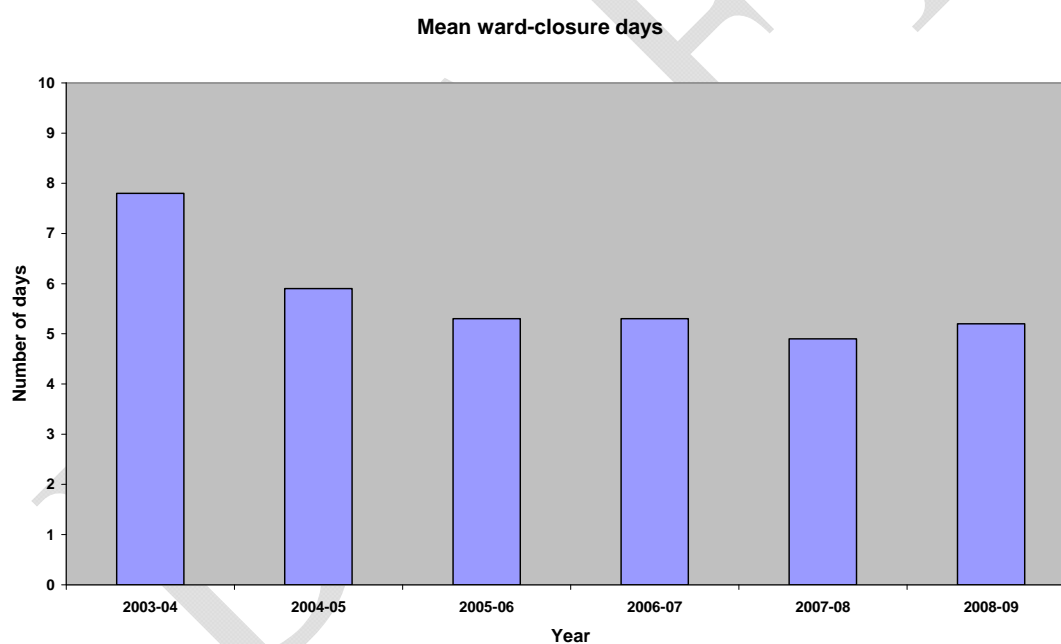
A comparison with other years is given in Table 8.

**Table 8. Outbreaks of diarrhoea and vomiting, September 2004 – March 2009**

Year	Wards	Patients	Staff	Norovirus positive	Days	Mean days
2004-05*	43	658	208	28	252	5.9
2005-06	60	878	168	35	320	5.3
2006-07	9	150	52	7	48	5.3
2007-08	14	204	36	12	69	4.9
2008-09	5	84	25	5	26	5.2

\* Note this is a part year (September 2004 – March 2005)

The mean period of ward closure has fallen from 7.8 days in 2003-04 to 5.2 days (Figure 11). Data from the 2003/4 norovirus outbreak indicate that across the South-West Region, wards were closed for a mean of 15 days (range 5-23 days).

**Figure 11. Mean ward-closure days for PHNT, 2003-09.**

The epidemiology of the outbreaks is highly suggestive of a multi-focal outbreak with the virus being brought into the hospital on numerous different occasions. Similar outbreaks were observed over the same period in other Trusts in the region and also in the community.

During the year, there continued to be effective collaboration between the Operational and IPCT which led to prompt and successful containment. All wards that were closed or restricted remained closed to discharges and/or admissions as recommended by the IPCT.

All ward closures and other Serious Untoward Incidents are reported to the HPA and SHA.

## 2. Other infection-related incidents

There were 28 other infection-related incidents dealt with by the IPCT between April 2008 and March 2009 and these are outlined in Table 9. All ward closures and other Serious Untoward Incidents are reported to the Health Protection Agency and Strategic Health Authority as part of the mandatory surveillance of Healthcare Associated Infection. Reports on these incidents are available from the IPCT.

**Table 9. Infection-related incidents, April 2008 – March 2009**

<b>Month</b>	<b>Incident</b>
April 2008	<i>S. aureus</i> on NICU
April 2008	MRSA on Braunton Ward
April 2008	MRSA infection on Meavy Ward
May 2008	<i>C. difficile</i> on Hound Ward
May 2008	<i>C. difficile</i> on Stonehouse Ward
May 2008	<i>C. difficile</i> on Wolf Ward
May 2008	<i>C. difficile</i> on Moorgate Ward
June 2008	Review of case of sporadic CJD
June 2008	<i>C. difficile</i> on Stonehouse Ward
June 2008	<i>C. difficile</i> on Burrator/ASU
June 2008	Chickenpox in staff member
August 2008	Chickenpox in staff member
August 2008	<i>C. difficile</i> O27 on Moorgate Ward
September 2008	Potentially infectious TB, AMU Thrushel
September 2008	Member of staff with shingles
Jul-Sep 2008	<i>C. difficile</i> on ASU/Burrator
March 2008	MRSA on Torrington CICU/CHDU
June-July 2008	MRSA cases on Stannon Ward
October 2008	Potentially infectious TB, Crownhill
September 2008	<i>C. difficile</i> on Sharp Ward
November 2008	Wildgoose patient with shingles
December 2008	Potentially infectious TB, Crownhill
January 2009	Patient on Carey with chickenpox
January 2009	MRSA on Central Delivery Suite
March 2009	Patient on Hound with chickenpox
March 2009	Patient on Hound with shingles
December 2008	MRSA cases on Wolf ward
February-March 2009	Rotavirus on NICU and TCW

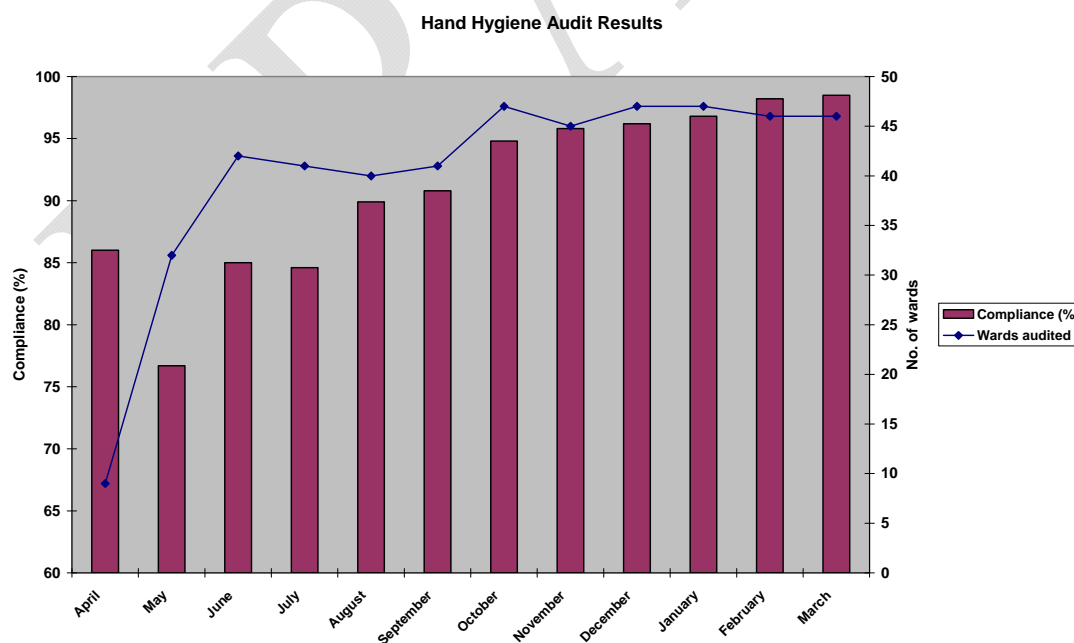
## Hand hygiene and aseptic protocols

### 1. Audit of compliance with hand hygiene

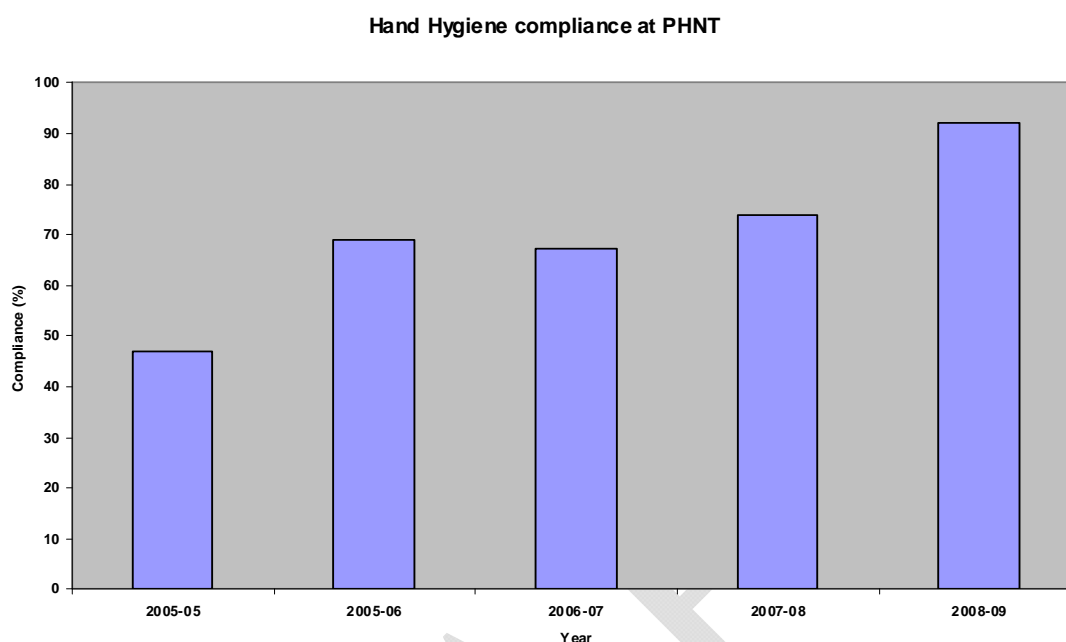
During the year, all clinical areas were audited on a monthly basis. The ward Infection Control Link Practitioner performs 2 audits per quarter with the third being carried out by a member of the IPCT. Each audit involves observation of the frequency and quality of hand hygiene in clinical areas. The pass mark for hand hygiene audits was increased from 85% to 95% in August 2009. Each quarter, a qualitative audit, examining hand-washing technique, was also performed using the GloBox. These training sessions have also been used to raise staff awareness of contact dermatitis. In addition, hand hygiene audits are performed in Departments on a quarterly basis, with two per year performed by the IPCT. All audit results have been reported back to medical and nursing staff working in the areas in order to improve practice and are also included on the balanced scorecard of reporting and on the IPCT display cabinet in the main foyer. Immediate verbal feedback is given at the time of the audit and areas also receive a written report. Wards are encouraged to display the results of hand hygiene and other audits at their entrance or on a dedicated infection control notice board.

In April 2008, 9 wards performed hand hygiene audits with a mean compliance of 86%. In March 2009, 46 wards carried out hand hygiene audits with a mean compliance of 98.5% (Figure 12).

**Figure 12. Monthly hand hygiene compliance, April 2008-March 2009**



The Trust's overall mean Hand Hygiene compliance for the year increased to 92% compared to 74% the previous year (Figure 13). This sustained improvement in hand hygiene compliance reflects the high priority given to hand hygiene by the IPCT as well as the impact of the cleanyourhands and other campaigns (see below).

**Figure 13. Annual hand hygiene compliance, 2004-09**

Over the next year, wards failing to achieve 95% compliance will be expected to perform weekly audits until they consistently achieve this standard.

## 2. Cleanyourhands campaign (report by Susan Hunt)

The cleanyourhands campaign was launched by the National Patient Safety Agency (NPSA) following Patient Safety Alert 04 (2<sup>nd</sup> September 2004). This programme is designed to improve hand hygiene compliance and reduce the hospital-acquired infection through three main strategies:

1. The installation of alcohol-based hand rub at the point of care
2. A poster campaign to raise awareness
3. A patient leaflet which provides information on hospital-acquired infection and the importance of hand decontamination, and which encourages patients to remind staff to clean their hands.

The NPSA reissued the Patient Safety Alert in September 2008 at the Cleanyourhands Summit 'All Hands to the Pump' held in London and attended by a member of the IPCT. The Alert applied to all providers of NHS care in all healthcare settings throughout England and Wales.

Key points from the Summit/Alert were:

- The role of hand hygiene by healthcare staff in preventing and controlling infection
- The point of care as the crucial moment for hand hygiene

- The appropriate placement of hand hygiene products
- Which hand hygiene products to use and when
- The current recognised standard for hand hygiene products
- Management of the risks including ingestion, fire and skin irritation

Actions for all providers of NHS care by 31<sup>st</sup> March 2009:

- To audit and review current risk management strategies including:
- The placement, accessibility and suitability of all hand hygiene products, including hand wash basins and handrub dispensers, to ensure health care staff to undertake hand hygiene at the point of care
- All hand hygiene policies, processes and programmes to ensure they prioritise hand hygiene at the point of care
- Develop and implement an action plan to address the issues identified in the audit

The PHNT IPCT addressed all of these actions and in November 2008 carried out a Trust wide Audit of Clinical Wash Hand Basins and the Provision of Handrub at the point of care. A programme of works for implementation has been drawn up by the Estates Department.

Clean**your**hands campaign coordinators from acute and community based trusts were invited to take part in a workshop at the NPSA offices on the 17<sup>th</sup> November 2008. The Trust was represented by a member of the IPCT. The aim of the workshop was to explore the idea of a tool kit of resources to aid the sustainability of the highly successful and world renowned campaign. Although the acute trusts have entered their fourth and final year, this is the first year it has rolled out into the community setting.

The delegates were divided into small groups and the day consisted of three sessions focusing on:

- The perceived message and audience of the campaign
- The current resources used for the clean**your**hands campaign and other initiatives
- Identifying the gaps and how these could be addressed with a set of resources that will be used by trusts in the long term

Discussion was varied, imaginative and constructive. Subjects covered by group discussion included a training film to target all NHS staff, raising awareness, promotional materials, standardised audit tools, stronger links with the Care Quality Commission and the Department of Health to ensure buy-in from Senior Management and producing local and national scorecards to encourage national standards.

Since the Tool Workshop the NPSA has developed a new look clean**your**hands website, this is now up and running. Registration is limited to campaign coordinators (Susan Hunt & Glynis Webster) in the first instance, who in turn can register other interested colleagues.

### 3. 'Five Moments' for hand hygiene

The NPSA announced their support for the World Health Organisation (WHO) campaign '5 Moments' for hand hygiene at the point of care. On the 5<sup>th</sup> October 2008 the IPCT joined in the celebration of the WHO 'World Cleanyourhands Day'. The IPCT display cabinet promoted information informing the public about the '5 Moments' and the Day. During the week, the main entrance on Level 06 concourse housed a display, including a hospital bed, to promote the concept of at the point of care and the important '5 Moments' for hand hygiene. This created considerable interest with visitors and was successful in raising awareness of the importance of hand hygiene across the Trust.

'5 Moments' workshops are presently being rolled out nationally, are proving to be a great success, with delegates from recent Manchester and Birmingham sessions providing very positive feedback. The IPCT will be sending a delegate to the June workshop to be held in Bath.

The IPCT is currently taking part as one of the centres in the national follow-up studies (the Feedback Intervention Trial (FIT) and NOSEC studies) which are assessing the effectiveness of the cleanyourhands campaign.

### 4. Schools and staff poster competitions

In December 2008, the IPCT ran its annual competition for local children to design hand-washing posters. The aims of the campaign were to raise awareness of hospital associated infection and promote excellence in hand hygiene practice. Class 1B from Courtlands Special School were the overall winners. A prize-giving ceremony was held in the main concourse and the winners were presented with a framed print of their design by the Chief Executive, Paul Roberts. This event was also covered by the local media. After the ceremony the children, parents and teachers were invited to the IPCT office where they were treated to a tea party. A selection of the posters, including those designed by the winners, are now on display throughout the hospital

The IPCT also organised a staff poster competition and this year had one of the largest numbers of entries with 20 staff submitting designs. The three main winners and four commended winners won a selection of prizes donated by local businesses, including meals at local restaurants, hair treatments, a bottle of champagne and a gift voucher for a popular food shopping chain. The posters were again imaginative and original. The panel that performed the judging included Yvonne Robertson from the Department of Health.

### 5. Bare-Below-the-Elbows Calendar

The IPCT produced Bare-Below-the-Elbows Calendar for 2009, with each month featuring photographs of high profile clinical and managerial staff from the hospital, as well as local celebrities, including Tom Daley, Tonia Couch and a group of Royal

Marine Commandoes serving in Afghanistan. The calendar was produced by the Medical Photography Department and distributed across hospital.

## **6. Talking poster frames**

To further raise awareness of the importance of hand hygiene, talking poster frames have been installed at the main entrance and outside all wards in the hospital. The frames contain a hand-washing poster and are triggered by a motion sensor that immediately plays an audio track, reminding staff and visitors to decontaminate their hands. They are designed to grab the attention of the passer by, making sure they take notice of the poster and also use the gel which is also available at the ward entrances. Signs have been installed in the hospital reception, outside wards and in other key locations across the Trust reminding staff, patients and visitors of the importance of hand hygiene and asking them to use the alcohol gel outside the ward areas. The signs are activate intermittently to maximise the effect of their impact.

## **7. Management of medical devices and Saving Lives**

A key strategy to reduce hospital-associated infection is to reduce the infection risk associated with the use of catheters, tubes, cannulae, instruments and other medical devices. 'Saving Lives: a delivery programme to reduce Healthcare Associated Infection including MRSA' was published by the Department of Health in July 2005. This document includes a self-assessment toolkit and a series of High Impact Interventions (HII) designed to focus staff on core clinical practices that impact on reducing Healthcare Associated Infections. A pilot scheme to implement the HII was performed in June 2006 and a Trust-wide roll-out began in January 2007. As from April 2008, the Directors of Nursing expected all clinical areas to complete monthly audits, with close monitoring by the Matrons. Over the last 12 months there has been a significant improvement in audits returned from wards with patients with peripheral and central lines and urinary catheters. Sustaining this improvement over the next year is a priority for the Trust.

In order to improve the management of peripheral venous, central venous and urinary catheters, Daily Management Tools for clinical areas have also introduced. These provide a daily review of key areas of catheter care and prompts when these devices should be removed. Data is fed back by the IPCT which allows wards to assess standards of practice. Most wards at PHNT are now using these tools which have resulted in considerable improvements in the management of these devices. Taken together, these interventions have reduced the number of infection-related complications associated with these devices. Over the last year, the number of hospital-acquired bacteraemias associated with peripheral venous, central venous and urinary catheters has fallen from 125 to 83, with those due to MRSA falling from 16 to 11.

## Audit

### 1. Audit of clinical areas

Regular audit of clinical areas is performed using a standardised tool supplied by the Infection Prevention Society, which examines all aspects of the environment, facilities, individual staff knowledge and practice. All clinical areas are audited over a 12-month period. A score of 75% or more is required to pass these audits. If a clinical area fails to reach this score a plan of action is drawn up and the area is re-audited to check compliance with recommendations.

The ICT audited 100% of all Trust areas. The average infection control clinical audit scores for wards across the Trust was 85%, compared to 81% last year. Five clinical areas at PHNT failed to achieve an overall score of 75% (Moorgate, Shaugh, Transitional Care, Argyll and Norfolk). Action plans have been implemented and these areas have since been re-audited and achieved scores of 75% or higher.

### 2. Compliance with policies and procedures

A number of audits have been performed to assess compliance with the comprehensive range of infection control policies and procedures, including:

- a) Hand Hygiene compliance
- b) Availability of alcohol hand gel in clinical areas
- c) Compliance with MRSA policy
- d) Compliance with *Clostridium difficile* policy
- e) Compliance with Resistant Gram-Negatives policy
- f) Compliance with Glycopeptide-Resistant Enterococci policy
- g) Management of intravascular catheters
- h) Management of urinary catheters
- i) Management of Sharps
- j) Decontamination of endoscopes
- k) Management of Diarrhoea and Vomiting in a Clinical Area/Outbreak Policy
- l) Linen services
- m) MRSA screening
- n) Antibiotic use
- o) Use of isolation facilities.

The results of these audits are available from the IPCT. The programme of audit for the next 12 months is outlined in the Annual Programme of Work for April 2009 – March 2010.

## **Training and education**

### **1. Education (report by Gill Sargeant)**

Education is essential to promoting safe practice, and is integral to the overall delivery of an effective infection control service. Each year, an Annual Education Programme is produced to outline Trust-wide training programmes for medical and nursing, allied health professional, cleaning and estates, as well as administrative, clerical and managerial staff. The Plan includes an assessment of the training needs of different staff groups and is designed to meet local and national educational needs and requirements

Infection control was included as an integral part of Induction Training, as well as Statutory Education Update Training. Links with the Trust's Education Department continues with the inclusion of the subject of infection control in the Trust Preceptorship, HCA Level 1, 2, & 3 and Return to Practice courses. The IPCT also delivered education sessions to ISS Mediclean staff on infection prevention and control, with special reference to cleaning the environment.

The increase in linking practice to academic recognition has resulted in more healthcare professionals completing University partnership Degree-level courses (The University of Plymouth Level 2 'HEAB 236' course 'Practice and Principles of Infection Control' and the University of Plymouth Level 3 'HEAC 334'). Last year also saw the second running of a Masters Module in Infection Prevention and Control, which was run in partnership with the Peninsula School of Medicine and Dentistry. Expansion of the Masters programme is planned over the next 2 years and will offer the opportunity for practitioners to obtain specialist post-graduate qualification in infection prevention and control. All these courses are planned to run in 2009.

The NHS Core Learning Unit (National Infection Control Training Programme) continued and had 290 users logged on with a total of 1041 modules studied. Unfortunately this has now been removed from the website and discussion will need to take place regarding the purchase of these modules.

The IPCT continues to try to provide education in different ways to meet the needs of a very busy organisation. It is often difficult to release staff from their duties and to this end the IPCT are increasingly delivering training at ward level.

A summary of progress against key education targets for April 2008 to March 2009 are set out in Table 10.

Table 10. Progress against key education targets, 2008 - 2009

Target	Progress
<b>1. Creation of an Annual Infection Prevention &amp; Control Programme of Education delivering proposed educational activities across the Trust</b>	Plan completed and presented to ICC in April 2009
<b>2. Inclusion of infection control in Induction Training and Essential Skills and Knowledge Training (formerly SEUT)</b>	80.1% staff attendance, an increase from 50% in 2007-08
<b>3. Maintain and support the on-going development of the ICLP network, including HCA Link Nurses</b>	Plan completed for 2008-09  Percentage of attendance at ICLP meetings was 27%
<b>4. Development, maintenance and growth of Trust wide infection prevention and control education</b>	The IPCT have performed targeted education sessions to the following staff groups:  Nursing staff Return to practice and preceptees Medical staff Porters Radiographers Theatre personnel Outside Agencies Community based staff Student Nurses Occupational Therapists IIS Mediclean  The IPCT have also provided education to a wide range of wards and departments throughout the year.
<b>5. Develop medical staff infection prevention and control education.</b>	Ongoing  Number of medical staff undergoing medical assessment and/or competencies) 2008-09 – 110

<p><b>6.</b> <b>Develop specialist Infection Prevention and Control education at Diploma, Degree and Masters Levels</b></p>	<p>Ongoing</p> <p>Total number of candidates completing a degree/diploma module Diploma candidates -1 Degree candidates – 11 Masters candidates – 18</p>
<p><b>7.</b> <b>To hold an annual Infection Control Study Day</b></p>	<p>Planned for May 2009</p>
<p><b>8.</b> <b>To maintain and develop education of patients and relatives. (See Annual Plan)</b></p>	<p>Ongoing.</p> <p>IPCT held open forums throughout the year in the concourse IPCT held a school poster competition in 2008 IPCT held a staff poster competition in 2008 IPCT maintain a patient/visitor notice board in the concourse Ongoing development of the Infection Control website</p>

## **2. Infection Control Link Practitioners (ICLPs – report by Cathy Ford)**

Each clinical area has a named individual who is responsible for close liaison with the IPCT. These link practitioners are a vital resource for the Trust in the overall strategy to reduce HCAs. There are currently 180 ICLPs distributed across PHNT, Plymouth Teaching, Devon and Cornwall Primary Care. Each ICLP at PHNT is allocated at least 2 hours per week or 1 day per month, of protected time to perform infection control-related duties. Ensuring that staff are released from general duties to allow this will continue to be a high priority for 2009. The ICLPs play a key role in informing, educating and supporting their colleagues and coordinate audits in their own area. They are particularly important in ensuring monthly hand hygiene and Saving Lives audits are performed. The IPCT support the ICLPs, primarily in the form of monthly meeting which alternate with between formal and educational meetings. As well as providing the ICLPs with support and training, these meetings also give an opportunity for networking and exchanging ideas, information and best practice. The meetings ensure the ICLPs are kept up to date with key infection control issues and subjects covered in educational meetings are frequently in response to outcomes of audit and surveillance. Over the last year, teaching sessions have focused on practical scenarios, such as the management of outbreaks in clinical areas. The ultimate goal is for ICLPs to cascade infection control education and training to peers in their clinical areas.

The Practice and Principles of Infection Control Modules HEA 361 and HEA 276 provided in partnership with the University of Plymouth are available for all ICLPs to attend. This module is aimed at providing the theory of infection prevention and control which will underpin and enhance best practice.

In October 2004, a Professional Portfolio for the ICLPs was produced with the assistance of commercial sponsorship and has now been disseminated Trust-wide. It is the responsibility of the ICLP to maintain their portfolio as evidence of their commitment to the prevention and control of infection. This will enable the ICLPs to document and reflect upon their activities and develop within the role. As well as providing guidance and support for the ICLPs, the portfolio will also allow the IPCT to audit individual effectiveness and activity, providing information for evaluation of the network.

## **Compliance with National Guidance and Standards**

### **1. Code of Practice for the Prevention and Control of Health Care Associated Infections (report by Julie Hendry)**

The Health Act approved by Parliament in October 2006 contains a Code of Practice for the Prevention and Control of Health Care Associated Infections (HCAI). The Code places a statutory duty on Trusts to 'ensure patients are cared for in a clean environment, where risk of HCAI is kept as low as possible' and was updated in January 2009.

Under the Code of Practice, the Trust must ensure that:

1. so far as is reasonably practicable, patients, staff and other persons are protected against risks of acquiring HCAI, through the provision of appropriate care, in suitable facilities, consistent with good clinical practice
2. patients presenting with an infection or who acquire an infection during treatment are identified promptly and managed according to good clinical practice for the purposes of treatment and to reduce the risk of transmission.

The Trust is expected to have systems in place sufficient to apply evidence-based protocols and comply with the relevant provisions of the basic Code so as to minimise the risk of HCAI to patients, staff and visitors. The systems for the prevention and control of HCAI are expected to address:

- management arrangements to include access to accredited microbiology services
- clinical leadership
- application of evidence based protocols and practices for both patients and staff
- the design and maintenance of the environment and medical devices
- education, information and communication.

Until March 2009, compliance with the Code was monitored and assessed by the Healthcare Commission. From April 2009, this function will be performed by the Care Quality Commission. Failure to observe the Code may result in recommendations for action or an Improvement Notice being issued to the Trust. As from April 2009, Trusts may also be fined or have restrictions on practice placed upon them.

In July 2008, the Healthcare Commission undertook an inspection of PHNT and the report that followed this visit highlighted breaches of eight sub-duties of the Code. The Healthcare Commission undertook a re-inspection in February 2009. At this inspection they found satisfactory improvement in five of the sub-duties but despite an Action Plan implemented by the Trust following the July inspection, it was found to be unsatisfactory in three. These were 2d (supervision of ward staff with regard to cleaning), 4c (ward equipment and areas observed during the inspection not to be clean), and 4f (significant dust in some ward bays). The Healthcare Commission specifically named five wards in these breaches.

As a result of this ongoing breach of the Hygiene Code, the Trust has 'Conditional Registration' with the Care Quality Commission (CQC) as of 27<sup>th</sup> March 2009.

The Trust is addressing improvements in Hospital cleanliness in a number of ways. Ward Managers and department leads are required to inspect their areas daily using a simple checklist. Matrons and Heads of Service are required to undertake a detailed weekly inspection of all patient areas, and all Executive Directors undertake unannounced inspections of wards and departments twice-weekly, supporting staff in making improvements. The Trust also has a Cleanliness Action Group, chaired by the Chief Executive, with a number of work streams:

- Ward and Department Cleanliness inspections
- Improving ward and department fabric
- Contract cleaning
- Cleaning and standardisation of equipment
- Compliance with Decontamination standards
- Risk Register issues
- Human Resource issues
- Communication

The Trust has made Hospital cleanliness one of its nine key priorities for 2009-10 and has appointed Julie Hendry, Director of Nursing & Midwifery as the Senior Responsible Officer for Hospital cleanliness. Julie will work with staff, patients and the public in developing a culture of ownership, standardising and improving the processes around cleaning, enhancing the Trust environment and increasing user involvement and public confidence. The Trust's aim is for the conditional registration with the Care Quality Commission to be lifted as soon as possible.

The IPCT has collated documentary evidence for the assessment of compliance for the infection control elements of the Code of Practice and these files are available for external assessment when required.

## **2. National Health Service Litigation Authority (NHSLA)**

The documentary evidence for the assessment of compliance of infection control within the NHSLA standards (level 1) achieved the required standard during the external review. These evidence files will be updated as required for any future assessments.

## **3. Healthcare Commission ‘Standards for Better Health’**

Throughout the year the, the IPCT has been collating documentary evidence for the assessment of compliance of infection control within the Health Care Commission ‘Standards for Better Health’ (core standard C4a). Feedback from the Trust Lead for ‘Standards for Better Health’ has indicated full compliance with this standard. These evidence files are ready for external assessment when required.

## **4. Saving Lives**

As part of the process of assessing compliance with the Code of Practice, the self assessment tool of Saving Lives has been completed. The IPCT has the required policies, procedures and processes in place to meet the required standards.

## **Other external assessments and visits**

### **1. Department of Health HCAI Improvement Team, June 2008**

The Department of Health Healthcare Associated Infections Improvement Programme offers targeted support to Trusts to assist their Infection Prevention and Control Programmes. PHNT invited the Improvement Team to visit the Trust on 27<sup>th</sup> November, 2007 in order to get an independent assessment of work done to date and ideas for future actions. This single-day visit involved a series of interviews with staff across the organisation, observational tours and a review of relevant documentation.

The report of the visit recognised that the Trust has made significant progress in lowering infection rates and identified many areas of good practice. It also made a series of suggestions for improvement in order to enhance current efforts to reduce infection rates further. A Programme for Improvement was produced that outlined the Trust’s response to these recommendations. The main outcomes were:

- Inclusion of infection control as a standing item in the Quality and Safety Board (now the Quality, Safety and Infection Prevention Board)
- Production of Zero Tolerance Statements regarding clinical practice
- Performance of RCAs on all serious HCAIs
- Production of a Balanced Scorecard of reporting for HCAIs
- Establishment of a cross-community infection control group.

A follow-up visit was made to the Trust on 12<sup>th</sup> June 2008. Again the visit involved a series of interviews with staff across the organisation, observational tours and a review of relevant documentation. The Team recognised that there had been a significant reduction in MRSA bacteraemias and cases of *C. difficile* across the Trust. The report of the visit recognises that the Trust has made significant progress in lowering infection rates and identifies many areas of good practice. They were particularly impressed with:

- The obvious engagement of the Chief Executive, Executive Directors and Non-Executive Directors with the infection control agenda
- The good clinical engagement and obvious enthusiasm for the subject amongst staff
- The attitude and commitment of the Matrons
- The commitment and drive of the DIPC and Infection Control Team
- The proposal for the Ward Managers to become supernumerary
- A leadership style that enhanced engagement and sustainability, as this was important for long-term change and further reductions in HCAs.

It also makes a series of suggestions for improvement in order to enhance current efforts to reduce infection rates further:

- Improve completion of the balanced scorecard
- Give further clarity on strategy and a more focused accountability framework
- Introduce 2% chlorhexidine and improve documentation of VIP scoring.
- Make the Root Cause Analysis process more multidisciplinary
- Reduce variability in cleaning practice.

A Programme for Improvement was produced to outline how the Trust would respond to these recommendations and the actions outlined in this Programme have now been completed.

### **Decontamination (report from Richard Best, Decontamination Lead)**

The decontamination of medical instruments at PHNT is carried out by the Sterilisation and Decontamination Unit (SDU) and centralised services within the Trust. The Endoscopy Department decontaminates their own endoscopes using automatic washer-disinfectors within their department.

The Sterilisation and Decontamination Group was re-launched in July 2008 as the “Decontamination Steering Group” (DSG). Richard Best, Director of Operations was appointed as the Decontamination Lead for the Trust reporting to Dr Alex Mayor, Executive Lead. Meetings have been well attended and due to the intensity of activity, have been monthly until October 2009, then quarterly. The DSG oversees the programme of improvements to decontamination of medical devices for the Trust and due to the importance of this work, reports directly to the Safety and Quality Board.

Highlights of the last year have been:

- Change in title/role of SDU Manager to “Trust Decontamination Manager” with no production responsibilities and acquired quality responsibilities for decontamination standards across the Trust
- Considerable investment in SDU processing, new baskets, department infrastructure, washers, clean room benches and infrastructure
- Best practice review of endoscope processing undertaken by external Auditor and reported to the Trust Board (October 2008)
- Agreement in principle to invest in central endoscope processing facility – detail of two options still in process
- Complete audit/inspection of all outpatient areas, processing of devices/cleaning of patient equipment from February 2009-April 2009.

Work continues this year on all aspects of the decontamination programme. Two major milestones will be the acquisition of instrument tracking software (in capital programme and out to tender) and the implementation of central endoscope processing solution.

## **Cleaning services**

### **1. Implementation of national guidance**

During the later part of 2007-08, the Facilities Department put forward a proposal to fully adopt the minimum cleaning frequencies as laid down in the National Specifications for Cleanliness in the NHS (April 2007). Authorisation to implement the frequencies was received and in April 2008, ISS Mediclean began to roll out a programme of implementation. Although the domestic service complied with all the cleaning frequencies for significant and low risk functional areas, work was needed to bring the frequencies for very high and high-risk areas into line with the national guidance.

From April to June 2008, ISS Mediclean recruited and trained additional staff to enable the cleaning frequencies on wards to be adjusted. In the main this involved an input of additional hours, worked during the afternoons in order to increase the cleaning frequencies of sanitary and floor areas but required a full review of all the ward cleaning schedules. Cleaning sign-off sheets were introduced for all patient toilets in order to confirm the frequency for cleaning, provide an audit trail and enable ward staff to check the cleanliness and sign-off at any time.

Once the cleaning frequencies for scheduled cleaning had been finalised and wards were up and running with their revised regimes, the frequencies for planned cleaning were reviewed and a programme of curtain laundering and changing was compiled and implemented. By November 2008, many wards had already changed from fabric to disposable curtains so the programme had to be well communicated to ensure ward

staff had made the required stock of disposable curtains available at the time of the planned change.

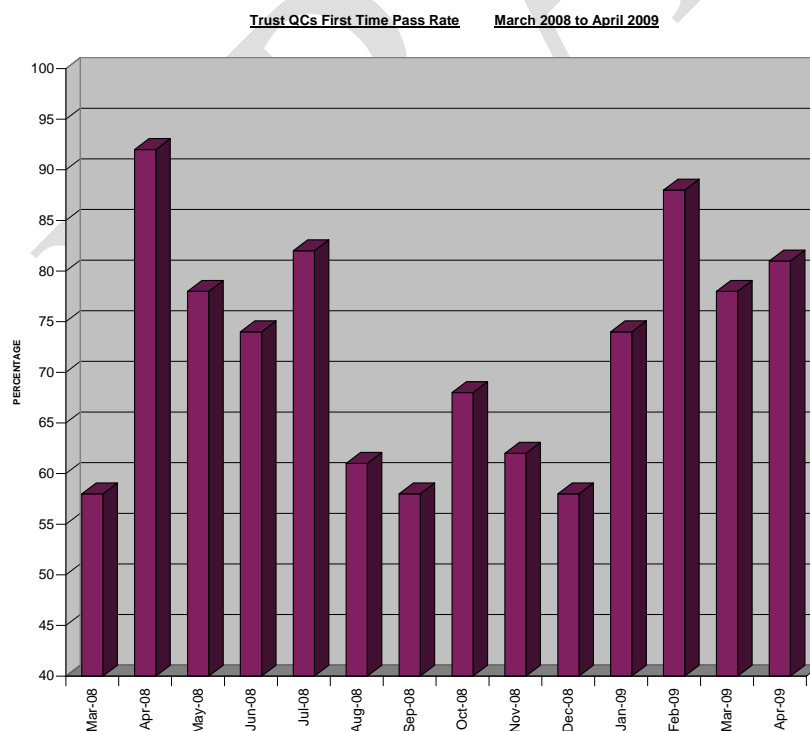
The final part of the revision of cleaning frequencies was to review the cleaning frequencies for public toilet and corridor floor cleaning and ISS Mediclean recruited several additional staff for their floor team to enable the changes to be made.

Once the implementation was complete, the required minimum pass mark for cleaning audits was revised to take account of the increased cleaning frequencies. Prior to implementation, the minimum required pass mark was 85% for all areas regardless of risk category. Following implementation of the cleaning frequencies this was revised to 95% very high risk, 92% high risk, 85% significant and low risk.

## 2. Monitoring arrangements

During the year, the Facilities department carried out a total of 324 monthly audits of the domestic cleaning contract in wards, departments and public areas, audits conducted later in the year being assessed against the revised minimum pass rates. Matrons/Ward Managers were routinely requested to take part in the ward audits. Figure 14 illustrates the first time scores. Any functional area failing to meet the minimum required pass mark on first inspection is subject to a follow-up recheck the following day.

**Figure 14. First time scores of monitored areas**



The Facilities Department also organised and led quarterly patients environment audits. These audits are intended to monitor not only the cleaning standards but also

all other aspects of the patient's environment including those under the control of ward and department managers such as the cleaning of patient's equipment and the control of clean linen. The audit also monitors those responsibilities that fall to the Estates Department such as radiator and ducting cleaning and maintenance of the building. The audit teams comprised Matrons, Infection Control Nurses, Department Managers and patient representatives.

The annual PEAT (Patient Environment Action Team) self-assessment was conducted in February 2009. Once again, the NPSA laid down strict criteria regarding the make-up of audit teams and percentage of the site and selection of areas to be audited. The assessment team was led by Madeleine Jephcott and included Infection Control Nurses, Matrons, Directorate Managers, a member of the Dietetics team and patient representatives. Although the Trust has not yet been formally advised of the outcome of the audit, it is hoped that when the NPSA applies the relevant weightings, the trust will retain its 'Good' status.

### **3. Enhanced/deep cleaning**

During 2008-09, there was considerable pressure on the domestic contractor to respond to the trust's heightened infection control protocols and the responsibility to respond to requests for enhanced and terminal/transfer deep cleans was keenly felt. In total ISS Mediclean completed 25,278 hours of enhanced cleaning in the period January to December 2008.

In addition, the ward moves programme gained momentum through the year and involved significant input by the domestic team to ensure that wards were deep cleaned following refurbishment. Wards undergoing refurbishment and deep cleaning included Burrator, Sharp, Stonehouse, Hound, Wolf, Hartor, Hembury and SAU.

### **4. Environment/improvement works**

During 2008-09 the Estates Department commenced an extensive programme to replace the old worn floor covering throughout the public thoroughfares and within departments. They liaised closely with the domestic department to ensure that not only were the areas thoroughly cleaned following the works but also that the newly laid floors were treated with a hard wearing polish to help protect them from damage and to make them easier to keep clean.

### **5. The future or the cleaning service**

The next year will see the conclusion of the tendering exercise to award a new Hotel Services Contract. Last year was very busy for this Project Group, which included representation and full involvement of the IPCT. The Project Group held responsibility for compiling specifications, running open days for bidders, short listing from 10 to 2 companies and conducting rigorous competitive dialogue with the final 2 short-listed companies. ISS Mediclean will not be providing the Trust's hotel services for the new contract, but thanks must go to the domestic department for their

continued hard work, liaising closely with the IPCT and responding to the challenges involved in keeping the hospital clean and controlling infection.

#### **6. The Patient Environment Action Team (report from Madeleine Jephcott)**

The work of the Patient Environment Action Team (PEAT) has continued throughout 2008 although the Tendering process for the new Hotel Services Contract due to be awarded in June 2009 has impacted on the meetings. Many of the PEAT group members have been involved in both developing the tender document and the evaluation of the submissions from the interested companies. This work has been vital in ensuring that the new service addresses the difficulties experienced with ensuring the Trust is clean and that the environment is one which patients are satisfied with.

The PEAT group have supported the following pieces of work during 2008-09:

- 1) Members have participated in both national and local environmental audits in partnership with facilities representatives and ISS Mediclean
- 2) The group receives monitoring reports from patient survey work, comments cards and complaints and ensures that actions are in place to address specific issues.
- 3) The group monitors the results of ward and department audits and supports matrons in implement improvements where necessary
- 4) Supported the implementation of the new cleaning frequencies as laid out in the National Standards. This included an increased frequency of toilet checks and cleans.
- 5) Reviewed and agreed the Trusts Strategic cleaning plan which was updated to reflect national guidance.
- 6) Supported the purchase and installation of new wheelchairs for wards and department to ensure that commodes are not used for transport purposes
- 7) Produced a poster for top ten myths regarding ordering of food.
- 8) Supported the re-introduction of red trays for patients who require assistance with feeding. The new trays are easier to clean and are used well by those areas who have fully implemented protected mealtimes
- 9) Supported the introduction of disposable wash bowls for patients to minimise the infection risk.
- 10) Supported the introduction of disposable curtains throughout the Trust.

Over the next 12 months the group will remain the main forum for discussion of changes to the patient environment and coordination of appropriate work schedules.

## Other activities

### 1. Policies and procedures

The IPCT recognises the importance of evidence-based policies and procedures in ensuring effective compliance with national infection control standards. All policies comply with the Trust Policy on Policies and are available in all clinical areas in paper format as well as on the trust email system. At renewal, all policies are examined to ensure compliance with the National Service Framework for Children and the Trust's Equality and Diversity Policy.

The following new policies have been produced:

- a) Guidelines for the Cystic Fibrosis

Other policies have been updated in accordance with the continuous process of rolling policy review:

- a) Handling of Linen
- b) Management of the Infected Patient
- c) Guidelines for Isolation Facilities
- d) Management of Central Lines
- e) Disinfection and Cleaning Policy
- f) Infection Prevention and Control Policy
- g) Hand Hygiene Policy
- h) Policy for the Management of Resistant Gram-Negatives
- i) Policy for the Management of Glycopeptide-Resistant Enterococci
- j) Policy for the Management of PVL-producing Staphylococci
- k) *Clostridium difficile* Policy
- l) Aseptic Technique Policy
- m) Policy for Admissions, Transfers and Discharges
- n) MRSA Policy

### 2. Communication with staff, patients and relatives

Communication with staff at PHNT has been facilitated by the launch in September 2004 of a quarterly IPCT Newsletter, 'Infectious'. Updates on ward closures due to outbreaks is provided through Trust-wide emails and on the main infection control notice board in the main concourse. All infection control policies are now available on the Trust email system and there are plans to further develop the infection control website over the next year. The display on the main infection control notice board is changed on a regular basis and includes education and surveillance data. There is a regular infection control contribution to the weekly electronic newsletter (Vital Signs) and the quarterly magazine (Cascade) that are distributed to all staff at PHNT.

The DIPC has attended meetings of the Health Overview and Scrutiny Panels of Plymouth City Council, as well as the Hospital Medical Staff Committee. A representative of the recently disbanded Plymouth Hospitals Patient and Public Involvement Forum is a member of the ICC.

This year the IPCT ran a competition for pupils at local schools and staff to design hand-washing posters (please see above). In addition, members of the Team taught hand washing technique at local schools using the GloBox.

### **3. Design, construction and renovation (report by Claire Hail)**

The IPCT continues to contribute to the design, construction and renovation projects across the Trust, particularly the significant environmental initiatives including the Disposable Curtain Project, Kitchen Refurbishment Programme, Ward Moves Project and the Productive Ward Project advising on product approval and room specifications. For each project, method statements have included dust control measures as advised by IPCT and compliance has been monitored throughout the works. Surveys of the clinical environment have been undertaken prior to works commencing and have been most successful when performed together with clinical staff, the Estates Department and planning teams.

The successful renovation works on Neonatal Intensive Care Unit was completed without significant disruption to the day-to-day running of the Unit, reflecting the effective working relationship with the Project Team, which included contractors, the Estates Department, Matron and staff from the Neonatal Unit and ISS Mediclean as well as the IPCT. The planned up-grade of the two Cardiac Catheter Suites was successfully completed according to programme. Hartor, Hembury and Burrator wards have been refurbished and a further four wards have been assessed ready for refurbishment during 2009.

The two Modular Theatres were commissioned in May 2008. The IPCT advised on essential remedial works and performed microbiological testing for a further 14 theatres included in the Theatre Annual Closure Programme.

The IPCT continues to advise and monitor dust controls during the reconfiguration of the Emergency Department to improve the provision for children. The enabling works for the Macmillan renovation have been completed and works planned within the patient area have been risk assessed.

The policy for Infection Control Input into Design, Construction and Renovation Projects will be reviewed in April 2010.

The IPCT have been involved with the design specification and risk assessment process for the Gateway Project and Level 4 Theatre Project.

#### 4. Antibiotic management (report by Dr J Greig)

The lead Consultant Microbiologist for antimicrobial prescribing (Dr J Greig) has in the last year been joined by a professionally trained Pharmacist, Nicola Joyce (hereafter referred to as the Antibiotic Control Team, ACT). JG is a member of the Drugs and Therapeutics Committee and the Medicines Governance Group, and both JG and NJ are members of the ICC. Members of the ACT attend the daily *C. difficile* operational meeting and the weekly *C. difficile* ward round.

Control of antibiotics rests on certain core principles and practices:

- **Prospective audit with intervention and feedback:** There is a programme of continuous audit of both therapeutic and prophylactic antibiotic use. Directorate-specific use is regularly fed back to the Directorates. In the last year over 3,000 drug charts and 1,400 individual antibiotic prescriptions have been reviewed. The results of the audits are used to identify areas of poor practice allowing targeted interventions and education. The measurement of trust wide and ward specific antibiotic use was interrupted due to IT problems in late 2008 but data collection and interpretation has restarted and will be available again from Summer 2009.
- **Formulary restriction:** Many antibiotics on the local formulary are for restricted use and should be sanctioned by a Microbiologist or used according to pre-agreed protocols. The use of some of these restricted agents is noted centrally in Pharmacy and the ACT is informed on a daily basis. Patients on certain restricted antibiotics along with all patients in general ward areas on vancomycin or gentamicin are reviewed on twice weekly ward rounds. Any antibiotic use that is a cause for concern for the ward-based pharmacists, such as an inappropriate choice, duration or route of administration of an antibiotic, is also flagged up to the ACT on a daily basis and incorporated into ward rounds. Over 1,700 individual prescriptions were reviewed in the last year, the majority of which led to an intervention, usually to stop the antibiotic or convert to the oral route. As part of these interventions half of all non critical care vancomycin, teicoplanin and gentamicin use was amended, usually by stopping the antibiotic, and overall inpatient quinolone used reduced by 60%.

These interventions are supplemented by educational initiatives such as formal teaching, a quarterly secondary care newsletter and monthly email messages. A regular primary care antibiotic use newsletter has recently been published. There are comprehensive and regularly updated antibiotic treatment guidelines available on the Trustnet. The ACT reviews all hospitalised *C. difficile* cases and advises on antibiotic management of such cases. The specific actions of the ACT dovetail with the routine activities of the clinical microbiology service such as regular ward rounds and a freely available clinical liaison service.

### **5. Vascular Access Team (report by Laura Evenden)**

The Vascular Access Team was introduced in July 2008 following a report by the DIPC and with the aim of reducing the rate of line-associated infections in PHNT. The Team is led by Critical Care Nurse Consultant, Julie Hendry, and its members are Carol Pollard, Rekha Gopakumar, Laura Evenden, Julie Morley, Sue Frost, Pete MacNaughton and Peter Jenks.

The Team advise and support healthcare professionals in the Trust to care for patients with a Central Venous Access Device safely and effectively by:

- Visiting patients on wards and departments and advising on all matters relating to the line, including the timely removal of lines
- Providing a line insertion service
- Standardising procedures and products, ensuring these are used correctly
- Providing an education programme for all Trust staff which is competency based
- Incorporating the Saving Lives Care Bundle into patient care throughout the Trust
- Auditing the use and management of central lines
- Liaising with the IPCT and the Trust Board

### **6. Influenza Pandemic Planning Group**

The Influenza Pandemic Group is chaired by the Emergency Planning Officer, Miriam Smith. The multidisciplinary committee has considered the Trust's response in the event of an influenza pandemic and has produced the Trust-wide Policy 'Pandemic Influenza – Operational Response Procedure'. The policies that cover the infection control aspect of seasonal and avian influenza ('Guidelines for the management of Seasonal Influenza' and 'Guidelines for the management of Avian Influenza') have been updated in line with current national guidelines,

As part of the Trust's influenza pandemic preparation, the Practice Education Department continue to offer respirator mask fit testing training sessions. Key individuals have already been trained in the correct way to fit respirator masks and mechanisms have been put in place for them to cascade training to colleagues in their clinical area.

At the time of writing, though outside the year of this report, cases of Swine 'Flu in humans have been reported. The Influenza Pandemic Group has coordinated the Trust's response which has included drafting algorithms for patients who may require admission to hospital and securing supplies of antiviral medication and personal protective equipment, including FFP3 masks. The Practice Education Department have delivered respirator mask fit testing training sessions to staff working in key clinical areas. Further escalation of Pandemic Influenza plans will occur as and when the pandemic develops.

## 7. Infection Control ward round

Since November 2004, all new patients with MRSA, *C. difficile* and norovirus have been reviewed individually on the Infection Control Ward Round. The approval and implementation of a Patient Group Direction allows prescribing of MRSA eradication therapy by the Infection Control Nurses. Parallel to this, new documentation and care plans for the management of MRSA, norovirus and *C. difficile* diarrhoea have been introduced. All patients with MRSA are subsequently reviewed once a week and those with *C. difficile* every day. The ward round also reviews patients colonised with GRE, *Serratia* spp, *Acinetobacter* and ESBL-producing coliforms. This approach has improved the management of these patients as well as compliance with infection control policies and procedures. In addition, the enhanced presence of the IPCT in clinical areas greatly increased their availability for advice and guidance and improved communication with patients and relatives.

## 8. Infection Control Nurse Directorate working

The IPCT has worked hard to move towards providing a more clinically-orientated service, with each Directorate having a designated team of Infection Control Nurses. This system facilitates communication between the IPCT and Directorates and allows a 'tailor-made' service to be developed for each area. By working closely with the ward manager and ICLP to improve practice and feedback of surveillance data, it is hoped that individual area will develop 'ownership' of infection control. The programme has been extremely successful in improving practice and reducing rates of hospital-associated infection areas. Infection control is a standing item on the Agendas of most Directorate meetings which are now attended by the IPCT.

## 8. Research

The IPCT has been involved in the implementation and assessment of the impact of rapid diagnostic tests for MRSA and norovirus. Two research papers have been published on this and one further articles is in preparation.

The following articles have been published by the IPCT in the last 3 years:

Jog S, Cunningham R, Cooper S, Wallis M, Marchbank A, Vasco-Knight P, Jenks PJ. Impact of preoperative screening for MRSA by real-time PCR in patients undergoing cardiac surgery. *Journal of Hospital Infection* 2008; 69: 124-130.

Greig J, Edwards C, Wallis M, Jenks P, Cunningham R, Keenan J. Carriage of meticillin-resistant *Staphylococcus aureus* among patients admitted with fractured neck of femur. *Journal of Hospital Infection* 2007; 66: 187-189.

Cunningham R, Jenks P, Northwood J, Wallis M, Ferguson S, Hunt S. Effect on MRSA transmission of rapid PCR testing of patients admitted to critical care. *Journal of Hospital Infection* 2007; 65: 24-28.

Brown NM, Lee SD, Duerden BI, Gillanders SA, Cookson B, Neville L, Jenks P, Catchpole C, Wright P, Spencer RC. MRSA in non-clinical areas of hospitals. *Journal of Hospital Infection* 2006; 64: 402-403.

Greig J, Jenks P. Treatment of MRSA in community acquired pneumonia. *British Medical Journal* 2006; 332: 1334.

Cunningham R. Antibiotic prescribing in the ICU. *Anaesthesia and Intensive Care Medicine* 2006; 7: 147-8.

Cunningham R. Proton pump inhibitors and the risk of *Clostridium difficile*-associated disease: further evidence from the community. *Canadian Medical Association Journal* 2006; 175: 757-8.

## Conclusions and priorities for 2009 -10

The infection prevention and control service at PHNT has made significant progress towards modernising the service it offers and meeting the challenging new agenda being set at both local and national levels. The IPCT has dramatically changed the way it has worked in order to deliver a more clinically-orientated and relevant service. This approach has been effective in both improving clinical practice and reducing rates of hospital-associated infection. There have been significant improvements hand hygiene compliance and clinical practice audit scores, such as the Saving Lives HII, have also improved. Infections due to MRSA, MSSA and *C. difficile* have fallen, as have rates of surgical site infection. Considerable Trust-wide effort is required to maintain and continue these improvements, particularly if the Trust is to continue to the MRSA bacteraemia and *C. difficile* reduction targets.

Priorities for the following year include:

- Achieve the local and national targets as outlined in the annual Programme of Work, April 2009-March 2010
- Implement universal MRSA screening of all elective admissions
- Continue to expand the Surgical Site Surveillance Programme
- Ensure continued compliance with Code of Practice and other national guidelines
- Perform RCAs on all serious HCAIs
- Sustain the use of the 'Saving Lives' HII across the Trust
- Continue to embed infection control at all levels across the Trust
- Improve the information available on the Infection Control website
- In collaboration with the Peninsula School of Medicine and Dentistry obtain approval for and deliver a Postgraduate Certificate in Infection Prevention and Control.