

**ITEM: 5**

**Meeting:** Trust Board  
**Date:** 20 May 2008

**Title:** Infection Control

**Executive Summary:** This paper contains a detailed summary of the following aspects of infection control:

- Definitions of the two key organisms that are monitored: MRSA and *Clostridium difficile*
- The key risks around infection control for both patients and the trust
- How the Whittington is performing in the management of both organisms. The benchmarked data shows that although the 2007/8 national target was not achieved, the Whittington does not have a high incidence of MRSA bacteraemia. For *C difficile*, the 2007/8 target was achieved, and the incidence is comparable with other local trusts.
- Key structures in place, including the infection control team and the matrons
- The actions taken during the last year to reduce the incidence of infection, particularly around hand hygiene, ward cleanliness, management of intravenous cannulae, and good antibiotic management
- The next steps for the trust, which includes the 2008/9 infection control action, attached at Appendix A.

This is a deliberately full paper, as infection control is the prime risk for the organisation. It aims to give Board members a clear understanding of the key issues and the actions put in place to manage the risk during the year.

**Action:** For information and agreement of the action plan

**Report from:** Deborah Wheeler, Director of Nursing and Clinical Development / Acting Director of Infection Prevention and Control

**Sponsor:** David Sloman, Chief Executive

<b>Financial Validation</b> Lead: Director of Finance	Not applicable
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<b>Compliance with statute, directions, policy, guidance</b> Lead: All directors	<b>Reference:</b> Saving Lives, Department of Health 2005 Hygiene Code, Health Act 2006
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<p><b>Compliance with Healthcare Commission Core/Developmental Standards</b></p> <p>Lead: Director of Nursing &amp; Clinical Development</p>	<p><b>Reference:</b> C4a, C4b, C5d, C20a, C21</p>
<p><b>Compliance with Auditors' Local Evaluation standards (ALE)</b></p> <p>Lead: Director of Finance</p>	<p><b>Reference:</b></p>
<p><b>Evidence for self-certification under the Monitor compliance regime</b></p> <p>Lead: All directors</p>	<p><b>Compliance framework reference:</b> Risk rating for quality</p>

## 1. Introduction

### 1.1 What is MRSA?

*Staphylococcus aureus* is a common bacterium (germ), which lives harmlessly on the skin or in the nose of 20-40% of people. These germs sometimes cause skin infections such as boils, abscesses and spots. Meticillin Resistant *Staphylococcus aureus* (MRSA) means that the *S. aureus* has become resistant to treatment with this antibiotic, and usually several others as well. Consequently there are a limited number of antibiotics that can be used to treat MRSA infections.

MRSA can also live harmlessly on the skin and in the nose. It is no more harmful than ordinary *S. aureus*, but can sometimes cause wound or other infections. MRSA is not a risk to normal healthy people in the community. The main risk is to hospital patients, especially those who are severely ill or those who are undergoing major surgical operations. MRSA is killed with soap and water, or alcohol gel

MRSA can be present in people in a number of ways:

- Colonized: MRSA is present somewhere on the body without causing any harm, e.g. on the skin, in the nose.
- Infected: the MRSA is damaging tissue, e.g. causing a wound or urine infection.
- Bacteraemia: the MRSA is causing a blood stream infection

Screening involves taking swabs of a patient's nose, perineum and throat to check whether they are carrying MRSA. For patients who have a positive swab, suppression therapy can be prescribed, which will reduce the amount of MRSA carried on their skin.

### 1.2 What is *Clostridium difficile*?

*C. difficile* is another bacterium, which is the major cause of antibiotic-associated diarrhoea and colitis, an infection of the intestines. *C. difficile* infection results in diarrhoea, ranging from a mild disturbance to a very severe illness with ulceration and bleeding from the colon (colitis) and, at worst, perforation of the intestine leading to peritonitis (infection of the abdominal cavity). It can be fatal.

Most of those affected are elderly patients with serious underlying illnesses. Most infections occur in hospitals (including community hospitals), nursing homes, etc, but it can also occur in primary care settings.

*C. difficile* bacteria can be found living in the large intestine of a small proportion (less than 5%) of the healthy adult population. The normal "good" bacterial population of the intestine keeps it in check. But when antibiotics have killed off these good bacteria, *C. difficile* is able to multiply in the intestine and produces two toxins that damage the cells lining the intestine, resulting in diarrhoea.

In most cases, the disease develops after cross-infection from another patient, either through direct contact, via healthcare staff, or via a contaminated environment. Spores from an infected patient can contaminate the general environment around the patient's bed and other ward areas such as toilets, commodes, etc. The spores can survive for a long time and are not killed by alcohol, but require cleaning with a hypochlorite agent or soap and water.

## **2. What are the risks for the Whittington around infection control?**

Infection control risks essentially fall into two groups: those risks for patients, and risks that impact on the organisation.

### **2.1 Patient risks**

Concern about the risk of infection is undoubtedly the main worry for a majority of patients admitted to hospital. The Whittington is seeing an increasing number of letters from patients asking about our infection rates, before they are admitted to hospital.

A severe infection can leave a patient disabled and they may never return to their former level of independence, particularly if elderly. Infections are proven to extend the length of a patient's stay in hospital, which can have financial and emotional consequences for them and their family.

A number of patients will die if they contract an infection, often because they have other major health problems which are then exacerbated. Death rates from MRSA bacteraemia and *Clostridium difficile* infections have been monitored at the Whittington since January 2008; in the first three months of this calendar year, there were no patients who had MRSA as a cause of death, and six who had *C. difficile* cited as a contributory cause on their death certificates. By contrast, in its investigation into the outbreak at Maidstone and Tunbridge Wells NHS Trust, the Healthcare Commission reported that 35 patients had died as a result of *C. difficile* infection in the six months between October 2005 and March 2006. The infection control committee now monitors these rates at every meeting.

The main risk regarding the management of patients with an infection at the Whittington is the current inadequate provision of single rooms across the hospital, which means that every patient cannot be fully isolated. Although the wards in the new building have a higher ratio of single rooms than the older wards, overall the Trust has a total of 86 single rooms, which is approximately 24% of the total bed complement. All patients who have any form of infection are now assessed using the Lewisham Isolation Priority Score (LIPS), which allows the infection control team and bed managers to prioritise those patients at greatest risk for isolation.

Work is planned to begin later this year to extend Isis Ward at the rear of the Emergency Department, which will provide approximately 20 additional single rooms. A point prevalence survey of patients requiring isolation is due to begin in May; this will provide information, at given points during the year, about how many patients within the hospital require isolation, resulting in robust data for planning additional single rooms, which are an expensive investment for the trust.

### **2.2 Organisation risks**

A failure to reduce infection rates within the hospital could have a number of consequences for the trust.

The trust is under a legal obligation to comply with the requirements of the Hygiene Code, part of the Health Act 2006. The Healthcare Commission is now undertaking annual inspections of all acute trusts; the Whittington was inspected in February 2008,

when no major concerns were identified, and will be revisited sometime before March 2009. Compliance with this is a key feature of the trust's annual declaration to the Healthcare Commission.

There is potential for the new corporate manslaughter legislation to be used, should a trust have a high incidence of deaths from healthcare associated infections. The Health and Safety Executive also now have powers to review the management of healthcare associated infections in trusts, as part of their inspections.

The new national *C. difficile* target is also associated with financial penalties if the required reduction is not achieved. From the financial modelling undertaken, this could be as much as £2 million for the Whittington, if the target is missed by 10%.

Of equal concern to the Board would be the potential impact on the trust's reputation if there were a major outbreak of an infection within the hospital, and its effect on patient choice. The infection control committee monitors the incidence of infections closely, to be able to give the Board assurance that a situation such as that which arose at Maidstone and Tunbridge Wells NHS Trust does not occur in the Whittington. Following that report's publication, procedures and practice at the Whittington were reviewed against its recommendations, and reported to the Board.

### 3. How is the Whittington performing?

There are two ways of looking at the rate of infections within a hospital. The annual targets, on which performance management is based, look at actual numbers of specific infections. Epidemiological information, in contrast, looks at the incidence, for example number of infections for every 1000 bed days. This section will present data for the Whittington using both approaches.

#### 3.1 MRSA bacteraemia

National targets were set for acute trusts in 2005 to deliver an overall 50% reduction in MRSA bacteraemia cases in the NHS by March 2008. The targets were based on the actual number of cases reported in 2003/4; in fact every acute trust was given an individual target of a 60% reduction, to compensate for trusts that already had a very low incidence, such as specialist hospitals. The target was profiled over three years in a straight line trajectory. The table below demonstrates the targets as set for the trusts in North Central London.

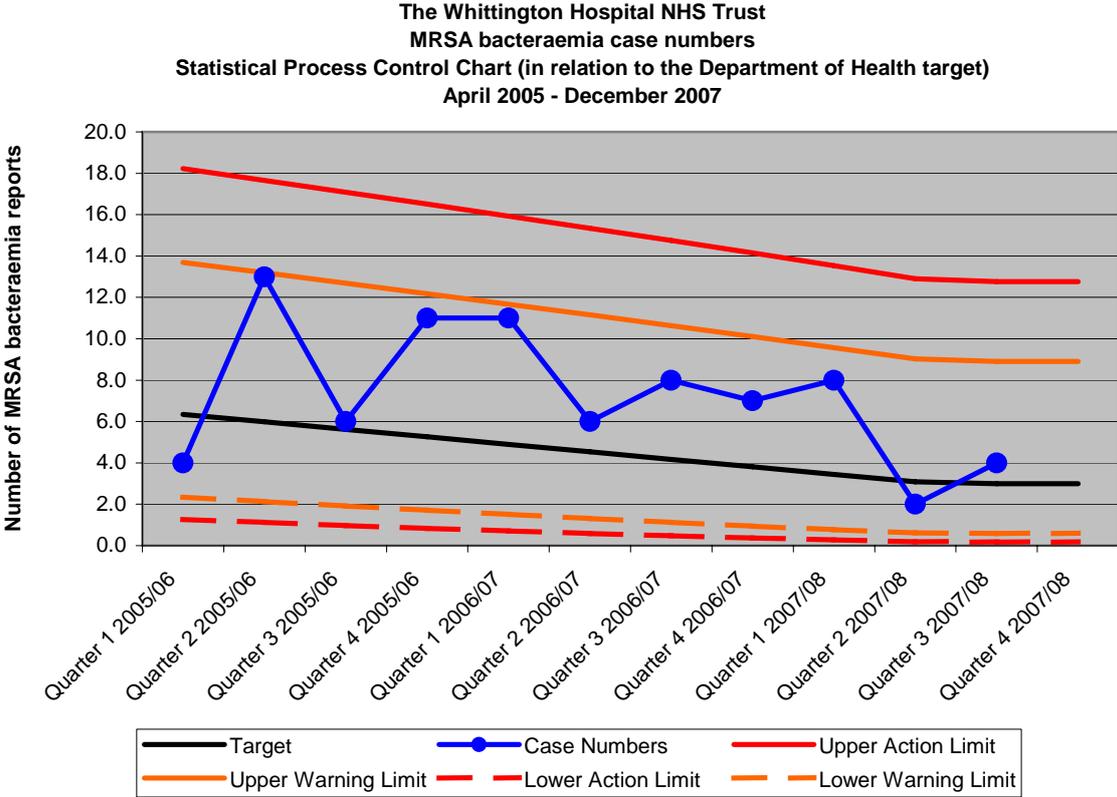
Trust	2003/4 outturn	2007/8 target	2007/8 outturn
Barnet & Chase Farm Hospitals NHS Trust	94	38	54
Great Ormond Street Hospital for Children NHS Trust	4	4	2
Moorfields Eye Hospital NHS Trust	0	0	0
North Middlesex Hospital NHS Trust	53	21	30
Royal National Orthopaedic Hospital NHS Trust	1	1	0
Royal Free Hospital NHS Trust	98	39	30
University College London Hospitals NHS Trust	85	34	39
Whittington Hospital NHS Trust	29	12	21

Source: Health Protection Agency

This data covers all diagnoses of MRSA bacteraemia made in hospitals. For monitoring purposes of the possible source of the infection, patients are sorted according to how long they have been in hospital. Patients who are diagnosed with MRSA bacteraemia within the first 48 hours of admission are generally regarded as having developed the infection before admission. Those diagnosed more than 48 hours after admission are viewed as having developed the infection after being admitted to hospital. For the purpose of the target, however, no distinction is made between the two groups of patients.

The trend over the past few months has seen a reversal in the balance of MRSA bacteraemia diagnosed within the first 48 hours of admission. These now form the majority of the cases that have been reported since January 2008 (8 out of a total of 12 cases). In contrast, between January and April 2007, 4 out of 10 were diagnosed within the first 48 hours. Work is underway with Islington and Haringey PCTs to ensure they have a robust process for undertaking root cause analysis on these patients.

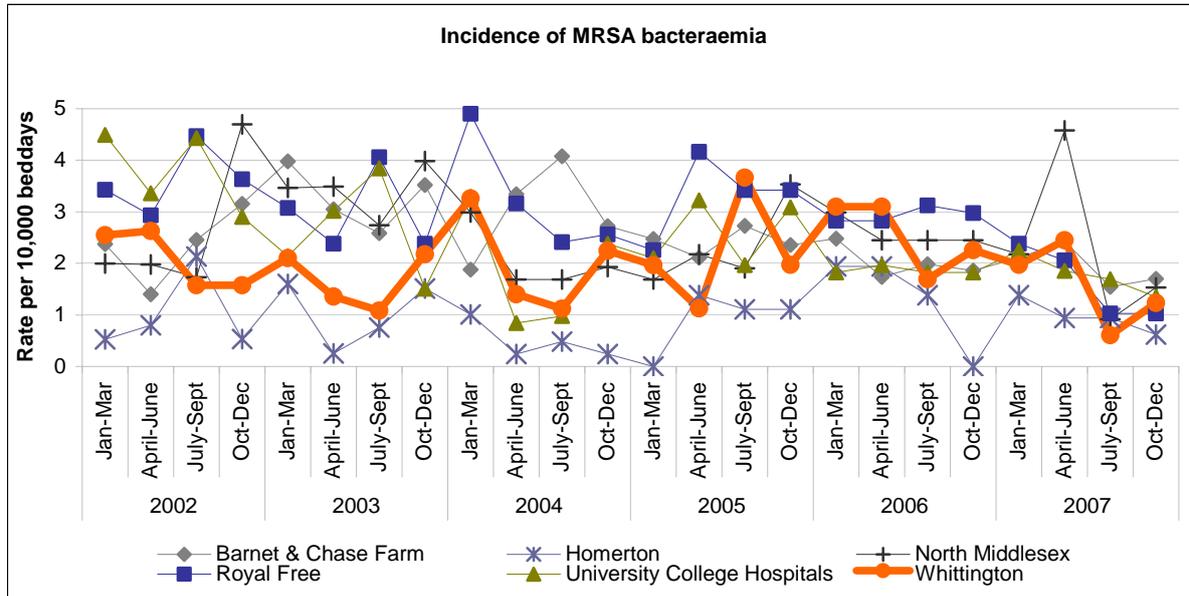
The table below shows the number of MSRA bacteraemia cases at the Whittington each quarter since April 2005. The Whittington has consistently been above the target, apart from the first quarter of 2005/6 and the second quarter of 2007/8.



source: Health Protection Agency

By contrast the chart below shows the incidence of MRSA bacteraemia per 1000 bed days for all trusts in North Central London. It is a relatively busy chart, however the Whittington (represented by the orange line) is seen to have comparable rates to other

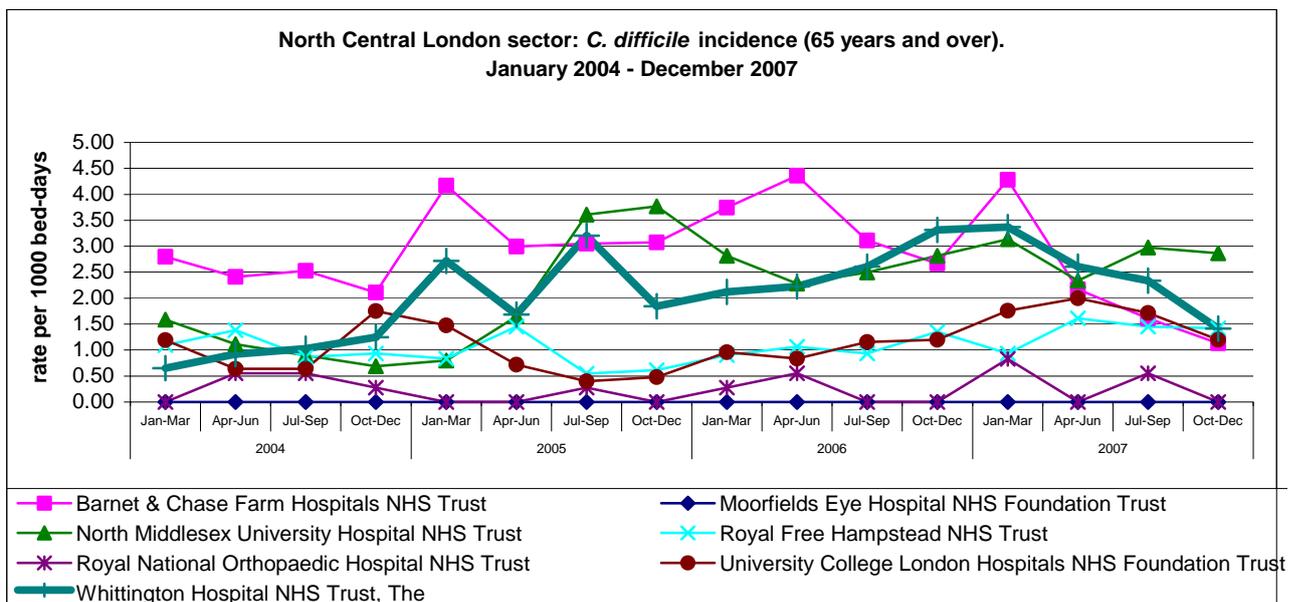
local trusts. This contrasts with the failure to achieve the low target set for the 60% reduction in total cases.



### 3.2 Clostridium difficile

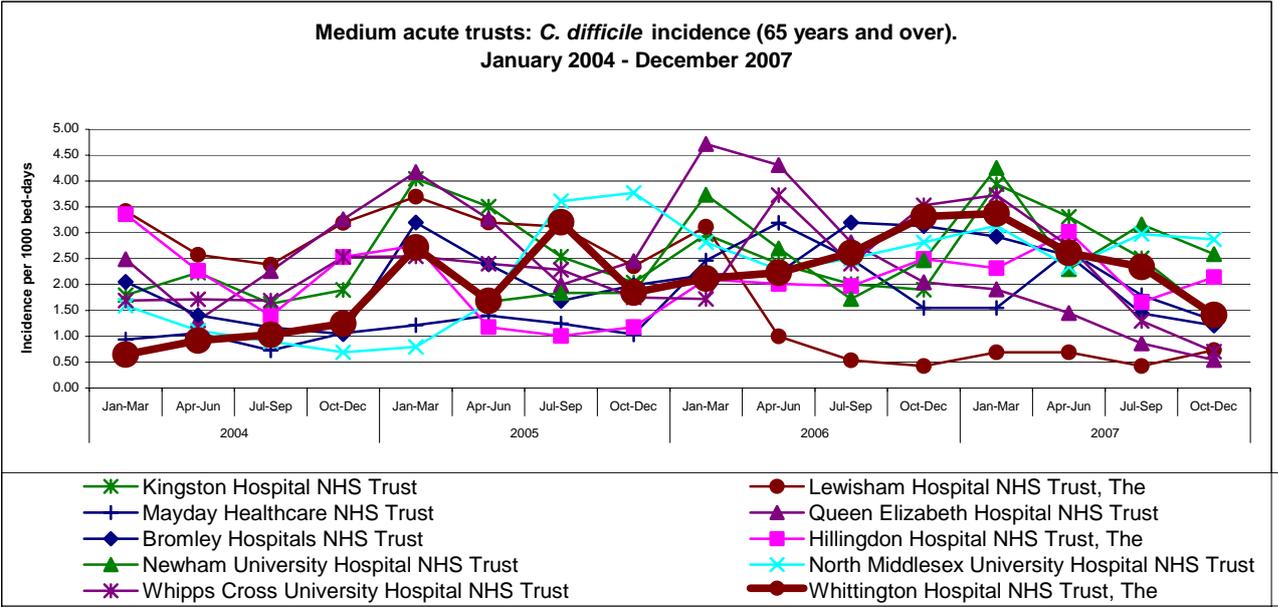
Local targets were first introduced to reduce the incidence of *C. difficile* infections in acute trusts in 2007/8. These were agreed locally with PCTs; the Whittington's target was to achieve a 15% reduction in patients over the age of 65, which was achieved. It has not been possible to undertake a comparison between the targets for local trusts, as they were all agreed individually.

The chart below shows the incidence of *C. difficile* per 1000 bed days for trusts in North Central London. As for MRSA bacteraemia, the Whittington's rates are in the middle of the distribution for local hospitals.



Source: Health Protection Agency

The second chart below shows the Whittington's incidence compared to all medium acute trusts in London. Here again, rates are within the average range for other comparator trusts. This benchmarked data, for both *C. difficile* and MRSA bacteraemia, shows that the Whittington does not have unexpectedly high rates of either infection, despite having missed the low target that was set for a reduction in absolute numbers of MRSA bacteraemia.



Source: Health Protection Agency

New national targets have now been set for the NHS, to deliver a 30% reduction in *C. difficile* infections by March 2011, based on the 2007/8 outturn. It is difficult to demonstrate comparisons with previous years, however, as the parameters for the target have been changed. The local target in 2007/8 concerned patients over the age of 65. The new national target covers all patients over the age of 2 years, but excludes samples tested in hospitals on behalf of GPs and patients diagnosed within the first 48 hours of admission; in the same way as described for MRSA bacteraemia, these are viewed as having become infected before admission to hospital.

The target has been profiled over three years, in agreement with the PCT, as outlined below:

2007/8 outturn	130
2008/9 target	124
2009/10 target	116
2010/11 target	102

**4. Infection Control structures at the Whittington**

The Whittington has had an infection control team in place for a number of years now. The post of Director of Infection Prevention and Control (DIPC) was created in 2004, in

line with the Department of Health standard, published in Winning Ways in December 2003. This post was held by Dr Michael Kelsey, Consultant Microbiologist, until September 2007, when Dr Julie Andrews, Consultant Microbiologist, assumed the post. As Dr Andrews began maternity leave in October 2007, Deborah Wheeler, Director of Nursing and Clinical Development, was appointed as acting DIPC until her return in September 2008.

The infection control team consists of the following specialist staff:

Matron in Infection Control

Senior Infection Control Practitioner

Infection Control Nurse

Consultant Microbiologist, supported by two specialist registrars

Administration support.

The Infection Control Nurses Association has a standard of 1wte nurse for every 250 beds; the Whittington has 1wte nurse/practitioner for every 130 beds.

In addition, all the matrons within the hospital also have a remit for infection control within their areas. It is a specific aspect of their job descriptions, and is supported by the requirements of the Matrons Charter (DH 2005)

Infection control performance is overseen by the Infection Control Committee, which meets every two months. It was for the past 18 months chaired by Prof Anne Johnson, Non-Executive Director, and is now chaired by the Chief Executive. The membership is a range of clinicians and managers from across the hospital, together with external representatives from PCT and the Health Protection Agency. The committee now reports to the Clinical Governance Committee, having previously reported directly to the Board.

## **5. Actions taken to date at the Whittington**

All infection control work at the Whittington is based on national policy guidance. The two current key documents are:

- **Saving Lives:** a toolkit published by the Department of Health, which contains seven high impact interventions. These are good practice guidelines, covering areas such as hand hygiene, insertion of intravenous devices and urinary catheters, prevention of surgical site infections, and management of ventilated patients.
- **The Hygiene Code:** a key part of the 2006 Health Act, which places a legal duty of compliance on trusts.

Actions during the last year have focused on widening ownership of the infection control agenda through all clinical staff, so that it is not seen as the preserve of the infection control team, who are, in fact, there for advice and leadership. The infection control action plan for 2008/9 is attached at Appendix A; this incorporates all the work that is taking place to reduce the incidence of all infections across the trust.

During the first quarter of 2007/8 (April to June) there was concern that the rate of MRSA bacteraemia at the Whittington was not continuing to reduce, and had appeared to plateau. The Chief Executive therefore invited in the Department of

Health Improvement Support team, asking them to review practice and policies within the hospital and to offer further advice and support around infection control. The visit took place on 11 September 2007, and the subsequent report made a number of recommendations to improve practice across the hospital, which have previously been reported to Trust Board.

The visible leadership programme was introduced in January 2007, led by the Director of Nursing and Clinical Development, putting matrons and senior nurses back into uniform and basing them all out on the wards in clinical practice one day each week. Although the programme originally focused on leading the Essence of Care agenda, from September 2007 the main emphasis was moved to infection control, to support the initiatives that were being introduced across the hospital, following the visit from the Department of Health Improvement Support Team.

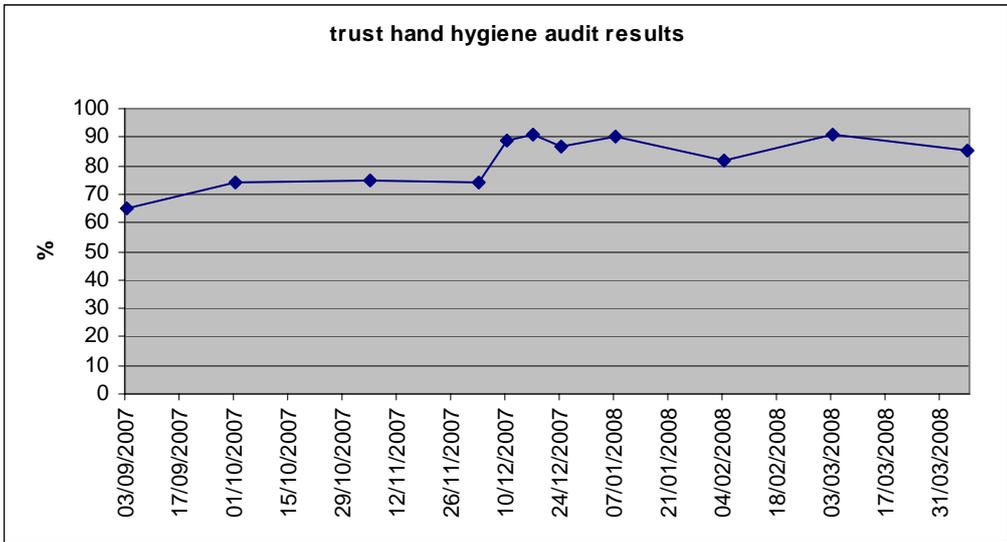
The action plan following the DH visit coalesced into four main areas, that have remained the focus for work since then:

- Hand hygiene
- Ward cleanliness
- Management of peripheral cannulae (intravenous lines)
- Antibiotic management

Evidence within Saving Lives shows that these areas are key to reducing MRSA and *C. difficile* infections in acute trusts. Hand hygiene and cleanliness are fundamental to managing the spread of both organisms, while peripheral cannula management is a key risk in the incidence of MRSA bacteraemia, and antibiotic management is a key principle in the control of *C difficile*.

**5.1 Hand hygiene**

The visible leadership team have been undertaking monthly hand hygiene audits on the wards across the hospital. When this first began as a routine practice in September 2007, the combined results across the trust averaged 65% to 75% compliance. Following a high profile awareness campaign across the hospital, which has included over 99% of all staff attending a mandatory hand hygiene refresher training session, compliance since December 2007 has been averaging 85% to 90%.

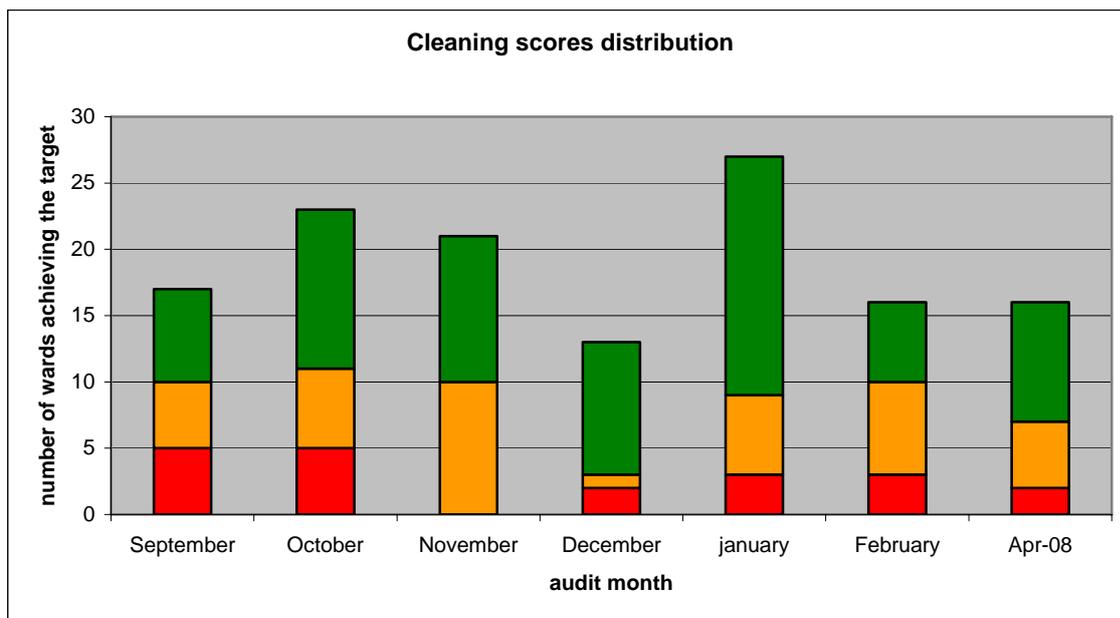


## 5.2 Ward cleanliness

Monthly audits of ward cleanliness were introduced from September 2007, using the NHS national cleaning standards, which is a 49 point assessment tool.

The initial audits showed relatively poor results, apart from those wards in the new building. Matrons have worked with their ward managers over the past 8 months to ensure that they take responsibility for the condition of their ward environments and that there is close liaison with the domestic supervisors where there is poor practice. The subsequent months have seen an improvement in the scores across the hospital.

The “acceptability” score for 2007/8 was set at 80%; for 2008/9 each ward will be expected to achieve 90% compliance with the audit. From the April 2008 results, when 16 wards were audited, two areas were rated as red (below 65%), and 5 as amber (66% to 79%), with the remainder scoring above 80%. This compares well with September 2007, when five areas were amber and five were red. Not every area is now audited every month; those wards that have consistently scored over 90% are audited every two to three months. The target score for 2008/9 has now been raised to 90% for each ward.



## 5.3 Peripheral cannulae

Peripheral cannulae are the small tubes that are inserted into patients' veins to give them fluids or drugs. They pose a risk in terms of MRSA bacteraemia, as they provide an entry point into the patient's veins for the bacteria, if the cannula is not managed under stringent aseptic conditions.

The trust's policy for the management of cannulae was reviewed in the latter part of 2007, and then re-launched. No cannula must be in place for more than 72 hours without being renewed, and any cannula that has not been used for 24 hours must be removed. New dressings have also been introduced and standardised across the hospital, so that the entry site can be easily observed for signs of redness, without needing to remove the dressing.

Audits of cannula management have shown a marked improvement in the required daily observations and prompt removal. Cannulae do still feature in the root cause analysis risks for patients who acquire an MRSA bacteraemia.

#### **5.4 Antibiotic management**

This is an important part of reducing the incidence of *C. difficile* across the hospital. Certain broad-spectrum antibiotics are now restricted, that is they are not stocked on the wards and can only be prescribed with the agreement of a microbiologist. In addition, intravenous antibiotics can only be given for three days, and oral antibiotics for seven days, other than with microbiology agreement. This is to prevent patients being over-treated with antibiotics.

A recent audit was undertaken of prescribing across the hospital, which showed close to 100% compliance with the antibiotic management policy.

### **6. Next steps**

Priorities for 2008/9 are to sustain and build on the work undertaken during the past year, as outlined in the action plan at Appendix A. In addition to the key areas outlined above, specific emphasis will be placed on the following aspects:

- i. The process for root cause analysis of all MSRA bacteraemia and *C. difficile* infections is being reviewed to make it as robust as possible, and ensure that all relevant clinical staff are involved so that they reflect on the treatment of each individual patient and learn from their practice. This process is led by the infection control team, and more work needs to be done with consultant medical staff to ensure they participate in the process, along with the junior doctors and ward nurses.

This highlights the need for continued reinforcement of good practice, and the vital role that strong clinical leadership has to play.

- ii. Raising the profile of good hand hygiene amongst patients and visitors. Priority was given in the last year to targeting staff, who are recognised to be a main source of transmission as they move between patients and their bed environment.
- iii. Increasing the provision of single rooms to enable prompt and appropriate isolation of every patient who is diagnosed with an infection.
- iv. Ensuring that every patient admitted to the Whittington is screened for MRSA colonisation, and then appropriately managed.