

South Tees Hospitals

NHS Foundation Trust

Meeting / Committee:	Board of Directors	Meeting Date:	25 June 2013
-----------------------------	---------------------------	----------------------	--------------

This paper is for: (Only 1 column to be marked with x as appropriate)	Action/Decision	Assurance X	Information
--	-----------------	----------------	-------------

Title:	Annual director of infection prevention and control report on the control of MRSA, <i>Clostridium difficile</i> and other healthcare-associated infections.
---------------	---

Purpose:	To provide surveillance information on healthcare-associated infections and the measures being taken to prevent them.
-----------------	---

Summary:	<p>This report summarises surveillance information on MRSA and MSSA bacteraemia, <i>Clostridium difficile</i>-associated diarrhoea and other important healthcare-associated infections for the 2012/13 financial year. It also includes a summary of other important aspects of infection control.</p> <p>The Trust had 0 episodes of Trust-attributed MRSA bacteraemia in 2012/13, below the target of 3 cases. There were 18 cases of Trust-attributed MSSA bacteraemia. There was no official target for MSSA bacteraemia. The Trust had 49 cases of Trust-attributed <i>Clostridium difficile</i>-associated diarrhoea which was below the target of 80 cases.</p>
-----------------	---

Prepared By:	Richard Bellamy, Infection Control Doctor, Alison Peevor, Assistant director of nursing (Deputy DIPC)	Presented By:	Alison Peevor, Assistant director of nursing (Deputy DIPC)
---------------------	--	----------------------	--

Recommendation:	The Trust needs all the Divisions to sustain the improvements made in MRSA, MSSA and <i>C. difficile</i> cases and to continue to support and engage completely with all measures to reduce healthcare-associated infections.
------------------------	---

Implications (Please mark an X)	Legal X	Financial X	Clinical X	Strategic X	Risk & Assurance X
--	------------	----------------	---------------	----------------	-----------------------

INFECTION PREVENTION AND CONTROL ANNUAL REPORT - APRIL 2012 TO MARCH 2013

1. The Trust has achieved its MRSA bacteraemia target for 2012/13. There were 7 cases, 0 of which were classed as Trust-attributed. This is below the target of 3 Trust-attributed cases. There has been a 100% reduction in Trust-attributed MRSA bacteraemia cases compared to 2011/2012.
2. The Trust was given no target on MSSA bacteraemia for 2012/13. There were 68 cases, 18 of which were Trust-attributed. There has been a 5% reduction in Trust-attributed MSSA bacteraemia cases compared to 2011/12.
3. The Trust has achieved its *Clostridium difficile* target for 2012/13. There were 111 cases, 49 of which were Trust-attributed. This is below the target 80 Trust-attributed cases. There has been a 27% reduction in the number of cases of Trust-attributed *Clostridium difficile*-associated diarrhoea compared to 2011/12.
4. The Trust had 3 cases of bacteraemia due to glycopeptide-resistant enterococci in 2012/13. There was 1 case in 2011/12.
5. ESBL-producing coliforms cause a large number of infections and they are the commonest multi-drug resistant Gram negative organisms affecting the Trust and the local community. In 2012/13 the Trust had 20 cases of bacteraemia due to ESBL-producing coliforms, which represents a 20% reduction compared to 2011/12.
6. During the winter months, outbreaks of Norovirus infection cause severe disruption to the Trust. Nationally there has been a steady rise in the number of outbreaks of Norovirus year on year. During the last two years there has been a considerable increase in the number of outbreaks of Norovirus. During 2012/13 there were 22 outbreaks affecting 383 patients and 166 staff. This is a 53% increase in affected patients and a 46% increase in affected staff.
7. The Trust continues to make strong commitments to the 'Saving Lives' and 'cleanyourhands' campaigns.
8. A number of training initiatives are being utilised to deliver the infection control-related training which is appropriate to the needs of staff with different degrees of responsibility for infection control.
9. Root cause analysis is performed on all MRSA bacteraemia episodes and a case review chaired by the medical director or director of nursing is held. This has resulted in valuable lessons being learnt. Root cause analyses are also performed for Trust-attributed MSSA bacteraemias followed by a departmental case review.
10. Audits of death certificates where *C. difficile* was the definite or probable main cause are continuing at FHN and JCUH. There has been a sustained fall in case fatality from *Clostridium difficile* infection during the last 2 years compared to the preceding period.
11. Monitoring for *Pseudomonas aeruginosa* in the water supply of the critical care units has been introduced alongside prospective surveillance. Where potential clusters have been detected, incident meetings have been held and action plans put in place.

INTRODUCTION

This annual report summarises information on healthcare-associated infections for the period 1st April 2012 to 31st March 2013. The report includes a summary of alert organisms and conditions for the Chief Executive, Board of Directors and Management Group. It includes breakdowns on meticillin-resistant *Staphylococcus aureus* (MRSA), meticillin-sensitive *Staphylococcus aureus* (MSSA) and *Clostridium difficile*-associated diarrhoea by clinical area. The report also includes a brief summary of the key measures which are used to reduce the risk of healthcare-associated infections.

It has been estimated that healthcare-associated infections cost the NHS over £1 billion per year. During 2006, the Department of Health brought out a 'productivity calculator' to enable Trusts to calculate how much money healthcare-associated infections may be costing them. Using this tool we estimated that based on our MRSA bacteraemia rate in 2003/4 (the national baseline year), healthcare-associated infections were costing South Tees Hospitals NHS Trust around £12 million annually. This figure remained relatively constant between 2003/4 and 2007/8. The productivity calculator suggests that the reduction in MRSA bacteraemia cases we had in 2012/13 compared to the 2003/4 baseline year has saved the Trust £256,960 and 678 bed days in the current financial year. If we have achieved similar reductions for all other healthcare-associated infections it will have saved the Trust around £10.7 million and 28,195 inpatient bed days per year.

The contents of the report are as follows:

1. Surveillance data
 - 1.1. MRSA bacteraemia
 - 1.2. MSSA bacteraemia
 - 1.3. *Clostridium difficile*-associated diarrhoea
 - 1.4. Surveillance for other alert organisms
 - 1.5. Surveillance for other alert conditions
 - 1.6. Orthopaedic surveillance
2. Outbreaks
3. 'Saving Lives'; a delivery programme to reduce healthcare-associated infection including MRSA
4. Hand hygiene
5. Antibiotic prescribing
6. Staff training
7. Audit activities with important clinical governance implications
 - 7.1. MRSA root cause analysis
 - 7.2. *Clostridium difficile* death certificate audit
8. Glossary of terms

Attachments:

MRSA clinical incident report summary 2012-2013

Clostridium difficile death certificate audit for JCUH 2012-2013

1. SURVEILLANCE DATA

1.1 MRSA bacteraemia

The Department of Health set acute hospital trusts the target of reducing MRSA bacteraemia by 60% by the end of the 2007/2008 financial year compared to the baseline figure recorded in 2003/2004 (South Tees Hospitals target for 2007/8 was 27 cases based on a baseline of 69 cases). After 2007/8 they decided that targets could be set by the Strategic Health Authorities and our target for 2008/9 was 32 total cases and for 2009/10 it was 24 total cases and for 2010/11 it was 7 Trust-attributed cases. For 2011/12 the target was 4 Trust-attributed cases and for 2012/13 it was 3 Trust-attributed cases. Trust-attributed MRSA bacteraemia cases are defined as episodes which occurred among inpatients, excluding patients where the first positive blood culture sample was submitted on the day of hospital admission or the following day. Between April 2012 and March 2013, there were 7 episodes of MRSA bacteraemia of which 0 were classed as Trust-attributed. In 2011/12 there were 8 cases in total (of which 2 were classed as Trust-attributed); in 2010/11 there were 11 cases in total (6 of which were Trust-attributed); in 2009/10 there were 13 cases; in 2008/09 there were 24 cases; in 2007/08 there were 60 cases. Therefore there was a 100% reduction in 2012/13 in Trust-attributed cases compared to previous years. The target for 2012/13 is 0 avoidable Trust-attributed cases.

Table 1 shows the locations of the patients when the MRSA bacteraemia occurred. This does not necessarily indicate the location where MRSA was acquired, which will often be unknown. The purpose of including this table is to indicate where interventions to reduce MRSA could be targeted. It is important that the information is not used to make comparisons nor to attribute blame. When MRSA bacteraemia is first diagnosed in the accident and emergency department or medical admission unit this does not necessarily mean that community services were responsible. The patient may have acquired MRSA in the community or during a previous hospital attendance weeks, months or even years previously. Further information on this is provided by the root cause analyses summarised in section 7.1.

Table 1: MRSA by clinical area April 2012 to March 2013

Hospital	Location	Number of episodes
JCUH	Accident and Emergency	2
JCUH	Ward 1	1
JCUH	Ward 5	1
JCUH	Ward 30	1
JCUH	General HDU	1
FHN	Medical Admissions Unit	1
Total		7

Since June 2006 every episode of MRSA bacteraemia has been investigated as a clinical incident to help identify lessons to be learnt and to guide improvements in practice. Since February 2008 the medical director and/or director of nursing and patient safety/DIPC/deputy chief executive hold a case review meeting with the appropriate clinical staff. This has enabled a number of lessons to be learnt and has helped the Trust to focus attention on avoidable causes of MRSA bacteraemia (see section 7.1). The key methods of controlling MRSA are prevention of transmission, eradication of colonisation and prevention of colonised patients developing infections. The specific measures are:

- Prevention of transmission:
 - Hand hygiene
 - Appropriate dress code to enable hand hygiene
 - Appropriate use of personal protective equipment
 - Isolation and barrier nursing
 - Cleaning and maintenance of high risk environments (including theatres)
 - Decontamination of medical equipment
 - Avoidance of over-use of broad-spectrum antibiotics (especially ciprofloxacin and other quinolones and intravenous cephalosporins)
- Eradication of MRSA colonisation (which also helps prevent transmission)
 - Screening of patients
 - Use of MRSA decolonisation therapy (Octenisan™ and nasal mupirocin)
- Prevention of colonised patients developing infections
 - Good use of aseptic technique when performing invasive procedures and handling intravenous cannulae and urinary catheters
 - Avoidance of unnecessary intravenous cannulae and urinary catheters
 - Regular inspection of intravascular cannulae and prompt removal when there are signs of infection
 - Use of MRSA decolonisation therapy
 - Appropriate choice of antibiotics for surgical prophylaxis
- Early detection of infections and prompt, appropriate treatment

Since 2005 the Trust's efforts to reduce MRSA bacteraemia have been primarily based on the prevention of transmission (based on measures such as the World Health Organisation's 'Five moments for hand hygiene' campaign), use of eradication therapy and prevention of colonised patients developing infections (based on measures such as the 'Saving Lives' high impact interventions). These interventions and the audits associated with them promote and assure best practice in hand hygiene, aseptic technique, central and peripheral venous cannula care, indwelling urinary catheter care, wound care and care of the ventilated patient.

1.2 MSSA bacteraemia

Between April 2012 and March 2013 there were 68 episodes of MSSA. 18 of these cases were classified as Trust-attributed, where the definition is the same as for Trust-attributed MRSA bacteraemias. The Trust-attributed MSSA bacteraemia figure has decreased 5% compared to 2012/13. There was no target for MSSA bacteraemia in 2012/13.

Aseptic technique, good intravenous line care and prevention of surgical site infections are all important for the prevention of MSSA bacteraemia. Table 2 shows the locations of the patients at the time the MSSA bacteraemia occurred. This does not necessarily indicate the location where MSSA was acquired, which will often be unknown. Many patients are likely to be carriers of MSSA before admission to hospital as it is commonly found as part of the normal body flora.

Table 2: MSSA by clinical area April 2012 to March 2013

Hospital	Location	Number of episodes
JCUH	Accident and Emergency	13
JCUH	Ward 15	5
JCUH	Ward 1	3
JCUH	Ward 2/ Short Stay Unit	4
JCUH	Ward 18	3
JCUH	Ward 37	3
JCUH	Renal dialysis unit	3
JCUH	Ward 8	2
JCUH	Ward 14	2
JCUH	Ward 21	2
JCUH	Ward 29	2
JCUH	Intensive care unit 2	2
JCUH	Ward 3	1
JCUH	Ward 4	1
JCUH	Ward 5	1
JCUH	Ward 6	1
JCUH	Ward 9	1
JCUH	Ward 12	1
JCUH	Ward 24	1
JCUH	Ward 27	1
JCUH	Ward 28	1
JCUH	Ward 33	1
JCUH	Ward 35	1
JCUH	Ambulatory care	1
JCUH	Intensive care unit 3	1
JCUH	Cardiac Care Unit	1
JCUH	Paediatric Day Unit	1
FHN	Accident and Emergency	4
FHN	Ainderby	2
FHN	Allerton ward	1
FHN	Children's unit	1
Other	Darlington dialysis centre	1
Total		68

As MSSA is part of the normal flora of many patients, screening and targeted decolonisation therapy are not generally recommended. The key measures to prevent MSSA bacteraemia are as follows:

- Prevention of transmission:
 - Hand hygiene
 - Appropriate dress code to enable hand hygiene
 - Appropriate use of personal protective equipment
 - Cleaning and maintenance of high risk environments (including theatres)
 - Decontamination of medical equipment
- Prevention of colonised patients developing infections
 - Good use of aseptic technique when performing invasive procedures and handling intravenous cannulae and urinary catheters
 - Avoidance of unnecessary intravenous cannulae and urinary catheters
 - Regular inspection of intravascular cannulae and prompt removal when there are signs of infection
 - Appropriate choice of antibiotics for surgical prophylaxis

- Early detection of infections and prompt, appropriate treatment

Over the last two years efforts to reduce MSSA bacteraemia have been primarily based on the 'Saving Lives' high impact interventions. These interventions and the audits associated with them promote and assure best practice in hand hygiene, aseptic technique, central and peripheral venous catheter care, indwelling urinary catheter care, wound care and care of the ventilated patient.

Since February 2008 the medical director and director of nursing and patient safety/DIPC/deputy CEO has instructed a root cause analysis to be performed and a case review meeting held within the relevant clinical division/directorate for every Trust-attributed MSSA bacteraemia.

1.3 *Clostridium difficile*-associated diarrhoea

The total figure for *C. difficile* cases for April 2012 to March 2013 is 111 if all patients, over 2 years old, are included. In 2011/12 there were 143 cases; in 2010/11 there were 267 cases; in 2009/10 there were 293 cases; in 2008/9 there were 492 cases; in 2007/8 there were 594 cases. Therefore there has been a 22% reduction compared to last year and an 81% reduction compared to 5 years ago.

The Trust target for 2012/13 was to have no more than 80 cases of Trust-attributed *C. difficile* infection. Trust-attributed means all cases occurring among inpatients in our trust excluding patients where the first positive sample was submitted on the day of admission or during the next two days (note the definition is different to that for MRSA and MSSA bacteraemia). Between April 2012 and March 2013 the Trust had 49 patients in this category. In 2011/12 there were 67 cases; in 2010/11 there were 125 cases; in 2009/10 there were 141 cases; in 2008/9 there were 264 cases; in 2007/8 there were 323 cases in this category. Therefore there has been a 27% reduction compared to last year and an 85% reduction compared to 5 years ago.

Table 3 shows the distribution of patients who had *C. difficile* isolated during the year. This does not necessarily indicate the location where *C. difficile* was acquired, which will often be unknown. A very small proportion of patients may have been carrying the bacteria before they were admitted to hospital (around 2% of the healthy population are *C. difficile* carriers).

As required by national *C. difficile* guidance, the Trust monitors how many of the patients who develop *C. difficile* die within the following 30 days, regardless of cause. Since April 2009, 156/697 (22%) have died during the 30 day follow-up period. Prior to the introduction of the *C. difficile* ward round the case fatality rate was 25%. Since the introduction of this ward round in January 2011 case fatality has fallen to 14%.

Table 3: *C. difficile* by clinical area April 2012 to March 2013

Hospital	Location	Number of episodes
JCUH	Ward 15	11
JCUH	Ward 2/ short stay unit	7
JCUH	Ward 29	5
JCUH	Ward 4	4
JCUH	Ward 5	4
JCUH	Ward 18	4
JCUH	Ward 24	4
JCUH	Ward 9	3
JCUH	Ward 12	2
JCUH	Ward 32	2
JCUH	General high dependency unit	2
JCUH	Ward 1	1
JCUH	Ward 3	1
JCUH	Ward 6	1
JCUH	Ward 8	1
JCUH	Ward 14	1
JCUH	Ward 25	1
JCUH	Ward 28	1
JCUH	Ward 33	1
JCUH	Ward 34	1
JCUH	Ward 36	1
JCUH	Ward 37	1
JCUH	Intensive care unit 2	1
JCUH	Intensive care unit 3	1
JCUH	Accident and emergency	1
JCUH	Spinal injuries	1
JCUH	Paediatric day unit	1
JCUH	Outpatients	1
FHN	Ainderby ward	4
FHN	Medical admissions unit	4
FHN	Mowbray suite	4
FHN	Gara ward	2
FHN	Allerton ward	1
FHN	Romanby ward	1
Redcar Primary Care Hospital	Zetland Ward	1
Friary Hospital		1
Non-Trust location		28
Total		111

1.4 Surveillance for other alert organisms

ESBL-producing coliforms are highly antibiotic-resistant Gram-negative bacteria. The majority of isolates of these organisms are from urinary tract infections, but they also cause wound infections, pneumonia and bacteraemia. The majority of infections are community-acquired. For making comparisons between years the data on bacteraemia is most valid. They are not included in mandatory national surveillance. In 2012/13 there were 20 bacteraemias due to ESBL-producing coliforms, which is a 20% decrease compared to 2011/12 and 51% decrease compared to 3 years ago.

Glycopeptide-resistant Enterococci are highly antibiotic-resistant Gram-positive bacteria. The majority of infections are healthcare-associated. They are included in mandatory national surveillance. In 2012/13 there were 3 bacteraemias caused by glycopeptide-resistant Enterococci, compared to 1 in 2011/12 and 8 in 2010/11.

Table 4: Other alert organisms detected in 2012/13

	Total for 2011/2012	Total 2012/13 to date
Bacteraemia due to glycopeptide-resistant enterococci	1	3
Bacteraemia due to <i>E. coli</i>	352	363
ESBL producing coliform infections	976	821
• sample taken in community	571	492
• sample taken in our trust	405	329
• bacteraemias	25	20
Other alert organisms	0	0

In 2012/13 we introduced monitoring for *Pseudomonas aeruginosa* in the water supply in critical care areas. It was detected in several areas and linked to cases of infection in patients. Incident groups were formed (see section 2) and action plans were put in place. The latest round of testing has been negative.

1.5 Surveillance for other alert conditions

See section 7.2 for further information on toxic megacolon and deaths which were potentially linked to *C. difficile*.

There was a single case of hospital-acquired invasive group A streptococcus infection in 2010/11. No cases of any of the other alert conditions included in the surveillance policy (HIC 29) have been identified since April 2006.

Legionella was detected in the water supply in several areas during the last 2 years. The latest round of testing has been negative.

1.6 Orthopaedic surgical site infection surveillance

The division of trauma conduct mandatory orthopaedic surgical site infection surveillance at both the JCUH and FHN sites.

2. OUTBREAKS

During the winter months each year there have been outbreaks of Norovirus infection, which have caused significant disruption to the Trust. The Trust was particularly seriously affected by Norovirus during the winter of 2006/2007. During the winter of 2010/11 the situation improved dramatically at JCUH, where there were no outbreaks of Norovirus. Unfortunately this was not

sustained during the last two winters and we have been significantly affected by Norovirus outbreaks.

When patients are admitted with Norovirus-related gastroenteritis it is very difficult to prevent them infecting other patients and staff on the same ward because the virus is airborne and spread by inhalation. Substantial efforts need to be made to prevent the spread of Norovirus because it can cause serious disruption to the Trust's services due to prolonging length of stay and blocking beds. Although ward closures may cause some disruption to services, overall they reduce the total disruption caused by the outbreak.

In total between April 2012 and March 2013 there were 22 hospital outbreaks of Norovirus infection. The Health Protection Agency reported that there was considerable Norovirus outbreak activity nationally, regionally and locally in the community.

Table 5: Comparison of the number of patients and staff affected by winter vomiting disease during outbreaks at South Tees Hospitals between 2006/7 and 2012/13

Year	Patients affected	Staff affected
2006/7	606	151
2007/8	221	82
2008/9	187	54
2009/10	215	102
2010/11	40	30
2011/12	250	114
2012/13	383	166

Table 6: Comparison of the number of patients and staff affected by winter vomiting disease during outbreaks at South Tees Hospitals throughout 2012/13

	Total 2011/2012	April 2012	May 2012	June 2012	July 2012	Aug 2012	Sep 2012	Oct 2012	Nov 2012	Dec 2012	Jan 2013	Feb 2013	Mar 2013	Total 2012/13 to date
D&V outbreaks	14	4	3	1	1	0	2	0	2	2	2	4	1	22
Total patients affected	250	92	45	4	12	0	9	0	6	35	98	37	45	383
Total staff affected	114	45	14	1	0	0	2	0	29	12	28	14	21	166

During 2012/13 there have been 3 clusters of *Pseudomonas aeruginosa* infection in the critical care areas. The first affected 4 patients on ICU2/3. The second cluster affected 3 babies on the neonatal ICU. The third cluster affected 2 patients on the cardiac ICU. Each cluster appears to have been linked to contaminated water outlets. An action plan was formulated for each incident and a series of incident meetings were held until we were confident that the problems had been satisfactorily resolved. The outbreaks on ICU2/3 and Cardiac ICU were multi-drug resistant infection. *Pseudomonas aeruginosa* remains under intensive surveillance in critical care areas. There has also been a cluster of multi-drug resistant *Acinetobacter* on cardiac ICU which affected 6 patients. This was believed to be due to patient-to-patient transmission by the airborne route.

3. 'SAVING LIVES'; A DELIVERY PROGRAMME TO REDUCE HEALTHCARE-ASSOCIATED INFECTION INCLUDING MRSA

'Saving Lives' consists of several high impact intervention (HII) audit tools. These were first implemented across the Trust during 2006 and they have continued throughout 2012/13. An electronic data entry system was introduced in 2007 and this was revised in 2008. There are currently some problems with this system and these have been difficult to solve. Saving Lives remains a major component of the Trust's strategy to combat healthcare-associated infections.

4. HAND HYGIENE

Hand hygiene compliance is continually monitored by clinical staff through monthly 'cleanyourhands' audits. The audit tool is based on the World Health Organisation 'My 5 moments for hand hygiene' guidance. Clinical areas should identify areas of non-compliance at the time of audit, develop individual action plans and access ongoing compliance data via the Trust's intranet. Trust-wide compliance data is collated by division.

The '5 moments of care for hand hygiene' are:

- Before patient contact
- Before performing a clean or aseptic procedure
- After exposure to the patient's body fluids
- After patient contact
- After contact with the patient's surroundings

The '5 moments of care' remains a major component of the Trust's strategy to combat healthcare-associated infections.

5. ANTIBIOTIC PRESCRIBING

In January 2008, the Trust appointed an antibiotic pharmacist, who works closely with the infection control team. The activities carried out by the antibiotic pharmacist include:

1. Antibiotic ward rounds
2. Prescribing audits
3. Service developments

The antibiotic pharmacist role has become a key part of the Trust's infection prevention and control measures. In 2013 an antibiotic pharmacy technician has been appointed.

6. STAFF TRAINING

A detailed training strategy is included in the infection prevention and control team's three year strategy. All staff working in the Trust should receive infection control training during their induction course and they should all access an infection control update during mandatory training. Ideally clinical staff should also complete an appropriate Department of Health 'e-learning' programme and assessment. Staff members' appraisals should be used to identify their individual infection prevention and control training needs and the most relevant training programmes.

Clinical matrons have a key role in ensuring there are good infection control practices within their clinical areas. All clinical matrons and ward managers attend the infection prevention and control 4-day course. Infection control link nurse practitioners should also attend this course and/or the 13-day infection prevention and control course based at Teesside University.

The role of the infection prevention and control link practitioner was formally developed in all clinical areas. Key points include one day per month of protected time to complete audits, attend training sessions, conduct clinically based training and competencies.

7. AUDIT ACTIVITY WITH IMPORTANT CLINICAL GOVERNANCE IMPLICATIONS

Two audits will be summarised here because they have important clinical governance implications.

7.1 MRSA root cause analysis

Since June 1st 2006, a root cause analysis has been performed on each case of MRSA bacteraemia. In 2012/13, 7 episodes of bacteraemia were investigated. One of these patients died during the current admission. A report has been produced on these MRSA bacteraemias for those who require more detail than is available in the current summary (see attached document).

An avoidable causal factor, related to our trust, was identified in 0 bacteraemias (see table 7). In 0 cases a primary care factor was felt to be a contributor to the MRSA bacteraemia. In 0 cases an avoidable causal factor was found in relation to the care delivered by another acute NHS trust.

The causes of MRSA bacteraemia are summarised in table 7. The most common causes were parotitis and community-acquired pneumonia.

Table 7: Summary of MRSA bacteraemia episodes 2012/13

Cause	Number of episodes (Trust-attributed cases)	Number where an avoidable factor was identified in our Trust	Number of patients who died due to MRSA or who died during the current episode of illness
Catheter-associated urinary tract infection	2 (0)	0	0
Community-acquired pneumonia	2 (0)	0	0
Infected foot ulcer	1 (0)	0	1
Peripheral cannula	1 (0)	0	0
Contaminant	1 (0)	0	0
Total	7 (0)	0	1

7.2 *C. difficile* death certificate audit

During 2007 the Healthcare Commission published a report on an investigation into deaths which had occurred at Maidstone and Tunbridge Wells NHS Trust which were caused by *C. difficile*. In response to this, in 2007/8 we audited all deaths, from April 2005 to March 2008, at South Tees Hospitals where *C. difficile* was recorded on the death certificate. This was a similar method to

that used by the Healthcare Commission. This audit was repeated in 2008/9, in 2009/10, in 2010/11, in 2011/12 and in 2012/13. Separate audits are now produced for JCUH and FHN.

In 2012/13, there were 5 cases included in the audit of JCUH cases and no cases at FHN. The death certificate counterfoils indicated that for 2 of these patients *C. difficile* or toxic megacolon was recorded as the primary cause of death (under Ia). For 3 patients *C. difficile* was recorded as a contributing/ predisposing factor in the patient's death (see table 8). In the infection control doctor's assessment, *C. difficile* was the main cause of death (part Ia) for 1 patient¹ and was a contributing factor (part II) for 1 patient. For several patients a single deficiency in care was identified.

Table 8: Classification of cases where *C. difficile* was entered on the death certificate, 2012-2013

Section of death certificate	Number of death certificates	How this audit would have classified the death certificate
Ia (ie main cause)	2	1
Ib (predisposing factor)	1	0
Ic (predisposing factor)	0	0
II (contributory cause)	2	1
Was not or would not have been included on death certificate	0	1
Unable to complete death certificate (ie post-mortem was needed but not performed)	NA	2

For those who require more details of this audit the report is attached to this infection control report.

8. Appendix A and B provide annual reports for the infection prevention and control nursing and decontamination and includes activity data relating to patient surveillance, training, audit, outbreak and incident management, decontamination and advice.

9. GLOSSARY OF TERMS

Bacteraemia

Infection identified in a patient's blood

'Cleanyourhands'

A campaign by the National Patient Safety Agency to promote hand hygiene. The three components are availability of alcohol gel or alternative hand hygiene facilities at every point of patient contact, an eye-catching poster campaign which changes monthly and a monthly observational audit.

Clostridium difficile

A bacteria which causes diarrhoea, most frequently in elderly patients who have taken antibiotics. The Department of Health collects data on these infections in patients over 65 years who have the toxin produced by this organism detected in their stools. Although the data is presented by Trust, the patients with the illness may be in hospital or in the community. Most cases of *Clostridium difficile*-associated diarrhoea are not severe. However severe disease is becoming more common in some parts of the country and outbreaks have occurred in some hospitals. South Tees has not experienced outbreaks of severe infection.

DIPC	Director of Infection Prevention and Control. The DIPC is the director of nursing. She has corporate responsibility for infection control and healthcare-associated infections on the Trust Board.
Extended spectrum beta-lactamase (ESBL) producing coliforms	Coliforms are bacteria which live in the intestines. If a patient is given antibiotics they can acquire coliforms which are resistant to powerful beta-lactam antibiotics (e.g. all penicillins and cephalosporins). These bacteria are difficult to treat because they are resistant to most commonly used antibiotics. ESBL-producing coliforms are not a part of national mandatory surveillance.
Glycopeptide-resistant enterococci (GRE)	Enterococci are bacteria which live in the intestines. If a patient is given antibiotics they can acquire Enterococci which are resistant to powerful glycopeptide antibiotics (e.g. Vancomycin). These bacteria do not often cause infections but when they do they are difficult to treat because they are resistant to most commonly used antibiotics. These infections are extremely rare in our Trust, but some hospitals have a major problem. National mandatory surveillance includes episodes of GRE bacteraemia.
HCAI	Healthcare-associated infection. This term refers to infections that are related to the care delivered by healthcare providers. It does not necessarily infer that the patient is an inpatient. Also it does not necessarily infer that the organism responsible was acquired from the healthcare provider. Many HCAs are caused by the patient's own bacterial flora, which establish an infection because of a healthcare-related procedure (eg. an operation).
Hospital-acquired	This term is often used for infection or colonisation which is first identified more than 48 hours after admission. However the definition is not perfect as patients who satisfy this criteria may have had unknown infection or colonisation prior to admission.
MSSA	Meticillin-sensitive <i>Staphylococcus aureus</i> is not a part of national mandatory reporting.
MRSA	Meticillin-resistant <i>Staphylococcus aureus</i> . The Department of Health collects data on bloodstream infections (bacteraemia) due to this infection. Although the data is presented by Trust, the patients with the illness may be in hospital or in the community.
PEAT	Patient environment action team. This is an audit of the patient environment.
Saving Lives	A delivery programme produced by the Department of Health to reduce healthcare-associated infections including MRSA. South Tees is fully committed to this programme.
Surgical site infection	This is a wound infection which occurs after a patient has had an operation. Wounds can be classified as 'superficial' or 'deep'. A superficial wound is one which affects the skin and is usually straightforward to treat. A deep wound is more serious and it may require removal of a new prosthetic joint.