Paper 24

Recommendation ☐ **DECISION** ☑ **NOTE**	The Quality and Safety Committee is asked to receive and discuss the Infection Prevention and Control Annual Report. The Committee is asked to recommend that the paper be presented to Trust Board
Reporting to:	**Trust Board**
Date	28th September 2017
Paper Title	Infection Prevention and Control Annual Report 2016-2017
Brief Description	Main points of the report: There are some good achievements to share from the report. Our rate for C diff per 100,000 bed days has dropped from 12.1 in 2015/16 to 8.4 in 2016/17. MRSA Bacteraemia cases are low and we are below average of acute trusts. VRE cases have halved. EColi bacteraemia is on the rise. In 2016/17 we had 319 cases. The government has recently announced an ambition to reduce health care associated gram negative bacteraemia which includes EColi. Other challenges include: Requirement for side rooms as national guidance has changed to include more antibiotic resistant organisms in the list of those needing isolation, and managing the high patient flow. We also had very high influenza activity last winter, leading to a number of outbreaks, particularly on the PRH site.
Sponsoring Director	Deirdre Fowler, Director of Nursing, Midwifery and Quality
Author(s)	Patricia O'Neill, Consultant Microbiologist Infection Prevention and Control Team
Recommended / escalated by	
Previously considered by	Infection Prevention and Control Committee August 2017 Quality & Safety Committee September 2017
Link to strategic objectives	SAFEST AND KINDEST - Develop innovative approaches which deliver the safest and highest quality care in the NHS causing zero harm SAFEST AND KINDEST - Deliver the kindest care in the NHS with an embedded patient partnership approach
Link to Board Assurance Framework	
Equality Impact Assessment	● **Stage 1 only (no negative impacts identified)**

	● **Stage 2 recommended (negative impacts identified)** ● negative impacts have been mitigated ● negative impacts balanced against overall positive impacts
Freedom of Information Act (2000) status	● **This document is for full publication** ● **This document includes FOIA exempt information** ● **This whole document is exempt under the FOIA**

The Shrewsbury and Telford Hospital NHS
NHS Trust

ANNUAL REPORT

INFECTION PREVENTION & CONTROL

Covering the period

APRIL 2016 to MARCH 2017

Report compiled by Dr Patricia O'Neill and the Infection Prevention and Control Team

CONTENTS

1. Overview

In the year 2016/17 we continued to see both improvements and new challenges in our mission to reduce avoidable Health Care Associated Infection (HCAI) at Shrewsbury and Telford Hospital NHS Trust (SATH).

Successes include meeting our C difficile target and maintaining our very low level of MRSA bacteraemia cases. We have also seen a fall in E coli bacteraemia associated with health care and new cases of patients colonised with Vancomycin Resistant Enterococcus (VRE) have dropped by over 50%.

Challenges include increased requirement for side rooms as national guidance has changed to include more antibiotic resistant organisms in the list of those needing isolation, and managing the high patient flow. We also had very high influenza activity last winter, leading to a number of outbreaks, particularly on the PRH site. This caused a lot of work for the IPC team, potentially reducing their ability to complete other work such as teaching, audits, and policy updates. However our Occupational Health provider, TeamPrevent, and other nurse vaccinators employed by SaTH, are to be congratulated for bringing our initially low uptake of vaccine by staff to over 70% which is above the average. Although not in the remit of the Infection Prevention and Control (IPC) team, control of antibiotic prescribing, which is vital to prevent the rise of antibiotic resistant bacteria, needs to be a major priority for the trust. Although we prescribe fewer antibiotics average, we need to improve on reviewing antibiotic prescriptions and reducing the length of courses. .

We had 21 cases of C difficile in 2016/17 compared with 30 the previous year. We had hovered around 30 cases for the last 3 years so this was a significant fall and we met our target of not more than 25 cases. This represents a 90% reduction on our baseline on 208 in 2007/08 and our rate of cases is now well below average for trusts in England.

Only a single case of MRSA bacteraemia was assigned to the trust in 2016/17. Although we aim for zero avoidable cases this continues our very low level of cases over the last 6 years and we are below average in our rate of MRSA bacteraemia cases.

The IPC team continue to focus on the basic principles of good hand hygiene, environmental cleanliness, adequate decontamination of shared equipment and ensuring that good practice in managing medical devices are complied with consistently.

Prevention and control of health care acquired infection very much follows the trust values:

- **Proud to Care** – we strive to maintain a high standard in the simple measures of good infection control such as good hand hygiene
- **Make it Happen** – ensuring we get things done in a timely manner such as keeping our patient environment clean and tidy
- **We Value Respect** – nothing shows more respect for the patient than paying strict attention to the tiny details of care which protect them from infection and can be forgotten in a busy ward. We must also respect other staff when feeding back on their achievements or when we see things that need to change
- **Together We Achieve** – above all prevention of HCAI is a team effort. Almost every member of hospital staff is involved in some way, not just doctors and nurses. We are reliant on domestic staff to clean the ward; Estates personnel to manage infection risks from water, air conditioning systems, operating theatres, decontamination of equipment; pharmacists to input and advise on antibiotic prescribing; procurement staff to ensure that we buy supplies that are fit for purpose and can be cleaned; catering staff to produce safe and attractive food. Not forgetting working with our colleagues in the community. There are many many more involved but not least I would like to thank the extremely dedicated and hardworking staff of the IPC team.

Dr Patricia O'Neill
Director of Infection Prevention and Control

2. Infection Prevention and Control Arrangements

Infection Prevention and Control Team (IPC) (March 2016/17)

Dr Patricia O'Neill	Director of Infection Prevention and Control (DIPC) 0.5wte/Consultant Medical Microbiologist 0.6 wte
Janette Pritchard	Matron Infection Prevention & Control (1.0 wte Band 8a)
Sharon Toland	Nurse Specialist Infection Prevention & Control (1.0 wte Band 7)
Jenny Bate	Nurse Specialist Infection Prevention & Control (1.0 wte Band 7)
Debbie Link	Infection Prevention & Control Nurse (1 wte Band 6)
Louise Fall	Infection Prevention & Control Nurse (1 wte Band 6)
Lynn Marston	Surveillance Nurse (0.8 wte Band 6)
Michelle Ellis	Infection Prevention & Control Team Secretary (1.0 wte Band 3, This was reduced to 0.86 wte in February 2016 following maternity leave)
Jennie Dagger	Infection Prevention & Control Team Secretary (1.0 wte Band 3)

The Trust Infection Prevention and Control Team had to deal with periods of low staffing levels due to illness. Despite this they were able to maintain a high presence on the ward to deal with urgent problems and were one of the few specialist areas who once again supported the wards through difficult times when flow was an issue by working on the wards, supporting Emergency Departments and helping to move patients around the hospital. Throughout the winter pressures the team endeavoured to support frontline staff and continue to prioritise urgent IPC issues.

The Infection Prevention and Control (IPC) Team is managed by Janette Pritchard (Lead Nurse Infection Prevention and Control).

Dr Patricia O'Neill as DIPC works 5 PAs (0.5 wte) for IPC. She also works 0.6 wte as a consultant microbiologist. In addition another three consultant microbiologists continue to give support to the Infection Prevention & Control Team.

The Trust Infection Control Committee is held monthly and is chaired by the Director of Nursing & Quality or Deputy. Each Care Group is invited monthly to report on IPC performance and key actions, however this has proved challenging this year obtaining this information due to winter pressures.

Infection, Prevention & Control issues are raised at the monthly meetings of the Quality and Safety Committee, which reports directly to Trust Board and is attended by the Director of Nursing & Quality.

The IPC service is provided through a structured annual programme of work which includes audit, teaching, policy development and review as well as advice and support to staff and patients. The main objective of the annual programme is to maintain the high standard already achieved and enhance or improve on other key areas. The programme addresses national and local priorities and encompasses all aspects of healthcare provided across the Trust. The annual programme is agreed at the IPC committee and then reported to the Trust Board.

Table 1 shows the attendance at the IPCC 2016/17

	05 APR 16	09 MAY 16	06 JUN 16	11 JUL 16	08 AUG 16	12 SEP 16	05 OCT 16	14 NOV 16	07 DEC 16	03 JAN 17	13 FEB 17	06 MAR 17
Director Nursing and Quality (Chair)	*Meeting Cancelled*	☑	☑	*Meeting Cancelled*	A	*Meeting Cancelled*	✓	✓	A	*Meeting Cancelled*	☑	*Meeting Cancelled*
Deputy Director of Nursing		✓			A		A	☑	A		☑	
Medical Director (Deputy Chair)		✓	A		✓		A	A	A		✓	
Associate Director of Patient Safety		A	✓								✓	
DIPC		✓	A		☑		✓	✓	✓		✓	
Consultant Microbiologist					✓							
IPC Lead Nurse		✓	✓		☑		☑	✓	✓		✓	
IPC Nurse Specialist		✓	✓		✓		✓	✓	✓		✓	
Head of Nursing (SC)		✓			✓		☑	✓	✓		✓	
Matron Scheduled Care		✓					✓					
Medical Director (SC)												
Head of Nursing (USC)		☑	✓				✓	✓	A		✓	
Matron Unscheduled Care		✓			✓			A	A			
Lead Nurse (W&C)			✓						A		✓	
Deputy Head of Midwifery								✓			☑	
Medical Director (W&C)		A	☑				☑	☑			☑	
Care Group Director (W&C)					A		✓	☑			☑	
Lead Superintendant Radiographer		☑			✓		✓	✓	✓		✓	
Radiology Manager		✓	✓									
Therapies Quality Lead		✓	A				A	✓	✓			
Director of Estates			☑		✓				☑		✓	
Estates Manager		✓	✓					✓	✓		✓	
Head of Capital Projects												
Health and Safety Team Manager		A	A		☑		✓	✓			✓	
PEIP Member		✓	✓		A		✓	✓	✓		✓	
Head of Facilities		✓	A		✓		✓	A	✓		✓	
Facilities Manager												
Antibiotic Pharmacist			✓		✓		A	A			✓	
Head of IPC CCG		✓	✓		✓		☑	✓	A			
IPCN CCG							✓				✓	
Occupational Health Manager		✓	A		✓		A					
Theatre Manager (PRH)												
Clinical Practice Educator												
CCDE (PHE)		A	A		✓		✓	✓	✓		A	
Head of Nursing (PHE)												

✓ - **Attended**
☑ - **Apologies sent and representative attended**
A - **Apologies sent but no representative**

The Infection Control Committee within the Trust Committee Structure is shown in the diagram below.

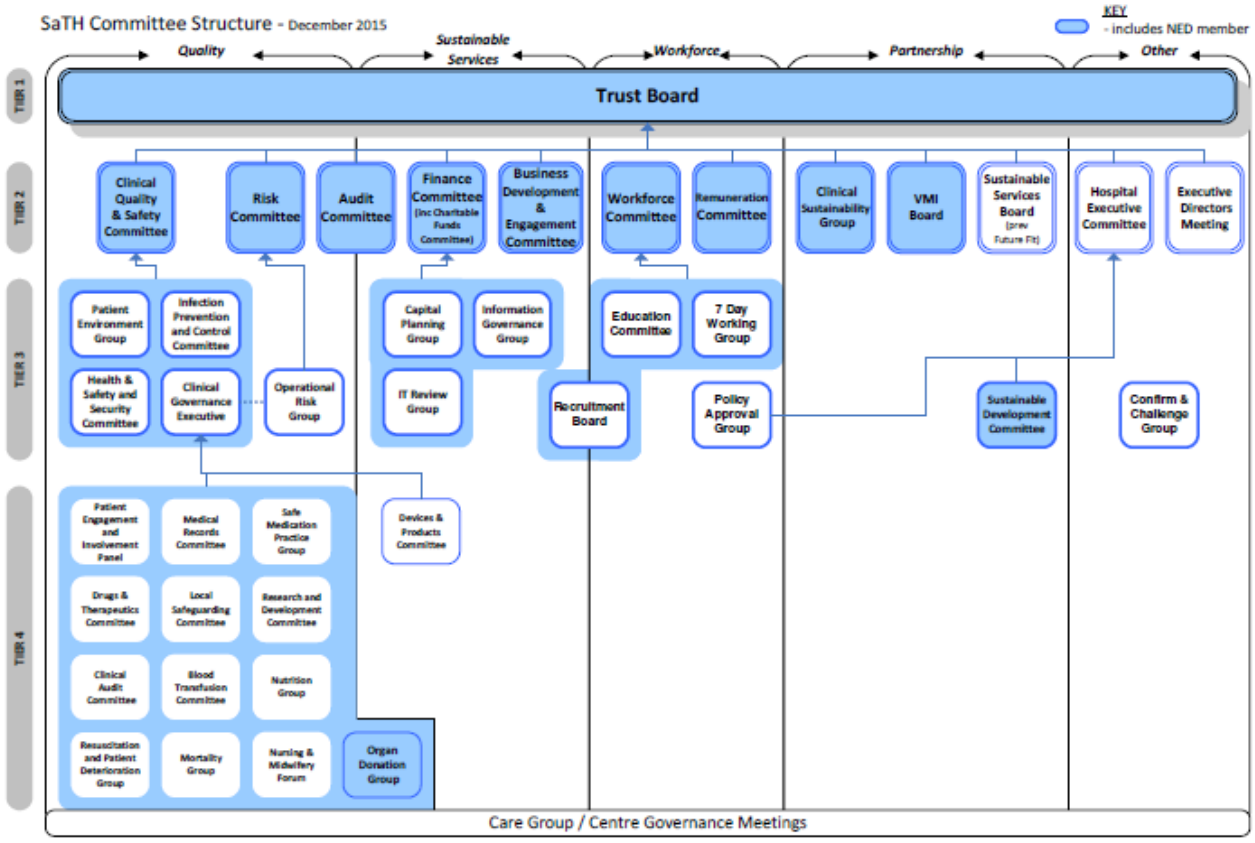


Fig 1 Board Committee Structure

Infection Prevention & Control Team budget 2016/17

The infection control team had a budget of £279,431 pay budget (nursing and administration/clerical staff) and £17,286 non-pay.

3. Healthcare associated infections statistics

3a MRSA Bloodstream Infections

MRSA, or Methicillin Resistant Staph aureus, is a highly resistant strain of the common bacteria, Staph aureus. Bloodstream infections (bacteraemia) cases are the most serious form of infection where bacteria, in this case MRSA, escape from the local site of infection, such as an abscess or wound infection, and spread throughout the body via the bloodstream. All cases of MRSA detected in the blood are reported by the trust.

A post infection review is carried out for each case. We analyse the cause of infection looking at the whole patient journey and do not apportion cases on the basis of the time after admission but instead look at where the infection was acquired.

Our target for MRSA bacteraemia cases in 2016/17 was zero trust apportioned cases. This is the target for all trusts. We had one case assigned to the trust after post infection review so were unable to achieve this target. However at 0.4 cases per 100,000 occupied bed days we were below the average of acute trusts in England which was 0.9 cases per 100,000 occupied bed days.

The one affected patient was admitted with liver disease. The patient was known to be a previous carrier of MRSA. However the source of the infection was thought to be a peripheral intravenous line. The documentation around this line was poor. There was no record if it being appropriately inspected and it was also kept in situ after it was no longer required. This was considered a lapse in care by the trust after post infection review and therefore the case was “assigned” to the trust. The ward in question was temporarily being managed by another area and routine audits of high risk procedures were not being carried out. The area was back under management by its previous ward by the time the review was done. However it highlighted the need to ensure that any changes in management are accompanied by adjustments in monitoring and audit systems and also ensuring any staff working there have access to appropriate IT systems. We have also reiterated the importance of monitoring IV lines and other invasive devices and removing them as soon as possible.

We continue with our ongoing work in reducing MRSA bacteraemia and less severe infections from MRSA including improving compliance with screening of emergency admission patients, continued emphasis on isolation and clearance of colonised patients, and continued improvement in compliance with hand hygiene and prevention of line associated infections. We also monitor less severe infections and colonisations with MRSA and investigate any clusters which occur.

3b Clostridium difficile

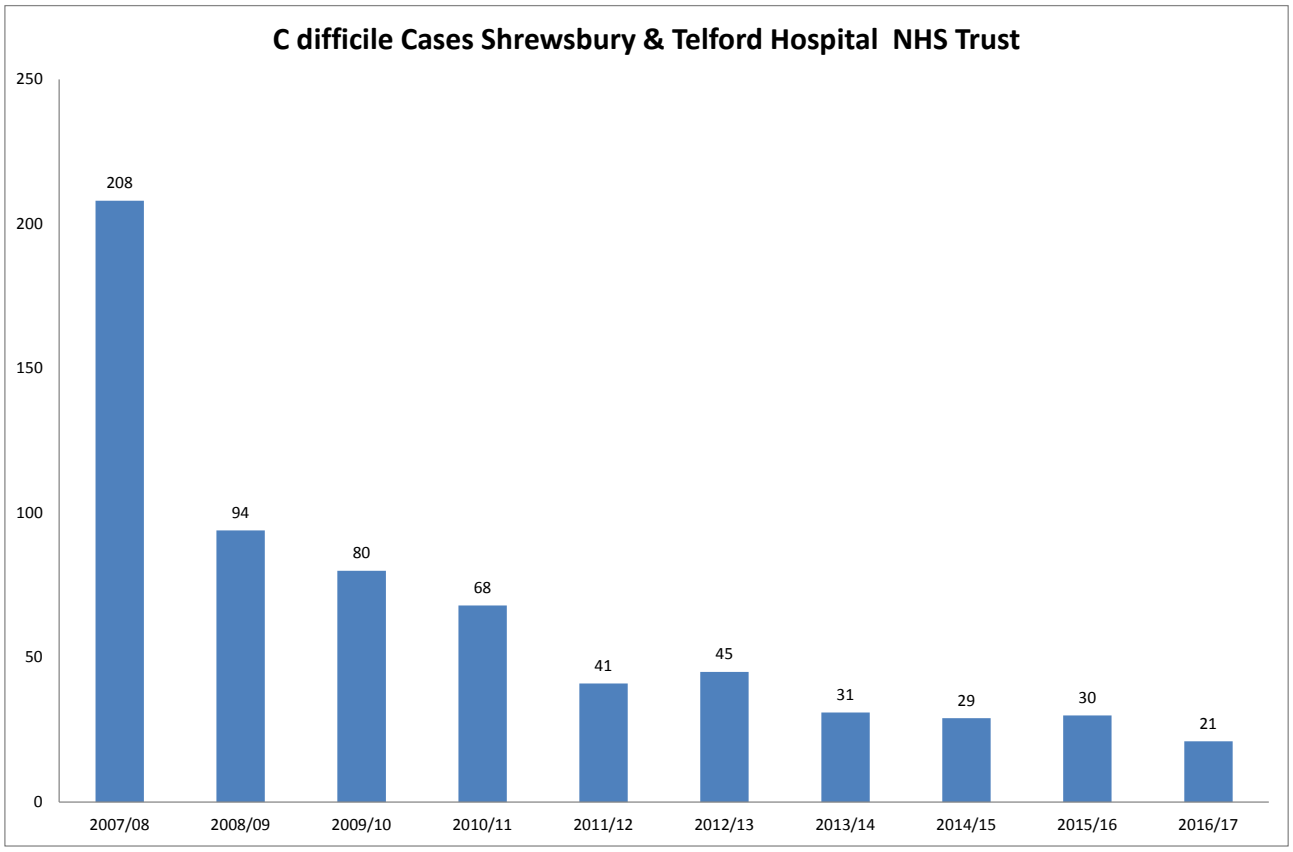


Fig 2 C difficile cases in SaTH since 2007/08

The graph above (Fig 2) shows the drop in cases of C difficile in SaTH since 2007/08. Definitions of SaTH-apportioned cases have changed but this graph uses the current definition of cases diagnosed later then the third day after admission for consistency.

The Trust reports all cases of C difficile diagnosed in the hospital laboratory to Public Health England. However only cases where the sample was taken later than the third day after admission are considered attributable to the trust. Our target for C difficile in 2016/17 remained at not more than 25 trust apportioned cases in patients over the age of 2 years as it was the previous year.

We ended our year with 21 trust apportioned cases so achieved our target. After three years hovering around 30 this was an impressive reduction. It represents a 90% per cent reduction on our baseline of 208 cases in 2007/08. Our rate per 100,000 bed days has dropped from 12.1 in 2015/16 to 8.4 in 2016/17. During the same period than national rate dropped from 14.9 to 13.2 cases per 100,000 bed days. So as well as achieving our target we are well below the average for acute trusts in England having the 31st lowest rate out of 155 trusts.

Although our continued lower than average rate is to be celebrated it should be recognised that when numbers become small they can vary quite widely and it is difficult to know whether this year's figure represents a genuine sustained reduction or more random fluctuation. We continue to review all cases to assess whether there was a "lapse in care". Cases where the trust does not feel there was a lapse in care are sent for appeal to be reviewed by an external panel comprising members of the Clinical Commissioning Groups for Shropshire County and Telford and Wrekin, Public Health England, and the Trust Development Agency.

Of these 21 cases, 6 were considered to not have had any lapse in case. In the 15 cases where a lapse in care was identified the following causes were found:

- In 3 there was possible cross infection

- In 10 there was inappropriate antibiotic prescribing, or lack of sampling before starting antibiotics such that antibiotic could not be changed to narrower spectrum agents.
- In 2 patients there was delay in recognising that the patient's diarrhoea was likely to be due to C difficile despite their both being in high risk groups. The patients' diarrhoea was attributed to their underlying conditions despite multiple recent antibiotics.

Interventions put in place by the Trust to prevent further cases of CDI

Reduction in C difficile cases relies on prudent antibiotic prescribing, rapid recognition, diagnosis and isolation of affected cases, environmental cleanliness and excellent hand hygiene. We continue to work on all these areas. Our actions include:

- Wherever poor practice is identified as part of the investigation of a case of C difficile, an action plan is put into plan to address this immediately. Common problems are fed back through Band 7 meetings, 'episodes of care', and clinical governance meetings
- Attendance at IPC mandatory training has been increased (this suffered during the winter months when clinical pressure was very high),
- Monthly hand hygiene audits continue. We also assess technique in doing hand hygiene regularly (now in place for doctors also)
- Antibiotic stewardship (audits of prescribing but also all antibiotic prescriptions are checked by pharmacy staff to ensure they are in line with guidelines). All antibiotic prescriptions should also be reviewed within 72 hrs and we are working towards this target.
- Monitoring environmental cleanliness through daily domestic supervisor monitoring (all wards are routinely cleaned with a chlorine based disinfectant once a month on top of routine cleaning), weekly and monthly ward manager audits, multidisciplinary walkabouts (matrons, estates, domestic services, IPC), quality ward walks by IPC staff,
- Reinforcing need for rapid testing and isolation via stat training and link nurses, and reminding staff of need to escalate to site managers if no side room is available

As well as the cases that are "apportioned" to the trust, it is important to recognise that many cases that arise in the community may relate to previous antibiotic treatment or potential cross infection during a recent stay in hospital. We routinely check whether patients in the community with C difficile have been in hospital in the last 30 days and if so this is reported back to the care group where the patient was treated. If we see linked cases we investigate them further to see if cross infection has occurred.

3c MSSA Bacteraemia

MSSA, or Methicillin Sensitive Staph aureus, is the more common sensitive strain of Staph aureus. Up to 25% of us are colonised with this organism. Mostly it causes us no problem but it is a frequent cause of skin, soft tissue and bone infections. As with its more resistant cousin, MRSA, sometimes the infection can escape into the bloodstream producing a "bacteraemia" i.e. bacteria in the blood. Unlike MRSA, the majority of the infections will be acquired in the community, and are not associated with health care. However, some may arise as a consequence of health care, and like MRSA, it can arise from infected peripheral and central intravenous lines and other health care interventions. We were asked by the Department of Health in 2011 to report all MSSA bacteraemia cases, whether acquired in the community or in hospital, so that we can review the sources and identify potentially avoidable cases. So far no targets have been set. However, we can compare ourselves with other trust and put in interventions to further reduce infections.

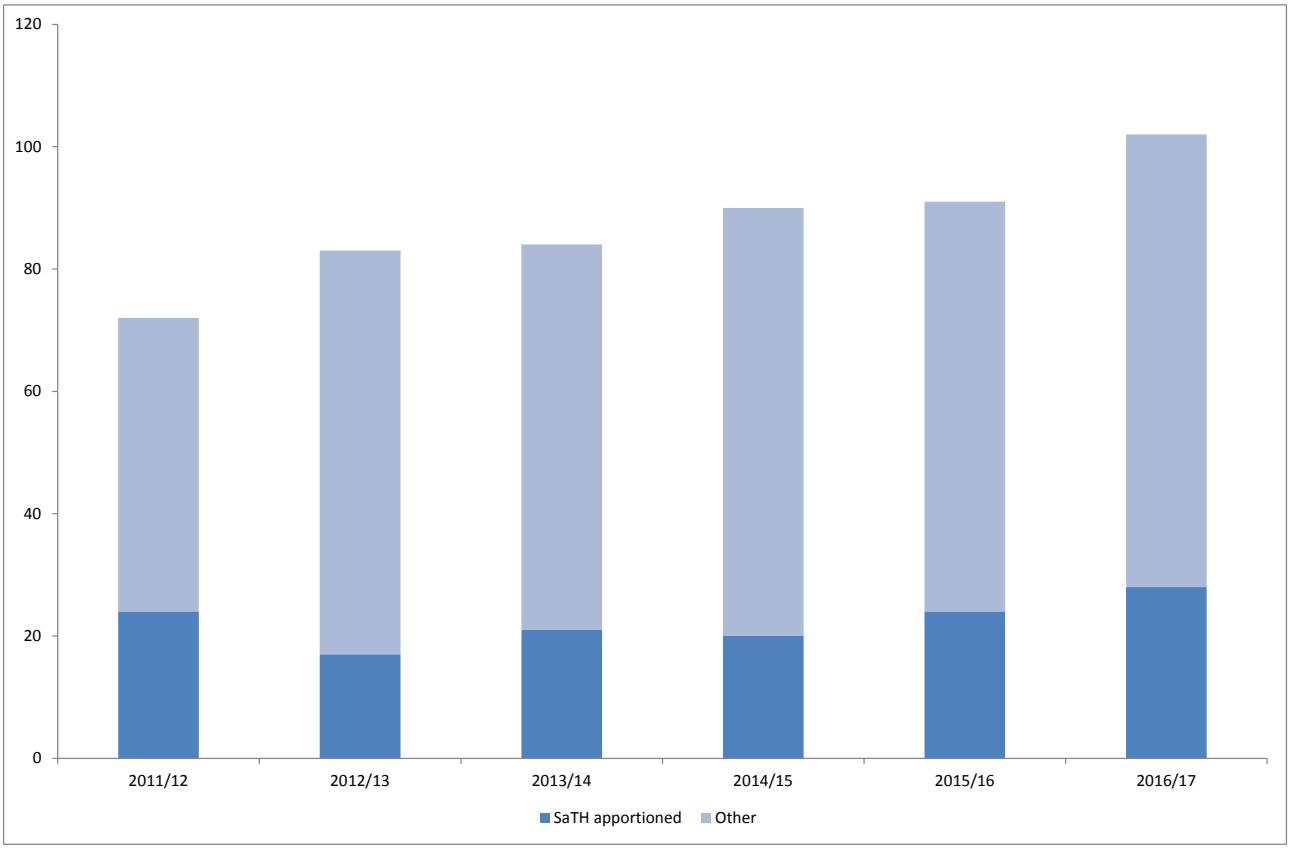


Fig 3 Cases of MSSA bacteraemia diagnosed in SaTH (excluding RJAH cases) since April 2011

As the graph above shows the number of cases of MSSA bacteraemia has increased year on year from 72 cases in 2011/12 to 102 cases in 2016/17. This increase has been seen both in hospital and community acquired cases but is higher in community acquired cases which have risen from 48 cases in 2011/12 to 74 in 2016/17. Cases diagnosed more than 2 days after admission to SaTH, which are more likely to have been acquired in the hospital, have increased slightly from 24 in 2011/12 to 28 in 2015/16.

For the year 2016/17 there were 28 out of 102 cases (27.5%) where the sample was taken more than 2 days after admission and therefore the infection was more likely to have been acquired in the trust. However this is not always the case.

All cases are reviewed by a consultant microbiologist to find the source of infection. The causes of infection in the 28 cases taken more than 48 hours after admission were as follows:

- 12 probably had the infection on admission and were not thought to be health care acquired (2 cases of endocarditis, 3 joint infections (including 1 infected total knee replacement which was put in over 20 years previously, 2 pneumonia, 4 skin and soft tissue infection, I infection of a longstanding pacemaker)
- 3 were associated with infected central venous lines
- 1 had an infected peripheral intravenous line
- 1 Ventilator associated pneumonia
- 4 Urinary tract infections, 3 associated with catheters
- 3 contaminated samples
- 4 unknown source

Looking at the patients who were considered community acquired there were a further 5 SaTH associated cases: one patient with an infected dialysis line, 3 patients who had central lines and one with a peripheral line for ongoing outpatient treatment eg for chemotherapy. Other potentially

healthcare associated infections included 4 community patients with long term catheters with urinary staph infections, 3 patients with infected prosthetic joints infections, but these had all been in situ for many years, and one patient with an infected pacemaker, but again this had been in place for a long period.

As seen from these cases, infections of invasive devices such as intravenous lines and urinary catheters are the commonest avoidable source of health care acquired infection from MSSA. Our peripheral line infection rate is very low but we are still seeing a few central line infections. Catheter associated UTIs are also not uncommon. This is more commonly a risk factor for E coli bacteraemia – see below. We will continue to work in these areas to reduce infection by monitoring compliance with care in insertion and ongoing management of lines and catheters and also reducing use of such devices or length of time they are kept in as much as possible.

We are now able to compare ourselves with other trusts and CCGs to compare our rate of MSSA bacteraemia by 100,000 bed days and by population. Worryingly we are above average on both these criteria. Our rate for trust apportioned cases is 11.2 per 100,000 bed days compared to an average of 8.8. However we are also above average for the community apportioned cases at 24.5 per 100,000 population (Telford and Wrekin) and 22.1 (Shropshire County) compared with the average of 20.9. This may in part reflect an older population since this is a major risk factor but it is puzzling Telford and Wrekin have a higher rate as they have a younger population and in past years have been below average. This may just be a phenomenon of random variation.

Most patients with MSSA bacteraemia whether health care acquired or not have risk factors. Of the 100 patients this year (2 patients had 2 episodes) 73 had a recognised risk factor. The commonest was diabetes (24 patients). Any form of prosthetic device is a risk factor including urinary catheters (16), central intravenous devices (10), peripheral IV devices (8), and other prosthetic devices eg joint replacements (8). Other risk factors included stay in augmented care (11), intravenous drug use (8), immunosuppression (4) and extremes of age. Of the 100 patient 49 were over 70 and 5 were under 1. Of the under one year olds 3 were premature babies.

MSSA bacteraemia is clearly a complex disease. We need to reduce risks from health care interventions such as intravenous lines and urinary catheters but we also need to recognise issues in the wider community such as the increase in diabetes and the age structure of the population.

3d E coli Bacteraemia

E coli is an organism we all carry in our gut, and most of the time it is completely harmless. It is part of the coliform group of bacteria – often known as Gram Negative bacteria. Most strains do not cause any symptoms while being carried in the gut. Instead E coli forms part of our “friendly” colonising gut bacteria. However when it escapes the gut it can be dangerous. E coli is the commonest cause of blood stream infections (bacteraemia) in the community. The most frequent problem it causes is a urinary tract infection, but it can also cause infections in the abdomen such as gallbladder infections or following perforations of the bowel. As E coli bacteraemia cases have been rising nationally and internationally over the last few years, the Department of Health asked us to start reporting all these infections from June 2011 to see how many were associated with contact with health care. As with MSSA no targets have been set but we act on any obvious preventable cause to reduce health care acquired cases.

For E coli we assess each case to see if it is likely to be healthcare acquired rather than simply going by the “48 hour rule” i.e. considering that any cases that arise more than 48 hours after admission are likely to be health care acquired. However in future cases will be apportioned to the trust using this rule so we will report it here as a baseline.

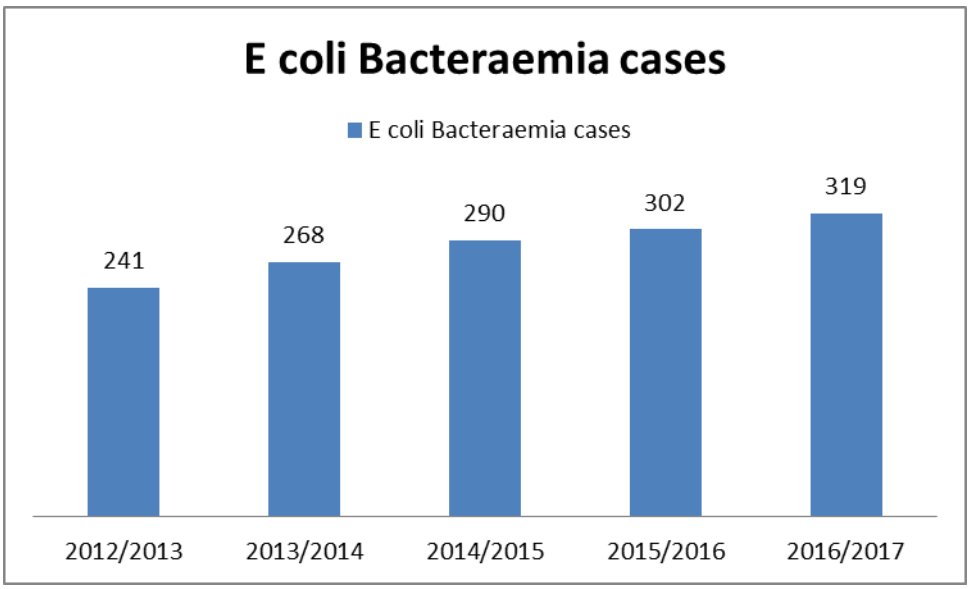


Fig 4 E coli bacteraemia cases diagnosed in SaTH (excluding RJAH) since April 2012

The graph above shows five years of complete data on E coli bacteraemia cases. We have seen a year on year rise in cases from 241 in 2012/13 to 319 in 2016/17. This follows the national pattern of a continuing rise in cases. As with MSSA bacteraemia this is most likely to be due to an ageing population. Of the 319 patients affected this year 198 were over 70 years of age.

Although the total number of cases of E coli bacteraemia has risen, both the percentage and actual numbers associated with healthcare has fallen somewhat this year. Overall healthcare associated cases dropped from 103 to 91 (34% of all cases to 29%). Cases associated with SaTH dropped from 61 to 57 (from 20% to 18%), and for community healthcare dropped from 42 to 34 (14% to 11%). Although this is a relatively small fall, it possibly reflects the efforts being made to reduce E coli infection related to catheters and other devices both in hospital and the community. We have also seen a drop in catheter associated infections which reflects the work being done to reduce both the incidence and length of use of urinary catheters both in hospital and the community

The majority of infections (228 cases or 71%) were not thought likely to be associated with health care. 57% of these (130 cases) were caused by urinary infections but liver and gallbladder infections were also common causing 55 cases (24%). 18 (8%) were caused by other gastrointestinal conditions. Figure 4 (below) shows the distribution of cases between healthcare associated infections acquired in an acute trust (most frequently SaTH), cases from healthcare delivered in the community, and infections not associated with healthcare.

In 91 (29%) cases we judged that the infection was probably associated with recent health care. In 34 (11%) of total cases this care was being delivered in the community – almost all were patients in nursing homes or in their own homes who had long term urinary catheters.

In 57 patients (18% of total cases) the infection was thought to have arisen either during their current admission in SaTH or a recent inpatient stay.

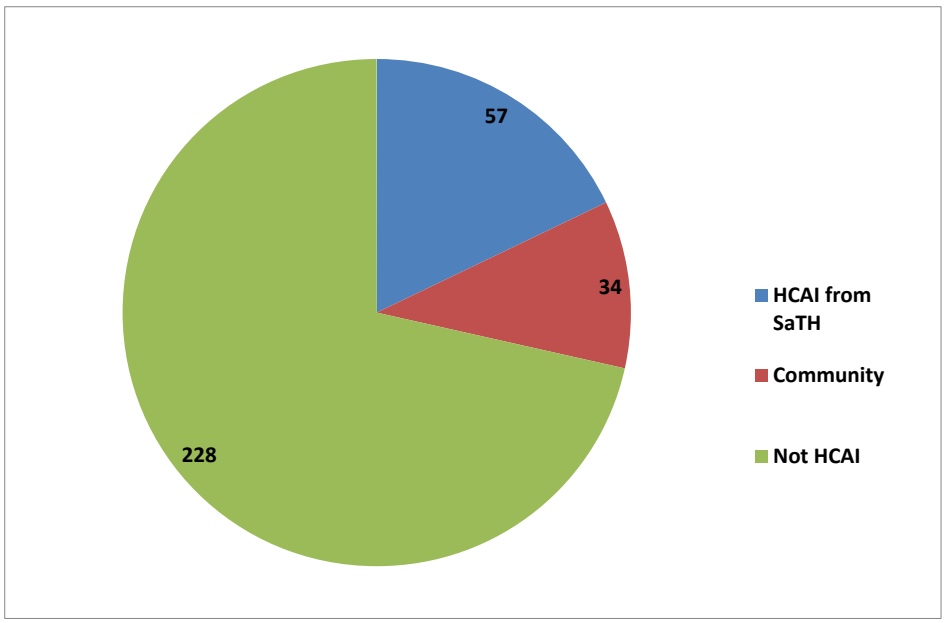


Fig 5. E coli bacteraemia cases 2016/17 – Association with Healthcare

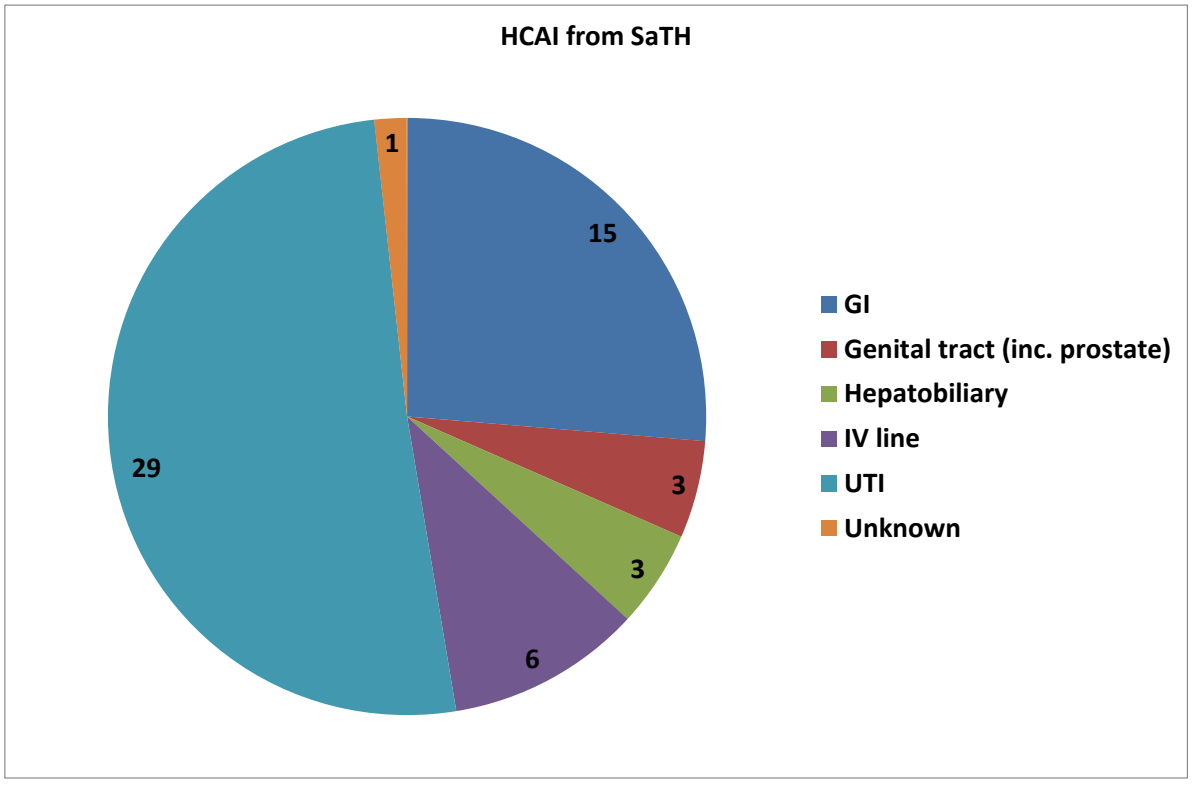


Fig 6. Source of infection – E coli bacteraemia associated with healthcare in SaTH

Figure 6 shows the source of infection for E coli bacteraemia cases acquired in SaTH. The most common source was a urinary tract infection (UTI) with 29 patients affected. In 18 of these cases, the cause of the infection was a current or recent urinary catheter. Five had had recent surgery. The next most common source was gastrointestinal (15 patients). In ten of these patients this was due to recent chemotherapy which allows bacteria from the gut to cause invasive infections because it destroys the white cells which normally protect us. Five had had recent surgery. We

also saw 3 infections relating to stents placed in the gallbladder to prevent blockage due to cancer. These are probably not preventable.

As seen previously the most frequent health care related risk factor is the presence of a urinary catheter with 45 of the 319 patients having one. However this is a drop from last year when 62 of the 302 patients affected had a catheter. It is heartening to see this fall in catheter associated infection but disappointing that this has not translated into an overall reduction in numbers.

From next year cases will be apportioned according to whether they are taken before or after the first 2 days of an admission with the assumption being that those taken after 2 days will have been acquired in the hospital. This is less accurate than assessing each case for health care association. Many cases admitted with sepsis may be related to a previous admission to the acute trust. Conversely many patients whose blood cultures were taken after the second day of admission may have been admitted with the infection. Of the 51 cases "apportioned" to SaTH by this rule 20 were judged to have been admitted with non-health care acquired infections such as gallstones. Of the cases that were not assigned to SaTH by this rule we considered 26 likely to be due to recent healthcare in SaTH. However this brings E coli bacteraemia in line with the rules used for other infections such as MSSA bacteraemia. It can also be seen that even using this rule there has been a slight fall in SaTH associated infections although total numbers have risen. We are also below average in our numbers of "hospital onset" E coli infections with 20.4 cases per 100,000 bed days compared with the average of 22.5 cases per 100,000 bed days in acute trusts.

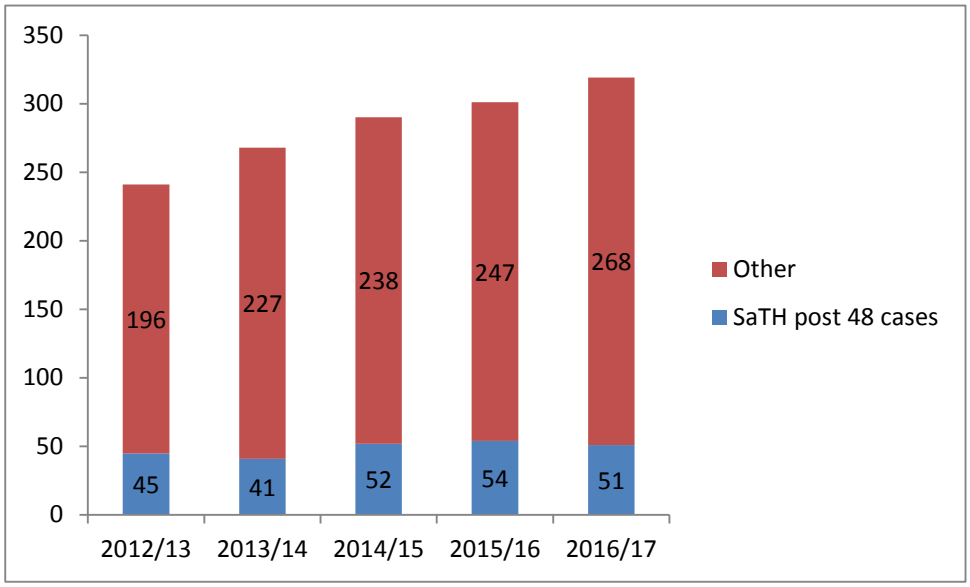


Fig 7 E coli bacteraemia cases apportioned according to time after admission

Nationally there is a great deal of concern about the seemingly inexorable rise in the number of bacteraemia cases from E coli and other related "Gram Negative" bacteria. The government has recently announced an ambition to reduce health care associated gram negative bacteraemia cases from the three most common organisms, E coli, Klebsiella and Pseudomonas, by 50% by 2021. To this end we will start collecting data on the two other organisms from the April 2017 to establish a baseline. We will also be collecting other data eg recent hospital admission and antibiotic use as these are recognised as risk factors.

Pilot studies have established that the most important risk factors for healthcare associated Gram Negative infections are:

- indwelling vascular access devices (insertion, in situ, or removal)
- urinary catheterisation (insertion, in situ with or without manipulation, or removal)

- other devices (insertion, in situ with or without manipulation, or removal)
- invasive procedures (eg endoscopic retrograde cholangio-pancreatography, prostate biopsy, surgery including, but not restricted to, gastrointestinal tract surgery)
- neutropenia (low white cell count – usually from chemotherapy)
- antimicrobial therapy within the previous 28 days
- hospital admission within the previous 28 days.

Both SaTH and our partners in the community will be expanding our work to prevent Gram negative infections by focusing on these factors. So far most of our work has been to reduce urinary catheter related infection.

We will particularly looking at control of antibiotic chemotherapy which affects not just this but also C difficile and antibiotic resistance in general. SaTH submits data on our antibiotic prescribing to Public Health England which shows we are lower than average users of antibiotics with 4035.1 “defined daily doses” of antibiotics dispensed to all inpatient and outpatients per 1000 admissions compared to the 4656.8 average for acute trusts in England. However we need to improve on our rate of reviewing all antibiotic prescriptions in the 72 hours after they are started in order to see if they are still required or the patient can be changed to a narrower spectrum antibiotic. At present we are only achieving this in 70% of our patients, whereas the average is 92.7%. The data below is extracted from the Public Health England Fingertips Portal showing SaTH’s performance on some key antibiotic related indicators. It also shows we were above average in vaccination of health care workers against influenza.

Indicator	Period	Shrewsbury and Telford Hospital		England			
		Count	Value	Value	Lowest	Range	Highest
Defined daily dose of antibiotics dispensed by Acute Trusts pharmacies to all inpatients and outpatients per 1000 admissions	2016/17	509,758	4,035.1	4656.8	1,741.2		10,055.1
Defined daily dose of piperacillin/tazobactam dispensed by Acute Trusts pharmacies to all inpatients and outpatients per 1000 admissions	2016/17	16,970	134.3	134.4	2.4		362.3
Defined daily dose of carbapenems dispensed by Acute Trusts pharmacies to all inpatients and outpatients per 1000 admissions	2016/17	8,384	66.4	96.4	3.3		1,073.1
Percentage of antibiotic prescriptions with evidence of review within 72 hours; by quarter	2016/17 Q4	105	70.0%	92.7%	48.7%		100%
Trust-apportioned C. difficile rates by reporting acute Trust and financial year	2016/17	21	8.4	13.2	0.0		82.7
Hospital-onset E. coli bacteraemia counts and rates by NHS acute trust and financial year	2016/17	51	20.4	22.5	0.0		47.7
Percentage of frontline healthcare workers vaccinated with the seasonal influenza vaccine by NHS Acute Trust	2016/17	3,263	70.6%	67.3%	31.0%		86.9%

<65% 65% to 75% ≥75%

3e Surgical Site Infection Surveillance Scheme (SSISS)

It is a mandatory requirement for all acute trusts to submit data for the surveillance of surgical site infections. This was introduced by the Department of Health (now Public Health England (PHE)) in 2004. The national mandate is directed at all NHS trusts and requires those undertaking orthopaedic procedures to carry out a minimum of three months surveillance in each financial year using the Surgical Site Infection Surveillance Scheme (SSISS).

The data set collected as part of the surveillance is submitted to PHE for analysis and reporting, this then can be used as a bench mark allowing individual trusts to compare their rates of surgical site infection with collective data from all hospitals participating in their service.
We collect local evidence of surgical site wound infections which develop whilst the patient is in hospital, also infections that develop after discharge. This continues for 30 days post operatively. Cases of identified surgical site infections are considered through Root Cause Analysis (RCA). This ensures a robust process is in place for the identification of any surgical site infection, and identifies were improvements can be made in clinical practice.

We also report post-discharge surveillance to SSISS. This is less reliable than in-hospital surveillance as it relies on self-reporting by the patient rather than diagnosis by a doctor or nurse. National comparative data for post-discharge infections are now available but the reliability of this data is much more questionable.

Surgical site surveillance was carried out for 3 quarters. Results of the surveillance carried out in SaTH from 1st July 2016 to March 31st 2017 are shown in the table below.

Type of surgery	Number of Months	Number of cases	Number of In-patient/re-admission Infections (%) National Infection Rate	Post Discharge Infections
Abdominal Hysterectomy	9	137	1 (0.7%) cf 1.2% E&W	4 (2.9%)
Breast Surgery	3	149	0 (0%) cf 0.8% E&W	2 (1.3%)
Large Bowel Surgery	6	240	28 (11.6%) cf 9.4% E&W	12 (6%)
Total Hip Replacement	6	131	2 (1.5%) cf 0.5% E&W	0
Total Knee Replacement	6	81	0 (0%) cf 0.4 % E&W	0
Vascular	3	66	3 (4.5%) cf 2.7% E&W	2 (3%)

We monitored abdominal hysterectomy for nine months; there was one inpatient/readmission infection in 137 operations (0.7%). The national infection rate is 1.2%. Post discharge surveillance was carried out on 136 patients (70.5% return rate), four of these patients reported a problem with their wound healing, giving us a patient reported infection rate of 2.9%; the national post discharge infection rate is 4.3%. The Gynaecology ward staff will continue surgical site surveillance in abdominal hysterectomy surgery which will include post discharge.

Breast Surgery was reviewed for 3 months, 149 patients were included in the surveillance, with no inpatient/readmissions infections. The national infection rate is 0.8%. All of the 149 patients were eligible for contact at 30 days post operation, 116 patients returned the questionnaire (78%), the remaining 33 patients (22%) were contacted by telephone or seen in the breast clinic by the breast care specialist nurse. Two patients reported a post discharge healing problem with their wound (1.3%) The national post discharge infection rate is 2.9%. Microbiology swabs were taken from the two infected wounds and MSSA was isolated. Antibiotics were prescribed and both patients required wound dressings from their practice nurse. Both wounds became red and cellulitic, with one wound oozing purulent discharge.

We have carried out Large Bowel surveillance over 6 months. We had 28 inpatient/readmission infections in 240 operations this gives SaTH an infection rate of 11.6% which is higher than the

national rate of 9.4%. Looking back over the last four periods which we have information for; our infection rate is 8.3% which compares well to the national infection rate.

RCAs were carried out on the 28 infected cases

Summary of Large bowel infections from July 2016-December 2016

Inpatient infections	24				
Readmission Infections	4				
Organ space infections	10				
Superficial infections	18				
Hospital Emergency	14				
Elective	14				
BMI	11 >30	16 <30	1 unknown		
ASA score	21 - 2 or below	7 - 3 and above			
Dressing change	13 - On 4th day & over	9 – on 3rd day & below	6 Unknown		
Onset of infection	15 < 7 days	13 > 7 days			
Skin Preparation	12 - Iodine Antiseptic	1 - Iodine Alcohol	4 - Pink chlorhexidine in 70% alcohol	7 - Red staining chlorhexidine in 70% alcohol	4 - Not Recorded

Micro-organisms include: - coliforms, enterococcus, proteus, viridans streptococcus, anaerobes, E-coli. Streptococcus anginosus, pseudomonas, MSSA, ESBL amp c, candida, albicans.

Post discharge surveillance was carried out on 200 patients who were eligible for contact at 30 days, (82% returns rate) with 12 (6%) reported problems with wound healing. The national post discharge infection rate is 4.6%.

Summary of Patient reported infections

Hospital Emergency	3	
Elective	9	
BMI	7 > 29	14 < 29
ASA score	9 - 2 or below	3 - 3 and above
Onset of infection post operation	6 < 10 days or less	6 > 11 days

Micro-organisms include: - Coliform, pseudomonas, MSSA, clostridium, strep infections. 2 patients had no microbiology swabs taken.

All of the 12 patient reported infections required on going dressing interventions from their practice nurse or a district nurse, all were prescribed antibiotics from their GP, six reported their wounds separating.

Total hip replacement surgery was reviewed over six months. There were 2 (1.5%) inpatient/readmission infections in 131 operations, which is higher than the national rate of 0.5%. Both of these patients were readmitted due to an infected wound one at 28 days the other at 14 days post operation. Both returned to theatre requiring exploration and washout of their wounds. Further review of these cases showed both had several co-morbidities; one operation was a conversion following a dislocation of a bipolar hemiarthroplasty; there were no other potential contributory factors for the infections.
Due to small numbers we tend to look back over the last 4 quarters to give us more robust data.

SaTH's infection rate remains high at 1.2%.
Post discharge surveillance was also carried out, 128 patients were eligible for contact; we received an 87% postal return rate. No patients reported a wound healing problem.

In total knee replacement surveillance there were no inpatient/readmission infections from 81operations, ie a zero infection rate; the national infection rate of 0.4%. All 81 patients were eligible for post discharge contact and there was an 81% return rate. No patients reported a problem with their wound.

In vascular surgery surveillance we had 3 inpatient/readmission infections in 66 operations, a SaTH infection rate of 4.5%. This is higher than the national infection rate of 2.7%.However our infection rate in vascular surgery has improved. It was previously 7.3%. Looking back at the last 4 quarters in which SaTH participated, our infection rate is 3.8%. This is still slightly higher than the national infection rate. Our numbers in vascular surgery are relatively small, 66 operations, which means that a small number of infections can give a high infection rate. Of the 3 infected cases during 2016/17; one was an inpatient infection, the other two readmission infections. All were superficial infections occurring between the 10th and 17th day post operation. However all required treatment with intravenous antibiotics.

Post discharge questionnaires were sent out to the 58 eligible patients and were returned by 50 patients (86.2% return rate). Two of these patients reported a problem with their wound, giving a patient reported infection rate of 3%, the national rate being 4.6%. Both patients were prescribed antibiotics from their GPs and on-going dressing interventions from the Practice Nurse. Both infections were isolated to the groin area.

3f Outbreaks

An outbreak of infection is described as two or more people with the same disease or symptoms or the same organism isolated from a diagnostic sample and are linked through a common exposure, personal characteristics, time or location.

The Table below summarises the outbreaks declared in the Trust during 2016/17.

Hospital & Ward	Date Commenced	Date Declared Over	Symptoms	Causative Organism	No. of Patients affected	No. of Staff affected	No. of samples tested	No. of confirmed causative organisms
PRH - 10	02/04/2016	11/04/16	D&V	Norovirus	9	5	3	3
RSH - 24	04/04/2016	11/04/16	Flu-like	Influenza	8	2	8	8
PRH - 6	06/04/2016	08/04/16	D&V	Norovirus	4	0	3	2
RSH - 32SS	06/04/2017	11/04/16	Flu-like	Influenza	10	0	2	2
PRH - 10	27/04/2016	29/04/16	D&V	Norovirus	3	1	2	2
PRH - 9	17/05/2016	20/05/16	Diarrhoea	Not known	2	0	1	0
RSH - CDU	10/06/2016	16/06/16	D&V	Not known	5	0	3	0
RSH - 24C	11/07/2016	12/07/16	Diarrhoea	Not known	3	0	0	0
PRH -7	26/09/2016	28/09/16	Diarrhoea	Not known	3	0	3	0
RSH - 28N	06/10/2016	10/10/16	Diarrhoea	Not known	3	0	2	0
RSH - 24C	10/10/2016	18/10/16	Flu-like	Influenza	7	6	5	5
RSH - 22TO	02/11/2016	10/11/16	D&V	Norovirus	7	1	3	1
PRH - 6	08/11/2016	15/11/16	Flu-like	Influenza	11	9	11	11
PRH - 7	09/11/2016	18/11/16	Flu-like	Influenza	15	0	9	9
RSH - 22S/R	03/12/2016	10/12/16	Flu-like	Influenza	3	0	3	3
PRH - 6	29/12/2016	03/01/17	D&V	Not known	3	0	3	0

PRH - 9	10/01/2017	11/01/17	Flu-like	Influenza	5	0	1	1
PRH - 7	11/01/2017	22/01/17	Flu-like	Influenza	11	1	8	8
PRH - 11SD	20/01/2017	23/01/17	Flu-like	Influenza	2	0	2	2
RSH - 25CR	13/01/2017	16/01/17	Flu-like	Influenza	6	0		4
PRH - 10	23/01/2017	24/01/17	Flu-like	Influenza	1	0	1	1
PRH - 16	27/01/2017	02/02/17	Flu-like	Influenza	1	0	1	1
				Totals	**122**	**18**	**63**	**52**

Norovirus

Norovirus is the most common cause of gastroenteritis in the community but also causes outbreaks in hospitals as it is very infectious.

There were a total of 4 confirmed norovirus outbreaks affecting 23 patients across the Trust during the last financial year, of which resulted in the closure of bays or side rooms, no wards were closed to admissions. All outbreaks were well managed and bay/room closures were short-lived.

To support the efforts of all staff in their attempts to keep these outbreaks under control, the IPC team communicated at least once daily with the affected area to offer guidance of patient management and placement, adherence to control measures and advised the use of a range of tools designed to assist in the care and monitoring of affected patients.

As part of International Infection Prevention week (17 October to 21 October 2016) the IPC team held a mobile Norovirus road show around the inpatient wards. The purpose was to provide an educational opportunity to reinforce good practice and discuss key points to consider when isolating patients and managing outbreaks. Staff were engaged, receptive, and welcomed our visits. All disciplinary roles took part including: Nurses, HCAs, Doctors, Therapists, Ward Clerks, and Housekeepers.

Since this event we have launched our podcast, informing staff using a short media clip with key information on the management of patients with diarrhoea.

Influenza A

During 2016/17 there has been a significant increase in seasonal influenza cases which started very early in the season before many of our staff were vaccinated. Due to the limited amount of single rooms, isolating individual cases has proved difficult. This led to patients suspected of having influenza being initially cared for in open bays until result known. Patients were then cohorted with other positive cases in a bay, and contact cases closely monitored. It was also felt that infected staff may have caused some cases. Therefore there was also a renewed campaign to increase vaccine uptake in staff and we ended the season with a higher than average uptake of 70.6%.

A second road show was launched (13 March to 17 March) with the theme of “Back to Basics”. The purpose was to provide an educational opportunity to reinforce effective IPC practice and provide strategies to help break the chain of infection, encouraging staff to get back to delivering care that included the essentials such as hand hygiene and the correct use of personal protective equipment.

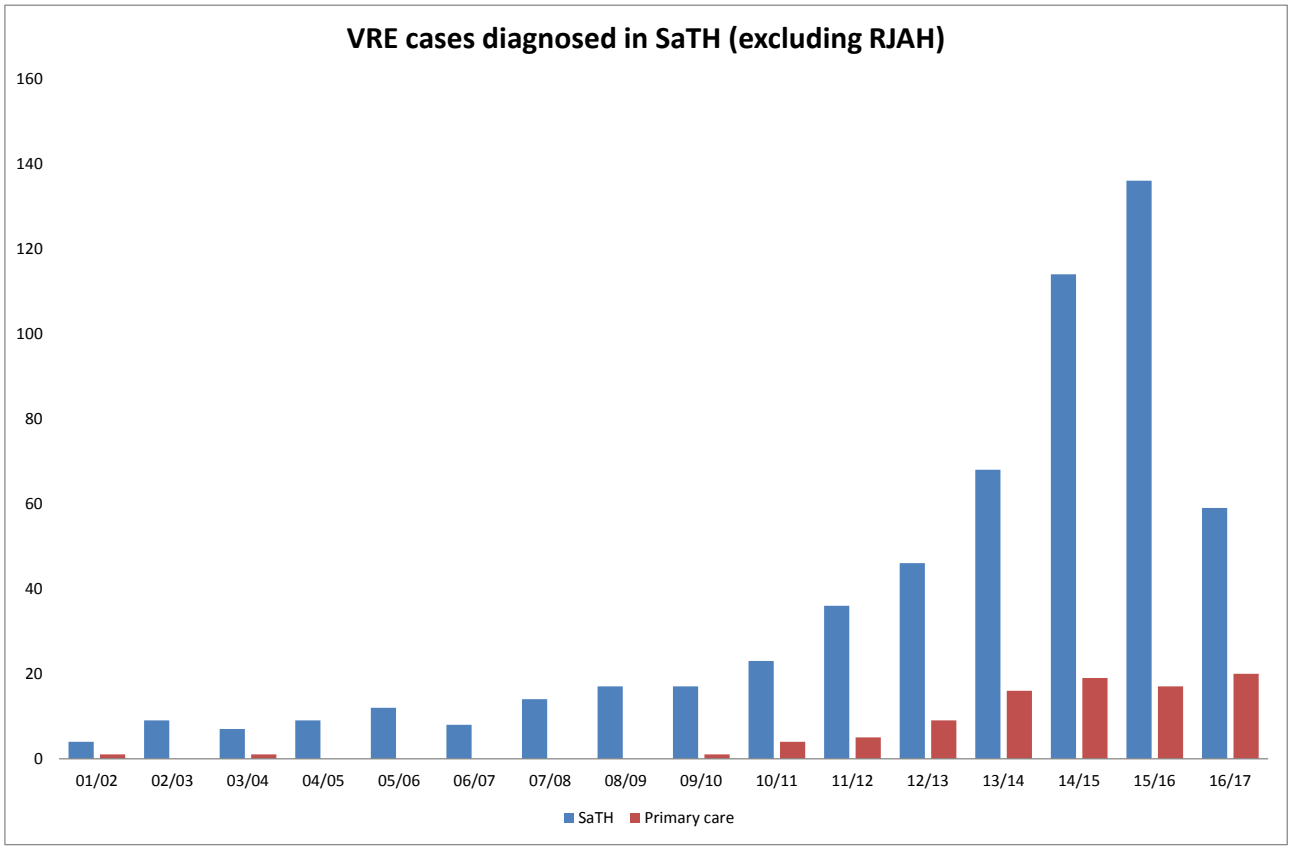
Vancomycin Resistant Enterococcus (VRE)

Enterococci are organisms that live harmlessly in the bowel but can cause infections, most commonly urinary tract infections but sometimes more serious wound infections or infection of central lines and occasionally infections of the heart valves (endocarditis) All enterococci are

naturally quite antibiotic resistant but over the past few years there has been an increasing incidence worldwide of Vancomycin resistant enterococci (VRE). Vancomycin was considered a “last line of defence” antibiotic for this infection and is also very important because it is the commonest antibiotic used to treat MRSA infections. Fortunately VRE infections are mostly very mild and many patients do not require any treatment. There are also new agents developed for MRSA, which we can use against VRE. Nevertheless these bacteria are still difficult and expensive to treat when they do cause serious infections.

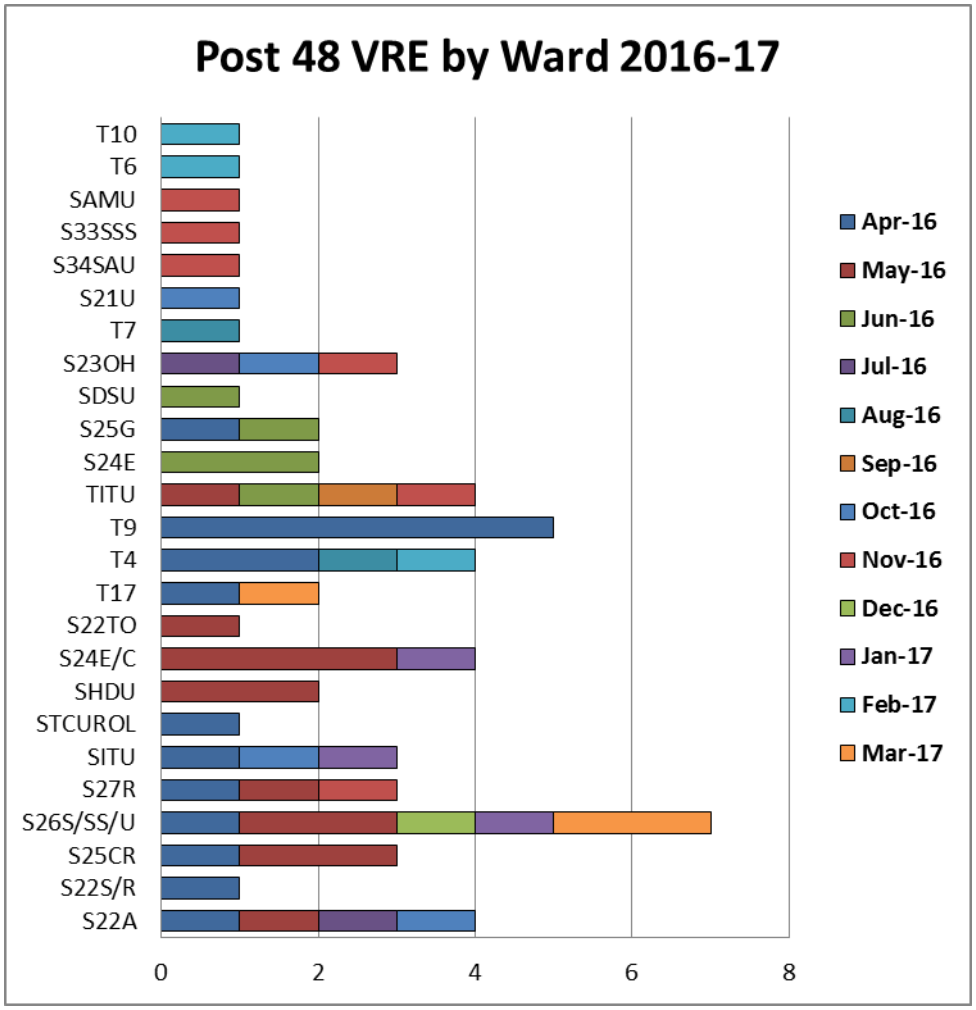
Like many other trusts, SaTH has seen a rise in cases of VRE over the last 10 years. In part this is probably artefactual as we now test against vancomycin far more frequently allowing us to detect more cases. However in the last few years we have seen multiple ward clusters of this organism and we have been working hard to prevent cross infection from this organism, which is extremely effective at colonising the environment.

The graph below shows all new cases diagnosed in SaTH. In 2016/17 we saw a drop in total new cases from 160 to 79 – so new cases have almost exactly halved in number. This has, for the first time, reversed the year on year rise in VRE seen over the last decade. For new cases acquired in SaTH the number of new cases fell from 136 in 2015/16 to 59 - a 57% drop. New cases thought to be acquired in the community have remained fairly static at 20 compared with 17 last year. So most of this fall appears to be due to reduction in transmission in SaTH.



The graph below shows the distribution of new cases of VRE acquired in SaTH across the wards by month. There have been far less clusters of cases this year with most wards seeing only sporadic cases. Whenever we see connected cases they are send for typing. Only two of the clusters seen below showed more than one case of the same strain and only 2 patients were involved in both instances. Therefore most were considered clusters rather than true outbreaks. However wards with more than one case in a month are reviewed by the IPC team to look for any issues with cleanliness or practice and are given an additional clean. Overuse of antibiotics is also a risk for VRE so this is another reason for us to focus on antibiotic prescribing. One of the issues that may have been contributing to the spread of VRE was a batch of new mattresses that were

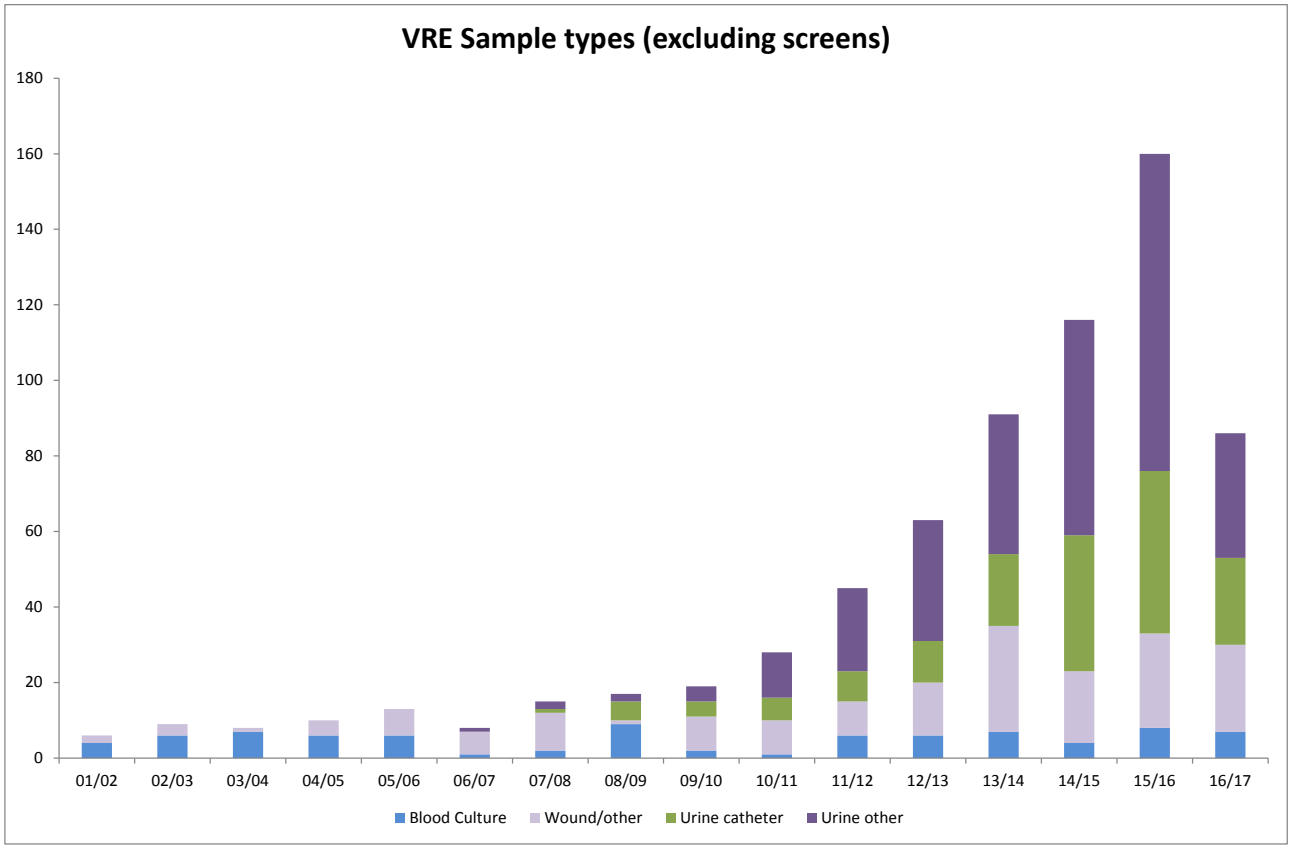
found to have pinhole defects in the material sprayed on to provide an impervious waterproof cover. This would potentially allow fluid and other contamination in. This problem was identified by IPC staff during investigation of a VRE cluster in the previous year. All mattresses were inspected and faulty ones resprayed by the manufacturer. As beds commonly travel from ward to ward this would be an excellent vehicle for transporting VRE and other bugs around the hospital.



As we discussed in last year's report, we are taking a whole-trust approach with VRE. Environmental cleanliness appears to be key, but also antibiotic prescribing. Our actions include:

- Closely monitoring the incidence of new cases and investigating clusters when they arise
- Focusing on basics of infection control including hand hygiene and cleaning
- Increasing disinfectant environmental cleans. Each month all areas are cleaned with a chlorine based disinfectant by our domestic staff. We are now including "nurse" cleans eg of beds, notes trolleys and other areas
- We are investigating addition decontamination methods. Many trusts have found that additional decontamination is required to reduce new cases. We are looking at new ultraviolet light based technology among other methods.
- Reducing catheterisation as this seems to be a risk factor
- We continue to monitor antibiotic prescribing to try and reduce broad spectrum antibiotics which favour these resistant organisms

Fortunately most of our patients who acquire VRE appear to be colonised rather than infected. The graph below shows the sample types we have grown VRE from over the years. This graph includes community and hospital cases. The most serious infections are those where it is grown from blood culture ie the patient has a blood stream infection. As can be seen below the incidence of blood stream infections has not risen in the last 10 years. The most common site of infection is urine and most patients with VRE in the urine do not require treatment. We can also see that urinary infections are where the greatest reduction in cases is seen.



Serious incidents (SI) and Period of increased incidents (PII)

Periods of Increased Incidence

Since April 2010 all Trusts have been asked to report periods of increased incidence (PII) of cases of MRSA bacteraemia and CDIs. The definition of a PII is two or more cases within a ward in a 28 day period.

In 2016/17 there have been the following periods of increased incidence (PII) of CDI in the Trust.

Clostridium difficile

Ward	Month Reported	Number of patients affected
RSH 28N	November 17	2
PRH 4	March 17	2

Beta Haemolytic Streptococcus Group B

Ward	Month Reported	Number of patients affected
PRH Neonatal Unit	May 16	5

Extended Spectrum Beta Lactamase E.coli

Ward	Month Reported	Number of patients affected
PRH 7	June 16	2
RSH 28N	October 16	2

Methicillin Resistant Staphylococcus Aureus (Mupirocin Sensitive strain)

Ward	Month Reported	Number of patients affected
PRH ITU/HDU	July 16	3

Amp C

Ward	Month Reported	Number of patients affected
PRH 9	November 17	3

Vancomycin Resistant Enterococcus (VRE) PII

Ward	Month Reported	Number of patients affected
RSH 23 OH	November 16	2
PRH 6	February 17	2

Group A Streptococcus

Ward	Month Reported	Number of patients affected
Maternity	February 17	3

Serious Incidents

SI reporting encompasses incidents of death/serious harm or where significant damage/potential damage to the reputation of the Trust is present. MRSA bacteraemia regardless of the level of harm suffered continue to be reported as an SI.

MRSA bacteraemia SI

The trust has had one SI reported due to MRSA bacteraemia

Ward	Month Reported	Number of patients affected	Outcome
24E	July	1	Lack of documentation and management of invasive device

4. Progress against 2016/17 work programme

From April 2009 the Trust was legally required to register with the Care Quality Commission (CQC) under the Health and Social Care Act 2008 *Code of Practice for the NHS on the Prevention and Control of Healthcare Associated Infections and Related Guidance* (usually called "the Health Act"). As a legal requirement of registration, the Trust must protect patients, workers and others who may be at risk of acquiring a HCAI. Compliance by the Trust will be judged against the ten criteria set in the Health Act.

Our work programme is based on this and includes teaching, audit, policy development and review. Progress against the 2016/17 IPC work programme is reported to the Trust Infection Prevention & Control committee (IPCC). Progress has proved challenging this year due to the requirement of the IPC nurses to support the Emergency Department and wards during the 20 weeks of winter again. Dealing with the large number of Influenza positive patients and several Influenza outbreaks has also added to the challenge.

The Infection Prevention and Control HCAI Action plan has been revitalised by the Associate Director of Nursing (Patient Safety) who undertook an assessment of compliance aligned to the Health and Social care Act with assistance from the Infection Prevention & Control Team. The Trust will need to act on any deficiencies & this will need to be reported quarterly to the Trust Infection Prevention & Control committee (IPCC)

Staff Health

The IPC team continues to work with the Occupational Health providers, TeamPrevent, to ensure that staff are protected from infection and do not pose a risk to others including patients from their own infections. Updating of the Infection Prevention & Control Policies Exposure to Blood Borne Viruses and Management of Infection in Staff come under this duty. The Occupational Heath Team. Team Prevent are also responsible for the vaccination programme for staff, including influenza. In **2014/15** the uptake in frontline healthcare workers was **68.6%,** in **2015/16** this went down to **43.3%,** in **2016/17** the uptake significantly increased to **70.6%.**

PHE have stated in their report, **'Seasonal influenza vaccine uptake in healthcare workers (HCWs) in England: Winter season 2016 to 2017',** that overall, 63.2% of frontline HCWs received the seasonal influenza vaccine during the 2016 to 2017 season, compared with 50.6% in 2015 to 2016 and 54.9% in 2014 to 2015. The highest seasonal influenza vaccine uptake by staff group was amongst support to clinical staff (68.9%), similar to the 2015 to 2016 season (65.2%)

Education

Throughout 2016/17 the IPC Team continued to provide Infection Prevention and Control training to as many groups of staff as possible within the Trust. The team have worked closely with Ward Managers and Matrons to emphasise that infection prevention and control is everyone's responsibility.

All staff employed by SaTH must undertake IPC education at the beginning of their employment (usually as part of their induction to the hospital) and have mandatory annual updates during their employment. These education sessions concentrate on current IPC issues essential to reducing HCAI in the Trust & highlight best practice.

The team have arranged and delivered two educational IPC road shows; the first was in October 2016 the theme was Norovirus. This was to refresh knowledge and capture any new starters prior to the winter pressures. A total of 213 staff visited and took part.
The second was carried out in March the theme was 'back to basics', this topic was chosen due to the training pause and the IPC team felt this would be a good opportunity to capture the new staff but also reinforce knowledge . A total of 207 staff took attended.
A quiz sheet was used in both road shows to test staff's knowledge after visiting the IPC stands and these were entered into a prize draw for a chance to win gift vouchers.
Both events were received very well considering the increase in pressures. The IPCT were able to capture staff from all areas of the multidisciplinary team.
Gift cards were kindly donated by some of the companies that supply SATH with our products.

The team have continued to develop 'hot topics' around any issues or frequently asked questions to help re-enforce knowledge and update staff with any changes.

A credit card screening tool has also been devised to educate staff in admission areas on what samples are required for certain organisms. This should aid staff to carry out prompt appropriate screening on admission and therefore reduce the risk of transmission.

The IPCT have reviewed the mandatory training for the next year and have decided to alter this from a power point presentation to delivering more video clips and for staff to complete a quiz. The aim is to make training more interactive therefore generating more discussion.

Attendance on training is monitored via the training and education department and attendance is updated on the staff electronic record. The following table shows the number of attendees from April 2016 to March 2017 who had IPC training.

Staff Group	Needed	Completed	%
Add Prof Scientific and Technic	69	54	78%
Additional Clinical Services	893	702	79%
Administrative and Clerical	5	4	80%
Allied Health Professionals	320	261	82%
Estates and Ancillary	268	209	78%
Healthcare Scientists	24	18	75%
Nursing and Midwifery Registered	1533	1189	78%
Medical and Dental	492	263	53%
Subject Total	**3604**	**2700**	**75%**

Last year April 2015 to April 2016 the total attendance was 80% this has gone down slightly with a total of 75% from April 2016 to March 2017, however this was due to serious service pressures on

the Trust, the Senior Leadership Team proposed 'pausing' some staff training to 1st April 2017 and this was considered carefully by Executive Directors. The intention was to ensure that wards and departments were as fully staffed as possible to provide good patient care. .

The following education has also been undertaken:

- Hand decontamination training
- Assisting Dr O'Neill with hand hygiene training for doctors (three yearly update)
- Healthcare Assistant Induction Training
- Medical students IPC Education
- FY1 and FY2 Induction
- FY1 IPC Education
- Individual Ward training sessions, as requested
- Individual Ward Enhanced Support
- Overseas IPC nurse training
- Senior medical staff induction and statutory update training (given by Dr O'Neill)
- Two educational road shows

Infection Prevention and Control Link Staff

Link Staff are critical in the delivery of IPC within all services. Link staff meetings are held quarterly and provide opportunities for networking, emphasising the service provision throughout the Trust.

This continues to be an extremely effective way of educating, distributing information and generates valuable question and answer sessions. All link meetings include latest information on quality walk findings, RCA/PIR feedback, safety notices, incident reports, and new or revised IPC policies. All are important elements to be taken back to clinical areas and have the potential to reduce infections by promoting optimal practice.

Link Workers are encouraged to attend at least three out of the four sessions.
The attendance rate from April 2016 to March 2017 was 39% which is a slight improvement on 32% from April 2015 to March 2016.

5. Compliance with the Health and Social Care Act 2008 Updated 2015

Implementing the Code of Practice for Health and Adult Social Care on the prevention and control of infections and related guidance (Health and Social Care Act 2008) is a legal requirement for acute trusts and other health care providers. This Act was updated in July 2015 to reflect the structural changes that took effect in the NHS from April 2013 and the role of infection prevention (including cleanliness) in optimising antimicrobial use and reducing antimicrobial resistance.

The law states that the Code must be taken into account by the CQC when it makes decisions about registration against the infection prevention requirements. The regulations also say that providers must have regard to the Code when deciding how they will comply with registration requirements. So, by following the Code, registered providers will be able to show that they meet the requirement set out in the regulations. However, the Code is not mandatory so registered providers do not by law have to comply with the Code. A registered provider may be able to demonstrate that it meets the regulations in a different way (equivalent or better) from that described in this document. The Code aims to exemplify what providers need to do in order to comply with the regulations.

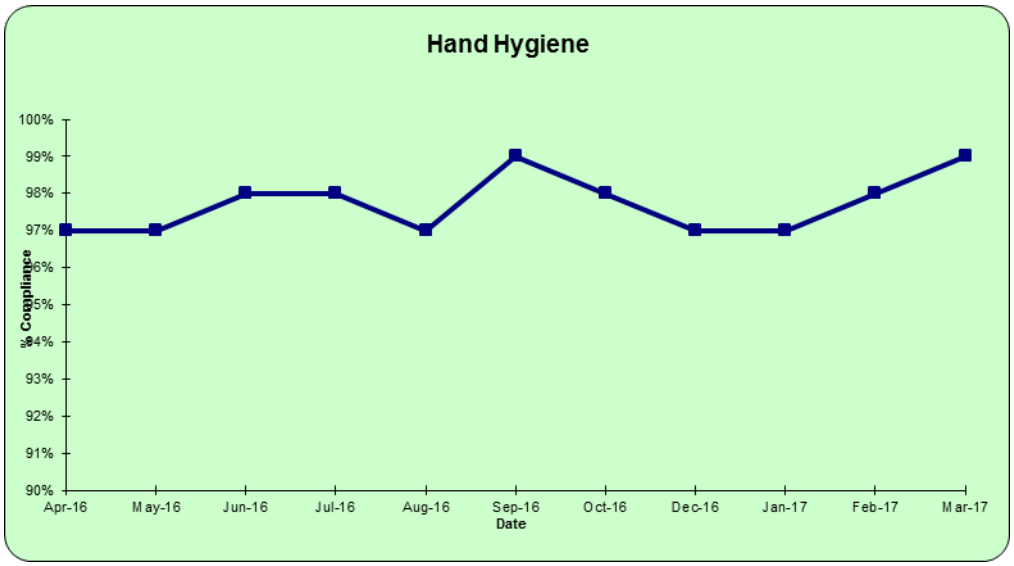
The Infection Prevention and Control HCAI Action plan has now been revitalised by Corporate Nursing who completed an assessment of compliance. This action plan will be monitored on a quarterly basis by the IPC Committee.

6. Hand Hygiene

Effective and timely hand decontamination is acknowledged as the most important way of preventing and controlling infections. The trust continues to support the work that empowers staff to challenge poor hand hygiene compliance at all grades, and has maintained the Bare Below the Elbows standard for staff in clinical areas.

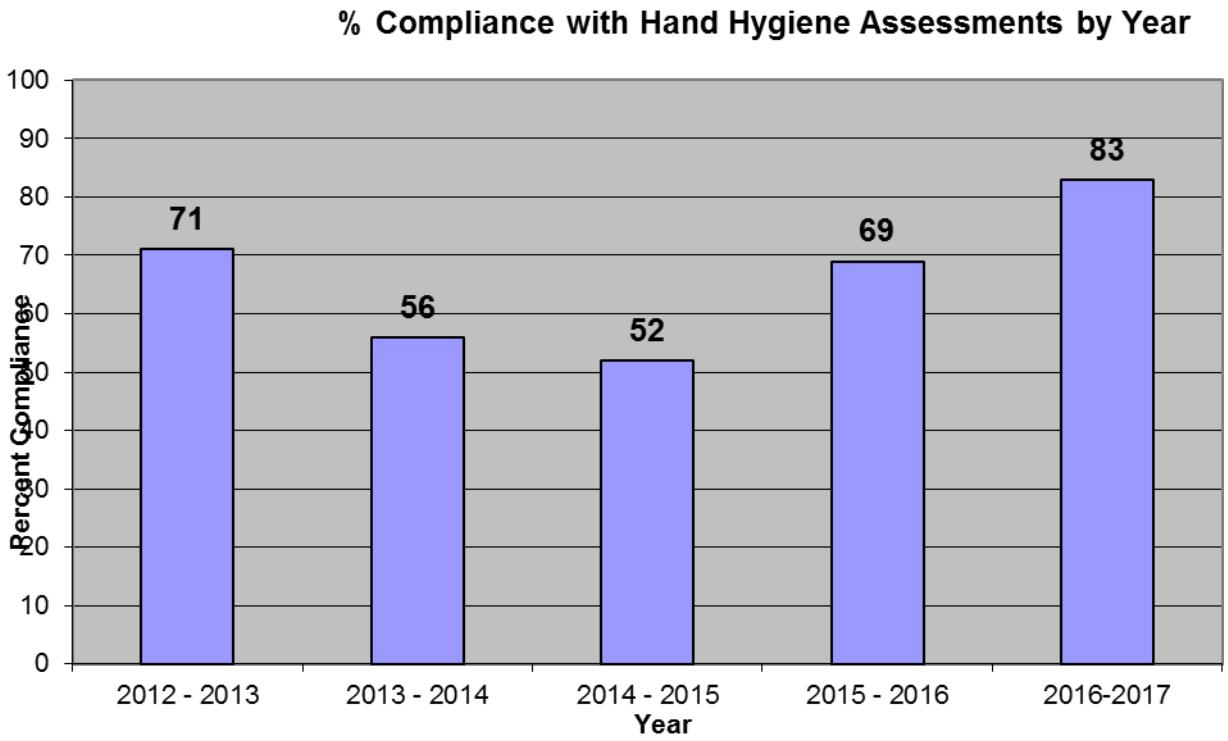
Training on the importance of hand hygiene, being 'bare below the elbow' and the World Health Organisation (WHO) '5 moments for hand hygiene', was provided locally to new staff on induction and was reinforced by members of the IPC team at statutory training, road shows, during clinical visits and whilst auditing.

The overall Trust compliance over the year was 98% and it was 95% or above on each individual month. However some individual areas may score below 95%. This is partly related to small numbers – If one out of 10 opportunities for hand hygiene is missed the percentage will be 90%. The IPCT continue to meet with the managers of areas where the compliance rate has fallen below 95%, action plans are agreed and the impact of these actions is monitored through the on-going audit programme. The frequency of the audits is increased to weekly when the compliance rate falls below 95% as well as when an outbreak or a period of increased incident of a particular organism has been identified in a ward. The IPCT has also focussed on ensuring that escalation protocols for repeated non-compliance are followed as per the Hand Hygiene Policy.



Three yearly Hand Hygiene Assessments

The Trust Hand Hygiene Policy stipulates that staff have their hand hygiene technique assessed within one month of starting their employment and every three years thereafter. It is the responsibility of the Ward Manager and the IPC link nurse to ensure these assessments are carried out. The IPCT monitors compliance quarterly through reports produced by clinical audit department. The quarterly reports are presented at the Infection Prevention and Control Committee.
The overall compliance rate for 2016/17 was 83%



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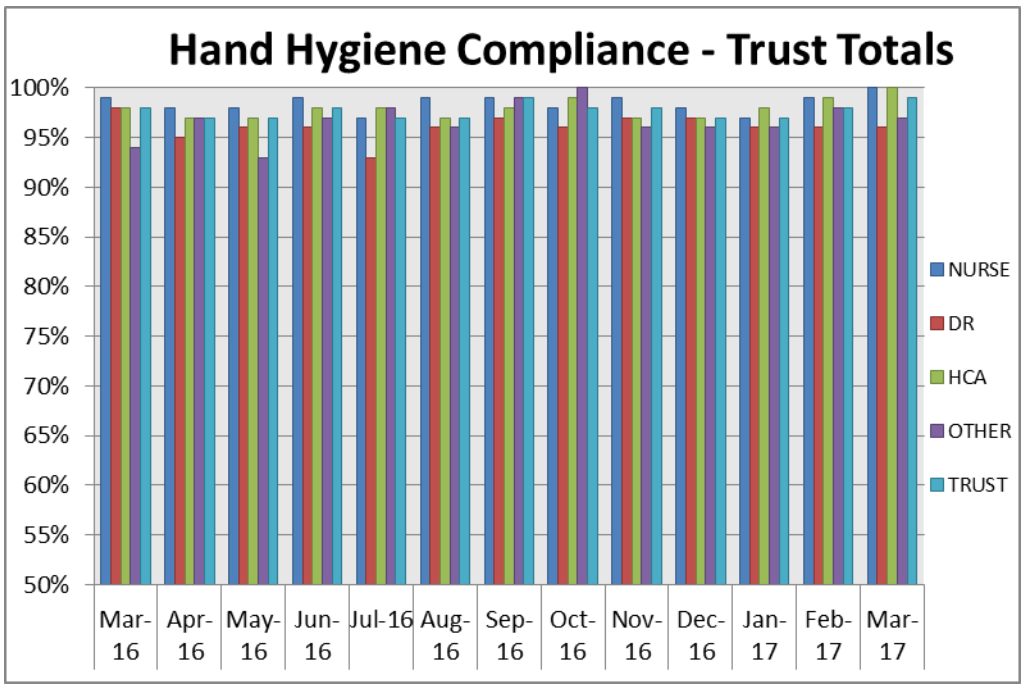
Doctors' Hand Hygiene

On the monthly snapshot audits of hand hygiene compliance of different staff groups is identified. See below. While the overall trust average and nurse and HCA compliance is consistently over 95%, doctors' hand hygiene compliance fell below 95% in July only. This was based on 292 opportunities. This is an improvement on last year's results this may be due to the fact we have been focusing on doctors' hand hygiene. Historically not all doctors were included in the 3 yearly assessment of hand hygiene technique. All junior doctors are assessed when they start and senior doctors are required to have a 3 yearly hand hygiene assessment.

This year's compliance is 209/487 (43%). This is an improvement of 16% compared to last year's results 209/487 (43%). However last year was only commenced part way through the year.



Monthly Hand Hygiene compliance audits by staff group.

7. Audits (including High Impact Intervention)

Quality Ward Walks

Quality walks focus on four main areas; Cleanliness, Equipment, Isolation & Management of Infected patients and Invasive Devices. The IPCT also record any other observations of IPC concern. The audit form is designed to give percentage scores in the four sections so wards can be monitored over time for trends and also so the IPCT can identify challenges at both ward and Trust level

At the time of QWW the IPC nurse verbally reports any areas of good practice and concerns to the nurse in charge. A summary report is produced and emailed to the Ward manager, Matron, Head of Nursing, Associate Director Patient Safety, Deputy Director of Nursing and Quality and Director of Nursing and Quality. The IPC link nurse, Domestic services' supervisor and Estates advisor are informed by exception based on findings.

Detailed recommendations form part of the report and the IPC team request email feedback to be completed within two weeks. If the compliance score is significantly less than 80%, supported visits are undertaken by IPC team giving opportunity to observe the changes made to improve practice. In addition clinical areas that experience periods of increased infection, outbreaks or alert organism attribution will have spot checks undertaken in addition to the quarterly programme.

Since the IPC team have developed a feedback assurance process, areas that do not provide feedback in a timely manner are monitored closely and concerns escalated to the Heads of Nursing. Feedback returns have improved in the last two quarters and follow up walks with the Lead Nurse for IPC, Heads of Nursing and Matrons have been introduced.

The following tables outline the compliance scores for each quarter during 2016-17

Unscheduled Care - PRH	Quarter 1			Quarter 2			Quarter 3			Quarter 4		
	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar

A&E		42			58			50			58	
AMU	75					68			70			77
4		89				79			68			63
6					67			84			89	
7		90			82			75			78	
9	90			76			84			74		
15			80			69			69			84
16			78			94			93			88
17			89			85			80			90
Renal					90					100		

Scheduled Care - PRH	Quarter 1			Quarter 2			Quarter 3			Quarter 4		
	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
8	94			93			94			63		
10	89				84			79			79	
11	75					69			56			50
DSU	80			90			90			91		
Endoscopy					73						82	Decon audit
ITU/HDU	89			89			90			80		
Theatre - Rec				70						56		

Unscheduled Care - RSH	Quarter 1			Quarter 2			Quarter 3			Quarter 4		
	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
A&E/CDU	86			50			46		86			64
AMU	57			50	71		63			80		
22SR		65			70			85			74	
24E/C&CCU	78			81				79		87		
27R			85			65		85			80	
28N		68			68					95		
32SS	79			94			90			84		
Renal						70					91	

Scheduled Care - RSH	Quarter 1			Quarter 2			Quarter 3			Quarter 4		
	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
21U/21SD	21U	85		21U	79		21SD	93		21SD	67	
22TO		70				74			75			58
23OH			90			82				74		
25CR&G		85			58			84			53	
26U/S		80			78			68			68	
33&34			67			90			88			68
DSU			75			87			93			83
Endoscopy				64				Decon audit		75		
ITU/HDU	95			87			87			80		
Theatre - Rec			100						90			

Women & Children's	Quarter 1			Quarter 2			Quarter 3			Quarter 4		
	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
14 Gynae		78			73			73			87	
20	75						100				100	
19	75						63				86	
21			73					82				
22		92					64					
23 NNU	87					86						86
24		90						87				
TMLU								85				
SMLU											53	93

Key:

	Compliance score more than 80%
	Compliance score less than 80%

Other audits have been completed during this period covering specific practices and within specific departments. These include:

- Sluice Audit
- Commode Audit
- Bedside Furniture Audit
- Hand Washing Facilities Audit
- PPE Audit
- Isolation Audit
- Discharge Letters
- Care Plan H
- Endoscopy decontamination

Following the furniture audit money was secured to replace old and worn out furniture. This will be replaced gradually as funds allow.

High Impact Interventions

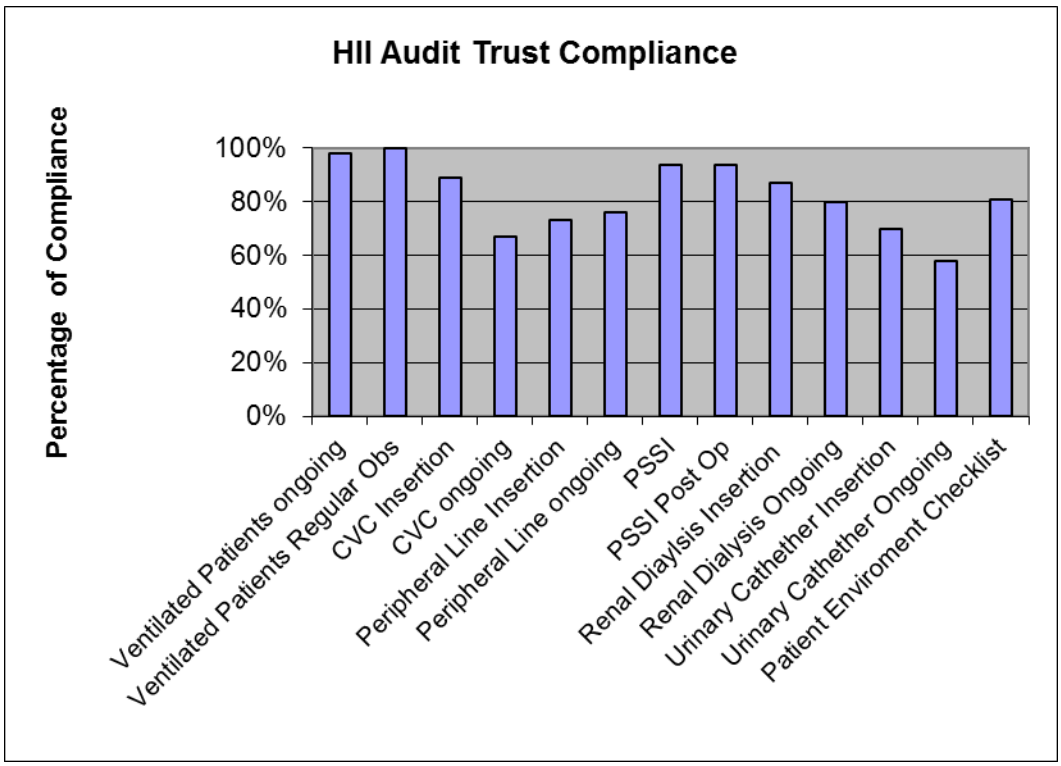
Audit is a key component of Infection Prevention and Control. Knowing how we are doing is vital to delivering safe quality care. High Impact Intervention (HII) audit tools issued by the Department of Health are used throughout the Trust to monitor practice and implement improvements where necessary. The term "High Impact Intervention" refers to a procedure carried out as part of health care which carries a risk of infection. To minimise the risk staff must comply with nationally agreed steps – often called a "care bundle". Trends in compliance are monitored locally via Clinical Audit, the Matrons, the Infection Prevention and Control Committee and the Centres.
The High Impact Interventions audits include:

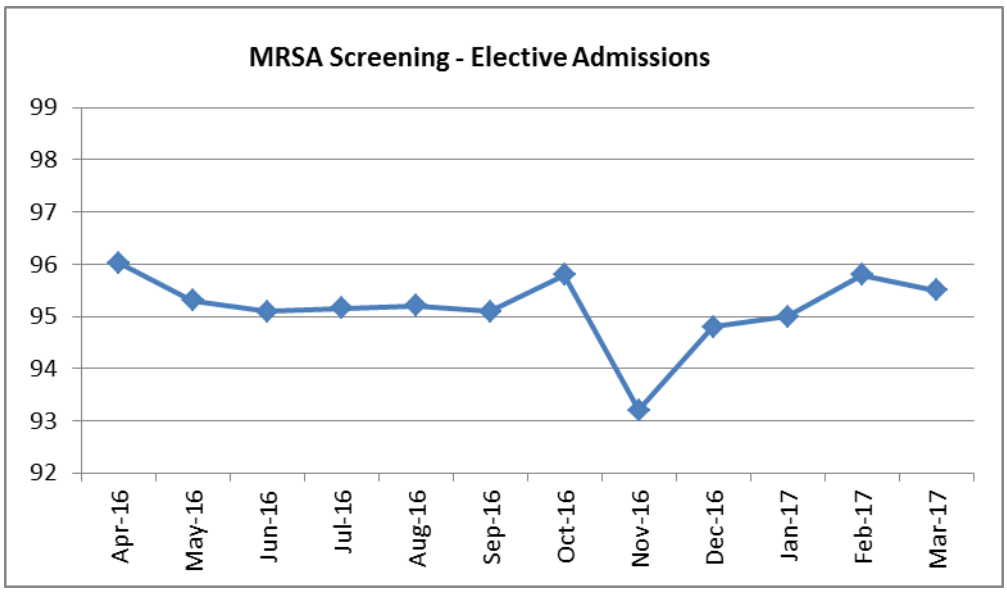
- Central Venous Catheter Care (CVC); Insertion / Ongoing care
- Peripheral Intravenous Cannula Care; Insertion / Ongoing care
- Renal Dialysis Catheter Care; Insertion / Ongoing care

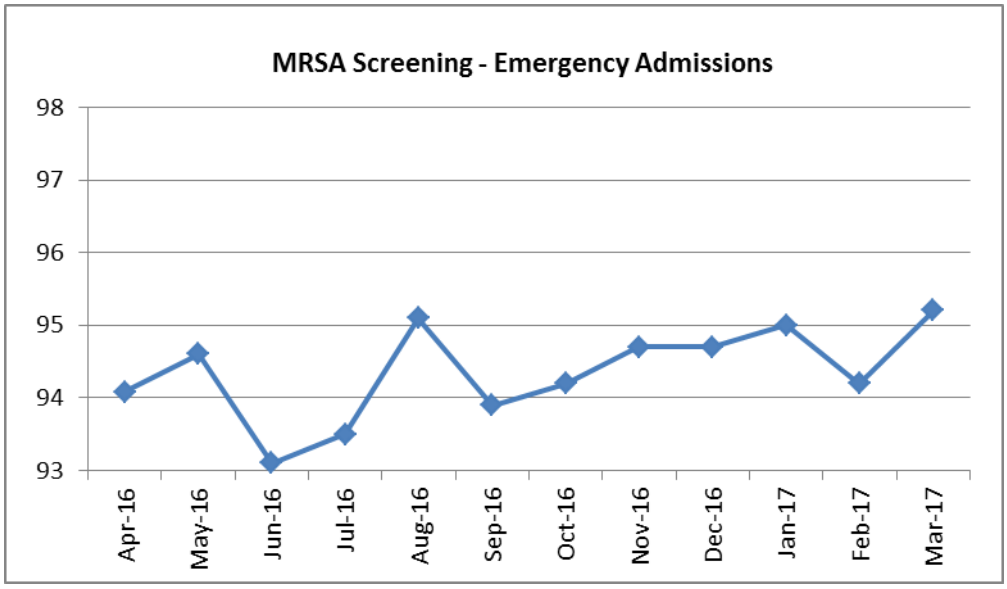
- Prevention of Surgical Site Infection (PSSI)
- Care of the Ventilated Patients
- Urinary Catheter Care; Insertion / Ongoing care
- Patient Environment Checklist

All the above audits except the Patient Environment Checklist are carried out by all Wards and Departments as applicable, on a one to three monthly basis, via the audit programme. The Patient Environment Checklist continues to be audited by the following Care Groups: Women and Children's, Patient Access, Diagnostics, Theatre, Anaesthetics and Critical Care and Oncology and Haematology, but the Gynae Ward and all other areas audit the environment via the Quality Framework Report (RATE).

Some areas are still struggling to sustain above 95% compliance rates in all audits throughout the year. Support from the IPC Team is always available and any dip in compliance is addressed at the time by Ward Managers and Matrons.
Throughout the year we have seen areas with a poor compliance rate make improvements and aim to achieve 100%.
During 2015/16, it was noted that the lower rate for compliance with the peripheral care bundles coincided with a higher rate of peripheral line associated MSSA bacteraemia.
The IPC Nurses during Quality Ward Walks and spot checks have observed improvements with peripheral care bundle compliance and there has also been a reduction in MSSA bacteraemia. However the trust compliance for 2015/16 for peripheral line insertion was 88% and for 2016/17 it was 73%. Peripheral line ongoing care 2015/16 was 80% and for 2016/17 was 76%. On reflection the lower compliance may be due to some areas not submitting their data.







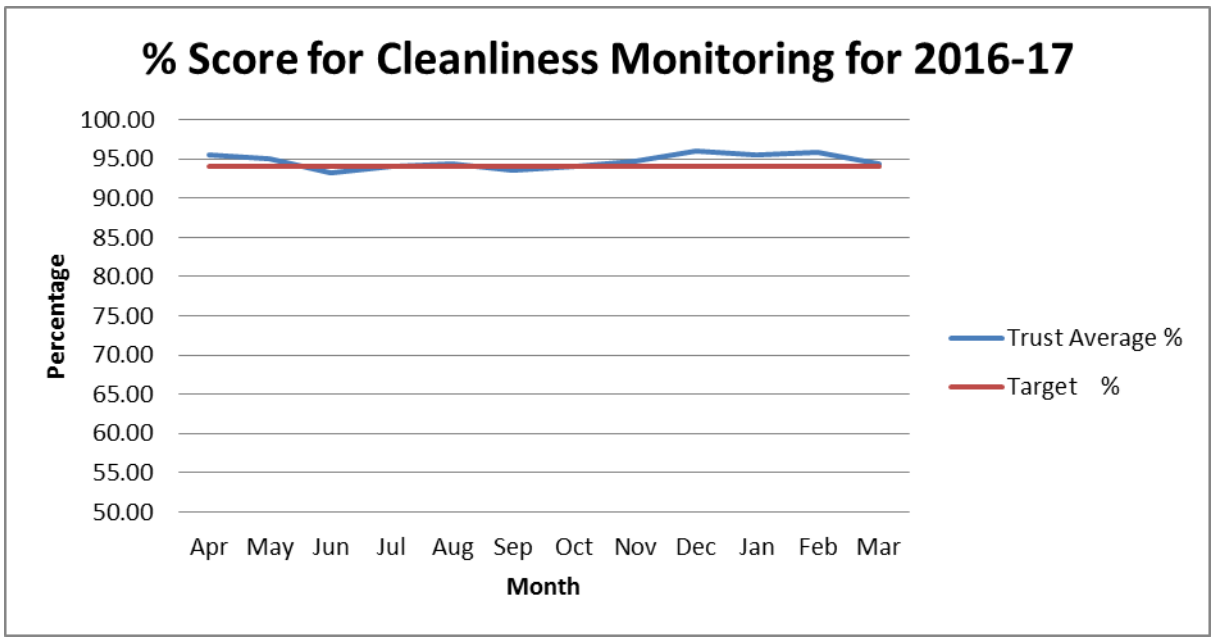
8. Environmental Cleanliness

Cleanliness Monitoring April 2016 – March 2017

The Cleanliness Monitoring Team within Facilities has monitored all 49 elements to include elements that are the responsibility of the Cleaning Team, Nursing Teams and Estates.

The scores the Trust for 2016-17 was as follows:-

	Joint Cleanliness Monitoring Score - April 2016 - March 2017											
	Apr	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
Trust Average %	95.48	95.09	93.26	94.06	94.46	93.52	94.04	94.71	96.07	95.56	95.83	94.4



The target score for the Trust is 94% and the average Trust wide score for the year was 94.71%.

PLACE Assessment 2016

Formal PLACE assessments for 2016 were undertaken for the following areas:-

- Princess Royal Hospital
- RJ&AH Maternity Unit
- Royal Shrewsbury Hospital
- Bridgnorth Maternity Unit
- Ludlow Maternity Unit

The results of the assessment are shown in the table below.

	Cleanliness	Food	Organisation Food	Ward Food	Privacy, Dignity & Well Being	Condition, Appearance and Maintenance	Dementia	Disability
RSH	99.47	91.57	76.85	93.99	59.51	89.59	58.81	60.06
PRH	99.69	85.81	78.83	86.99	75.10	92.53	57.47	64.54
Oswestry MLU	99.24	88.79	78.00	90.64	67.28	89.17		71.37
Bridgnorth MLU	98.96	96.02	93.34	99.02	80.56	94.72		94.34
Ludlow MLU	99.64	90.29	81.51	97.41	62.50	91.03		80.21
SaTH Average	**99.4**	**90.50**	**81.71**	**93.61**	**68.99**	**91.41**	**58.14**	**74.10**
National Average	**98.06**	**88.24**	**87.01**	**88.96**	**84.16**	**93.37**	**75.28**	**78.84**

Key Points

- Cleanliness and Food scores have been maintained at a high standard for the past 3 years with slight improvements in both areas this year.

- Condition, Appearance and Maintenance has shown a very slight improvement against the average for 2015.

- The average for Dementia has slightly improved this year but remains almost 20% lower than the national average.

- The area that has shown a lower score this year is Privacy, Dignity & Well Being which has fallen from 86.03% to 68.99% and it was the RSH score that fell below previous years.

The 2017 PLACE programme is already well underway and results will be available from the Health and Social Care Information Centre by September 2017

9. Overview of 2017/18 Annual Programme

During the next 12 months the IPCT aims to ensure a high quality and effective service across the whole trust. The IPCT will adopt a zero tolerance approach to HCAIs and ensure that all staff in the Trust are aware of their responsibilities in relation to IPC. Delivery of Infection Prevention and Control service is unpredictable & can challenge service delivery. During winter months for example outbreaks of Influenza or 'Winter vomiting' virus can increase workload suddenly with little warning, therefore the Annual Programme of work is designed for flexibility and if necessary project dates may need to be reallocated.

Our focus for 2017/18 will be:

- Urinary Tract Infections (UTIs) are the most common healthcare associated infection in acute hospitals. The risk of developing a catheter associated urinary tract infection (CAUTI) increases the longer a urinary catheter remains in situ. The IPC Team will continue to support the urology specialists nurses aim to develop a campaign to reduce UTIs as this did not happen as expected in 2016/17.
- Continue to reduce the incidence of Clostridium difficile infection in SaTH based on a strong health economy partnership approach including surveillance, implementation of best practice, audit and root cause analysis
- Ensure cleanliness issues within wards and departments is a priority and review basic standards of practice such as cleanliness and use of commodes in the environment
- Strengthen governance around decontamination of instruments/equipment outside of CSSD and continue to work with the new decontamination lead to focus on outstanding issues.