

REPORT TO:	AS REPORTED TO THE QUALITY COMMITTEE IN AUGUST 2016
DATE:	9 SEPTEMBER 2016
SUBJECT:	INFECTION CONTROL ANNUAL REPORT 2015-16
BOARD SPONSOR:	CHIEF NURSE & DIRECTOR OF QUALITY
PAPER AUTHOR:	INTERIM DIRECTOR, INFECTION, PREVENTION & CONTROL
PURPOSE:	APPROVAL

BACKGROUND AND EXECUTIVE SUMMARY

The Director of Infection Prevention and Control (DIPC) is required to produce an Annual Report on the state of healthcare associated infection (HCAI) in the organisation for which s/he is responsible and release it publicly according to the *Code of Practice on the prevention and control of infections and related guidance* (The Health and Social Care Act 2008).

The Board are asked to approve and note the contents of the report.

Management issues

- East Kent Hospitals University NHS Foundation Trust (EKHUFT) is compliant with the *Code of Practice on the prevention and control of infections and related guidance (The Health and Social Care Act 2008)*.
- Dedicated infection control software (IPC Manager - VitalPAC) to support the Infection Prevention and Control Team (IP&CT) has become operational since 2013 and has significantly changed the way in which the IP&C Clinical Nurse Specialists work, but has increased their daily work load.

Two significant changes in the strategic leadership of IP&C (DIPC post), and a number of resignations and vacancies have made 2015-16 a challenging year for the IP&C specialist team.

In spite of these challenges, the Annual Programme for 2015-16 was largely completed, and a 40% reduction in the number of cases of *C. difficile* infection occurring 72-hours post admission was achieved.

Surveillance

- MRSA bacteraemia:** NHS objective no avoidable cases
 Outturn: 2 cases
 bacteraemia rate 0.6/100K bed days 0.9 NHS average
- C. difficile:*** NHS objective 47 post 72 hour cases
 Outturn 28 cases 40% reduction on 2014-15
C. difficile rate 8.4/100K bed days 14.4 NHS Average
- E. coli* bacteraemia: No NHS targets**
 During 2015-16, EKHUFT reported 528 *E. coli* blood stream infections, an increase of 13% compared with the previous year and higher than the national increase in cases of 6.6%. The percentage of cases with onset in the community has remained

approximately the same at 86% compared with 85% in 2014-15.

- The Infection Prevention & Control Team (IP&CT) has introduced rectal screening of admissions in "high Risk" categories for exposure to Carbapenem Resistant Organisms (CRO's).
- Compliance with the MRSA screening policy is provided and also some evidence that new cases of MRSA carriage are in decline.

Outbreaks/Incidents

- A Case of Hospital Acquired Legionella infection was detected in a patient who had been resident in QEQM hospital. Appropriate control measures are in place.
- A patient notification exercise has been carried out following the discovery that a locum surgeon working in EKHUFT in 2008 was suffering from Hepatitis C virus. No transmissions of Hepatitis C were identified in East Kent patients.
- A number of incidents of TB exposure on the wards have required follow up and contact tracing. No cases of hospital transmission were identified.

IDENTIFIED RISKS AND MANAGEMENT ACTIONS:	<ul style="list-style-type: none"> • The increasing risk posed by Carbapenemase Resistant Organisms (CRO) is highlighted and introduction of a screening programme to detect cases is reported. • The occurrence of a case of hospital acquired Legionella is reported. Appropriate control measures are in place.
LINKS TO STRATEGIC OBJECTIVES:	<p>Patients: Help all patients take control of their own health.</p> <p>People: Identify, recruit, educate and develop talented staff.</p> <p>Provision: Provide the services people need and do it well.</p> <p>Partnership: Work with other people and other organisations to give patients the best care.</p>
LINKS TO STRATEGIC OR CORPORATE RISK REGISTER	The national increase in Carbapenemase producing organisms may need to be reflected in the corporate risk register in the future but at the present level of prevalence the impact on the Trust is low.
RESOURCE IMPLICATIONS:	No immediate resource implications but when the expected increase in CRO organisms transpires locally, the Microbiology department may require funding to implement molecular screening
COMMITTEES WHO HAVE CONSIDERED THIS REPORT	None
PRIVACY IMPACT ASSESSMENT: NO	EQUALITY IMPACT ASSESSMENT: NO
RECOMMENDATIONS AND ACTION REQUIRED: <p>The Board is asked to approve the report and note the high level of performance in infection control particularly in the reduction of <i>C. difficile</i> cases which compares favourably with NHS peers</p>	

INFECTION PREVENTION AND CONTROL ANNUAL REPORT

APRIL 2015 – MARCH 2016

Lead and Author	James Nash/Sue Roberts/ Debbie Weston
Approving body	Trust Board
Date Approved	

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East Kent Hospitals University NHS Foundation Trust**INFECTION PREVENTION AND CONTROL ANNUAL REPORT****April 2015 – March 2016**

This Report has been produced by Dr James Nash, Interim Director Infection Prevention and Control (from January 2016), Sue Roberts, Deputy Director Infection Prevention and Control and Debbie Weston, Deputy Lead Nurse Infection Prevention and Control, on behalf of the Infection Prevention and Control Team.

1. INTRODUCTION

The Director of Infection Prevention and Control (DIPC) is required to produce an Annual Report on the state of healthcare associated infection (HCAI) in the organisation for which s/he is responsible and release it publicly according to the *Code of Practice on the prevention and control of infections and related guidance* (The Health and Social Care Act 2008). The Annual Report is produced for the Chief Executive and Trust Board of Directors and describes the activity of the Infection Prevention and Control Team (IP&CT) during the year, including progress made against the work plan and objectives identified in the Infection Prevention and Control Annual Programme. It also includes Divisional performance against Infection Prevention and Control Key Performance Indicator Targets (KPIs). Divisional compliance with regard to mandatory training and hand hygiene/"bare below the elbows" and commode cleanliness is reported monthly (see Appendix 1). Compliance with hand hygiene/"bare below the elbows" and commode cleanliness has been reported via the Meridian System since March 2013.

1.1 Annual Programme and Achievement of Targets

The Infection Prevention and Control (IP&C) Annual Programme (2015/16) was designed to achieve compliance with the standards identified in the *Code of Practice*, and the achievement of National and local infection related objectives:

1. MRSA bacteraemia objective for 2015/16
 - NHS objective of no avoidable bacteraemia cases
 - 2 avoidable cases were recorded but the Trust attributable MRSA rate (0.6/100K bed days) was below the NHS average rate of 0.9/100K
2. *C. difficile* objective for 2015/16
 - NHS England objective of 47 post 72 hour cases for 2015-16 (outturn 28 cases; a 40% reduction on the outturn in 2014-15)

These results are discussed in more detail in the section on surveillance of infection.

Divisional Infection Control Key Performance Indicator Targets were revised and approved at the Clinical Management Board in November 2015 to support the performance management agenda of the Divisions. The Divisional Performance targets are available from the following link: [via SharePoint](#) or on application to the IP&CT. These are due to be revised in November 2016.

**1.2 The Infection Prevention and Control Team
(links with other Trust committees and working groups are listed in Appendix 2)**

The IP&CT are the medical and nursing specialists responsible for undertaking the work described in the Infection Prevention and Control Annual Programme.

East Kent Hospitals University NHS Foundation Trust (EKHUFT) IP&CT consists of 5.0 Consultant Microbiologists. The post of Director Infection Prevention and Control was filled by Dr Reddy from May 2015 to October 2015 and subsequently by Dr Nash.

Within the current structure there are 7 Infection Prevention and Control (IP&C) Clinical Nurse Specialists (one of whom is Deputy Director of Infection Prevention and Control) and 2 trainees. However, following the loss of a number of senior staff during 2015-16, the structure of the IP&CT is being revised during 2016-17.

The vacancies within the Team throughout 2015 and into 2016, have meant that available resources have had to be completely focussed on clinical activity (reviewing patients with alert organisms/conditions; ensuring that the HCAI reduction targets have been met; management of clusters and outbreaks of infection), and this has therefore impacted on the Team's ability to undertake all training and education activities for staff and complete IP&C Environmental and Clinical Practice Standards for all wards and departments across the Trust.

The IP&CT is supported by 2.5 wte Antimicrobial Pharmacists and 1 wte rotational pharmacist.

Infection Control Software to Support IP&CT Activity (VitalPAC IPC Manager)

The infection control component of VitalPAC (IPC Manager) was implemented in September/October 2013 to assist the IP&CT with the management of colonised and infected patients and also in the retrospective investigation of "outbreak" incidents.

A key feature of IPC Manager is the recording and tracking of all episodes of diarrhoea and/or vomiting on wards where the staff have entered symptomatic patients onto VitalPAC. This facilitates the early recognition and management of patients with Norovirus and *C. difficile*, with the IP&C Clinical Nurse Specialists reviewing all patients on the "D&V list" during working hours. Whilst significantly improving the pro-active management of infection prevention and control the introduction of IPC Manager has had a large impact on the way in which the IP&C Clinical Nurse Specialists work, and has significantly increased their daily work load. The IP&CT believe that the continued use of VitalPAC IPC Manager has played a significant role in the 40% reduction in *C. difficile* cases, and also in the improved control of Norovirus.

1.3 Infection Control Committee

The EKHUFT Infection Control Committee (ICC) is a multidisciplinary Trust committee with outside representation from Public Health England (PHE). The ICC oversees the activity of the IP&CT and supervises the implementation of the Infection Control Annual Programme. The ICC met bi-monthly during 2015-16, with meetings chaired by the Chief Nurse and held via video-conference. This will continue during 2016-17, with greater emphasis on Divisional representation and engagement.

1.4 The Care Quality Commission

EKHUFT are compliant with the essential Care Quality Commission (CQC) quality and safety standards as they apply to infection prevention and control.

Following the CQC re-inspection in July 2015, there were no actions for the IP&CT. At the Quality Summit held prior to publication of the Report, IP&C within the Trust received favourable mention.

2. EDUCATION AND TRAINING

Introduction

The *Code of Practice* requires that all staff undertake mandatory infection prevention and control training on a regular basis. The specific requirement is:

‘that relevant staff, contractors and other persons whose normal duties are directly or indirectly concerned with patients care receive suitable and sufficient training, information and supervision on the measures required to prevent and control risks of infection’.

This need is met through provision of a mandatory e-learning package based on Department of Health evidence-based infection control guidelines. In total, 5240 staff have completed this training during 2015-16.

Additional training sessions provided by the IP&CT during 2015/16 include:

- Induction training of 45 minutes for all clinical staff (separate sessions for junior hospital doctors).
- All junior doctors receive a short induction session provided by the IP&CT. This includes a presentation and handout on infection prevention and control practices, including the insertion of peripheral cannulae and other invasive devices, as well as education on hand hygiene and blood culture collection, and the prevention/management of inoculation injuries.
- As part of induction, all Foundation Year 1 (F1) junior doctors also undergo mandatory training and assessment of competence on the insertion of peripheral venous cannulae and phlebotomy skills, including the taking of blood cultures (provided by the Vascular Access Team).
- Participation in the F1 Junior Doctor programme includes ‘The Principles of Infection Control’, antibiotic prescribing and emphasises the role of the microbiology laboratory in diagnosis of infection.
- IC Induction for medical students – suspended from Q3 onwards (IP&C Induction Packs provided).
- Ad hoc sessions for Divisions/Departments as requested.
- Infection Control education for newly qualified nurses – attendance at the Preceptorship Conference run by the Practice Development Nurses; 1 hour work shop held twice annually.
- IC Management of the Acutely Ill Patient (as part of the in-house training course) – suspended from Q3 onwards due to resource issues within the IP&C Specialist Nursing Team.
- Education on the management of urinary catheters as part of the induction programme for Healthcare Assistants.
- Practical hand hygiene training for IC Link Practitioners, Trust wide (training is then undertaken by Link Practitioners for all clinical staff working in their area, annually).

- Site-based teaching for Band 4 Assistant Practitioners as requested – one session cancelled.

Full Trust wide Infection Control Education and Training figures, are available on application to the IP&CT.

3. INFECTION CONTROL LINK PRACTITIONER SYSTEM

Infection Control Link Practitioners by Site

QEQMH	WHH/BHD/RVHF	K&C
57	77	48

Due to resource issues within the IP&C Specialist Nursing Team across the three sites during 2015/16 and the need to prioritise the clinical workload, quarterly site-based IP&C LP meetings have not taken place since Q3 2015/16. The IP&C LP Programme will resume in September 2016. However, IP&C LPs have continued to have significant involvement/contact with, and support from, the site-based IP&C Clinical Nurse Specialists.

4. AUDIT

The IP&C Clinical Nurse Specialists have undertaken the following audits (with appropriate support from IP&C LPs and external agencies, as appropriate):

Audit	Completed	Achievement
Management of sharps (annual)	To be carried over to April/May 2016	
Antimicrobial prescribing		Please see Antimicrobial Stewardship Report
Infection Prevention and Control Audits of Environmental and Clinical Practice	Ongoing	Regular audits (every 12-18 months) of the clinical environments are undertaken by the IP&C Clinical Nurse Specialists in conjunction with the Ward/ Department Managers or IP&C LPs Trust wide, utilising the Infection Control Environmental and Clinical Practice Standards Audit Tool. The completed audit report is sent to the Ward/ Department Manager, who is responsible for both formulating and implementing an action plan within a designated time frame. < 5 non-compliances in either or both standards requires the generation and implementation of an Action Plan; 5 or more non-compliances in both Standards means that the Ward/ Department has failed the Audit overall. In this instance, the Ward/Department is entered onto the Infection Control Audit Risk Register of clinical areas that are non-compliant with IC Standards. The formulation of the action plan and the re-auditing of clinical areas that fail to meet the required standards form part of Divisional KPI's. The results of these Audits are reported monthly in the Infection Prevention and Control Monthly Report. NB: Due to resource issues within the IP&C Specialist Nursing Team during 2015/16, particularly from December 2015 onwards, annual audits of

		Wards/Departments have not been completed in all areas across the Trust. The Audit Programme will recommence in Q1 2016/17, with the initial focus on “high-risk” wards
Annual audit of commodes – Trust wide	February/March 2016	A Trust wide audit of commodes was undertaken by Gamma Healthcare Ltd (Clinell) in February and March 2016 in order to assess the cleanliness and the condition of commodes. 192 commodes were audited, with 12 requiring replacement (to be funded by the Divisions)
Mattress/zipped item check	Monthly	All foam mattresses are checked by ward staff according to the criteria on the EKHUFT mattress label on the first Friday of the month by individual wards/departments. Mattresses/covers are replaced accordingly. Other zipped items are also checked and replaced accordingly
Environmental audits (assessment of compliance with the <i>Code of Practice</i> with regard to the ward environment)	Every 3 months	All bed holding matrons have been trained in the use of the ward/departamental Hygiene Code Environmental Audit tool to enable them to subsequently complete these audits three monthly on each ward with a requirement to report to their relevant Divisional committees
Audit of isolation rooms		Since May 2011, the site-based IP&C Clinical Nurse Specialists have been reviewing all patients in side rooms/cohort bays known or suspected to be colonised or infected, on a weekly basis. Ensuring compliance with the Isolation Policy, the use of isolation rooms, including cleanliness of the room, and the provision of Infection Control Patient Information Leaflets forms part of that patient review. Immediate feedback is provided to the ward manager/ equivalent
Biennial audit of endoscopy facilities and practice including Trans-oesophageal endoscopes	Completed 2014	The biennial Audit of Endoscopy Facilities and Practice was completed and reported to Clinical Management Board in August 2014 and is available from the IP&CT on request

Compliance with the Management of Invasive Devices

With the introduction of VitalPAC in 2013, there is now the facility to monitor compliance with the management of invasive devices, e.g. peripheral cannula, central vascular catheter and urinary catheter, insertion and continuing care, the results of which are reported to the ICC as a standing agenda item.

Please see Appendix 3 for latest VitalPAC Invasive Devices Monthly Report.

5. HAND HYGIENE

The focus on improving hand hygiene compliance has continued during 2015-16 with increased attention on improving compliance with the annual practical hand hygiene assessment of staff who have contact with patients as well as contract staff (Divisional KPI). This is undertaken by the IP&C Link Practitioners and reported in the Infection Prevention and Control Monthly Report to Divisions. Compliance with hand hygiene, including bare below the elbows, is audited and reported via EKBI QlikView and reported in the Infection Prevention and Control Monthly Report to Divisions and the ICC.

6. HOSPITAL HYGIENE

The IP&CT have continued to monitor standards of cleanliness within the Trust and promote good practice in conjunction with the Hospital and Facilities Managers through participation in the following activities:

- Patient-led Assessment of the Care Environment (PLACE)
- Advising contractors/contract management on cleaning and domestic issues.
- Day to day advice/intervention/escalation to facilities management as appropriate, with regard to cleaning issues.

7. OTHER WORK

- The IP&CT continue to be involved in the planning aspects of Trust wide building and development projects in relation to infection prevention and control, including the new Dover Hospital.

8. INITIATIVES

Implementation of Hydrogen Peroxide Vapour (HPV): A Hydrogen Peroxide Vapour system (Deprox – Hygiene Solutions) was initially introduced to EKHUFT in August 2014 as a six-month trial via a phased implementation, as part of a package of additional control measures, identified within the Trust wide *C. difficile* Action Plan to deal with the escalating number of *C. difficile* cases seen during 2014-15.

High-level disinfection via an automated system utilising HPV (“fogging”) achieves a level of environmental cleanliness that cannot be achieved solely through conventional manual cleaning methods using chemicals, and therefore reduces residual background environmental contamination which can lead to cross-infection.

Although the evidence base for the use of HPV is not conclusively proven, there was a 50% reduction in *C. difficile* cases in Q3/4 of 2014-15, and a 40% reduction in the number of cases occurring overall during 2015/16 (28 cases against an objective of 47 cases), which suggests that there was a cumulative reduction in background contamination. The presentation of a Paper to the Executive Team in June 2015 and an extension of the Deprox trial to May 2016, allowed for a procurement exercise to be undertaken.

Implementation of the HOUDINI Protocol: In June 2014, the Clinical Board approved a proposed project plan presented by the Interim DIPC on behalf of the IP&CT that sought to reduce Catheter Associated Urinary Tract Infection (CAUTI) through the implementation of a Trust wide improvement initiative called HOUDINI. This is based on the principle that the timely removal of indwelling urinary catheters will reduce CAUTI, with HOUDINI providing an acronym for the seven clinical indicators for catheterisation – if none apply then the catheter is removed. The IP&CT at EKHUFT planned to extend the use of HOUDINI to cover both insertion and removal in order to optimise the use of urinary catheters, and HOUDINI was implemented Trust wide in three project phases between June 2014 and March 2015. The IP&C Clinical Nurse Specialists undertook a Trust wide audit of compliance with HOUDINI in August 2015, which identified that compliance overall was “reasonable” given that HOUDINI Pathway had been in place across the Trust for less than a year at the time of the audit.

The Audit Report contains a number of actions for the Divisions in order to improve ownership/accountability. An essential component of this is the three monthly audit of compliance which is to be undertaken by the Divisions in the relevant clinical areas using a simple data collection tool developed by the IP&CT.

9. WATER QUALITY AND SAFETY (INCLUDING LEGIONELLA AND PSEUDOMONAS) **(Controlling the risk associated with water supply and air conditioning systems)**

In October 2015 a Legionella infection was diagnosed in a patient in a London Hospital who had been a patient at QEQM Hospital before transfer to London. Subsequently, high counts of Legionella were found in a shower on the ward where the patient had been resident at QEQM. Following this discovery a Legionella control meeting was convened and control measures including filters on showers were implemented. A number of engineering faults were detected and have been corrected. The Legionella routine water sampling programme has been enhanced giving higher priority to sampling patient showers. The Health and Safety Executive have visited and reviewed the Trust Legionella Control Programme and were satisfied with the measures being taken.

The EKHUFT Legionella Control Programme is based on the approved *Code of Practice for Control of Legionella in water systems* (L8) and HTM04-01. Legionella Risk Assessments for all hospital sites have been updated and an active monitoring programme is in place at all of the EKHUFT hospital sites. Environmental sampling of water quality is supervised by the Water Quality & Safety Committee which reports to the Infection Control Committee. Environmental sampling results are discussed in a bi-weekly Legionella Control meeting which also directs remedial action required when Legionella is found in any water samples.

A programme of remediation is addressing engineering problems associated with potential Legionella risk on all sites.

The Water Quality & Safety Committee also manage the risk of Pseudomonas infections potentially associated with contaminated water in augmented care units (ITU, NICU and HCU).

A pseudomonas risk assessment has been prepared and sampling of high risk units is in place.

10. INCIDENTS/OUTBREAKS OF HOSPITAL INFECTION

10.1 Norovirus Diarrhoea 2015/16

In April 2016, Public Health England reported that the National number of laboratory reported cases of Norovirus since week 27 in 2015 was 35% lower than in the five seasons from 2010/11 – 2014/15, and 30% lower than the same period last year. This reflects the very low numbers since across the Trust during 2015/16, which may also have been aided by the daily review of all patients reported on VitalPAC with one or more episodes of diarrhoea and/or vomiting, and the use of hydrogen peroxide vapour (HPV) for the high-level disinfection of single rooms, bays and wards as appropriate.

Table 1 shows the numbers of affected patients per site per year since 2008/09.

Table 1: Patients with confirmed Norovirus infection by year

Site	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
WHH	80	192	140	117	182	0	44	20
QEQM	227	134	70	101	200	59	11	3
K&C	135	225	138	53	62	0	53	21
	442	551	348	271	444	59	108	44

At the QEQM, education sessions were held on the wards once again by the site-based IP&C Clinical Nurse Specialists during November 2015. “Norovirus banners” were displayed at the hospital entrances across the Trust, advising members of the public not to visit the Trust if they had any symptoms that were suggestive of Norovirus infection, and an automated “awareness” message was installed onto the telephone system by the Telecommunications Department during February and March 2016, when there was an increase in Norovirus activity affecting WHH.

The prevention and control of Norovirus remains an ongoing challenge for IP&CTs across the country due to its changing epidemiology, short incubation period, sudden onset, rapid spread, and the fact that it circulates within the community throughout the year; therefore continued surveillance is necessary. Admission-avoidance of symptomatic patients is key within the ECC/ Emergency Departments, along with the rapid isolation of symptomatic patients on the wards and notification to the IP&CT.

10.2 Contact tracing/look-back exercises

Hepatitis C Incident

In November 2015 EKHUFT were informed by Public Health England that a healthcare worker (HCW) who had worked as a locum surgeon in the EKHUFT for 3 months during 2006 was thought to have transmitted hepatitis C during surgery to 2 patients while working in Scotland. As a result of this incident, the Health Protection Agency Scotland and Public Health England (after consultation with the UK Advisory Panel for Healthcare Workers infected with Bloodborne Viruses (UKAP)) had agreed that a patient notification exercise should be undertaken and should involve contacting patients operated on by the HCW during their career and recommending a blood test to exclude acquisition of hepatitis C virus infection. Any patients identified with hepatitis C infection would be offered treatment. The HCW implicated had worked for over 20 years as a consultant surgeon in Scotland and their work in William Harvey Hospital represented a short 3 month locum appointment at the end of their career.

Forty two East Kent patients potentially exposed to risk during surgery were identified and invited to come forward for hepatitis screening. Thirty two patients responded to the invitation and were screened with negative results. A further 8,000 patients exposed in Scotland were also invited to undergo screening by the HCW’s employer in Scotland. Results of the Scottish screening exercise have not been released to external agencies.

This incident has highlighted the importance of maintaining accurate computer records of members of the surgical team present during each operation and as a result a number of recommendations have been made about improving record keeping and auditing the accuracy of operating room computer records.

TB Incidents

In four unrelated incidents on 4 medical and surgical wards, contact tracing exercises have been required to manage exposure of EKHUFT patients to undiagnosed TB cases on the ward. The common factor in all four incidents was failure to consider TB as a possible diagnosis in patients presenting with abnormal chest x-rays and subsequent delay in isolation of the TB case. Fortunately no secondary cases of TB were detected. As a result of these incidents an educational campaign highlighting the risk of missing a diagnosis of TB will be undertaken during 2016-17.

Group A Streptococcal Infection

Two incidents involving possible acquisition of Group A Streptococcal infection on EKHUFT wards were investigated. Screening of staff on one ward where there were three cases was carried out. No carriers were found and it was not possible to identify a source in either incident.

Varicella Zoster (Chickenpox)

An outbreak control group was convened to manage the exposure of maternity patients to an externally employed company representative who visited a ward while suffering from undiagnosed chickenpox. As a result, 4 babies received injections of prophylactic varicella zoster immunoglobulin. The Specialist Services Division (Women's Health) have been advised to ensure that all company representatives had immunity to chickenpox and other infectious diseases such as measles, mumps and rubella, before being permitted to attend the maternity wards and have contact with mothers and babies.

10.3 Legionella infection

A case of probable hospital acquired Legionella infection is discussed in the section of this report dealing with Water Quality and Safety.

11. SURVEILLANCE AND EPIDEMIOLOGY

11.1 Influenza 2015/16

Moderate levels of influenza activity were seen in the community in the UK in 2015 to 2016, with influenza A(H1N1)pdm09 the predominant circulating virus for the majority of the season peaking late in week 11 of 2016 and influenza B peaking afterwards.

The impact of A(H1N1)pdm09 was predominantly seen in young adults, the pattern of those affected appeared to be different across parts of the UK; while a consistent pattern of numerous outbreaks in hospitals, high numbers of admissions to hospital and ICU/HDU was observed, the impact on general practice and schools was variable (moderate in England and Wales and low in Northern Ireland and Scotland). Peak admissions to hospital and ICU were higher than seen in the previous few seasons, but lower than the last notable A(H1N1)pdm09 season in 2010 to 2011. Levels of excess all-cause mortality were significantly lower than last season, but some excess mortality was seen in younger adults.

Experience in East Kent reflected the national picture described above with significant pressure on ICU beds compared with recent seasons.

Year	All staff Vaccinated	% uptake Total staff 7,500	Clinical Workforce	Drs		Nurses/ Midwives		Other Professional Qualified		Clinical Support Staff		No Direct Patient Contact	
2012	2885	38.5%	37%	341	38.4%	801	34.7 %	495	66.4%	483	27.1%	755	42.6 %
2013	3185	43%	48.4%	418	47.6%	982	42.7 %	592	80.3%	732	42.7%	457	25.8 %
2014	2758	36.7%	36%	342	37.8%	731	31.8 %	506	47.3%	463	33%	717	38.9 %
2015	2939	38.6%	39.6%	356	39.5%	731	32.3 %	445	76.3%	740	37%	667	33%

The overall level of influenza vaccine uptake by staff was disappointing at 38.6%. This is considerably below the 75% CQUIN target introduced for the first time for 2016/17.

11.2 *Clostridium difficile*

There were 28 cases of *C. difficile* infection during 2015-16, a 40% reduction on the number of cases in 2014-15, achieving the NHS England objective of 47 cases. The cumulative total of *C. difficile* cases compared with 2014-15 is displayed in Table 2 below.

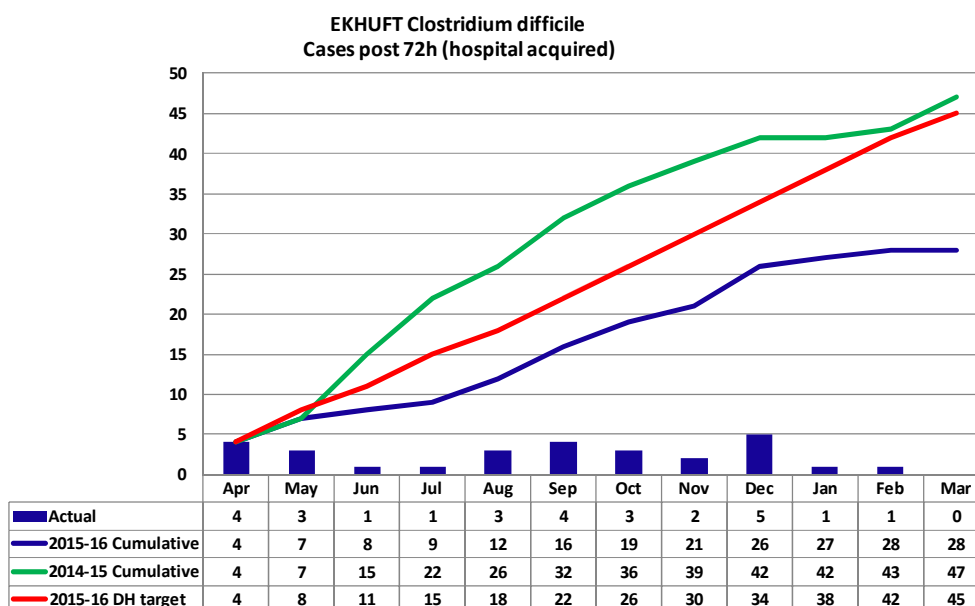
Table 2: EKHUFT *C. difficile* Trajectory 2014-15 to 2015-16

Table 3 below compares the rates of *C. difficile* infection within EKHUFT and the NHS average over 7 years.

The 2015/16 total of 28 Trust attributable cases, represents a rate of 8.4/100K bed days compared to the NHS average of 14.9/100K bed days.

Table 3

	2009 10	2010 11	2011 12	2012 13	2013 14	2014 15	2015 16
Post 72hr cases (potentially hospital acquired)	94	96	40	40	49	47	28
EKHUFT rate <i>C. difficile</i> infection/100K bed days	24.5	25	12.9	12.2	14.8	14.4	8.4
NHS ave rate of <i>C. difficile</i> /100K bed days	35.3	29.7	22.2	17.3	14.7	15.1	14.9

The large reduction in cases in EKHUFT compared with the modest reduction nationally is striking and may reflect a number of local factors including the implementation of H₂O₂ cleaning of the environment, reduced cross infection associated with the lower rates of Norovirus diarrhoea during the year and use of VitalPAC to monitor patients with diarrhoea.

The number of cases attributed to each Division for the periods 2014-15 and 2015-16, and whether they were avoidable or unavoidable are shown in Table 4 below.

Table 4

	2014 - 2015		2015 - 2016	
	Avoidable	Unavoidable	Avoidable	Unavoidable
Surgical Services	1	18	1	8
UCLTC	4	19	3	12
Specialist Services	1	4	0	2
Total	6	41	4	22

(Two cases were not classified)

The reduction in surgical cases of *C. difficile* is particularly striking.

Periods of Increased Incidence (PII)

There were four periods of increased incidence during 2015-16 (two or more cases of *C. difficile* infection occurring on a ward within a period of 28 days).

In each instance, Molecular “finger-printing” of the *C. difficile* isolates was carried out to determine if the cases were potentially linked and outbreak control meetings were held. *C. difficile* strain typing suggested cross-infection in only one of the four PII’s investigated.

Lapses of Care

In April 2014, it became an NHS England requirement that all cases of *C. difficile* are assessed as part of the root cause analysis (RCA) process to determine whether the case was linked to a lapse in the quality of care provided. A lapse in care would be indicated by evidence that policies and procedures consistent with national guidance and standards were not followed. Where cases of *C. difficile* infection are linked with identifiable lapses in care, the Co-ordinating Commissioner will decide whether individual cases of *C. difficile* affecting patients under its contract should count towards the aggregate number of cases on the basis of which contractual sanctions are calculated.

Within Kent, there has been agreement on Kent-wide definitions of lapses of care as follows:

1. Evidence of transmission in hospital (ribotyping and enhanced “finger printing”)
2. 13 week cleaning scores lower than the 95% threshold
3. Evidence of non-compliance with the choice, duration or documentation of antimicrobials prescribed in the preceding 8 weeks
4. Evidence of non-compliance with stool specimen collection
5. Evidence that the patient was not isolated in accordance with Trust Policy
6. Hand hygiene compliance < 95%

These are classified 0 – 3. Classification 1 indicates that there was a lapse of care, but different management would not have made a difference to the outcome. Classifications 2 and 3 indicate that different management *might* have, or would *reasonably have been expected* to have, made a difference to the outcome.

A provisional decision regarding whether or not there have been any lapses of care are made at the RCA meeting, and then reviewed separately with the CCGs.

Five cases of *C. difficile* infection were associated with lapses of care (failed cleaning of commodes x 1, transmission proved by molecular typing x 2, missed opportunity for an early diagnosis x 1 and inappropriate antibiotic therapy x 1).

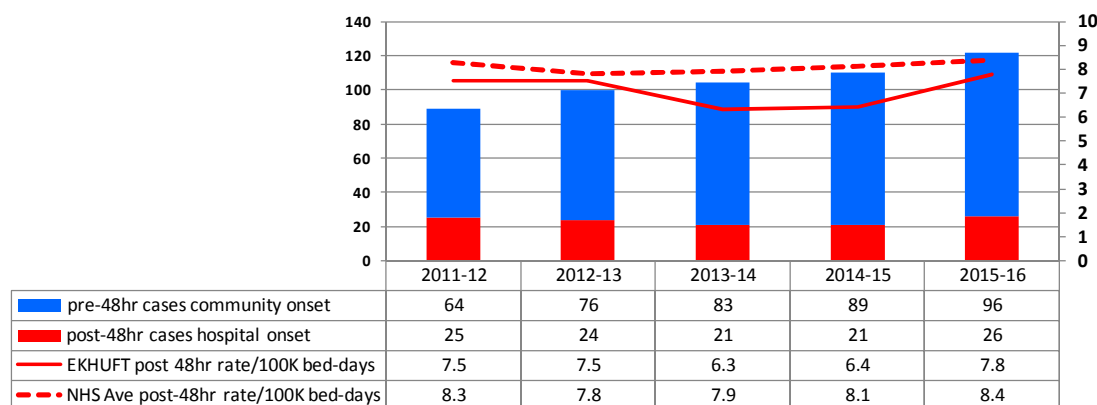
11.3 *Staphylococcus aureus* Infections (MRSA and MSSA)

Mandatory surveillance by the Department of Health now includes both Meticillin Sensitive *Staphylococcus aureus* (MSSA) blood stream infections as well as Meticillin Resistant

Staphylococcus aureus (MRSA) infections. However, targets are not set for MSSA infections, most of which originate in the community rather than in hospital.

Figure 1

**Meticillin Sensitive *Staphylococcus aureus* bacteraemia
2011-12 to 2015-16**



During 2015-16, the IP&CT have undertaken Root Cause Analysis of all cases that are associated with either a vascular access device or surgery, in conjunction with the Divisions.

RCA findings highlighted IV site device infections as a common theme associated with Trust acquired cases.

The Trust rate of hospital acquired MSSA infection has remained below the NHS average rate/100K bed days throughout the surveillance period of 2011 to 2016.

11.3.1 Meticillin Resistant *Staphylococcus aureus* (MRSA)

There is no specific NHS England Trust objective for MRSA bacteraemia other than observance of the principle of “zero avoidable cases”. Two cases of MRSA bacteraemia were assigned to EKHUFT following Post Infection Review (PIR). Both occurred within Specialist Services (Cancer Services). Although it was agreed that neither case could have been avoided, failure to screen both patients when they attended the Chemotherapy Units, in accordance with EKHUFT Policy, led to both cases being assigned to the Trust. An action plan was developed by the Division that included the Division auditing their compliance with MRSA screening.

Figure 2: MRSA bacteraemia cases 2013-14 to 2015-16

	2013-14	2014-15	2015-16
Trust assigned MRSA cases	9	1	2
Trust MRSA rate/100K bed-days	2.7	0.3	0.6
NHS rate/100K bed-days	4.2	0.9	0.9

The overall rate of Trust assigned MRSA bacteraemia cases for 2015-16 was 0.6/100K bed days compared with the NHS average of 0.9/100K bed days.

11.3.2 Preventing MRSA Bacteraemia in 2015-16

In response to the new approach by NHS England of “no avoidable bacteraemia”, the IP&CT developed the MRSA Bacteraemia Recovery Plan in 2013-14, which was updated for 2015-16, based on issues identified at Root Cause Analysis during 2014-15. The MRSA Action Plan is available on request from the IP&CT.

11.3.3 MRSA *Staphylococcus aureus* Admission Screening

During 2015-16 MRSA screening of hospital admissions and long-stay patients has continued at a rate of approximately 30,000 screens per quarter.

Table 5 below is provided as an example demonstrating that compliance with pre-admission screening for elective orthopaedic joint surgery was 98% in 2015-16.

Table 5

(uses PAS data selected by coding linked to Pathology data)

MRSA screening compliance elective orthopaedic joint replacement surgery 2015-16				
Site	No of Cases	Not screened	Screened	% compliance
K&CH	16	2	14	88%
QEQMH	827	7	820	99%
WHH	919	22	897	98%
	1762	31	1731	98%

Notes:

Includes all elective joint replacement surgery between 01/04/2015 to 31/03/2016.

Valid screens were defined as MRSA screens reported up to 60 days before planned surgery date.

Cases were identified by OPCS4 procedure codes including:

W37-W54

W93-W98

O06-O08

O18

O21-O26

O32

(Hips, Knees Elbows, Ankles, Shoulders and intervertebral disks)

Linkage studies of laboratory results to admission episodes has confirmed a high rate of compliance with screening policies for all patients with an overnight stay.

Figure 3:

NEW MRSA isolates EKHUFT 2010-2016 (Q1)

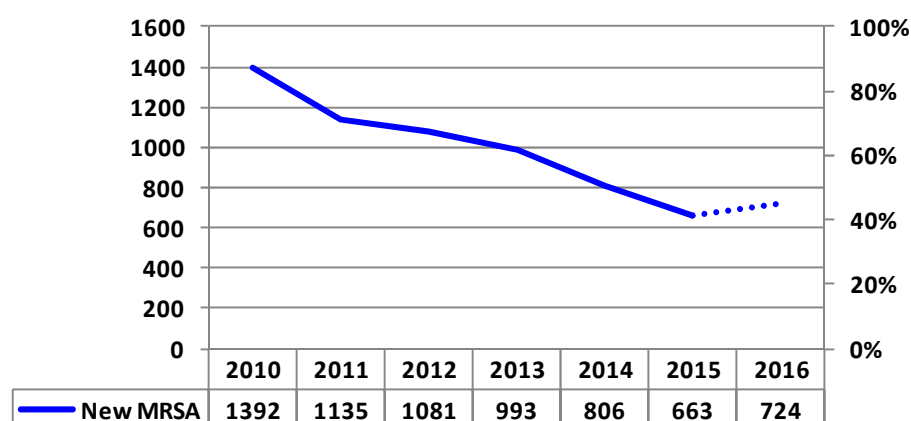


Figure 3 demonstrates that the number of new MRSA carriers detected by screening has been in decline since 2010 despite increases in the numbers screened.

Revised guidance issued by Department of Health in 2014 recommended that routine admission screening was replaced by focussed screening of patients in “high risk” specialities only.

EKHUFT IP&CT have chosen to continue routine screening for at least one more year because it is thought that the current screening policy is contributing to the decline in the number of new MRSA carriers detected. The arguments supporting this policy are set out in more detail in Appendix 4.

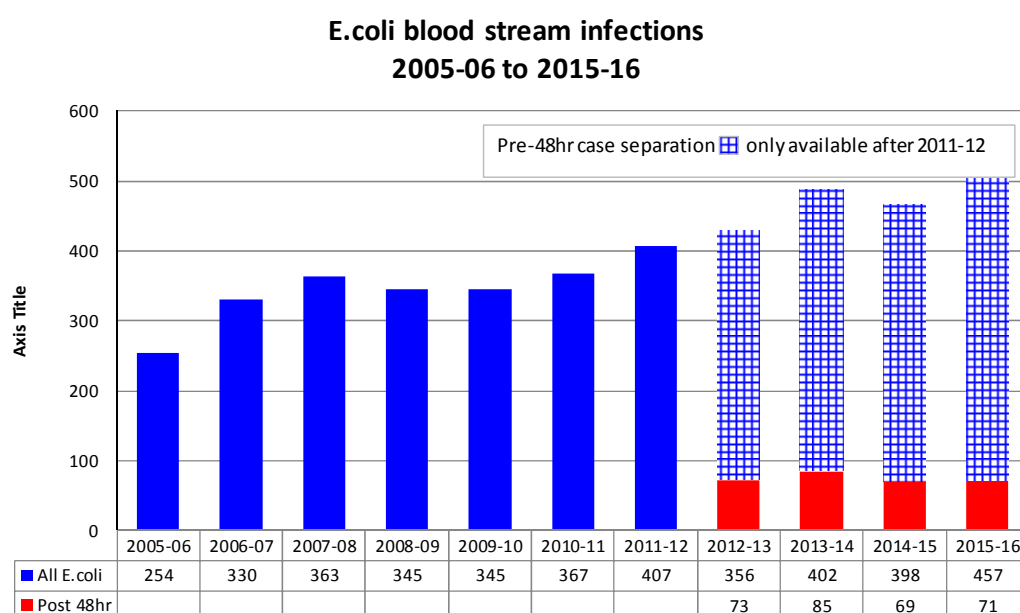
MRSA isolates that are considered to be hospital acquired continue to be reported on a monthly basis. Two or more ward-acquired cases on a ward within a calendar month are reported via Datix as a “period of increased incidence”, and investigated by the IP&C Clinical Nurse Specialists in order to identify any ward requiring additional support and/or intervention.

11.4 *E. coli* Blood Stream Infections Surveillance

Escherichia coli (*E. coli*) remains the most frequent cause of septicaemia identified across the NHS. Most cases are community acquired infections and case numbers have been increasing year on year.

Mandatory surveillance of *E. coli* blood stream infections has been a Department of Health requirement since June 2011. The decision to introduce this surveillance was in response to the rising numbers of *E. coli* infections reported nationally and the lack of information about why this increase was occurring. Chart 1 below illustrates that the national increase in cases is also mirrored in East Kent local figures.

Chart 1: *E. coli* blood stream infections



Post 48 hour cases (in red above) represent the proportion of cases with potential onset of infection after admission to hospital.

During 2015-16, EKHUFT reported 528 *E. coli* blood stream infections, an increase of 13% compared with the previous year and higher than the national increase in cases of 6.6%. The percentage of cases with onset in the community has remained approximately the same at 86% compared with 85% in 2014-15.

The majority of cases are thought to be linked to urinary tract infections, bile duct sepsis and other gastrointestinal sources. It is likely that the high rate locally is due to demographic factors, notably the higher proportion of population in the age group > 75 years who account for most *E. coli* infections. Analysis of the *E. coli* rate per head of population demonstrates that the local rate of *E. coli* infection is within the range of variation seen nationally.

E. coli bacteraemia rates measures per 100,000 occupied bed days are particularly high in EKHUFT compared with peers but this is probably not an appropriate comparison to make given that the majority of infections arise outside hospital.

Table 6: *E. coli* bacteraemia rate/100,000 population by CCG

CCG	Population	2013-14	Rate	2014-15	Rate	2015-16	Rate
Ashford	123539	66	54.9	71	59.11	76	61.5
Canterbury & Coastal	205508	141	70.4	144	71.88	159	77.4
South Kent Coast	205202	151	74.4	133	65.52	173	84.3
Thanet	138695	119	87.7	103	75.92	136	98.1
East Kent	672944	551	71.8	524	68.29	544	80.8

The NHS average *E. coli* bacteraemia rate for 2015-16 was 70/100K population. It can be seen that with the exception of Ashford, *E. coli* rates locally are above the national population rate.

Examination of geographical variation in *E. coli* rates reported by Public Health England reveals that the overall East Kent rate of 80.8/100K population is high for the South of England but lower than the average population rates found in many parts of the North. The reason for this regional variation is not known.

During 2015-16 the IP&CT, in conjunction with the Divisions, have undertaken root cause analysis (RCA) for cases of *E. coli* bacteraemia that occurred within 30 days of surgery having taken place.

This analysis has identified a small number of cases associated with surgical procedures involving the urinary tract, bladder and prostate however in most of these cases the surgical procedure was necessary to relieve obstruction which was the “root cause” of the infection.

Given that there is significant variation in population rates of *E. coli* in different CCG's it may be appropriate to seek an explanation for the varying *E. coli* rate by exploring differences in the population demographic profiles within East Kent.

The most frequent clinical diagnosis associated with *E. coli* bacteraemia continues to be urinary tract infection. In order to reduce preventable urinary catheter associated infection, EKHUFT have implemented the HOUDINI protocol which is an initiative designed to improve the management of urinary catheters and reduce the number of unnecessary catheter placements. This protocol is now in its second year.

11.5 Antimicrobial Resistant Enterobacteriaceae

In her report in 2011, the CMO highlighted the risk posed by the spread of antimicrobial resistance and recommended that “action is needed at the international, national and local level: antimicrobial resistance should be an issue that has the same level of political interest as MRSA and *C. difficile* in England”.

11.5.1 Carbapenemase Producing Organisms (CRO's)

In 2013 Public Health England produced an Acute Trust toolkit to help Trusts develop local screening policies to enhance surveillance of emerging resistant organisms notably classes of gram negative gastrointestinal organisms (Enterobacteriaceae) that confer resistance to Carbapenem antibiotics. Carbapenem resistant organisms (CRO's) are becoming more common globally and have become established in teaching hospitals in parts of the UK including London and Manchester. Infections caused by CRO's are frequently resistant to all routinely available antibiotics.

In communities where CRO's have become established, asymptomatic gut carriage is far more frequent than clinical infection and such carriers can spread CRO's to other patients particularly if they have been rendered susceptible to colonisation by prior antimicrobial therapy.

In response to this threat the IP&CT have introduced CRO rectal screening (as recommended by the PHE Acute Trust Toolkit) for all admissions meeting the following conditions:

- Recent hospital stay in UK outside Kent
- Recent hospital stay overseas
- Hospital care in an institution where CRO's are prevalent
- Previous carriage or infection by CRO's.

Since introducing this policy a number of asymptomatic carriers of CRO's have been detected but no symptomatic infections have been encountered.

The screening policy currently uses a conventional culture based method which requires 24-48 hours to produce a negative screening result. If CRO's begin to appear more frequently it will be essential to introduce molecular based screening which can produce results in 1 to 2 hours, facilitating early single room isolation before spread can occur. It is apparent that the spread of

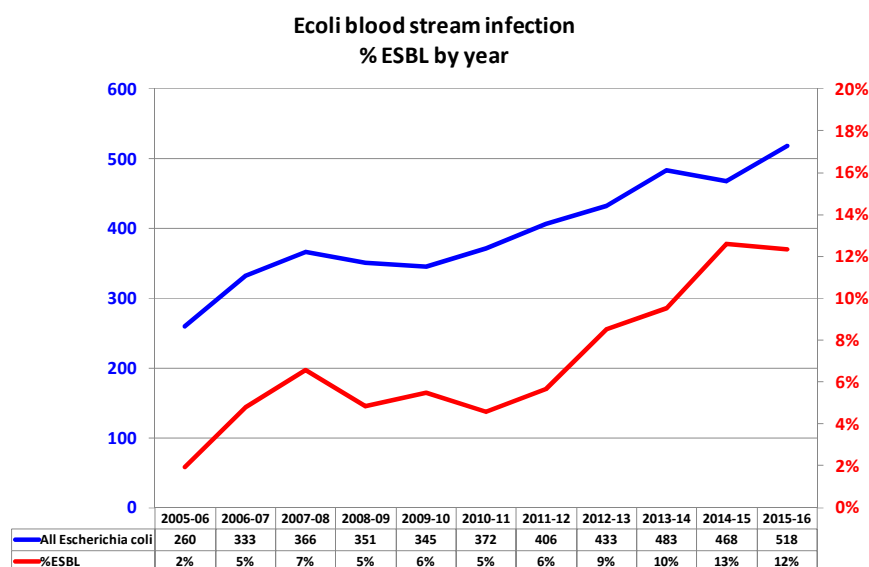
these organisms in the UK is not currently contained. Ensuring that they do not become endemic in our hospitals should have a very high priority.

11.6 Extended Spectrum Beta-Lactamase Producing Enterobacteriaceae (ESBL)

ESBL producing *Klebsiellae* and *E. coli* have been endemic in the UK for many years and confer resistance to a number of beta-lactam antibiotics, most notably 3d generation cephalosporins. ESBL producing bacteria have increased our dependence on the Carbapenem class of antibiotics to which they are all sensitive (unless they are also CRO's). The prevalence of ESBL blood stream infections in East Kent has been monitored for a number of years.

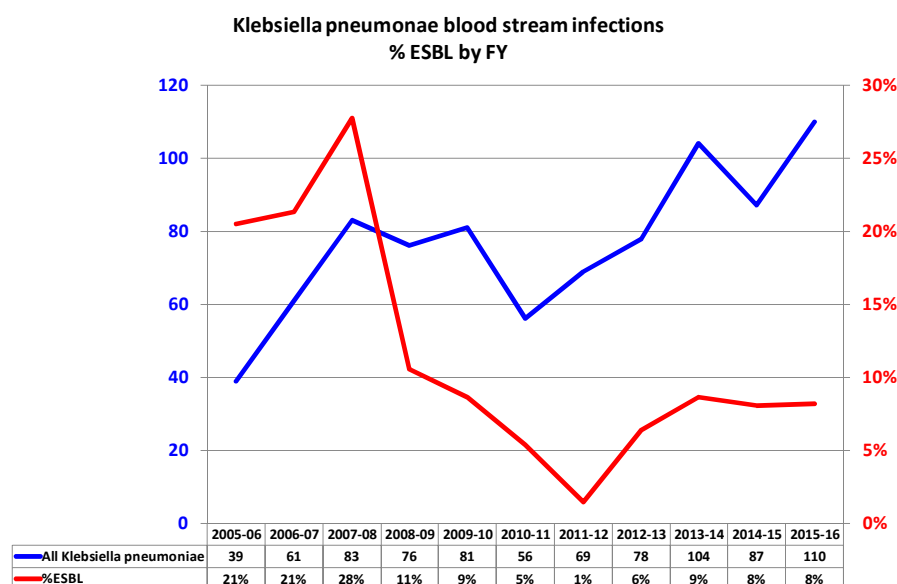
ESBL *E. coli*

Chart 2 below displays the increase in the percentage of ESBL blood stream isolates that are ESBL producers, from 2% in 2005-06 to 12% currently.



The increase in these organisms is particularly seen in elderly patients with frequent episodes of hospital stay and repeated courses of antibiotic therapy.

Chart 3: ESBL *Klebsiellae*



The percentage of *Klebsiellae* blood stream isolates that are ESBL producers has declined following the control of an outbreak in haemato-oncology patients in 2008.

12. ANTIMICROBIAL STEWARDSHIP GROUP

The Trust Antimicrobial Stewardship Group was chaired by Dr Matthew Strutt, Consultant Microbiologist and Julie Hawkes-Reekie, Lead Antimicrobial Pharmacist.

Antimicrobial stewardship is a key component of a multifaceted approach to preventing emergence of healthcare-associated infections and antimicrobial resistance, as well as ensuring safe and cost-effective prescribing. This report details the antimicrobial stewardship activities that have been carried out this year.

1. An app, Microguide, was launched which details all antimicrobial treatment and prophylaxis guidelines as well as antimicrobial prescribing policies. The app is available on Apple and Android smartphones as well as on the desktop of the Trust's PCs and iOS devices.
2. As part of the launch of the app, a number of guidelines have been updated. These include guidelines for:
 - Obstetric and gynaecological infections
 - Ophthalmic infections
 - HIV infection
 - Central nervous system infections
 - Blood-borne diseases.
3. In response to a number of anaphylactoid type reactions to Teicoplanin in theatres in patients undergoing orthopaedic procedures, the antibiotic prophylaxis guidelines have been reviewed and updated. Since the new guidelines have been implemented no further reactions have been reported.
4. The Antimicrobial Team has contributed to the development of guidelines for the empirical treatment of infections in paediatrics and neonates.
5. The Lead Antimicrobial Pharmacist has completed a validation protocol for Public Health England (PHE). The data has been published on the PHE website and allows benchmarking against other Trusts.
6. An electronic system for pharmacy clinical staff to refer patients to the antimicrobial team has been implemented. This allows more timely review of patients' prescribed restricted antimicrobials as the referrals are emailed directly to the antimicrobial pharmacists.
7. A protocol for using twice daily (9g) and four times a day (18g) dosing of piperacillin/tazobactam in Surefuser devices for Hospital at Home patients has been produced and implemented.
8. The antimicrobial team have been involved in responding to incidents regarding gentamicin prescribing and monitoring and have implemented a number of actions. The actions include:
 - The formulation of a daily report that highlights patients with out of range gentamicin (and Vancomycin) levels
 - Re-wording of the gentamicin monograph to give unambiguous, clear guidelines about monitoring.

9. Antimicrobial stewardship ward rounds have taken place on each site to follow up patients that are prescribed restricted antimicrobials.
10. Teaching sessions have been provided by the Consultant Microbiologists and Antimicrobial Pharmacy Team to junior doctors, clinical pharmacy staff and GPs regarding best practice for antimicrobial prescribing and stewardship.

13. TRAUMA AND ORTHOPAEDIC SURGERY

Surveillance of surgical site infection (SSI) following orthopaedic surgery has been included in the mandatory healthcare-associated infection surveillance system in England since April 2004 although EKHUFT has been participating in this scheme since 1998. The National Surveillance Scheme enables hospitals in England to undertake surveillance of healthcare associated infection, compare their results and national aggregated data, and use the information to improve patient outcomes.

All NHS Trusts where orthopaedic surgical procedures are performed are expected to carry out a minimum of three months surveillance in at least one of the three orthopaedic categories:

- Total hip replacements
- Knee replacements
- Hip hemiarthroplasties

EKHUFT undertake continuous surveillance in all 3 categories (rather than limiting participation to the mandatory single quarter per year).

SSI data for orthopaedic procedures for year 2015-16 reports infection rates for orthopaedic joint replacement surgery below the average for Trusts participating in the scheme. However a publication in a peer reviewed journal which included data from EKHUFT has raised concerns about the completeness of reports to the national SSI system. (S Singh, J Davies, S Sabou, R Shrivastava and S Reddy. Challenges in reporting surgical site infection to the national surgical site infection surveillance. Ann R Coll Surg Eng. 2015;97:460-465)

During 2016-17, the IP&CT will undertake validation checks to ensure that information reported to the National SSI scheme is as complete as possible.

14. CONCLUSION

The Infection Control Annual Programme for 2015/16 has been successfully completed.

MRSA and *C. difficile* infection rates remain below the England average and *C. difficile* rates have fallen by 40% compared with 2014-15. The most worrying cloud on the horizon is further spread of Carbapenem resistant organisms (CRO's). The IP&CT have begun to prepare for this threat by introducing rectal screening of high risk admissions. It will be essential to monitor compliance with this policy and be prepared to introduce rapid molecular screening if the prevalence of these organisms increases significantly. High standards of Antimicrobial Stewardship will also be an important control measure as it is clear the use of broad spectrum antibiotics encourages the spread of these organisms.

Staff vaccination rates for Influenza are again low this year (38.6%) and considerably below the new CQUIN target for 2016-17. A new strategy to improve uptake is needed.

Maintaining the current high degree of awareness of the potential risks associated with Legionella and Pseudomonas from contaminated water is also a priority following the unexpected discovery of a case of hospital acquired Legionella infection during 2015-16.

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Appendix 1: Mandatory Training Compliance and Hand Hygiene/BBE/Commode Cleanliness Reports

Mandatory Training Compliance:		Mar-16
		Infection Control
		2 Years
Clinical Support Services	Total	91%
	Clinical Support Divisional Management	92%
	Outpatient Services	97%
	Pathology	86%
	Pharmacy	94%
	Radiological Sciences	91%
	Therapies	92%
Corporate	Total	86%
	Clinical Quality, Patient Safety and Operations	72%
	Finance & Performance Management	95%
	Human Resources	87%
	PGME/Library	95%
	Research & Development	88%
	Trust Board	75%
Specialist Services	Total	82%
	Cancer, Clinical Haematology & Haemophilia	80%
	Child Health	87%
	Dermatology	89%
	Renal Medicine	86%
	Specialist Services Divisional Management	76%
	Womens Health	76%
Strategic Development & Capital Planning	Total	90%
	Facilities	94%
	Hospital Management K&C	77%
	Hospital Management QEQM	69%
	Hospital Management WHH	100%
	Information Technology	94%
	Procurement	83%
	Strategic Development	100%
	Strategic Estates	100%

Surgical Services	Total	84%
	Anaesthetics	84%
	General Surgery	85%
	Head & Neck	82%
	Surgical Services Divisional Management	90%
	Trauma & Orthopaedics	87%
	Vascular, Inter Radiology & Urology	77%
Urgent Care & Long Term Conditions	Total	85%
	Accident & Emergency	86%
	Acute Medicine	83%
	HCOOP	81%
	Specialty Medicine	89%
	UC<C Divisional Support	92%
Trust Average		86%

February 2016

Infection Control Audit Performance

Bare Below The Elbows Audit

	Clinical	Specialist	Surgical	Urgent & Long Term
AHP Staff	100.0 %	100.0 %	100.0 %	98.6 %
Medical Staff	100.0 %	100.0 %	97.5 %	94.1 %
Nursing Staff	100.0 %	94.4 %	100.0 %	98.5 %
Support Staff	100.0 %	54.5 %	100.0 %	97.7 %

Commode Audit

	Clinical	Specialist	Surgical	Urgent & Long Term
Commode	100.0 %	100.0 %	97.3 %	92.3 %

Hand Hygiene Audit

	Clinical	Specialist	Surgical	Urgent & Long Term
AHP Staff	100.0 %	100.0 %	95.6 %	96.1 %
Medical Staff	98.5 %	100.0 %	98.9 %	85.8 %
Nursing Staff	100.0 %	99.0 %	97.3 %	91.4 %
Support Staff	100.0 %	100.0 %	99.3 %	89.8 %



Appendix 2: Infection Prevention and Control Team Committee/Group Membership

The Infection Prevention and Control Team Committee/Group Membership (IP&CT members contributed to the following committees in 2015-16)

- Clinical Advisory Board
- Drugs and Therapeutics Committee
 - And Antibiotic Sub-Group
- Infection Control Committee
- Trust wide Matrons Forum
- Infection Prevention and Control Team meetings
- Patient Safety Board
- Medical Devices Group
- Health and Safety Committee
- CSSD Divisional Risk and Governance Committee
- Surgical Division Clinical Governance Board
- Soft FM Partnership Board
- Endoscopy User Groups
- Heads of Nursing meetings
- UCLTC Quality and Assurance Board
- Endoscopy Decontamination Steering Group
- Procurement Assurance Group
- Portering Task and Finish Group
- Chief Nurse fortnightly catch up
- Trust Board
- Mortuary Task and Finish Group
- Bed and Mattress Task and Finish Group
- Senior Quality Leadership Forum
- Strategic Investment Group
- Pillows Project – Working Group
- Microbiology and Infection Control meeting
- EKHUFT Quality meetings

External

- Kent-wide Infection Control Committee
- Kent Director of Infection Prevention and Control Forum
- Eastern and Coastal Kent NHS Primary Care Trust Infection Prevention and Control Committee
- Eastern and Coastal Kent NHS Primary Care Trust Infection Prevention and Control Project Group
- NHS South East Coast Directors of Infection and Control Committee
- HCAI Assurance Panel
- Kent and Medway HCAI Improvement Working Group
- Kent and Medway Infection Prevention and Control Forum
- HCAI Operational Group

Appendix 3: VitalPAC Invasive Devices Monthly Report



Indwelling Devices

CANNULAS

Insertion

Cannula inserted using aseptic technique

Comprises of the following criteria:

*Forms one of the insertion criteria for adhering to Saving Lives.
Procedure is carried out using a recognised aseptic technique.
Needle free device used when available.
A new cannula is used for each attempt.
Cannula is flushed in line with local policy.*

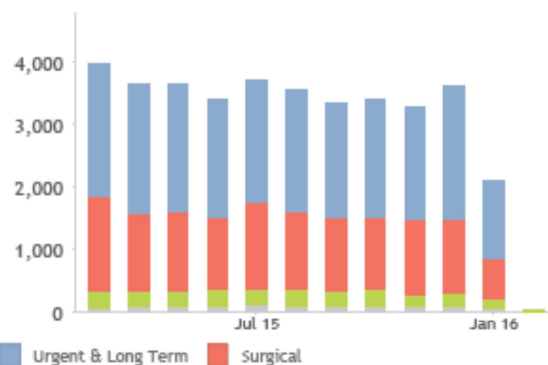
Continuing Care

Is the dressing clean, dry and intact?

Cannula in use?

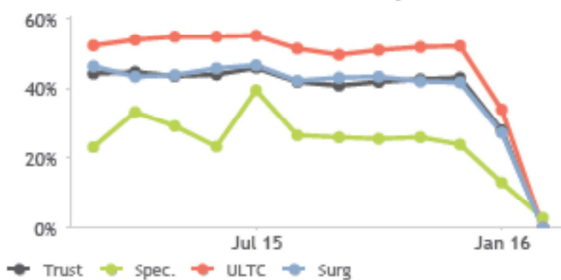
Confirms the continuing clinical indication for cannula remaining insitu.

Inserted Using Aseptic Technique



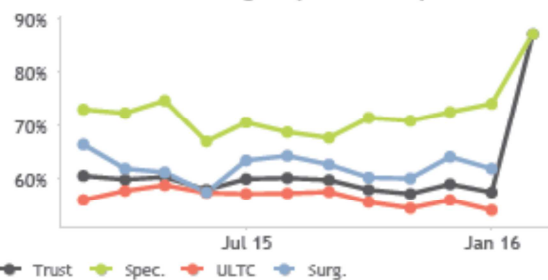
Trust Date	Jun 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec 15	Jan 16	Feb 16
37,653	3,398	3,979	3,633	3,644	3,705	3,562	3,328	3,399	3,262
2,545	254	270	217	230	257	246	222	266	195
13,256	1,170	1,521	1,264	1,283	1,378	1,256	1,177	1,167	1,203
20,885	1,873	2,126	2,057	2,031	1,956	1,957	1,826	1,880	1,788

Patients Checked Daily



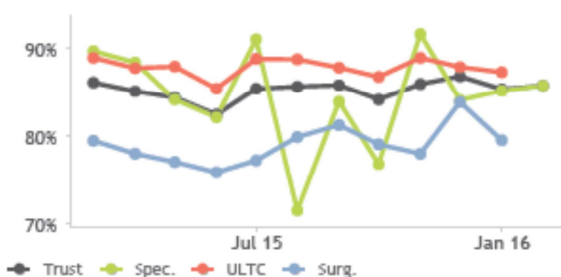
Trust Date	Jun 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec 15	Jan 16	Feb 16
39.3%	43.7%	44%	44.5%	43.3%	45.7%	41.7%	40.7%	41.7%	42.5%
24.4%	23.3%	23.1%	33.1%	29.2%	39.3%	26.5%	26%	25.5%	26%
40.5%	45.6%	46.2%	43.2%	43.6%	46.5%	42%	42.8%	43.2%	41.9%
47.6%	54.5%	52%	53.6%	54.6%	54.8%	51.2%	49.4%	50.7%	51.5%

Inserted Using Aseptic Technique



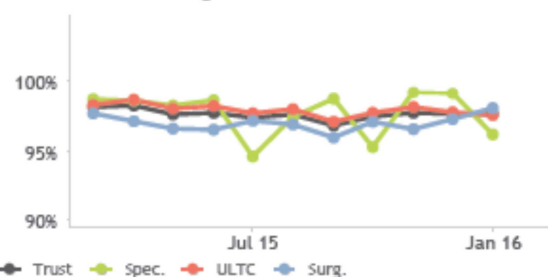
Trust Date	Jun 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec 15	Jan 16	Feb 16
59.1%	57.9%	60.5%	59.8%	60.3%	59.9%	60.1%	59.7%	57.8%	57.1%
71.1%	67%	73%	72.3%	74.7%	70.6%	68.7%	67.7%	71.5%	70.9%
62.2%	57.4%	66.4%	61.8%	61.2%	63.4%	64.3%	62.6%	60.2%	60%
56.5%	57.3%	56%	57.6%	58.7%	57.1%	57.2%	57.5%	55.5%	54.3%

In Use when Checked



Trust Date	Jun 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec 15	Jan 16	Feb 16
85.2%	82.4%	86.1%	85.1%	84.4%	85.4%	85.6%	85.8%	84.2%	85.9%
84.5%	82.1%	89.7%	88.4%	84.1%	91%	71.6%	83.9%	76.9%	91.6%
79%	75.9%	79.5%	78%	77.1%	77.3%	79.9%	81.3%	79.1%	78%
87.8%	85.4%	88.9%	87.7%	87.9%	88.8%	88.7%	87.8%	86.7%	88.9%

Dressing Intact when Checked



Trust Date	Jun 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec 15	Jan 16	Feb 16
97.6%	97.7%	98.1%	98.2%	97.6%	97.3%	97.6%	96.8%	97.4%	97.7%
97.5%	96.6%	96.6%	96.5%	96.2%	94.6%	97.4%	98.7%	95.2%	99.2%
96.9%	96.5%	97.6%	97.1%	96.5%	97.1%	96.8%	95.9%	97%	96.5%
97.9%	98.1%	98.2%	98.6%	98%	97.6%	97.9%	97%	97.7%	97.5%

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CATHETERS

Insertion

Compliance with Saving Lives Care Bundle on insertion

Comprises of the following criteria:

*Before insertion, clean the urethral meatus with sterile normal saline.
Use a sterile lubricant.
Decontaminate hands before and after each patient contact.
If there is a risk of splashing with blood or body fluid, eye/face protection should be used.*

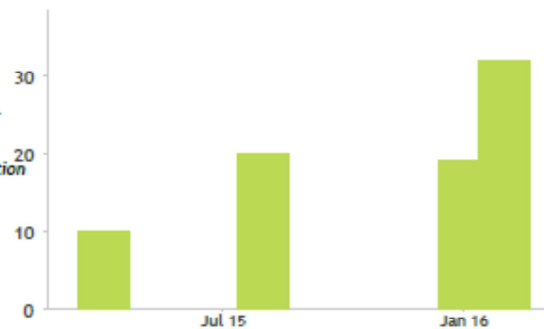
Continuing Care

Is the catheter still clinically required at time of checking?
Compliance with Saving Lives for ongoing care?

Adherence to the following:

*Decontaminate hands before and after each patient contact.
Clean catheter site regularly.
Perform sampling aseptically via the catheter port.
Drainage bag should be above the floor but below bladder level to prevent reflux or contamination.
Wear examination gloves to manipulate a catheter.*

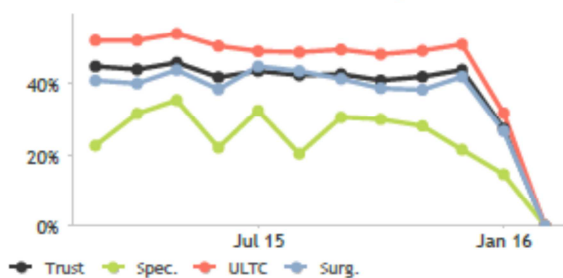
Compliance with SLCB on Insertion



Specialist

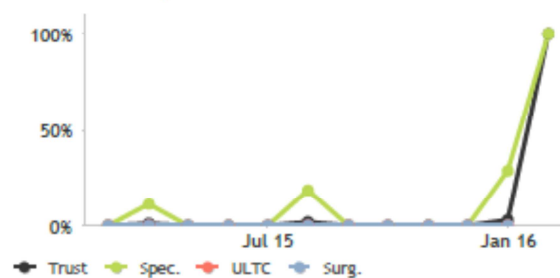
	Apr 15	Aug 15	Jan 16	Feb 16
81	10	20	19	32
81	10	20	19	32
0	0	0	0	0
0	0	0	0	0

Patients Checked Daily



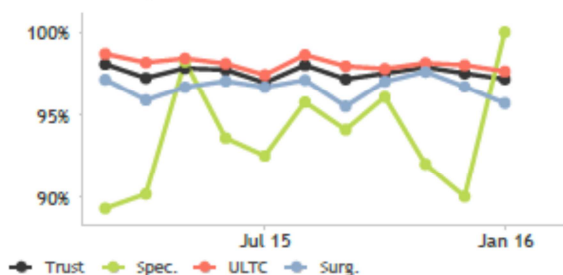
	Jun 15	Mar 15	Apr 15	May 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec 15	Jan 16
Trust	39.9%	41.7%	44.8%	43.9%	45.8%	43.5%	42.3%	40.8%	41.9%	43.8%	27.4%
Spec.	26.3%	22.1%	22.7%	31.6%	35.3%	32.5%	20.3%	30.7%	30%	28.1%	14.5%
ULTC	38.8%	38.4%	40.9%	40.1%	43.8%	44.8%	43.5%	41.4%	38.8%	38.3%	41.9%
Surg.	46.4%	50.5%	52%	52%	53.9%	49%	48.7%	49.5%	48.1%	49.1%	50.9%

Compliance with SLCB on Insertion



	Apr 15	Aug 15	Jan 16	Feb 16
Trust	0.765%	1.02%	1.90%	3.04%
Spec.	8.48%	11.4%	18.5%	28.8%
ULTC	0%	0%	0%	0%
Surg.	0%	0%	0%	0%

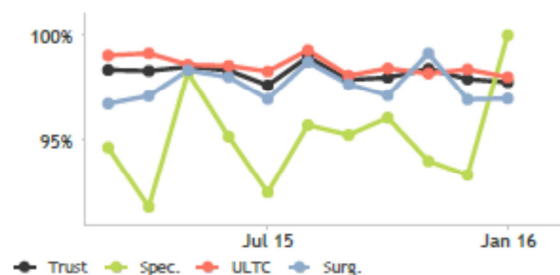
Compliance with SLCB when Checked



	Jun 15	Mar 15	Apr 15	May 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec 15	Jan 16
Trust	97.5%	97.7%	98.1%	97.2%	97.8%	96.9%	98%	97.1%	97.5%	97.9%	97.1%
Spec.	94%	93.5%	89.3%	90.2%	98.2%	92.5%	95.7%	94%	96.1%	92%	100%
ULTC	96.7%	97%	97.1%	95.8%	96.6%	97.1%	95.5%	97%	97.6%	96.7%	95.7%
Surg.	98.1%	98.1%	98.7%	98.1%	98.4%	97.4%	98.6%	97.9%	97.8%	98.1%	98%

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Clinically Required when Checked



	Jun 15	Mar 15	Apr 15	May 15	Jul 15	Aug 15	Sep 15	Oct 15	Nov 15	Dec 15	Jan 16
Trust	98.2%	98.3%	98.4%	98.3%	98.5%	97.6%	99%	97.9%	98%	98.4%	97.8%
Spec.	95.2%	95.2%	94.6%	91.8%	98.2%	92.5%	95.7%	95.2%	96.1%	94%	93.3%
ULTC	97.6%	98%	96.7%	97.1%	98.3%	96.9%	98.7%	97.7%	97.1%	99.2%	96.9%
Surg.	98.6%	98.5%	99%	99.2%	98.6%	98.3%	99.3%	98.1%	98.4%	98.2%	98.4%

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CENTRAL LINES

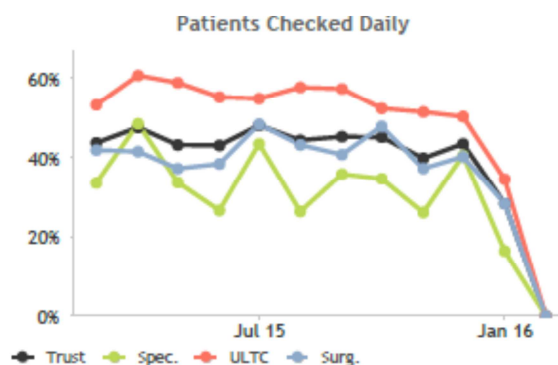
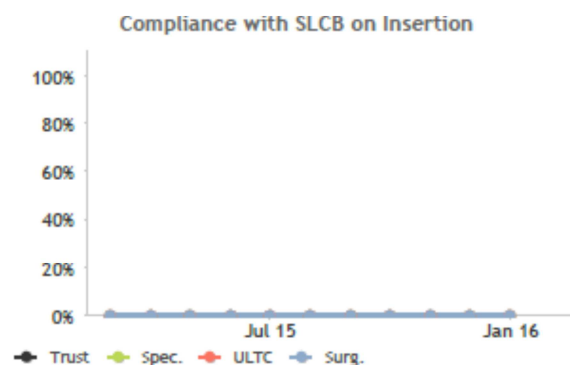
Insertion

Compliance with Saving Lives when inserted?

Adherence to the following sets of criteria:

*Decontaminate hands before and after each patient contact.
Clean catheter site regularly.
Perform sampling aseptically via the catheter port.
Decontaminate hands before and after each patient contact.
For insertion of invasive devices, gown, gloves and drapes as indicated should be used.
Skin preparation: Use 2% chlorhexidine gluconate in 70% isopropyl alcohol and allow to dry.
If patient has a sensitivity, use a single-patient use povidone iodine.
Use a sterile, transparent, semi-permeable dressing to allow observation of insertion site.
Sharps containers should be available at point of use and should not be overfilled.
Do not disassemble needle and syringe.
Do not pass sharps from hand to hand.*

No data to display



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Appendix 4: Screening for Meticillin Resistant *Staphylococcus aureus* in East Kent Hospitals NHS Foundation Trust - Progress Report

Introduction

This paper explains the background to current MRSA screening strategies nationally and locally and also provides information on the level of screening locally and evidence of compliance with National guidelines on screening.

The past decade has seen a remarkable fall in MRSA infections in UK hospitals with national MRSA bacteraemia rates falling from 17.7 in 2005-06 to 3.2 per 100,000 bed days in 2011-12.

This fall in MRSA infection has followed a number of DH sponsored campaigns aimed at improving hospital hygiene and increasing compliance with best infection control practice. In 2009 when MRSA rates had already shown substantial improvement, “universal” mandatory MRSA screening of hospital patients was introduced in England and later Scotland but not Wales. MRSA bacteraemia rates have continued to fall in Wales as well as England and it has been unclear if MRSA screening has made a significant contribution to the improvements seen.

In 2009 DH sponsored the NOW study to address this question and a number of publications have summarised their findings^{1,2,3}. The NOW study looked at cost effectiveness of MRSA screening using 6 different screening strategies against a background of different assumed MRSA carriage rates. Their conclusion was that using current NHS measures of cost effectiveness – universal MRSA screening was not good value for money (i.e. costs > £30,000/QALY). The most cost effective strategy was to selectively screen high risk patients only, when the costs for Acute Trusts fell to £45,000/QALY. This analysis held up for MRSA prevalence rates up to 4 times greater than currently seen.

Following publication of the NOW report the Department of Health Expert Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) convened a working group which issued guidance on selective MRSA screening in April 2014 (updated June 2014)⁴. This guidance recommended a return to selective screening of patients in “high risk” specialities including **vascular, renal/dialysis**, neurosurgery, cardiothoracic surgery, **haematology/ oncology**/bone marrow transplant, **orthopaedics/trauma** and all **intensive care units (adult/paediatric ICUs, Neonatal Intensive Care Units, High dependency units, Coronary Care Units)**. It is notable that these high risk groups are defined by the medical and surgical procedures they are exposed to, rather than their demographic and medical comorbidity.

The ARHAI MRSA screening guidance also recommends that Trusts monitor compliance with the new screening guidance including audit/measurement of screening in high risk groups and also audit of decolonisation compliance.

EKHUFT in common with many acute Trusts around the country have thus far chosen to continue with universal screening of hospital admissions and have abandoned screening only for selected low risk groups such as day surgery.

The option of reducing screening to the levels recommended in the ARHAI guidance has not been debated outside the Infection Control Committee and in the light of current financial pressures should probably be explored more thoroughly in the future.

Current level of MRSA screening in EKHUFT

All hospital emergency and elective admissions involving an overnight stay are screened. In the case of elective surgery, screening is carried out in pre-admission clinics to facilitate further mitigation of risk by providing decolonisation treatment prior to admission and if appropriate adjustment of prophylactic antimicrobial agents used during surgery.

In addition to admission screening, long-stay patients are screened weekly.

EKHUFT has not produced regular reports on screening compliance chiefly because attempts to do this following the introduction of mandatory screening in 2009 led to widely different and frequently poor quality statistics being produced by individual Trusts and a lack of confidence in peer comparison data. In EKHUFT we have attempted to produce more accurate information by linking PAS flat files including admission and procedure coded information with MRSA screening data on the Pathology system. This information has not been produced in regularly but an example is provided for this paper and is probably the most efficient way of complying with the ARHAI requirement to measure compliance with screening of “high risk” groups.

This method could also be used to monitor screening of all other admissions but there is no DH requirement to do this.

The Infection Prevention and Control Team also generate monthly point prevalence data on ward level MRSA screening compliance on a rotational basis but the sample size (10 patients) is aimed at embedding compliance rather than providing a comprehensive data set.

Chart 1: Overall Screening Numbers (from Pathology data only)

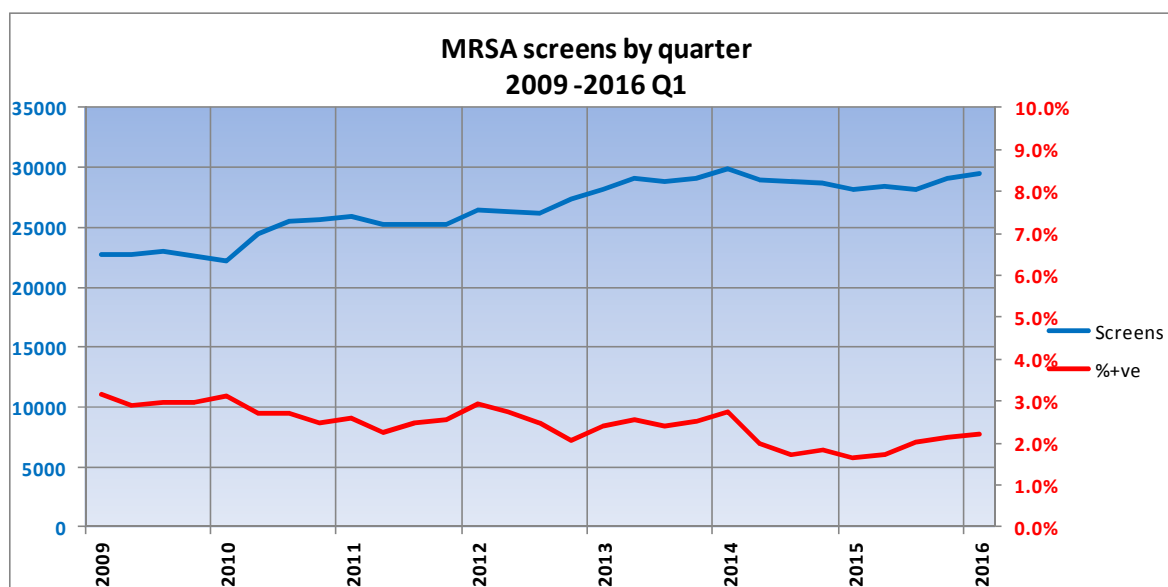


Chart 1 shows that MRSA screening numbers have risen from 22,000/quarter to 30,000/quarter in 2016. The percentage of all screens that are positive has fallen slightly from 3% to 2% but this number is very dependent on patient demographics e.g. higher risk with emergency HCOOP medical admissions, lower risk for elective surgery.

These numbers proved some confidence that MRSA screening continues at a high rate but says nothing about compliance with screening of defined “High Risk” patient groups.

Chart 2: (uses PAS data selected by coding linked to Pathology data)

MRSA screening compliance				
Elective Orthopaedic joint replacement Surgery 2015-16				
Site	No of Cases	Not screened	Screened	% compliance
K&CH	16	2	14	88%
QEQMH	827	7	820	99%
WHH	919	22	897	98%
	1762	31	1731	98%

Notes:

Includes all elective joint replacement surgery between 01/04/2015 to 31/03/2016.

Valid screens were defined as MRSA screens reported up to 60 days before planned surgery date.

Cases were identified by OPCS4 procedure codes including:

W37-W54

W93-W98

O06-O08

O18

O21-O26

O32

(Hips, Knees Elbows, Ankles, Shoulders and intervertebral disks)

Chart 2 demonstrates a high degree of compliance with pre-admission screening for elective orthopaedic surgery. This method produces comprehensive reliable data rapidly and could be extended to include admissions in other high risk groups.

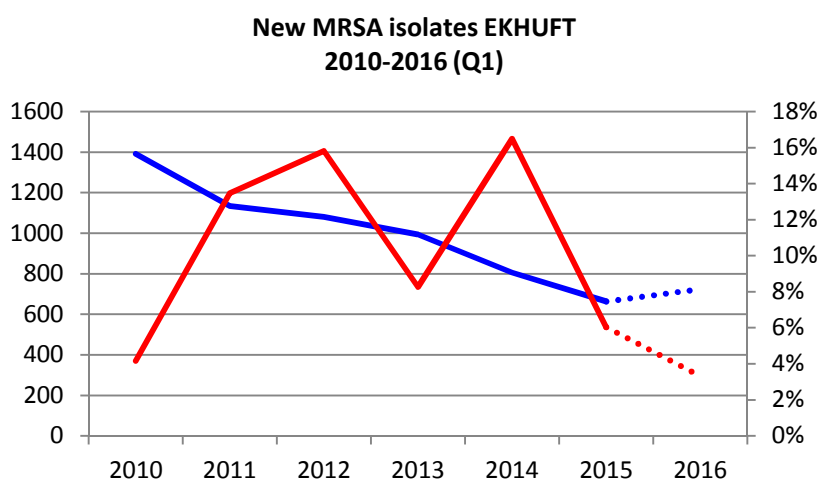
New MRSA cases and prevalence of Mupirocin Resistance**Chart 3:**

Chart 3 demonstrates that new cases of MRSA detected through screening continue to be found in significant numbers but there is a decreasing trend with new cases halving since 2010. The prevalence of Mupirocin (Bactroban) resistance also appears to be falling following replacement of this agent with Octenisan as the preferred agent for MRSA decolonisation.

We do not know whether this decline in new cases of MRSA (and MRSA bacteraemia) is a consequence of screening and other infection control interventions or merely reflects a decline in the virulence of the major clones of MRSA prevalent in UK hospitals. Reduced use of quinolones and cephalosporin antimicrobial agents has probably also been a factor.

Conclusion:

- EKHUFT current policy is to screen virtually all elective and emergency patients admitted to hospital for MRSA carriage and to decolonise patients found to be positive where appropriate.
- DH guidance recommends screening patients admitted to high risk specialities only.
- EKHUFT screening includes all the high risk groups specified in DH guidance but we do not produce regular reports demonstrating compliance with either screening or decolonisation.
- This paper demonstrates that production of a comprehensive statistic by linking PAS coded admission data with pathology data is feasible and suggests that elective screening compliance in orthopaedic surgery is high.
- New MRSA cases detected by screening have halved since 2010 and the percentage of such cases that are Mupirocin resistant is decreasing.
- The implications of reducing MRSA screening to the ARHAI recommended high risk groups should be analysed further. A risk assessment will need to balance the financial gain against the consequences for patient safety and will also need to consider the risk of reputational damage if MRSA bacteraemia rates were to rise following a reduction in screening.

JQ Nash

Interim Director Infection Prevention and Control

References:

1. Fuller C, Robotham J, Savage J, Deeny S, Hopkins S, Cookson B, Stone S. Final report of national one week prevalence audit of MRSA screening. Available at www.idrn.org/audit
2. Fuller C, Robotham J, Savage J, Hopkins S, Deeny SR et al (2013). The National One Week Prevalence Audit of Universal Meticillin-Resistant *Staphylococcus aureus* (MRSA) Admission Screening 2012. PLoS ONE 8(9): e74219. doi:10.1371/journal.pone.0074219
3. Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI). National one week (NOW) prevalence audit of MRSA screening report (ARHAI 22-13(02)).
4. Implementation of modified admission MRSA screening guidance for NHS (2014) Department of Health expert advisory committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI)
http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/345144/Implementation_of_modified_admission_MRSA_screening_guidance_for_NHS.pdf

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