

Infection Prevention & Control

UHB Annual Report

2018/19



Title:	INFECTION PREVENTION & CONTROL ANNUAL REPORT APRIL 2018 – MARCH 2019
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Purpose:	To provide the Board of Directors with an annual report on infection prevention and control from April 2018 – March 2019	
Confidentiality Level & Reason:	None	
Annual Plan Ref:	Strategic Aim 4 : Quality of Services	
Key Issues Summary:	The annual report provides details of the infection prevention and control activity from April 2018 – March 2019	
Recommendations:	The Board of Directors is asked to accept the annual report	
Approved by:	Lisa Stalley Green	Date: 10 May 2019

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1.0 Introduction

Infection prevention and control is a top priority for University Hospitals Birmingham NHS Foundation Trust (UHB). Keeping our patients safe from avoidable harm is everyone's responsibility. The Trust has a wide-ranging programme of activity that focusses on continual improvement in order to build healthier lives and delivering a zero-tolerance approach to avoidable infections.

This report provides details of the progress with infection prevention and control from April 2018 - March 2019.

The Infection Prevention and Control Team work in line with national guidance on the prevention of infections in the healthcare setting. Adherence to policies and procedures is based on national guidance and the evidence base supports the Trust in continually reducing the risk from avoidable infection for our patients and staff. All the policies and procedures are readily available on the Trust's intranet page for all staff and are regularly kept up to date. A list of policies and procedures can be found in Appendix 1.

UHB is one of the largest teaching hospital trusts in England, serving a regional, national and international population. It includes Birmingham Heartlands Hospital, the Queen Elizabeth Hospital Birmingham, Solihull Hospital and Community Services, Good Hope Hospital in Sutton Coldfield and Birmingham Chest Clinic. We also run a number of smaller satellite units, allowing people to be treated as close to home as possible. We see and treat more than 2.2 million people every year across our sites and our hospitals deliver more babies than anywhere else in Europe. We are a regional centre for cancer, trauma, renal dialysis, burns and plastics, HIV and AIDS, as well as respiratory conditions like cystic fibrosis. We also have expertise in premature baby care, bone marrow transplants and thoracic surgery and have the largest solid organ transplantation programme in Europe. We provide a series of highly specialist cardiac, liver and neurosurgery services to patients from across the UK. We are world-renowned for our trauma care and have developed pioneering surgical techniques in the management of ballistic and blast injuries, including bespoke surgical solutions for previously unseen injuries. As a result of its clinical expertise in treating trauma patients and military casualties, the QEHB has been designated both a Level 1 Trauma Centre and host of the UK's only £20m National Institute for Health Research (NIHR) Surgical Reconstruction and Microbiology Research Centre (SRMRC). We have over 20,000 members of staff and we are committed to investing in their development and their health and wellbeing. UHB is a Stonewall Diversity Champion and aims to achieve positive change for LGBTQ+ people by creating an inclusive, inspiring and equal environment for both staff and service users.

The Infection Prevention and Control Team work closely with external agencies. A strong working relationship is maintained with the local Clinical Commissioning Groups, Public Health England (PHE) and NHS Improvement. The team meet monthly with Birmingham CrossCity Clinical Commissioning Groups as the coordinating commissioners for the Trust to primarily discuss *C. difficile* Post Infection Reviews (PIR). During outbreaks of infections, PHE are notified and invited to support outbreaks meetings. NHS Improvement is kept up to date on the Trust's performance. The Trust has an open approach to infection prevention and control; sharing learning and experience. As a result, several other Trusts have visited the Infection Prevention and Control Team to learn from the experiences the Trust has faced, which can often be complex.

The report also demonstrates how the Trust has systems in place for compliance with 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*. The Infection Prevention and Control service is provided through a structured annual programme of teaching, audit, policy development & review, advice on service development and 24-hour access to expert advice and support.

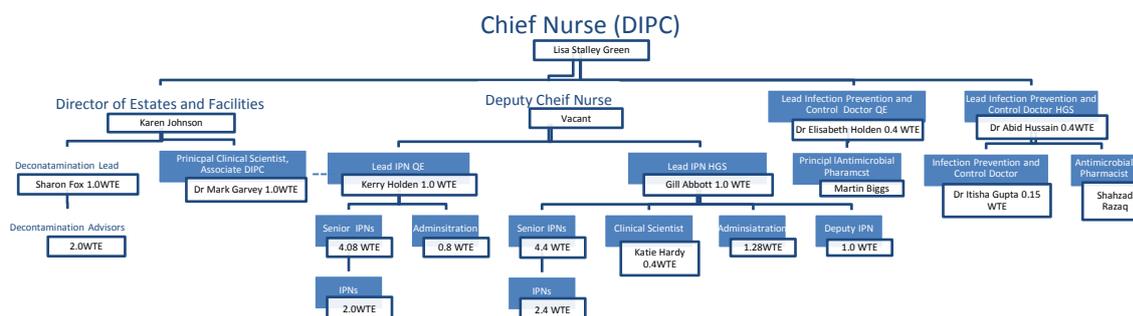
1.1 Where to find evidence of compliance with the Code of Practice (2015) on infection prevention and control from the Health and Social Care Act 2012

Criterion	What the registered provider will need to demonstrate	Location in annual report
1	Systems to manage and monitor the prevention and control of infection. These systems use risk assessments and consider the susceptibility of service users and any risks that their environment and other users may pose to them.	Section 2 and 4
2	Provide and maintain a clean and appropriate environment in managed premises that facilitates the prevention and control of infections.	Section 9 and 12
3	Ensure appropriate antimicrobial use to optimise patient outcomes and to reduce the risk of adverse events and antimicrobial resistance.	Section 7
4	Provide suitable accurate information on infections to service users, their visitors and any person concerned with providing further support or nursing/ medical care in a timely fashion.	Section 6, 8, 11 and 12
5	Ensure prompt identification of people who have or are at risk of developing an infection so that they receive timely and appropriate treatment to reduce the risk of transmitting infection to other people.	Section 3, 4 and 12
6	Systems to ensure that all care workers (including contractors and volunteers) are aware of and discharge their responsibilities in the process of preventing and controlling infection.	Section 6, 8 and 12
7	Provide or secure adequate isolation facilities.	Section 2
8	Secure adequate access to laboratory support as appropriate.	Section 2, 3 and 4
9	Have and adhere to policies, designed for the individual's care and provider organisations that will help to prevent and control infections.	Section 1; appendix 1
10	Providers have a system in place to manage the occupational health needs and obligations of staff in relation to infection.	Section 10

2.0 Infection Prevention and Control Team Structure 2018/19

In April 2018 as a result of the Trust merger, the two Infection Prevention and Control Teams merged. The Executive Chief Nurse is the Director for Infection Prevention and Control; the Infection Prevention and Control Team also consists of the Associate Director of Infection Prevention and Control (Principal Clinical Scientist), two Lead Infection Control Doctors, one Infection Prevention and Control doctor, two Lead Nurses, a Deputy Lead Nurse, a Clinical Scientist, two Principal Antimicrobial Pharmacists, an Antimicrobial Pharmacist and the team of specialist nurses. The Infection Prevention and Control Team structure at the end of the year is shown in Figure 1. Job titles in dark blue are core members of the team.

Figure 1 Infection Prevention and Control Team Structure on 30th March 2019.



2.1 Infection Prevention Reporting Framework

The Executive Chief Nurse and DIPC has monthly meetings with the Lead Doctors, Lead Nurses and ADIPC/ Clinical Scientist through the Infection Prevention and Control Steering Group.

Membership consisted of:

- Executive Chief Nurse/Director for Infection Prevention and Control (Chair)
- Deputy Chief Nurse (Deputy Chair)
- Lead Doctor in Infection Prevention and Control QE and HGS
- Lead Nurse for Infection Prevention and Control QE and HGS
- Associate Director of Infection Prevention and Control/ Infection Prevention and Control Clinical Scientist

- Clinical Scientist Infection Prevention and Control
- Principal Antimicrobial Pharmacist QE and HGS
- Director of Facilities and Estates

The Infection Prevention and Control Group met twice monthly (one at QE and one at HGS) throughout 2018/19, with the exception of August and December.

Membership comprises of:

- Executive Chief Nurse/Director for Infection Prevention and Control
- Deputy Chief Nurse
- Lead Doctor in Infection Prevention and Control (Chair)
- Lead Nurse for Infection Prevention and Control
- Associate Director of Infection Prevention and Control/ Infection Prevention and Control Clinical Scientist (Deputy Chair)
- Principal Antimicrobial Pharmacist
- Associate Director of Nursing (for all 4 divisions)
- Divisional Directors or Deputy (for all 4 divisions)
- Director of Facilities and Estates
- Allied Health Professional representative
- Lead Nurse for Quality & Clinical Standards
- Head of Facilities
- Health and Safety Lead
- Head of Risk and Compliance
- Head of Estates (Quarterly attendance)
- Occupational Health Lead Nurse (Quarterly attendance)
- Decontamination Advisor (Quarterly attendance)
- Cross City Clinical Commissioning Group Lead for Infection Prevention and Control
- Public Health England representative

Members of the Infection Prevention and Control Team sit on the following Groups within the Trust:

- Health and Safety Steering Group
- Water Safety Group
- Medical Devices Group
- Decontamination Group
- Continence Action Group
- Emergency Planning Committee
- Antimicrobial Steering Group
- Preventing Harm Meetings
- Product Evaluation Group
- Equipment Standards Group

A member of the Infection Prevention and Control Team also attends the Divisional Matrons meetings. Senior Infection Prevention and Control Nurses undertake regular clinical walkabouts with their Matrons for each clinical area. Members of the Infection Prevention and Control Team attend relevant meetings of groups dealing with developments, procurement and commissioning when appropriate.

A Consultant Microbiologist (Lead Doctor for antimicrobial stewardship) sits on the Medicines Management Advisory Group. The Consultant Microbiologists continue to work with the Principal Antimicrobial Pharmacist in monitoring, auditing and providing education on the use of antimicrobials, and an Antimicrobial Stewardship and Sepsis Steering Group meets regularly. The ward pharmacists monitor antimicrobial use around the hospital.

The Infection Prevention and Control Team at both sites meets formally every week to discuss a range of topics including; governance, assessing progress against the annual programme of work, performance targets, discussion and resolution of issues, review of surveillance data and ensure necessary information, including feedback from groups, committees and meetings attended, is disseminated appropriately to the wider team.

At every Board of Directors meeting, the Chief Nurse, as part of the Care Quality Report, gives an overview of the most recent infection prevention performance data. All members of the Board of Directors, therefore, have access to information concerning the Trust's performance against the external and internal infection prevention targets and other infection related issues.

2.2 Laboratory services

The Infection Prevention and Control Team work closely with the clinical microbiology department and PHE microbiology laboratory which provides comprehensive bacteriology, virology, parasitology, and mycology services. The microbiology department at QE and the PHE laboratory are UKAS accredited and participate fully in external quality assurance schemes for the full repertoire of tests. The clinical microbiology departments provide support to the Infection Prevention and Control Team through reporting of results and processing of clinical samples. Out of hours, the on call duty microbiologist will provide Infection Prevention and Control advice for the Trust.

2.3 Isolation facilities

There are over 2600 inpatient beds and of these, 740 are side rooms, providing facilities to isolate patients with alert organisms. The Trust has 9 rooms with positive pressured lobbies which the Infection Prevention and Control Team can utilise to isolate patients with infections such as Middle East respiratory syndrome coronavirus or pulmonary MDR Tuberculosis. In addition, the Trust has 17 negative pressured side rooms.

3.0 Performance

This report splits the IPCT work into sections and for each of these answers the following questions:

- What were the challenges identified in 2018/19?
- What measures have been put into place?
- What have been the successes/outcomes?
- What is required for 2019/20?

3.1 MRSA bacteraemia

There were a total of 10 MRSA bacteraemias from April 2018-19; 5 Post 48 hour and 5 Pre-48 hour cases. There is a zero tolerance approach to MRSA bacteraemias and all cases undergo an urgent Post Infection Review across the relevant health economy to assess whether any learning points can be extracted to prevent a repeat in the future. Four of the five Post 48 hour bacteraemias had lapses in care.

What were the challenges identified in 2018/19?

Issues from the hospital onset bacteraemias included missed screening, acquisition of MRSA and PVC care.

What measures have been put into place?

In conjunction with the CCG and NHSI, an MRSA reduction action plan was developed. Interventions included: hand hygiene education, bespoke training for MRSA screening and decolonisation, strengthening the Post Infection Review process for MRSA bacteraemias, cleaning initiatives, promoting antimicrobial stewardship, improving the management of MRSA colonised patients via nurse-led MRSA acquisition ward rounds and working on engaging the medical workforce.

What have been the successes/outcomes?

There were no hospital onset MRSA bacteraemias in the final quarter of 2018/19.

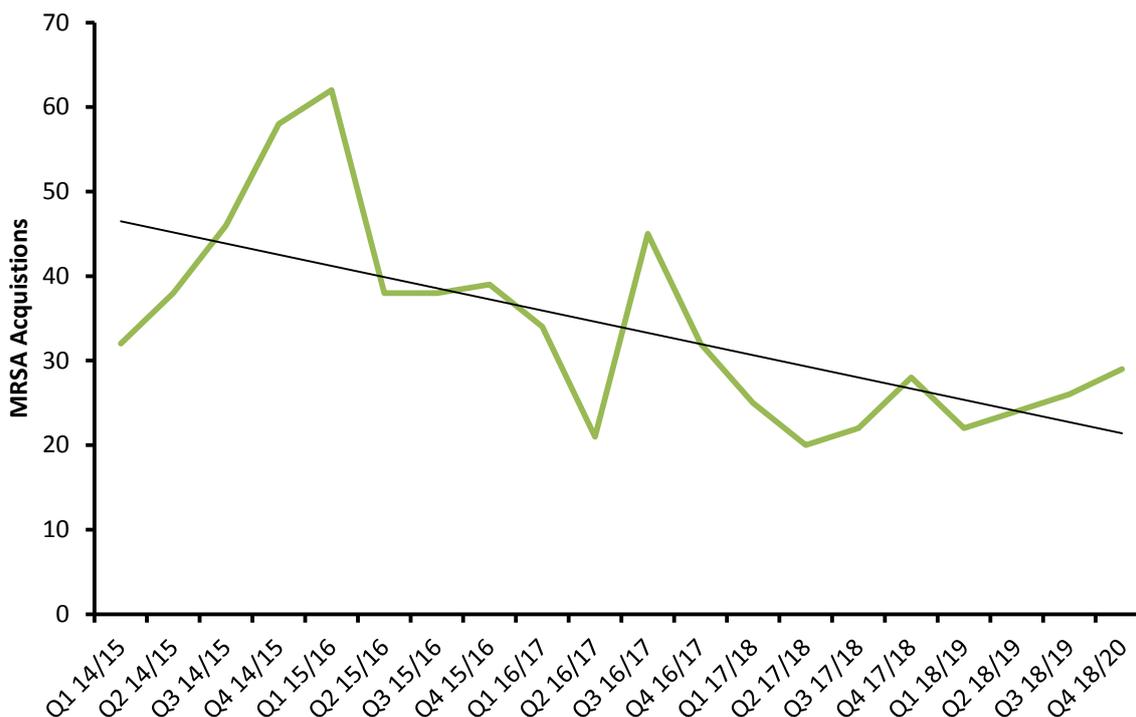
What is required for 2019/20?

Alignment of the management of MRSA colonised patients across all sites. Furthermore, continuing with above initiatives to optimise management and prevention of MRSA bacteraemias across the organisation.

3.2 MRSA acquisitions

Targeted admission screening for MRSA has enabled the Trust to monitor the acquisition of MRSA and use this as another key performance indicator for the organisation. During 2018/19, there were a total of 101 MRSA acquisitions across UHB (Figure 2).

Figure 2. Number of UHB MRSA acquisitions from 2014 to present; black line represents trend line.



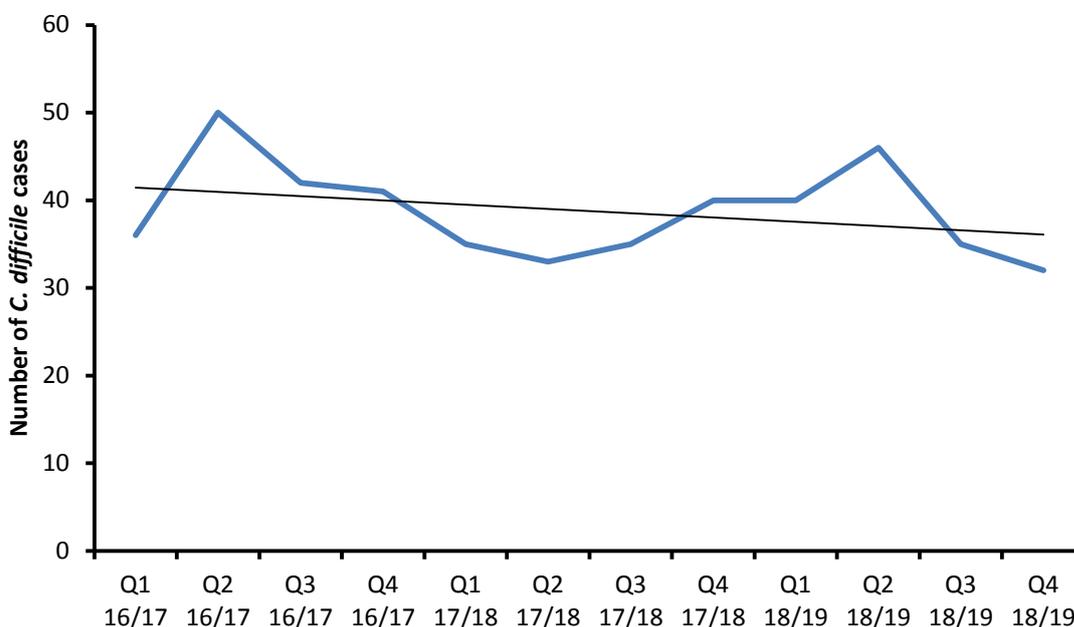
What is required for 2019/20?

Alignment of the management of MRSA colonised patients across all sites, with a focus on targeted decolonisation therapy in high risk areas.

3.3 Clostridium difficile infection

There were 153 cases of toxin-positive post-48 hour cases during 2018/19, against a trajectory of 127 (Figure 3).

Figure 3. UHB *C. difficile* toxin-positive post-48 hour cases from April 2016 to present; black line represents trend line.



What were the challenges identified in 2018/19

There were a total of 36 avoidable cases of *C. difficile* across UHB during 2018/19. The main themes leading to the cases being deemed avoidable were inappropriate antibiotic prescribing, transmission events and sampling issues.

What measures have been put into place?

In conjunction with the CCG and NHSI, a *C. difficile* reduction action plan was developed. Interventions included: hand hygiene education, bespoke training for *C. difficile* sampling and management, strengthening the Post Infection Review process for Trust Apportioned cases, cleaning initiatives and promoting antimicrobial stewardship. There were particular actions around improving time to isolation of patients with diarrhoea to prevent transmission of *C. difficile* and optimisation of Trust wide nurse-led *C. difficile* ward rounds, improving access to expert review of patients with *C. difficile*.

What have been the successes/outcomes?

Overall downwards trend of Trust Apportioned *C. difficile* cases. There have been less *C. difficile* deaths. Use of FMT was re-established across the Trust, aiding the treatment of recurrent cases.

What is required for 2019/20?

A Trust wide ward deep clean programme is required. There is a need to align the management of *C. difficile* infection across the organisation as well as establish the impact of re-introduction of the Faecal Microbiota Transplant service on *C. difficile* rates and mortality.

3.4 *Escherichia coli* bacteraemias

Following on from previous years, there was a reduction in hospital onset *E. coli* bacteraemias for 2018/19 with 190 cases in total (Figure 4). The number of community *E. coli* bacteraemias significantly increased in 2018/19 with a total of 901 cases (Figure 5).

Figure 4. Number of hospital onset *E. coli* bacteraemias, from April 2015 to present; black line represents trend line.

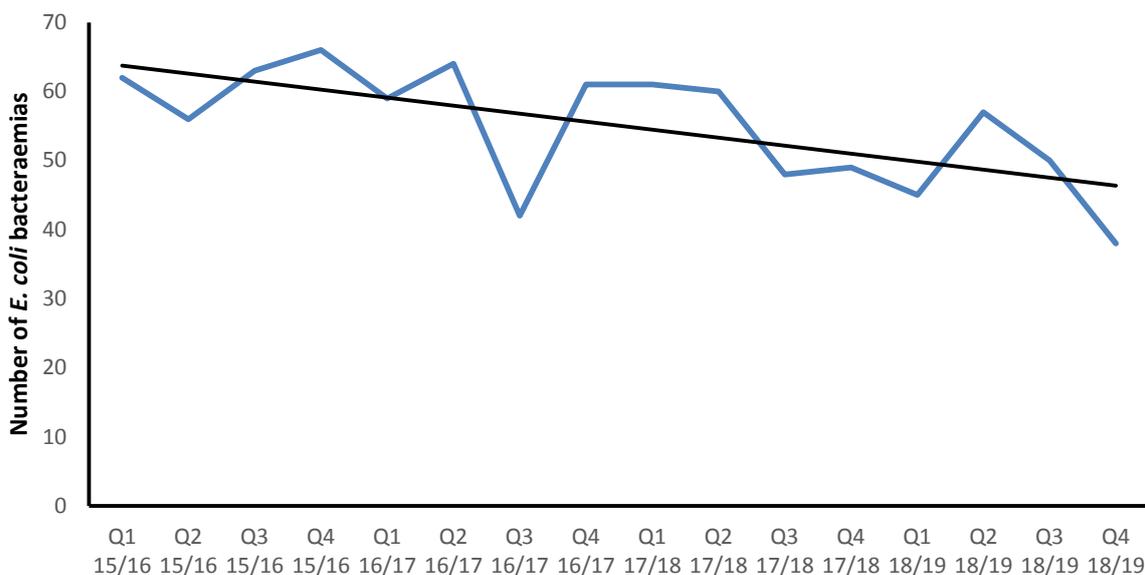
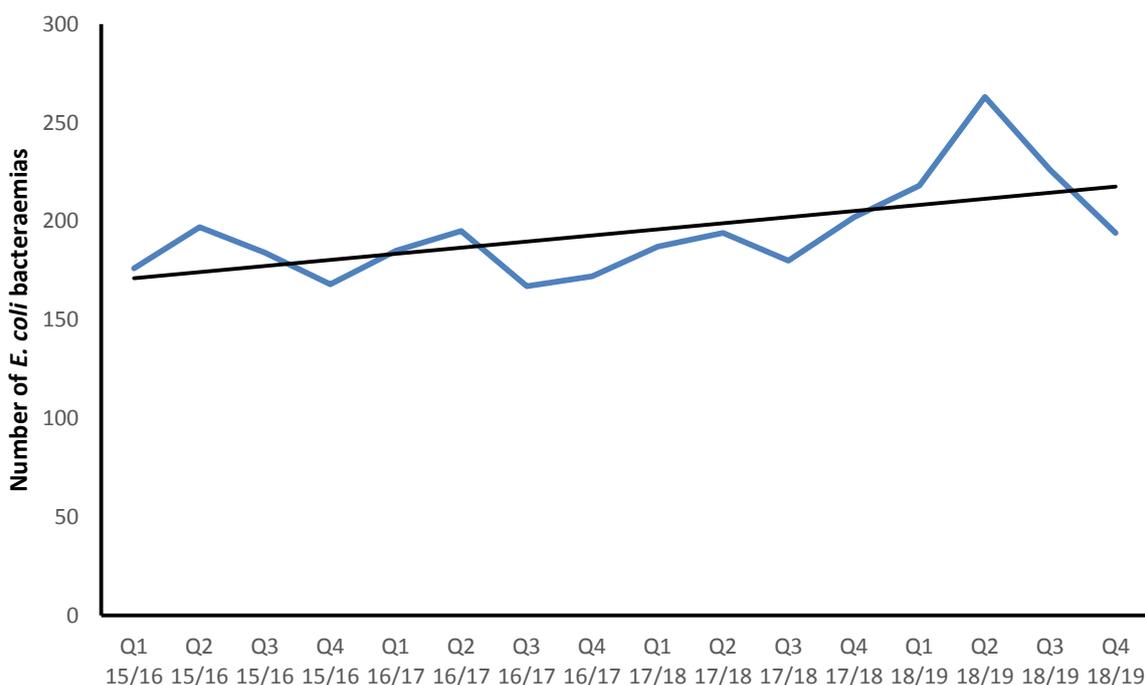


Figure 5. Number of community onset *E. coli* bacteraemias, from April 2015 to present; black line represents trend line.



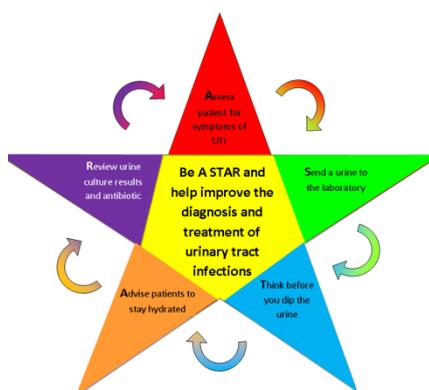
What were the challenges identified in 2018/19

There was an increase in the number of community onset *E. coli* bacteraemias. Observations from hospital onset cases included inappropriate antimicrobial prescribing for catheter associated UTIs and prevalence of indwelling urinary catheters for inpatients above 20%.

What measures have been put into place?

There has been an educational campaign across UHB, focusing on the diagnosis and management of urinary tract infections (Figure 6). Review of all *E. coli* bacteraemias have been undertaken in conjunction with the CCG for community onset cases. This has highlighted issues with sending of samples, review of microbiology results and prescribing of antimicrobials. The Trust is working with the community on the management of catheters and catheter related infections.

Figure 6. Education programme on the diagnosis and management of UTIs



You can help improve the diagnosis and management of UTI by following A STAR

- A**ssess the patient for symptoms of UTI
- S**end a urine to the laboratory
- T**hink before you dip the urine
- A**dvice the patients to stay hydrated
- R**evue the urine culture results and antibiotic prescribing

What have been the successes/outcomes?

There has been an overall downwards trend of Trust Apportioned *E. coli* cases.

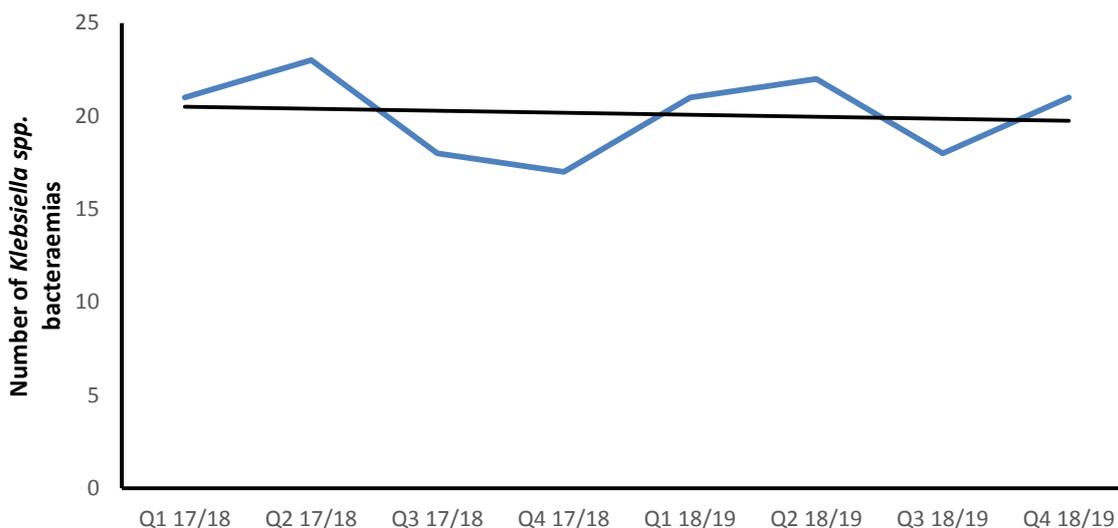
What is required for 2019/20?

System wide interventions to reduce *E. coli* bacteraemias including interventions on: appropriate use of dip sticks for urinary analysis, appropriate antimicrobial prescribing for CAUTIs/UTIs, education on the diagnosis and management of UTIs, removal of indwelling catheters.

3.5 *Klebsiella spp.* bacteraemias

There were a total of 82 hospital onset *Klebsiella spp.* bacteraemias in 2018/19 (Figure 7). An increase in community onset *Klebsiella spp.* bacteraemias in 2018/19 was seen with 167 cases in total.

Figure 7. Hospital onset *Klebsiella spp.* bacteraemias from April 2017 to present; black line represents trend line.



What were the challenges identified in 2018/19?

There has been an increase in the number of community onset *Klebsiella spp.* bacteraemias.

What measures have been put into place?

A 'mouth care matters' education programme was launched, focussing on HAP, in addition to an 'eat drink dress move' initiative, again targeting HAP reduction. Furthermore, there were ongoing interventions to tackle water-borne transmission of *K. pneumoniae*.

What have been the successes/outcomes?

There was successful recruitment of a dental nurse to support the mouth care matters programme. There was no evidence of an increase in the number of hospital onset *Klebsiella spp.* bacteraemias.

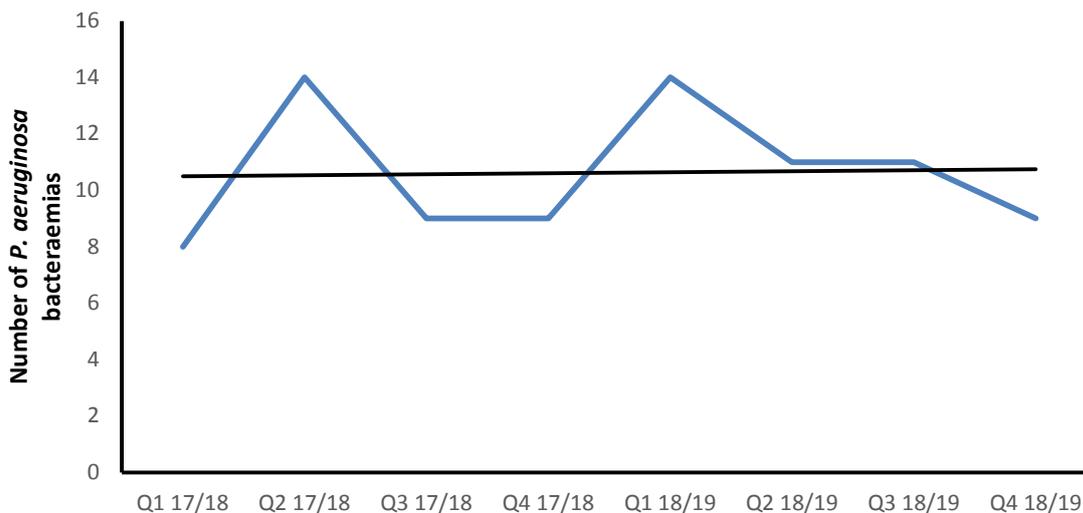
What is required for 2019/20?

Specific interventions are required, focusing on reducing hospital acquired pneumonia via mouth care matters campaigns as well as general interventions including optimising antimicrobial stewardship within the Trust.

3.6 *Pseudomonas aeruginosa* bacteraemias

There were a total of 82 hospital onset *P. aeruginosa* bacteraemias in 2018/19 (Figure 8).

Figure 8. Hospital onset *P. aeruginosa* bacteraemias from April 2017 to present; black line represents trend line.



What were the challenges identified in 2018/19?

Recognition of the need to reduce the number of *P. aeruginosa* bacteraemias associated with water-borne transmission and achieving implementation of the engineering measures required to do this.

What measures have been put into place?

A 'mouth care matters' education programme was launched with a focus on HAP. A variety of interventions were put in place to tackle water borne transmission of *P. aeruginosa* on augmented care areas.

What have been the successes/outcomes?

There has been successful recruitment of a dental nurse for 'mouth care matters'. No significant increase was seen in the number of hospital onset *P. aeruginosa* bacteraemias.

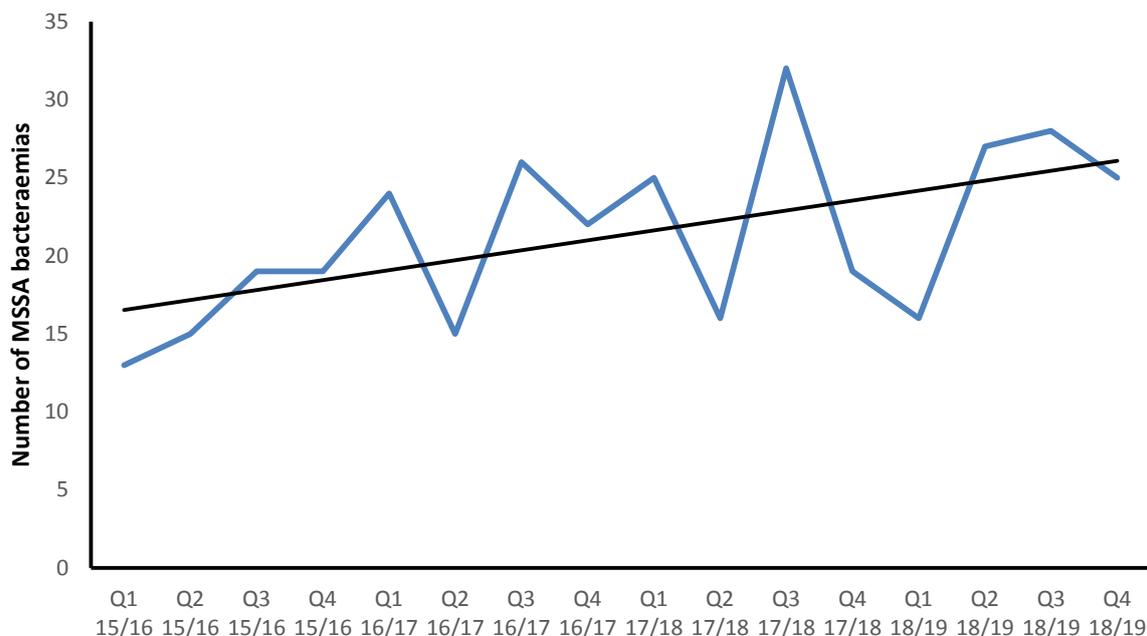
What is required for 2019/20?

Specific interventions focused on reducing water borne transmission of *P. aeruginosa* are required.

3.7 Methicillin Sensitive *Staphylococcus aureus* (MSSA) bacteraemias

During 2018/19, there were 96 hospital onset MSSA bacteraemias (Figure 9). Since April 2015, there has been a year on year increase in MSSA bacteraemias.

Figure 9. Number of hospital onset MSSA bacteraemias from April 2015 to present.



What were the challenges identified in 2018/19?

Surveillance data shows the majority of Trust apportioned MSSA bacteraemias are related to devices. The increase in MSSA bacteraemias coincided with a change to a new needle free connector across the Trust.

What measures have been put into place?

Trust wide MSSA bacteraemia Post Infection Reviews primarily on device related infections have taken place to investigate any learning. Further investigation and trials have taken place using different needle free connectors.

What have been the successes/outcomes?

A reduction has been seen in the number of community onset MSSA bacteraemias, with a plateau in the number of hospital onset MSSA bacteraemias.

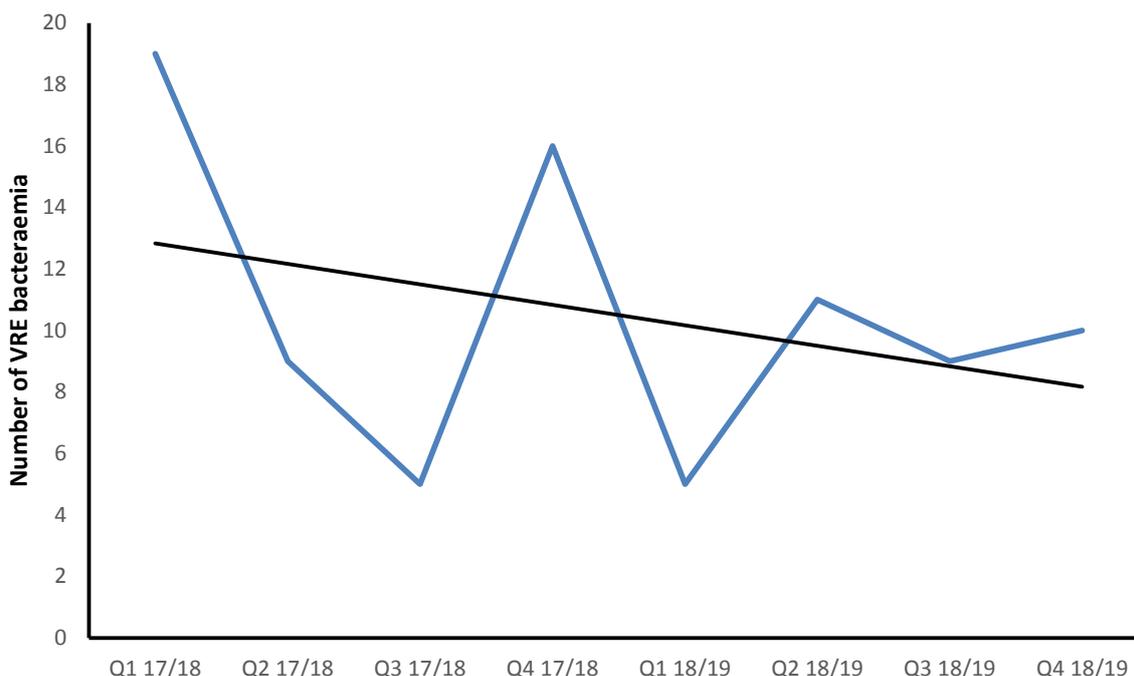
What is required for 2019/20?

There is a requirement to standardise and align the needle free connectors across the Trust, as well as device care documentation across the Trust. Implementation of the use of alcohol impregnated caps is planned to reduce the number of hospital onset MSSA bacteraemias. A Trust wide IV group is to be developed to work on interventions including reduction of MSSA bacteraemias. A Renal Infection Prevention and Control group is to be set up to standardise practice within this clinical setting.

3.8 Vancomycin Resistant Enterococci (VRE) bacteraemia

During 2018/19, there were 35 Trust apportioned VRE bacteraemias as compared to 2017/18 where there were 49 cases (Figure 10).

Figure 10. Number of Trust apportioned VRE from 2017-2019; black line represents trend line.



What were the challenges identified in 2018/19?

There is high usage of broad spectrum antibiotics in high risk settings such as Haematology and Liver. Previous outbreaks of VRE have been identified within Haematology and Liver specialties.

What measures have been put into place?

Exploring new cleaning non-touch environmental decontamination technologies, such as UV cleaning. Reducing the use of broad spectrum antibiotics in high risk areas seeing high numbers of VRE colonised patients.

What have been the successes/outcomes?

A reduction in VRE bacteraemias has been observed.

What is required for 2019/20?

Requirements include implementation of non-touch environmental decontamination Trust wide, purchase of more UV machines Trust wide and to create a strategy for Antimicrobial stewardship across the Trust.

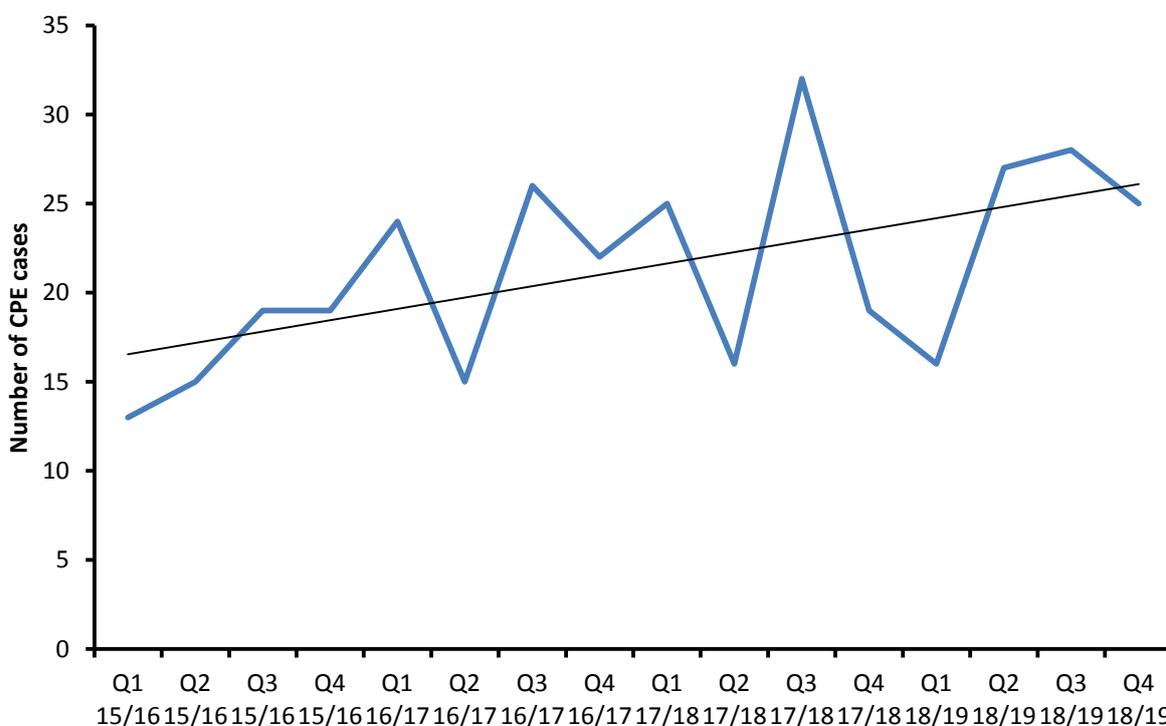
3.9 Multi-drug Resistant *Acinetobacter baumannii* (MDR-AB)

During 2018/19, we saw a decrease, with 4 MDR-AB cases reported, compared to 2017/18 where we had 20 cases. All 4 patients were patients repatriated from abroad.

3.10 Carbapenemase Producing Enterobacteriaceae (CPE)

During 2018/19 there were a total of 26 patients identified with CPE colonisation/infection.

Figure 11. Number of patients colonised/infected with CPE by quarter from April 2015 to present.



What were the challenges identified in 2018/19?

A global and UK increase in CPEs has been seen.

What measures have been put into place?

New cleaning methodologies have been utilised. Laboratory PCR platforms have been implemented to identify CPEs in a timelier manner and prevent cross transmission.

What have been the successes/outcomes?

New cleaning methodologies such as UV light decontamination have resulted in a reduction in transmission of cases.

What is required for 2019/20?

Create a standardised screening method for CPEs across the Trust. Develop a standardised Trust wide cleaning matrix. Explore new cleaning technologies. Develop a protocol for screening inpatients.

4. Outbreaks and learning from incidents

The infection prevention and control team have a comprehensive surveillance programme that allows early detection of emerging incidents. The Trust investigates incidents to extract learning points in order to continually improve the quality of our services.

4.1 Norovirus

Norovirus is a self-limiting diarrhoea and vomiting bug that usually lasts 48 – 72 hours. During 2018/19, 15 outbreaks of norovirus were reported by the Trust, compared to 11 outbreaks the year previously.

4.2 Seasonal Influenza

There were 1,337 confirmed cases of influenza A and 16 cases of influenza B between 1 December 2017 and end of March 2018 at the Trust. This was comparable to last year where the Trust had 675 cases of Influenza A and 717 cases of Influenza B. There was an Influenza vaccine CQUIN focusing on healthcare providers achieving a 75% uptake of the Influenza vaccination in front line staff. The Trust achieved greater than 75% vaccination in front line staff.

4.3 Infection prevention and control incidents recorded on Datix

Every incident (clinical/ non-clinical) or near miss at the Trust should be reported to the Risk Management Team via the online electronic reporting system Datix. Hospitals use Datix to improve safety for patients, healthcare workers, visitors and contractors. During 2018/19, the Infection Prevention and Control Team have continued to report incidents through Datix, reporting incidents such as: Serious Incidents Requiring Investigation, Post Infection Reviews and Periods of Increased Incidences of Infections for example. This enables more transparency to infection prevention and control incidents and enables feedback to patients and staff if any lapses in care are identified, via Duty of Candour. In addition, staff can report any other infection prevention and control incidents, enabling the Infection Prevention and Control Team to identify any areas for improvement. During 2018/19, 588 infection prevention and control incidents were reported through Datix, which consisted of: 35% incidents relating to acquisitions of infections, 23% failure to follow Infection Prevention and Control policy, 14% inadequate handover of the infection status of the patient by a clinical area, 13% issues with patients not being isolated appropriately, 4% issues with the cleanliness of the clinical area, 3% with an issue related to the patients peripheral venous cannulae/line, other issues included: inappropriate personal protective equipment usage, inappropriate hand washing technique, inappropriate waste disposal and ward and bay closures. All these incidents are formally worked through in the Datix incident reporting system and are fed back quarterly to the Infection Prevention and Control Group.

4.4 Serious Incidents (SI)

The Trust has a Serious Incidents (SI) Policy with serious incidents being reported and managed in line with this policy. Outbreaks/Incidents are managed by Post Infection Reviews held within seven working days wherever practicable and chaired by the Lead Infection Control Doctor or Associate Director of Infection Prevention and Control, supported by key healthcare professionals. All SIs are reported to the coordinating Clinical Commissioning Group with a thirty day report being compiled if required.

Frequent meetings are held to manage and monitor the outbreak/incident, to discuss individual cases and arrange appropriate infection prevention interventions to reduce the risk of spread to other patients/areas, whilst maintaining the operational function of the hospital (Table 1&2). Different outbreaks/incidents demand different responses but are managed with precision and collaborative working between the multi-disciplinary teams across the Trust. To note the SI process was aligned across the newly merged organisation during 2018/19 hence site specific data in Table 1 & 2. Combined data will be available for the next financial year.

4.5 Patient Advice and Liaison Services (PALS) Contacts

The Trust is committed to working in partnership with patients and staff to help improve patient experience. Patient Relations is part of this commitment to provide high standards of care and to support patients, carers and the public who use Trust services. During 2018/19, there were 37 complaints received by the Trust in relation to infection prevention and control issues. The principal issues raised related to patients acquiring infection whilst in hospital, delay/failure in treatment for infection and cleanliness. These issues are tackled in the everyday work of the Infection Prevention and Control Team, for example the team works with the wards providing education on infections and communicating these to the patients. Acquisitions of infections and periods of increased incidences of infections are reported through Datix incidents and reviewed through a Post Infection Review.

What were the challenges identified in 2018/19?

An increase in Norovirus outbreaks were seen across the Trust.

What measures have been put into place?

A standardised governance framework has been introduced.

What have been the successes/outcomes?

Implementation of POCT on the front door for Influenza has reduced nosocomial outbreaks.

What is required for 2019/20?

Explore possibility of norovirus POCT on admissions units. Ensure standardised governance framework has been implemented across the newly merged organisation.

Table 1. 2018/19 QE serious incidents and outbreaks

Date Reported to Risk	STEIS No.	Description of Incident	Investigation Level
Quarter 1 2018/19			
08/05/2018	2018/11497	Norovirus Outbreak	Daily outbreak meetings
14/05/2018	2018/12013	Norovirus Outbreak	Daily outbreak meetings
07/06/2018	2018/14083	Group A Streptococcus outbreak	Outbreak meetings held
17/04/2018	2018/9532	Norovirus Outbreak	Daily outbreak meetings
18/04/2018	2018/9672	Norovirus Outbreak	Daily outbreak meetings
05/06/2018	2018/13863	<i>C. difficile</i> Outbreak	Outbreak meetings held
06/06/2018	2018/13899	<i>C. difficile</i> Outbreak	Outbreak meetings held
08/06/2018	2018/14267	<i>C. difficile</i> Outbreak	Outbreak meetings held
Quarter 2 2018/19			
16/07/2018	2018/17382	<i>C. difficile</i> Death	Post Infection review meeting held
17/07/2018	2018/17532	<i>C. difficile</i> Outbreak	Outbreak meetings held
01/08/2018	2018/18876	<i>C. difficile</i> Outbreak	Outbreak meetings held
11/09/2018	2018/22025	Norovirus Outbreak	Daily outbreak meetings
20/09/2018	2018/22823	<i>C. difficile</i> Outbreak	Post Infection review meeting held
17/09/2018	2018/22509	Norovirus Outbreak	Daily outbreak meetings
21/09/2018	2018/22897	<i>C. difficile</i> Death	Post Infection review meeting held
Quarter 3 2018/19			
02/10/2018	2018/23707	Post 48 hour MRSA bacteraemia	Post Infection review meeting held
16/10/2018	2018/24928	Post 48 hour MRSA bacteraemia	Post Infection review meeting held
05/12/2018	2018/28875	Norovirus Outbreak	Daily outbreak meetings
28/12/2018	2018/30567	Post 48 hour MRSA bacteraemia	Post Infection review meeting held
05/11/2018	2018/26371	<i>C. difficile</i> Outbreak	Daily outbreak meetings
22/11/2018	2018/27946	MRSA Outbreak	Daily outbreak meetings
27/11/2018	2018/28264	Norovirus Outbreak	Daily outbreak meetings
27/11/2018	2018/28278	Norovirus Outbreak	Daily outbreak meetings
27/12/2018	2018/30442	MRSA Outbreak	Daily outbreak meetings
Quarter 4 2018/19			
08/04/2019	2019/7811	<i>C. difficile</i> Outbreak	Daily outbreak meetings
03/01/2019	2019/337	MRSA Death	Post Infection review meeting held
08/01/2019	2019/406	Norovirus Outbreak	Daily outbreak meetings
15/01/2019	2019/975	<i>C. difficile</i> Outbreak	Daily outbreak meetings
12/02/2019	2019/3625	Norovirus Outbreak	Daily outbreak meetings
13/02/2019	2019/3111	Influenza Outbreak	Daily outbreak meetings
27/02/2019	2019/4767	<i>C. difficile</i> Outbreak	Daily outbreak meetings
11/03/2019	2019/5570	Norovirus Outbreak	Daily outbreak meetings

Table 2. 2018/19 HGS serious incidents and outbreaks

HGS Serious Incidents	Number
Norovirus outbreak	3
Group A strep outbreak	1
<i>C. difficile</i> increased incidence (outbreak)	3 (1)
Influenza outbreak	1
<i>C. difficile</i> death Part 1b	2

5.0 Surgical Site Infections

Surgical site infection is a type of healthcare-associated infection in which a wound infection occurs after an invasive (surgical) procedure. Surgical site infections have been shown to compose up to 20% of all of healthcare-associated infections. Around 5% of patients undergoing a surgical procedure develop a surgical site infection.

Mandatory surveillance of surgical site infections started in 2004, specifying each Trust should conduct surveillance for at least 1 orthopaedic surgical category for 1 period in a financial year. The categories include: hip replacements, knee replacements, repair of neck of femur and reduction of long bone fracture. The Trust has a Trauma audit team which undertakes the mandatory surveillance, reporting on repair of neck of femur and hip replacement surgical site infections. In 2018/19 the Trust reported 0% surgical site infections in hip replacements and surgical site infections in repair of neck of femur fractures.

What were the challenges that have been identified in 2017/18?

Only mandatory surgical site surveillance was undertaken during 2018/19. No prospective surgical site infection surveillance is undertaken.

What measures have been put into place?

A surgical bundle aimed at the pre, intra and post-operative phases has been introduced across UHB.

What have been the successes/outcomes?

The ROSSINI 2 trial is running across UHB aimed at establishing the impact of three different aspects of the surgical bundle, 2% chlorhexidine, ioban impregnated incise drape and gentamicin impregnated collagen implants at closure. A pilot study was undertaken, including 30 day follow up in colorectal patients at UHB prior to and following the introduction of a surgical bundle. There were 99 patients in the before group, and 71 and 92 in the post intervention groups. The incisional SSI rate was 29.3% before and 28.2% and 21.7% post intervention, respectively. The introduction of the care bundle was not associated with a reduction in SSI. However, it was associated with significantly reduced readmissions (18.1% before versus 5.6% and 8.7%). UHB have been involved in two multi centre studies aimed at reducing the incidence of SSI and work is ongoing.

What is required for 2018/19?

Develop a patient focused clinical pathway for review and management of surgical site infections. Develop a comprehensive surgical site surveillance programme.

6.0 Audit

The Infection Prevention and Control Team have a comprehensive audit programme for assurance purposes that has been successfully delivered during 2018/19.

Cleaning hands is one of the most important actions anyone can carry out to prevent infection. Hand hygiene audits are undertaken by the clinical area and are reported every month at the Infection Prevention and Control Group. Audits are undertaken weekly by the clinical area if hand hygiene compliance is above 90%, if compliance drops below 90% then daily audits are undertaken. Regular hand hygiene audits are performed by the Infection Prevention and Control Team to further validate the results.

The saving lives (high impact interventions) audits are regularly undertaken by clinical areas every month and results are reported monthly at the Infection Prevention and Control Group. The high impact interventions include guidance and tools for: central venous catheter care, peripheral venous catheter care, antimicrobial stewardship, prevention of surgical site infection, care for ventilated patients, urinary catheter care and preventing chronic wound infections.

A regular infection control audit of clinical areas is carried out by an Infection Prevention Nurse. The audit consists of: observation of practice, review of care and management of patients with infections, observations on correct use of personal protective equipment, observations of environmental cleanliness and review of patient indwelling devices. The results of the audit are feedback to the clinical area and Matron.

A sharps audit was completed in March 2018 by the Trusts Sharps provider. The survey endeavoured to: raise sharps awareness, assess practice, discuss problems and advise on compliance with current legislation. The overall compliance for sharps practice was >98%.

A rolling programme of monthly independent environmental audits, led by the Estates Team, are in place to monitor the compliance of clinical and non-clinical areas against the national cleaning standards framework. Audit results are made available to areas with robust action plans monitored as part of a quarterly summary report to the Infection Prevention and Control Group.

The Infection Prevention and Control Team are active members in the Patient Led Assessments of the Care Environment (PLACE) inspections. PLACE inspections assess the quality of the patient environment. The assessments see local people go into hospitals as part of teams to assess how the environment supports the patient's privacy and dignity, food, cleanliness and general building maintenance. During 2018/19, the Infection Prevention and Control Team took part in these assessment audits, driving improvements in the care environment.

Each year, an annual audit of mattresses is carried out within the Trust. The main aim of the foam mattress audit is to identify equipment that is no longer providing pressure reduction. Although Infection control issues should be identified at regular mattress inspections throughout the year, the audit also provides the opportunity for any unresolved problems to be actioned. In conjunction with Tissue Viability, the Infection Prevention and Control Team actively take part in the annual audit. In general, a change in culture towards mattresses has been seen across the Trust with engagement and interest from staff; however the audits in 2018/19 revealed there were more damaged covers and foams, suggesting the mattresses were not being inspected internally on a regular basis. Tissue viability and the Infection Prevention and Control team will work with the ward teams to address some of these issues.

What were the challenges identified in 2018/19?

An increase in Norovirus outbreaks were seen across the Trust.

What measures have been put into place?

A standardised governance framework has been introduced.

What have been the successes/outcomes?

Implementation of POCT on the front door for Influenza has reduced nosocomial outbreaks.

What is required for 2019/20?

Explore possibility of norovirus POCT on admissions units. Ensure standardised governance framework has been implemented across the newly merged organisation.

7.0 Antimicrobial Stewardship

Antimicrobial resistance (AMR) has risen alarmingly over the last 20 years, and inappropriate prescribing and overuse of antimicrobials is a key driver for this. Between 2010 and 2013, total antibiotic prescribing in England increased by 6%, which was one of the largest increases in recent years. As a result, a national CQUIN aimed at reducing antimicrobial consumption was implemented. The main aim was to reduce antimicrobial usage in secondary care back to levels before 2013. Following completion of the antimicrobial resistance (AMR) CQUIN in 2016/17, the Trust was instructed to complete the national 'Serious infection CQUIN (2017/19). This two year CQUIN is worth approximately £1 million and is a combination of the AMR and Sepsis CQUIN. Martin Biggs – Principal Antimicrobial Pharmacist was assigned operational lead, with Dr Miruna David and Dr Abid Hussain (Consultant Microbiologists) clinical leads for stewardship.

Following the completion of the first year of the two year serious infection CQUIN the Trust was given similar performance improvement targets related to antimicrobial stewardship. Overall the two year serious infection CQUIN is worth approx. £1 million and is a combination of the AMR and Sepsis CQUIN combined.

The CQUIN was divided into four parts with part A and B related to improvements in Sepsis Treatment and parts C and D related to antimicrobial stewardship

Sepsis

- **Screening for Sepsis Results (Part 2a)**
Percentage of patients screened for sepsis. Target set remained a challenge for UHB Trust with excellent improvements in screening results seen due to a harmonised approach improving staff education at patient entry points and across the organisation.
- **Treatment for Sepsis results (Part 2b)**
Percentage of patients diagnosed with sepsis given antibiotics within 60mins of diagnosis. Target figures achieved over the financial year reflected local and national results seen and remains a focus of improvement in the organisation to improvement sepsis recognition and treatment.

Antimicrobial stewardship

- **Antibiotic review (Part 2c)**
Aim of target was to ensure patients with sepsis who were treated with antibiotics received a senior clinician review of their treatment between 24-72hrs after starting therapy (Table 3).

Table 3. CQUIN antimicrobial review of patients with sepsis.

2018/19	Q1	Q2	Q3	Q4
QEHB target	≥ 25%	≥ 50%	≥ 75%	≥ 90%
QEHB results	75%	81%	92%	96%
HGS	29%	32%	57%	65%
Achieved Target	Yes	Yes	Yes	Yes

Antibiotic reduction (Part 2d)

The final target around antimicrobial stewardship was aimed at reducing antibiotic consumption per 1,000 admissions. Antimicrobial usage is largely responsible for the increase in resistant infections seen globally and reducing in-appropriate usage on antimicrobial has been shown to reduce the rate of resistance.

The Trust was given three end of year reduction targets (Table 4).

Table 4. CQUIN antimicrobial consumption reduction targets.

Target	QEHB results	HGS results	Achieved Target
2% reduction target in total antibiotic consumption	1.3% reduction	3% increase	No
2% reduction in carbapenem consumption	30% reduction	19% reduction	Yes
Increase in proportion of narrow spectrum antibiotics used at QE (Target of 3% proportional increase in access group of antibiotics)	6.2% proportional increase	2% proportional increase	Yes

The Trust was able to overall reduce its antimicrobial consumption and in particular reduced inappropriate usage of broad spectrum antibiotics (seen as a major contributor of resistance) highly effectively over the financial year. Where targets were not achieved, this was in line with many other Trusts locally and nationally and remains a target for the Trust to continue to reduce further without impacting patient care which is part of the Trust vision.

Other projects

- During 2018/19, there were a large number of antibiotic shortages seen globally related to a number of natural disasters. The Trust worked closely with clinical specialties to ensure patient treatment was maintained to the high standard expected of a tertiary level Trust.

- *World antibiotic awareness week* - In November 2018 UHB participated in a Trust-wide campaign to increase awareness of the national Antibiotic Guardian “Keep Antibiotics Working” campaign during World Antibiotic Awareness Week. The aim was to communicate the key messages of good antibiotic stewardship and increase awareness of the emerging global increase in antimicrobial resistance. The campaign had multi-disciplinary engagement with representation from University Hospitals of Birmingham, Aston University and Birmingham and Solihull CCG.
- *Social media* was used to communicate messages both Trustwide and to a wider audience outside of the Trust. There was good staff engagement for recording a video to showcase their own AMS pledge which was available for a wider audience to view. Twitter was used as a platform to showcase Trust-wide activities and engagement within a multidisciplinary environment using the hashtag #Doit4Das. The success from the campaign was measured by communications team from Twitter, local antibiotic audits by IPCN’s and monitoring the prescribing trends for broad spectrum antibiotics e.g. carbapenems and piperacillin / tazobactam.
- *Antibiotic guardian awards nomination* - The AMS team have been nominated for the national Antibiotic Guardian awards under the ‘innovation and technology’ category this year for a very successful Trust-wide campaign using social media to deliver behavioural change and sustained commitment to the national Antibiotic Guardian “Keep Antibiotics Working” campaign. This was a multi-disciplinary effort with representation from University Hospitals of Birmingham, Aston University and Birmingham and Solihull CCG.
- *Birmingham Antibiotic Advisory Group (BAAG)* - Primary care antibiotic guidelines have been updated to align with NICE recommendations for the treatment of common infections. The updated guideline was presented to the APC in April 2019 and has been approved. It will be re-formatted and uploaded for use within primary care. Formal teaching sessions will follow to support the local uptake of these guidelines.

What were the challenges identified in 2018/19?

The Trust did not meet the CQUIN sepsis screening requirements for 2018/19.

What measures have been put into place?

Working with high usage specialities and adapting there antimicrobial prescribing practice based on local epidemiology and most up to date guidance.

What have been the successes/outcomes?

A 30% reduction of carbapenem usage across the Trust for 2018/19. Antibiotic Guardian award nomination for innovation and technology.

What is required for 2019/20?

Formation of a Trust wide antimicrobial stewardship group. Review the current antimicrobial guidelines and have one standardised document for the Trust. Start work on the UTI CQUIN and antifungal CQUIN. Undertake antimicrobial stewardship ward rounds.

8.0 Training and Education

In 2018/19, the Infection Prevention and Control Team have continued to deliver a wide variety of education, both within the Trust and externally. It is mandatory for every member of staff to receive an annual infection prevention and control update.

In 2018/19, over 90% of staff have received their mandatory Infection Prevention and Control training. The high training figures have been achieved through Trust Induction and both Trust, local mandatory training sessions and an eLearning package. These sessions are constantly reviewed and updated to ensure they remain relevant with up to date content.

The Infection Prevention and Control Team have delivered informal and formal sessions on a variety of subjects and continue to support registered practitioner and doctor induction programmes. The team have tailored infection prevention and control presentations for international fellows and the new consultants' induction training. On top of this, the Infection Prevention and Control Team have delivered infection control training sessions/updates to numerous specialities and staff groups throughout the Trust, for example teaching and education sessions to: facilities staff, preventing harm meetings, divisional quality meetings, divisional governance meetings, care quality management group, antimicrobial stewardship and sepsis group, doctors grand round, divisional monthly update meetings, volunteer sessions, matron meetings, patient/ carers sessions and the executive team. Nursing assistants receive two training sessions, one on induction and one on the nursing assistant development programme. Both of these are simulated sessions providing training on/ competence assessment on hand hygiene, MSRA screening, principles of cleaning, microbiological sampling, PPE and invasive device care. The Infection prevention and Control Team also deliver training to new preceptors and student nurses. One of the key strategic aims for the next financial year is engagement with medical staff and to align education and training nationally.

The Infection Prevention and Control Team have also given education sessions externally, teaching on the University of Birmingham's undergraduate nursing programme. The Infection Prevention and Control Team have also given lectures on the undergraduate and postgraduate Medical Microbiology courses delivered by the University of Birmingham on various nosocomial pathogens. The team have also delivered lectures at International conferences both within the UK and in Europe promoting best practice within infection prevention and control.

Education and training will remain a key priority in the new financial year, promoting best practice within infection prevention and control.

What were the challenges identified in 2018/19?

Engaging the medical workforce in Infection Prevention and Control. Loss of Divisional mandatory training ad hoc sessions.

What measures have been put into place?

During 2018/19, the Infection Prevention and Control Team have created a new mandatory training package for all staff and consultant training package in light of the new merged organisation.

What have been the successes/outcomes?

High level of compliance with mandatory training. Improved medical engagement in research projects and attendance at Post Infection Reviews.

What is required for 2019/20?

Creation of an e-learning package for Infection Prevention and Control. Introduce sepsis and antimicrobial training as part of Trust induction.

9.0 Facilities

Collaborative work between Infection Control and Facilities continues to improve the monitoring and reporting on cleaning standards and maintenance and monitoring of the site. UV decontamination (following cleaning) is already being utilised instead of HPV in some instances. This could lead to efficiencies in bed utilisation and will continue to be introduced. The Patient-Led Assessment of the Care Environment (PLACE) audit was completed in May 2018, with patient and staff assessors giving an overall score for cleanliness of 99.5% at QE, 98.76% at Heartlands, 92.26% at Good Hope and 97.38% at Solihull for the hospital environment.

What were the challenges identified in 2018/19?

Standardising the practice of the facilities workforce across the newly merged Trust.

What measures have been put into place?

To work closely with facilities on all sites being, ensuring staff are an integral part of any outbreak/ incident meetings. The Infection Prevention and Control team in conjunction with facilities have undertaken research into cleaning technologies to improve cleaning standards and improve patient flow.

What have been the successes/outcomes?

High PLACE scores and year on year reductions in nosocomial alert organisms associated with prolonged survival in the environment.

What is required for 2019/20?

To develop and undertake a Trust wide deep clean programme. Provide investment into new cleaning technologies such as UV across the Trust. To develop a Trust wide cleaning matrix.

10. Occupational health

As part of the Health and Social Care Act 2015, providers are required to have a system in place to manage the occupational health needs and obligations of staff in relation to infection. Briefly, during 2018/19, the Occupational Health team has dealt with several issues including skin integrity of staff and respiratory related incidents around Tuberculosis, measles and chicken pox, been actively involved in achieving the national CQUIN focusing on healthcare providers achieving a 75% uptake of the Influenza vaccination in front line staff, as well as dealt with inoculation injuries and immunisation/ blood tests for staff.

The Occupational health service is accessible across all 4 main sites. All new starters attending Occupational Health for their first appointment have their skin assessed and are given relevant advice. During 2018/19, 510 individuals have either self-referred or been referred to Occupational Health for advice about their hands, 55 were referred to a specialist. The rise in numbers of individuals seen is most likely due to the introduction of manager skin assessments as part of the Health and Safety checklist.

During 2018/19, the Occupational Health team have had a number of respiratory related queries. The majority of cases seen by the Occupational Health team are due to overseas honorary contract doctors coming from high Tuberculosis endemic areas who require testing and treatment for latent Tuberculosis. Due to previous international shortage of BCG vaccine, the Occupational Health Team are currently putting into action a plan to vaccinate previously unvaccinated staff members.

All staff exposures to infections such as Tuberculosis, measles, chicken pox, Pertussis, Meningitis and Streptococcus A are followed up and given appropriate advice. Hepatitis B vaccine is available and the Occupational Health Team are following up staff members who are not fully vaccinated. Tuberculosis is among the top 10 cases of death worldwide, with the UK seeing up to 6,000 cases per year. In the Midlands, there is a high incidence of Tuberculosis so the Trust sees cases throughout the year. At the QE site, the Infection Prevention and Control Team have formally established monthly Tuberculosis exposure incident (to both staff and patients) meetings. These meetings discuss all cases ensuring all exposure incidents are dealt with appropriately in a timely fashion. Membership consists of the Infection Prevention and Control Team, the Occupational Health Department, Medical Microbiologist and the Tuberculosis lead for the Trust.

During 2018/19, the Occupational Health Team led on achieving the national CQUIN on staff health and wellbeing. Part of the CQUIN requires healthcare providers to achieve a 75% uptake of the Influenza vaccination in front line staff. To achieve the CQUIN, 11831 frontline staff members were vaccinated, which meant 76% of frontline staff were vaccinated against influenza. The Influenza programme was led by the Director of Nursing, Mrs Margaret Garbett, and was delivered by Occupational Health supported by Senior Nurses and Peer Vaccinators. The Infection Prevention and Control Team supported the Occupational Health Team during the Influenza vaccination campaign.

In 2018/19, 545 inoculation injuries and 106 splash incidents were reported. The Occupational Health team obtain consent from the individual to notify Health and Safety about the incident so that they can ensure a Datix incident is completed. All ancillary staff are counted in the Division where the injury occurred. High risk injuries: consent is sought from the individual to report to Health and Safety and onto RIDDOR.

What were the challenges identified in 2018/19?

Achieving the national CQUIN to vaccinate 75% of front line staff. Several cases of occupational dermatitis have been referred to the Health and Safety Executive; their inspectors have visited the Trust and have asked for information about glove choice and the training of staff in hand care.

What measures have been put into place?

In relation to dermatitis problems, both the Occupational Health Team and Infection Prevention and Control Team have worked on implementing hand care advice to the hand hygiene training and looking at alternative hand cleansing products, especially for Theatres. In addition, Occupational Health has been reporting on acceptability and tolerability of hand hygiene products in relation to contact dermatitis.

What have been the successes/outcomes?

Vaccinating 76% of front line staff, the influenza vaccination campaign at UHB received a nomination for flu campaign of the year. As a result PHE will be working with UHB on the vaccination campaign next year.

What is required for 2019/20?

Create a Trust wide TB incident meeting to discuss all cases within the Trust. Work on an assessment tool to identify employees employed by the Trust whom are risk of having latent TB. Work on identifying the vaccination status of staff employed into the Trust who are not immune to various pathogens such as measles.

11.0 Research and development

Research and Development is a key component of an infection prevention and control programme, particularly in a high profile teaching Trust such as UHB. Research can be used to develop science and evidence based practice to further drive infection prevention and control improvement. During 2018/19, the Infection Prevention and Control Team has been actively involved in numerous research projects, highlighted by 6 peer reviewed journal articles being published and several team members giving presentations at international/national conferences and study days on its work throughout the year. The team also has members which are part of national infection control societies such as the Infection Prevention Society (IPS) and Healthcare Infection Society (HIS). The Lead Nurse is a member of the IPS Educational Professional Development Committee, and the Associate DIPC is a councillor and chair of the education committee for HIS. Roles within these societies have enabled team members to be part of various national groups including working parties and scientific development committees to drive practice change both nationally and internationally.

The Infection Prevention and Control Team work closely with the Hospital Infection Research Laboratory (HIRL), with the Associate DIPC being the Director of HIRL. HIRL was established in 1964 at City Hospital and relocated to the Trust in 2008; providing specialised infection control advice international, nationally and locally. This financial year, HIRL have provided the following support to the Trust: validation of theatre ventilation on the upgraded theatres, research work on *P. aeruginosa* in relation to water quality within critical care, mop decontamination reducing the risks of infection, testing alternative cleaning methods with Facilities, advising the endoscopy department and endoscopy decontamination. The HIRL laboratory manager sits on the Decontamination and Water Safety Group in an advisory capacity, working closely with the decontamination services both within the Trust and externally at BBraun sterilog. HIRL actively participate in research with the Infection Prevention and Control Team as highlighted from the recent publications.

Selected research publications from the year are detailed below:

- Garvey MI, Wilkinson MAC, Bradley CW, Holden KL, Holden E. Wiping out MRSA: effect of introducing a universal disinfection wipe in a large UK teaching hospital. *Antimicrob Resist Infect Control*. 2018 Dec 19;7:155.
- Garvey MI, Wilkinson MAC, Holden KL, Martin T, Parkes J, Holden E. Tap out: reducing waterborne *Pseudomonas aeruginosa* transmission in an intensive care unit. *J Hosp Infect*. 2019 May;102(1):75-81.

- Bradley CW, Burdett H, Holden KL, Holden E, Garvey MI. How do we define recurrence in Clostridium difficile infection? J Hosp Infect. 2019 Jun;102(2):171-173.
- Holden KL, Bradley CW, Curran ET, Pollard C, Smith G, Holden E, Glynn P, Garvey MI. Unmasking leading to a healthcare worker Mycobacterium tuberculosis transmission. J Hosp Infect. 2018 Dec;100(4):e226-e232.
- Garvey MI, Bradley CW, Holden E. Waterborne Pseudomonas aeruginosa transmission in a hematology unit? Am J Infect Control. 2018 Apr;46(4):383-386.
- Garvey MI, Bradley CW, Wilkinson MAC, Holden KL, Clewer V, Holden E. The value of the infection prevention and control nurse led MRSA ward round. Antimicrob Resist Infect Control. 2019 Mar 12;8:53.
- Winzor G, Hussain A. Current strategies to detect, manage and control carbapenemase-producing Enterobacteriaceae in NHS acute hospital trusts in the UK: time for a rethink? J Hosp Infect. 2018 Sep;100(1):13-14.

Other studies are being planned with both external academic partners and internal clinical parties. Research and development within the Infection Prevention and Control Team at the Trust will continue to flourish in the next financial year.

What were the challenges identified in 2018/19?

To continue to undertake research within the challenges and financial constraints seen within the NHS.

What measures have been put into place?

Members of the team are part of national societies and working groups. This in turn drives evidence based Infection Prevention and Control

What have been the successes/outcomes?

Numerous publications and presentations at international and national conferences.

What is required for 2019/20?

Apply for research grant monies and being successful in obtaining grant monies to undertake Infection Prevention and Control research. To continue producing top quality research at UHB and be a leading centre for Infection Prevention and Control.

12.0 Infection Prevention and Control Initiatives

For this financial year, the Infection Prevention and Control Team has focused primarily on Infection Prevention nurse-led ward rounds on specific nosocomial alert organisms, using new cleaning technologies, aligning Infection Prevention and Control practice across the newly merged organisation and reducing Gram negative bacteraemias.

What were the challenges identified in 2018/19?

Aligning the practice and work of the Infection Prevention and Control team across UHB. Reducing the number of hospital onset Gram negative across UHB. Inappropriate antimicrobial prescribing practice and multiple drug resistant organisms.

What measures have been put into place? And what have been the successes/outcomes?

During this financial year, all MRSA acquisitions are reviewed by the Infection Prevention and Control Team across all sites on nurse-led MRSA acquisition ward rounds. Year on year decreases in the number of MRSA acquisitions has been observed.

During the last financial year, we have continued and improved the nurse-led *C. difficile* ward rounds. The Trust has had access to faecal microbiota transplant for patients who have failed treatment, resulting in less recurrent *C. difficile* infections. The team are working towards an extended practice protocol for the delivery of faecal microbiota transplants. There has also been a focus on antimicrobial stewardship with nurse-led antimicrobial stewardship ward rounds, which has improved antimicrobial prescribing practice on the wards. Nurse engagement and responsibility for antimicrobial stewardship has also improved.

Contamination of hospital surfaces can contribute to the transmission of healthcare-associated infections. The Infection Prevention and Control Team have worked closely with Facilities, further improving cleaning techniques by using new technologies, such as a UV decontamination. Use of UV on selected wards across UHB has seen reductions in MRSA, VRE and CPE acquisitions.

Cleaning hands is one of the most important actions anyone can carry out to prevent infection. Research has started exploring the use of different markers for hand hygiene compliance. The team has started to explore the use of different metrics in monitoring hand hygiene compliance such as alcohol consumption.

The Water Safety Group are actively involved in numerous research projects to improve the water quality and management within the Trust. In terms of *P. aeruginosa* water borne transmission, the Trust has taken steps to reduce the risk of transmission by examining intrinsic, holistic and engineering factors.

Various interventions have been put in place at UHB to reduce the number of *E. coli* bacteraemias associated with CAUTIs including; an educational campaign across UHB, focusing on the diagnosis and management of urinary tract infections. A review of all *E. coli* bacteraemias has been undertaken in conjunction with the CCG of community onset cases. This has highlighted issues with the sending of samples, review of microbiology results and prescribing of antimicrobials. Educational packages have been developed and rolled out across the trust. This has resulting in a reduction of *E. coli* bacteraemias.

During 2018/19 the Infection Prevention and Control team in conjunction with the emergency department has continued its work with a point of care test (POCT) for influenza. Following introduction of the POCT in every emergency department across UHB, there was proportionally less post-48 hour influenza cases and fewer outbreaks observed across the sites compared to previous seasons.

The team has continued its work on hospital acquired pneumonia (HAP). Charities money enabled the team to employ a Dental nurse to work on oral mouth care mouth care matters program). The 'mouth care matters' program improves the delivery of basic mouth care to patients. The work was undertaken across the Trust on several wards and a 90% reduction of HAP was observed on these wards.

The Infection Prevention and Control Team have supported other departments within the Trust, for example:

- Working with the Tissue Viability Team by undertaking the annual foam mattress audit
- Reviewing the external renal dialysis clinics from an infection prevention and control perspective
- Having nursing students shadowing the Infection Prevention and Control Team during their nursing course
- The team now undertakes a student nurse Infection prevention and Control education pathway experience
- Having military staff shadow the team during their infection prevention and control courses
- Giving Infection Control updates at the patient and carers council
- Team members sit on the Product Evaluation Group being involved in decision making of products
- Having regular medical students undertake projects within the team

This has enabled the team to broaden relationships across the Trust, further embedding infection prevention and control practice within the Trust.

13.0 What is required for 2019/20?

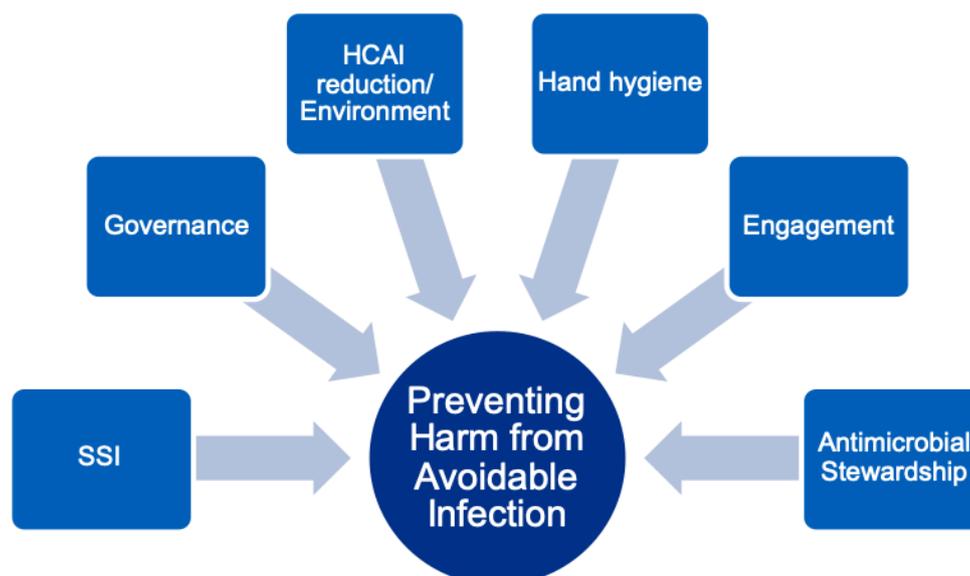
Infection prevention and control is a top priority for University Hospitals Birmingham NHS Foundation Trust (UHB). Keeping our patients safe from avoidable harm is everyone’s responsibility. The Infection Prevention and Control Team has set out an ambitious but flexible and achievable programme of work over 2019/20, with the aim to keep our patients, staff and public informed of planned activity.

Each year UHB Infection Prevention & Control Team undertakes a review of the Trust's compliance with the Health & Social Care Act 2008 Code of Practice on the Prevention and Control of Infections (2015). The team’s aim is to provide an infection prevention & control service that supports our clinical teams to deliver the best in care. The 2019/20 annual plan will cover 6 strategic themes (Figure 12). An update on the actions and work plan is provided as part of the regular Board of Directors updates around infection prevention and control

Vision: Our vision is to prevent harm from avoidable infection

Our strategic themes in 2019/20 focus on improving outcomes for our patients and provide a framework for our operational work plan (Figure 12).

Figure 12. The 2019/20 annual plan and its 6 strategic themes.



The annual plan provides an operational framework for achieving progress with our strategic themes across UHB. Progress against this plan is reported on a monthly basis by the divisional Heads of Nursing and the Infection Prevention & Control Team at Infection Prevention & Control Group (IPCG). The plan has been linked to the Code of Practice compliance criterion. The executive Director responsible is Lisa Stalley Green, Executive Chief Nurse and Director of Infection prevention and Control.

Each month, the Infection Prevention and Control Team have a different themed focus. This provides an opportunity to plan a programme of audit activity and quality improvement work specifically focussed on a key issue. The themed focus allows the team to provide support on a range of infection prevention issues throughout the year.

14.0 Assure Dialysis Infection Control statement of compliance.

Purpose

This annual statement will be generated each year in April in accordance with the requirements of The Health and Social Care Act 2008 *Code of Practice on the prevention and control of infections and related guidance*. It summarises:

- Any infection transmission incidents and any action taken (these will have been reported in accordance with our Significant Event procedure / Notifiable diseases)
- Details of any infection control audits undertaken and actions undertaken
- Details of any risk assessments undertaken for prevention and control of infection
- Details of staff training
- Any review and update of policies, procedures and guidelines

Infection Prevention and Control (IPC) Lead

For Assure Dialysis Limited the Clinical Director Mrs Lisa Stalley-Green also acts as the Infection Control Lead who is supported by the Trusts Infection Prevention and Control Team.

Infection transmission incidents (Significant events)

Significant events (which may involve examples of good practice as well as challenging events) are investigated in detail to see what can be learnt and to indicate changes that might lead to future improvements. All significant events are reviewed with learning cascaded to all relevant staff.

Infection Prevention Audit and Actions

The Trusts Infection Prevention and Control Team have visited the Assure Dialysis clinics throughout the last financial year.

Risk Assessments

Risk assessments are carried out so that best practice can be established and then followed. In the last year several risk assessments have been carried out. Risk assessments including the following would have been completed for example Legionella (Water) Risk Assessment, Immunization, cleaning specifications, frequencies and cleanliness.

Training

All staff receive annual training in infection prevention and control.

Policies

Assure Dialysis share the Trusts Infection Prevention and Control related policies.

Policies relating to Infection Prevention and Control are available to all staff and are reviewed and updated annually, and all are amended on an on-going basis as current advice, guidance and legislation changes. Infection Control policies are circulated amongst staff for reading and discussed at meetings on an annual basis.

Responsibility

It is the responsibility of each individual to be familiar with this Statement and their roles and responsibilities under this.

Review date

April 2019

Responsibility for Review

The Infection Prevention and Control Lead is responsible for reviewing and producing the Annual Statement.
Lisa Stalley Green
Clinical Director for and on behalf of Assure Dialysis Limited

Appendix 1. List of Infection Prevention and Control policies and procedures.

Number	Procedure title	Review date
67	Infection Prevention and Control Policy	Jan 23
388	Hand Hygiene Procedure	Jan- 20
390	Outbreaks of Infectious Diseases	Jan- 20
393	Procedure for Isolation	Jan- 20
394	Procedure for the control of chicken pox and shingles	Dec-19
395	Procedure for management of patients with suspected Viral Haemorrhagic Fever (VHF – including Ebola)	Jan-20
403	Procedure for the Notification of Infectious Diseases	Jan-20
417	Procedure for the use of protective equipment	Nov-20
418	Procedure for Managing the Death of a Patient with an Infectious Condition	Jan-18
507	Procedure for the use of fans	Apr-19
649	Procedure for management of influenza	Jan-20
688	Procedure for Body Lice and Pubic Lice	Jan 23
689	Procedure for Head Lice	Jan 23
686	Procedure for Scabies	Jan 23
687	Procedure for Assistance and Visiting Dogs	Aug-20
819	Procedure for Clostridium difficile infection	Jan 23
902	Procedure for the management of patients with carbapenemase producing Enterobacteriaceae (CPE)	May-19
1003	Infection Control Management of Patients with Tuberculosis	Sep-19
928	Procedure for the control of MRSA	Jan-20
N/A	Procedure for Group A Streptococcus Infection	Oct-17
1055	Procedure for Management of Novel Coronavirus and Middle Eastern Respiratory Syndrome (MERS CoV)	Sep-20
N/A	Procedure for Decontamination of Reusable Equipment and Medical Devices	May-19
N/A	Procedure for Guidance for identification and management of measles cases	Jun-19
N/A	Procedure for Bordetella Pertussis – Whooping Cough	Mar-19
N/A	Procedure for management of patients with suspected or confirmed aspergillosis	Jul-19
911	Water Safety Plan	Jul-19

