The Queen Elizabeth Hospital King's Lynn NHS Foundation Trust

Report to the QUALITY & PERFORMANCE COMMITTEE

SUBMITTED BY:	REPORT FOR:		IMPACT:		
Emma Hardwick	Decision		High	Med	Low
CONSULTATION:	Information	√	√		
Glynis Bennett Dr Panagiotis Papastergiou Dr Eleni Tsiouli Graeme Cooper Karen Wood	**REPORT TYPE:**		**RELATED WORK:**		
	Strategic	√			
	Operational	√			
	Governance	√			
BAF ref:					
CQC Essential Standard Reference:	Safe /Effective /Caring/ Responsive / Well-led				
Media / Communications:					

Meeting Date: 17 July 2018

Report Title: Infection Prevention & Control Annual Report 1 April 2017 – 31 March 2018

Purpose: To inform the committee of the activity and developments within the organisation during the last year in relation to infection prevention and control.

Summary: This report provides a summary of the Trust's performance in relation to infection prevention & control. The information is presented in relation to compliance with the Hygiene Code and the key achievements and difficulties are summarised in an executive summary at the beginning of the report. Targets for *Clostridium difficile* and MRSA blood stream infections were not breached in 2017 – 18. The report concludes with the priorities and strategy for 2018 - 19.

Financial Implications / Efficiency Savings / Quality Improvement:

Failure to deliver targets within infection prevention and control can lead to financial penalties for the Trust. Outbreaks of infection may not only adversely affect the health and recovery of those infected it may also significantly impact on planned activity, bed availability and patient flow. Outbreaks of infection are seen as a key marker of poor quality of care amongst the public and media.

Risk Assessment (cross-reference with Risk Register where appropriate):

Strategic / External	Operational/ Organisational	Financial	Clinical	Legal/ Regulatory	Reputational / Patient Experience
√	√	√	√	√	√

Recommendations: See priorities for coming year.

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Date: 07.07.18

INFECTION PREVENTION AND CONTROL ANNUAL REPORT 2017 - 18

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Acknowledgements:

Emma Hardwick - Director of Infection Prevention and Control
Estates Department – Hard and Soft Facilities
Health & Safety Department

1.0 Executive Summary

This annual report provides an overview of Infection Prevention and Control (IP&C) activities within The Queen Elizabeth Hospital King's Lynn NHS Foundation Trust, covering the period 1st April 2017 – 31st March 2018. The report provides evidence and assurance on the Trust's compliance with the Health and Social Care (H&SC) Act 2008 (Hygiene Code) including performance against health care trajectories. It includes information on incidents and outbreaks and the actions taken to address the recommendations arising from the subsequent investigations.

This year has provided challenges in IP&C with notable outbreaks of *Clostridium difficile* proving the biggest difficulty for most of this period. In response to this the Trust executive team sought external expert advice and support from NHSi, this has included on site visits, peer review, outbreak stakeholder participation and support to the IP&C team and DIPC. This expert help continues into this next year.

The following is a summary of the challenges and achievements made in IP&C:

- A significant increase in Health Care Acquired (HCA) *C. difficile* cases compared to 2016/7, with forty eight cases being reported against a trajectory of fifty three. Eight cases were successfully appealed and were documented as non-trajectory. There was evidence of outbreaks on a number of wards.
- There were no cases of MRSA blood stream infections (BSI) for a second year and a continued decline in the level of MRSA HCA colonisation.
- High numbers of Influenza patients within the Trust, both admitted with the virus and evidence of acquisition within the hospital.
- There has been less internal transmission and improved management of patients admitted with symptoms of Norovirus. There have been no Hospital Acquired outbreaks during this year, with less community cases identified also.
- Education and training in aseptic non-touch technique (ANTT) and the introduction of a new cannulation pack, resulting in 80% of staff now meeting competencies.
- Work has continued alongside partners to reduce gram negative BSI to meet the government target of a 50% reduction by 2021.
- The limited number of single side-rooms (isolation facilities) and the lack of doors in bays have meant that the isolation of the high numbers of symptomatic patients for *Clostridium difficile* and airborne pathogens (e.g. influenza) has not always been possible and the option of use of cohort bays has been utilised when possible.
- The operational pressure within the organisation has at times meant that it has not been possible to decant and clean affected areas in a timely manner. Consequently cleaning of affected bed spaces and within bays that have not been vacated has had to occur as an interim measure and it is recognised that this is not the desired approach.
- Antibiotic Stewardship:
    - Pharmacy – Challenges with availability of antibiotics, balancing clinical need with limiting development of resistance and contribution to hospital acquired infections (notable *C. difficile* and MRSA). CQUIN targets achieved for 2018/18 with regards antibiotic stewardship (24-72 hour review) and resistance (consumption targets)

- The level of antimicrobial pharmacist and consultant microbiologist resource available over the reporting period has meant that only partial contribution to antimicrobial stewardship programme has been possible.

- Successful delivery of the CQUIN targets on Flu Vaccination of frontline staff and implementing improvements in health and wellbeing.

2.0 Introduction

Preventing infections is a key priority for the Trust.

The objectives and strategy for IP&C are based on the criteria within the H&SC Act 2008 Code of Practice on the prevention and control of infections and related guidance (DoH 2014).

Hygiene Code

Compliance Criteria	What the registered provider is required to demonstrate
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.
2	Provide and maintain a clean and appropriate environment in managed premises that facilitate the prevention and control of infections.
3	Ensure appropriate antimicrobial use to optimise patient outcomes and to reduce the risk of adverse effects and antimicrobial resistance.
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.
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.
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.
7	Provide or secure adequate isolation facilities.
8	Secure adequate access to laboratory support as appropriate.
9	Have and adhere to policies, designed for individual's care and provider organisations that will help control infections.
10	Providers have a system in place to manage the occupational health needs and obligations of staff in relation to infection.

3.0 Compliance with the Hygiene Code

Criteria 1.
Management Structure for Infection Prevention & Control

The Chief Executive has overall responsibility for IP&C. The post of Director of Infection prevention and Control (DIPC) is held by the Chief Nurse who is also the executive lead for IP&C.

The Hospital Infection Control Committee (HICC) is chaired by the DIPC and meets bi-monthly. The committee includes divisional, estates, facilities, medical, nursing, occupational health and pharmacy representation.

Chair's Key Issues (CKI's) from the HICC are reported to the Quality and Safety Committee after every meeting.

The day to day coordination of the IP&C nurses is managed by the IP&C Lead nurse who is also the Deputy DIPC. There is one support worker and one administration coordinator, who is also the personal assistant to the consultant microbiologists. There are two consultant microbiologists who are employed by the Eastern Pathology Alliance (EPA), one leads for IP&C and the other for antibiotic stewardship.

There is a designated antibiotic pharmacist employed by Pharmacy (0.5 WTE) who incorporates antibiotic stewardship as 50% of the job role; during this reporting period it has been recognised that additional resources have been required for this activity and a business case to increase this post to 1. 0WTE has been approved and this post is now being advertised.

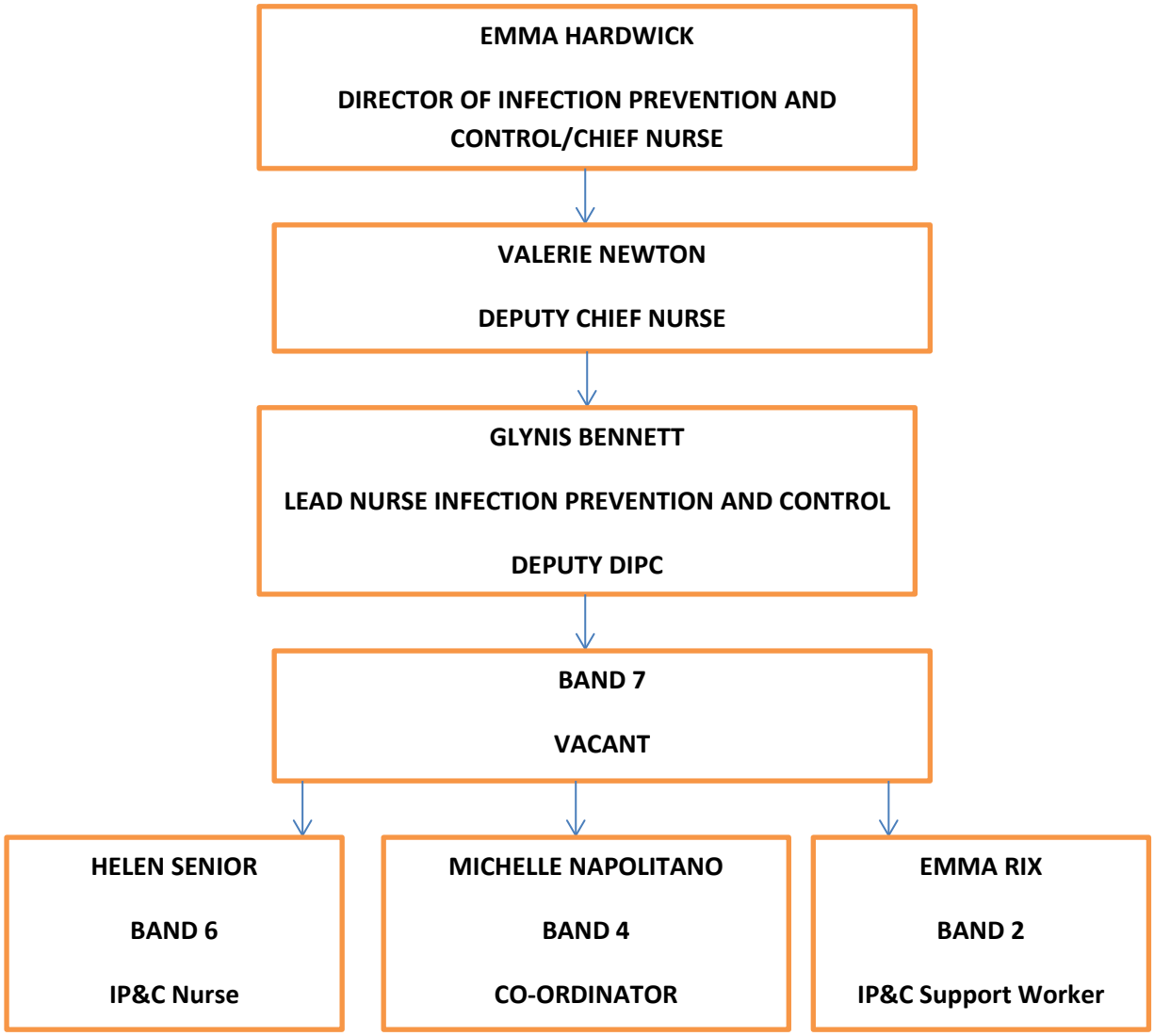
The team manage new results of alert organisms imported to ICNET, a system which aids surveillance and management of organisms. The IP&C nurses provide advice and support in the management of identified patients when results are imported.

The nursing team also uses the system to aid early identification of outbreaks and Periods of Increased Incidence (PIIs) and to provide data to aid mandatory reporting to the Public Health England (PHE) Data Capture System.

In addition to managing results, the team provides support and advice to clinical staff in the identification and management of infections. The team liaises with both the operational team and the management teams to enable the management of individual patients and outbreaks of infection within wards and clinical areas.

ORGANISATION CHART

INFECTION PREVENTION AND CONTROL



3.1 Mandatory Surveillance

Trajectories for each Trust for MRSA in full as 1st time used BSI and *C. difficile* are set by NHS Improvement (NHSI) and oversight of these is provided by the Clinical Commissioning Groups (CCGs). Root Cause Analysis is undertaken on all of these cases involving representation from all the teams involved in the patient's care.

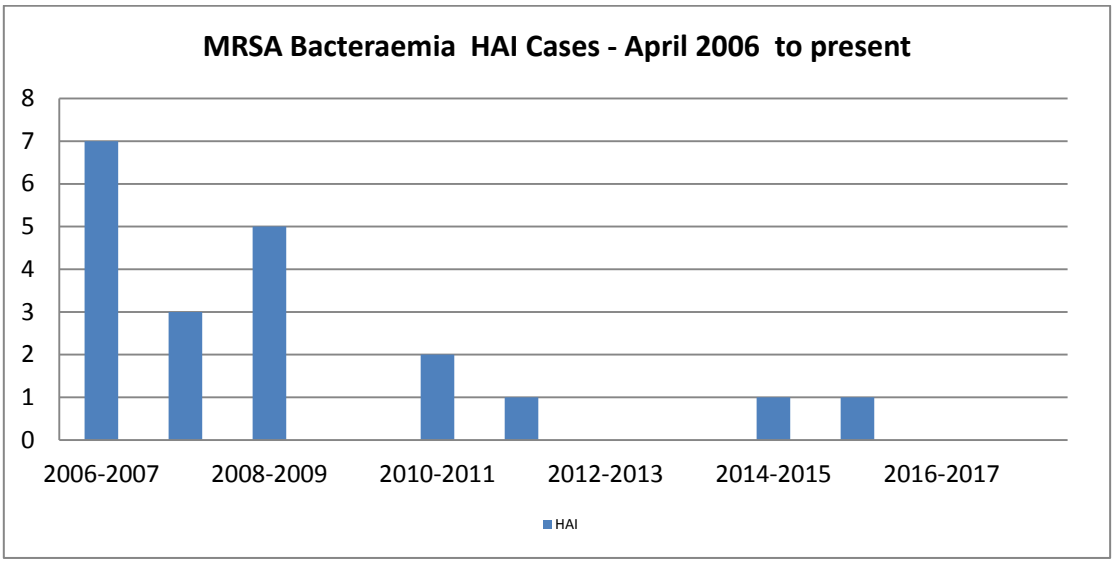
MSSA BSI has no formal trajectory set, but the numbers are monitored and cases of hospital acquired infections are investigated for any learning.

A Gram Negative BSI reduction target of a 50% reduction of cases both (CAI and HAI) by 2021, in order to reach this a 10% Quality Premium was set for the CCGs this year. West Norfolk CCG missed this reduction by 1 case. A joint action plan across the Health Economy including Norfolk, Cambridge and Lincolnshire has been devised and continued work on this is planned for the coming year.

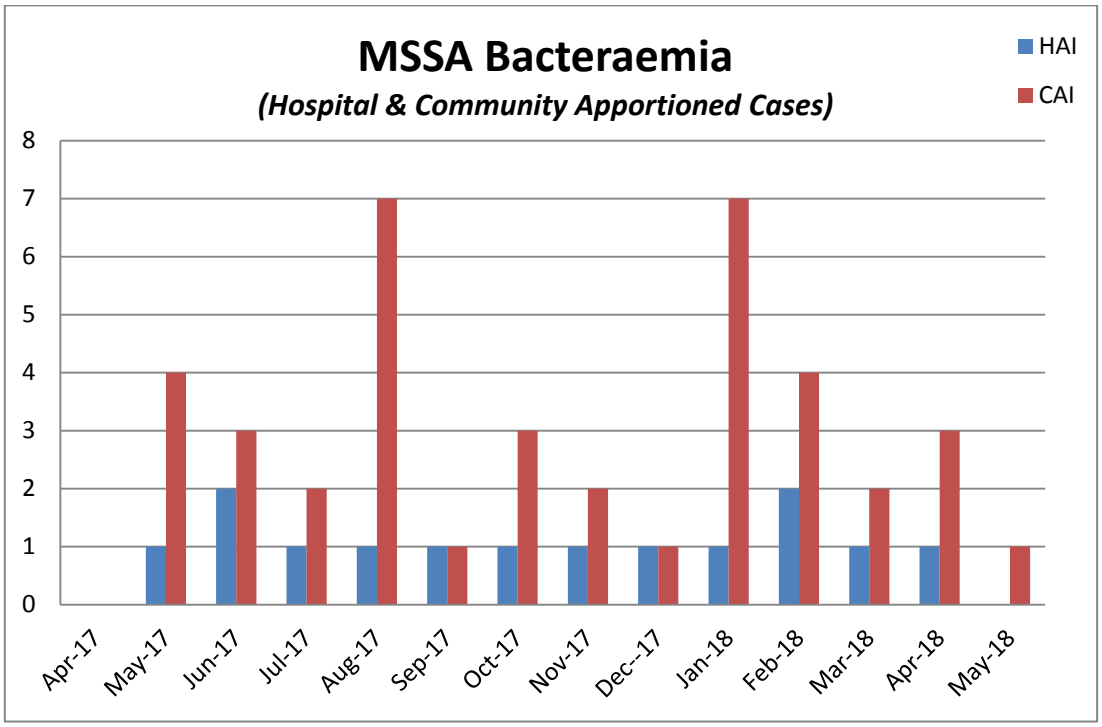
National Surveillance is required on all of these organisms and is reported via the Health Care Associated Infection Data Capture System (HCAI DCS).

3.2 Methicillin Resistant Staphylococcus Aureus (MRSA) Bloodstream Infection (Trajectory = 0)

There were no cases of MRSA blood stream infection associated with the Trust and for the second year running this trajectory has been met.



3.3 Methicillin Sensitive Staphylococcus Aureus (MSSA) BSI (no trajectory – mandatory reporting of all cases)

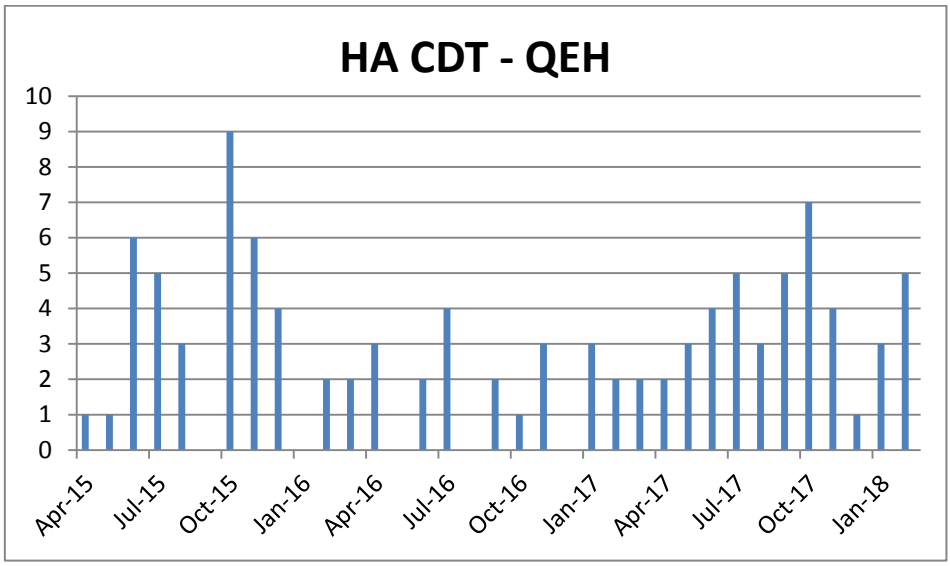


3.4 Clostridium difficile (Trajectory = 53)

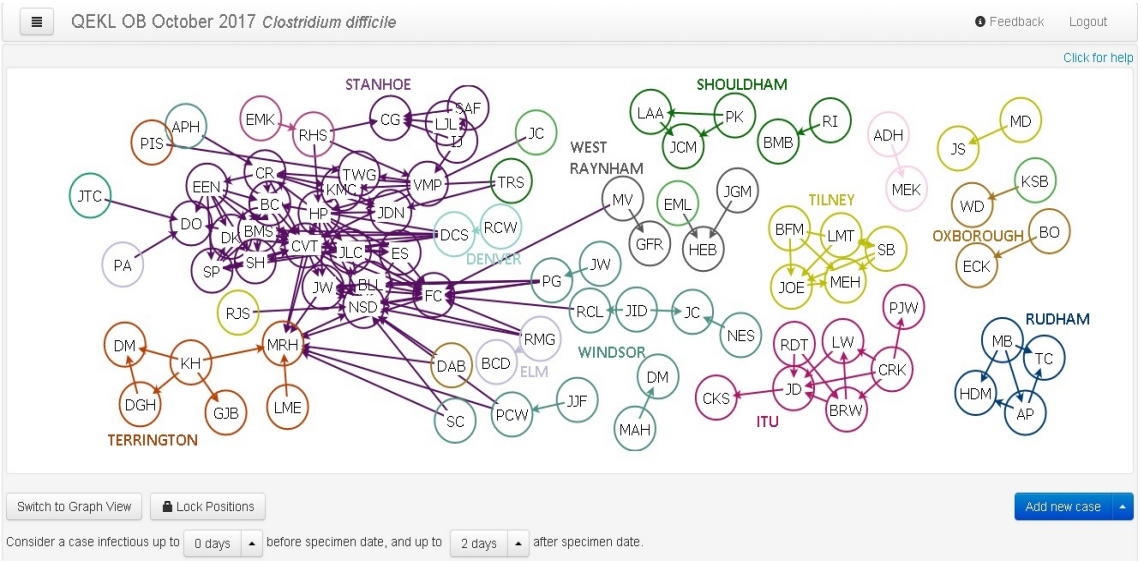
The Trust reported 48 cases of *C. difficile* for 2017/8 with eight cases successfully appealed as non-trajectory.

This rise in numbers was mainly due to two outbreaks during the last year. During October/November 2017 and January/February 2018 outbreaks were declared and an Outbreak Control Team led by the DIPC was established. Several measures have been undertaken to control these outbreaks and these have included deep cleaning and the use of hydrogen peroxide vapour (HPV) in some areas.

Support following these outbreaks was received from outside partners including CCGs, NHSi and PHE and an action plan formulated.



The PHE Epidemiology team have assisted in the management and interpretation of the data around the identified outbreaks. With support from the PHE team the Trust was able to identify the potential high risk (Stanhoe, Terrington, Shouldham, Windsor Tilney, West Raynham, ICU and Oxborough) areas and undertake actions around standards of cleaning, IP&C practice and placement of patients. The graph below illustrates the cluster tracking that was identified from data:



Outbreak meetings were undertaken which included representatives from outside agencies and a serious incident was declared for the identified ongoing transmission of *C. difficile*. In addition to the hospital acquired infection cases there were number of community acquired infection cases and polymerase chain reaction (PCR) *C. difficile* cases that could be linked to clusters at the Trust. In order to address the challenges and rising *C.difficile* numbers across the whole of the health economy, the Trust IP&C team work closely with CCG colleagues to ensure a collaborative approach to reducing the number of cases in both the hospital and community.

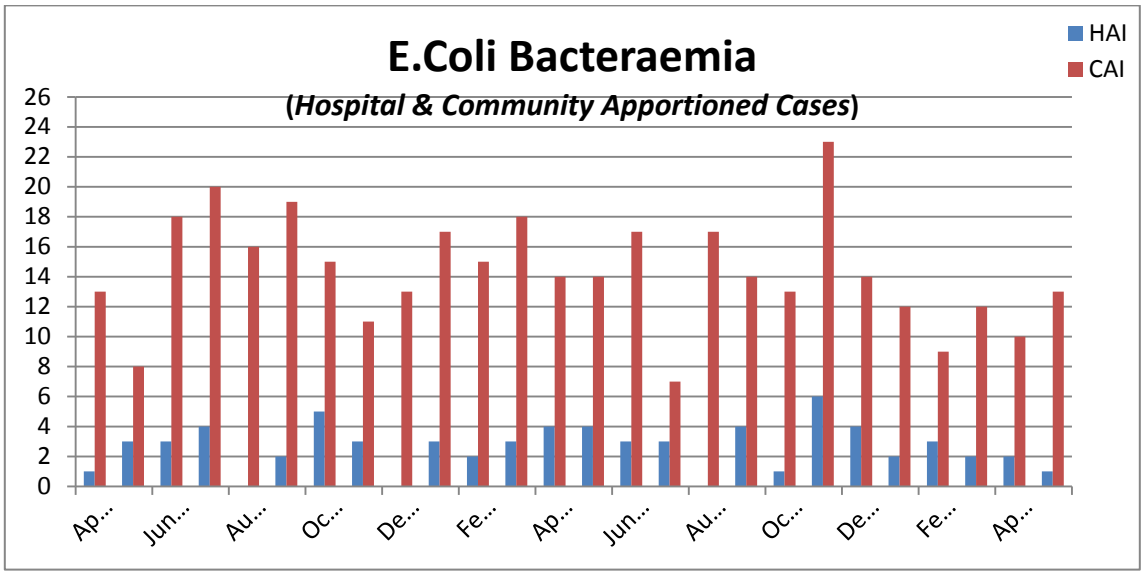
A full action plan which was approved by the Trust Board is in place and will form part of the Trust's IP&C plan for the coming year.

3.5 Norovirus

During 2017/8 there were four cases of norovirus throughout the Trust, which is much less than in 2016/17. Measures to control Norovirus within single rooms and bays prevented ward closures and spread through the Hospital. Early identification of cases on admission assisted in the management of cases.

3.6 Reduction in Gram Negative BSI

The Trust worked with the CCGs to reduce the number of gram negative BSI cases across the wider community. A joint action plan was put in place alongside an action plan devised in conjunction with other local acute trusts which assisted with identifying themes in data. Themes included urinary source, (non catheter related), hepatic and a smaller group of patients with immunocompromised conditions.


E.Coli Bacteraemia
(Hospital & Community Apportioned Cases)
HAI
CAI
26
24
22
20
18
16
14
12
10
8
6
4
2
0
Ap...
Jun...
Au...
Oc...
De...
Fe...
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Jun...
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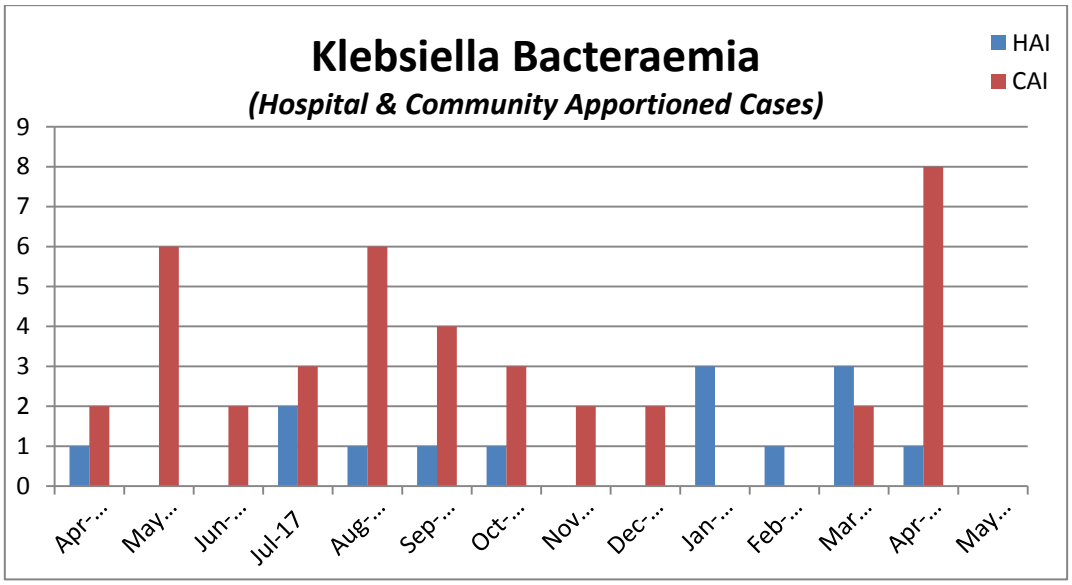
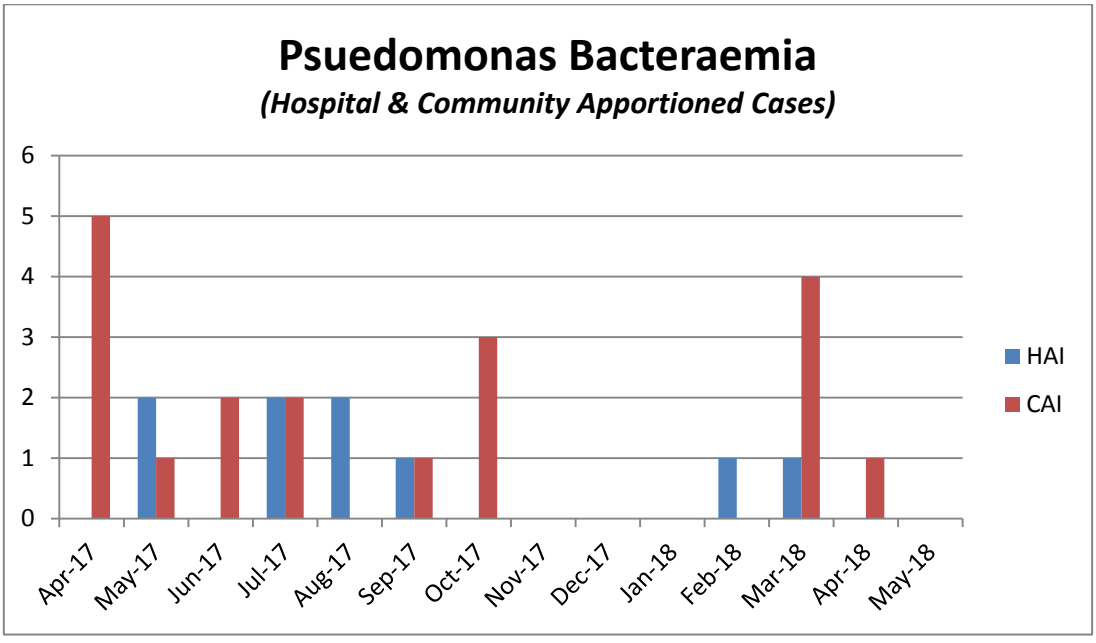
Ap...


Klebsiella Bacteraemia
(Hospital & Community Apportioned Cases)
HAI
CAI
9
8
7
6
5
4
3
2
1
0
Apr-...
May...
Jun-...
Jul-17
Aug-...
Sep-...
Oct-...
Nov...
Dec-...
Jan-...
Feb-...
Mar...
Apr-...
May...


Psuedomonas Bacteraemia
(Hospital & Community Apportioned Cases)
HAI
CAI
6
5
4
3
2
1
0
Apr-17
May-17
Jun-17
Jul-17
Aug-17
Sep-17
Oct-17
Nov-17
Dec-17
Jan-18
Feb-18
Mar-18
Apr-18
May-18

3.7 Carbapenemase-Producing Enterobacteriaceae (CPE)

The Trust continues to screen for CPE in line with PHE guidance and a process is in place from admission to identify high risk patients where screening is required. The Trust continues to see low numbers compared to the national average.

3.8 Influenza

From January 2018 to March 2018 high numbers of patients were admitted with Influenza, both Influenza A (H2N4) and Influenza B were the prominent strains. Due to the increased incidence of flu-like illnesses the hospital services came under significant pressure, especially with the limited isolation facilities. Evidence of internal transmission was seen on a number of wards, with Windsor and Necton Wards closed to admissions for short periods in order to control further spread. Bed pressures, lack of single side-rooms (isolation facilities), lack of doors in bays were all identified as having contributed significantly to delays in isolating symptomatic patients and the transmission of influenza. In addition, poor infection control and suboptimal cleaning practices was another important factor for the transmission.

The Consultant Microbiologists and the Infection Control team recognise that POCT (Point-of-Care Testing) for influenza in our admission area is important for several reasons: improving individual patient care, infection control and epidemiological monitoring. It is recommended that POCT is implemented for influenza as part of our influenza management plan for 2018/19 and the Trust is discussing with the EPA about their role in supporting the implementation of this during the next reporting period.

4.0 Criteria 2 - Environmental Cleaning and Decontamination

Environmental cleaning is provided in-house by a Domestic team which sits within the portfolio of the Finance Director.

Day to day management of the team is provided by the Head of Facilities, who is also responsible for portering, catering and security.

A supervisory team oversee standards of both daily and infection cleans. Cleaning schedules are devised based on recommended NHS cleaning frequencies and are currently under review. Assurance is via C4C (cleaning 4 credits) audits and Matrons/ Ward Managers are actively invited to attend these.

When challenges were seen with rising numbers of *C. difficile* cases the Trust executive team sought external expert advice and support from NHSi, this has included on site visits, peer review, outbreak stakeholder participation and support to the IP&C team and DIPC. This expert help continues into this next year.

During this year an in depth review of cleaning has taken place, issues have been identified about the standards of general and infection cleaning processes and methods. A review of environmental cleaning has been undertaken and a Subject Matter Expert was sought and reviewed compliance with the National Standards for the cleaning of NHS Hospitals (NPSA (April 2007) The National Specifications for cleanliness in the NHS). Cleaning schedules, resources, including staffing and training were included in the review. Standards and assurance of cleaning is included in the IP&C work plan for the coming year.

Cleaning of clinical/near patient equipment is undertaken by nursing and housekeeping staff with oversight by the matrons. During this year a review of the products used for cleaning, including cleaning wipes has been undertaken. New products have been introduced to aid effective environmental decontamination and improve compliance with cleaning of equipment. A full training programme has been undertaken.

4.1 Estates

The Estates team sit within the portfolio of the Finance Director and are managed by the Acting Deputy Director of Estates and Capital Development.

The ageing estate presents challenges with IP&C and a constant maintenance programme is required. A major ward refurbishment programme is needed and planned plus work due to the roof requiring replacement.

The IP&C and Estates team work together closely on water and ventilation compliance and the IP&C team attend Estates committees and advise on building works in relation to IP&C risks. The IP&C, Domestic and Estates teams undertake regular 'walk arounds' to identify issues requiring attention.

The Queen Elizabeth Hospital NHS Foundation Trust has an explicit duty under the Health and Safety at Work Act 1974 to assess and manage the risks posed by water systems on the premises.

The Water Safety and Ventilation Group (WSVG) was formed to provide assurance around water safety and ventilation. Comprised of a multi-disciplinary group of staff, the group advises on the remedial action required when water systems or outlets are found to be contaminated and the risk to susceptible patients is increased.

Meetings are held quarterly and concerns/information/items for escalation are raised via Chair's Key Issues (CKI's) to the Hospital Infection Control Committee (HICC).

Water Safety – Pseudomonas

In accordance with HTM 04-01 (Addendum) the Trust is required to check for the presence of pseudomonas aeruginosa in augmented care areas. The Trust has identified the following areas as augmented care:

- Critical Care Complex (ITU and Coronary Care)
- NICU
- Rudham
- Shouldham
- Macmillan
- Dialysis

All taps are sampled twice a year (March and September) with additional sampling taking place as required and in response to any remedial action which has taken place.

- March samples – Shouldham main ward tap had to be removed, thermally disinfected, descaled and replaced – re-testing was clear.
- March samples – Dialysis Unit – Pseudomonas aeruginosa identified in all four ward taps. Following discussion with the unit which is run by Addenbrookes and Fresenuis the ward taps have been replaced – re-testing was clear.

Water Safety – Ice Machines

There are seven ice machines on the Hospital site in the following areas:

- Shouldham Ward
- Critical Care Complex
- Rudham Ward
- Physiotherapy (ice not consumed)
- Marham/Leverington wards (shared)
- Necton/Oxborough wards (shared)
- Stanhoe ward

All machines, apart from the physiotherapy machine produce ice for consumption by staff and patients. The ice machines are of the non-touch type with the exception of the physiotherapy machine which is bin-style of machine and the ice is for therapeutic use only.

Every 3 months the machines are removed from site by an approved Estates contractor, cleaned, de-scaled, sanitised and returned. Ice samples are taken every 3 months according to a standard operating procedure (SOP) and sent to an external accredited laboratory to check the ice for the following:

- Total Viable Colonies (TBC) at 22 degrees C
- TVC at 37 degrees C
- Enterococci
- E.coli
- Coliforms

This is in accordance with the Water Supply (water quality) regulations 2016.

Water Safety – Legionella

The Trust had a statutory responsibility to take appropriate measures for the control of all water-borne microorganisms, including Legionella. Regular temperature checks and surveillance is in place to monitor the water system and if the organism is identified, remedial action is taken. Positive results were returned from the Dialysis Unit, which was traced to flexible pipework. This was removed and subsequent re-testing was clear. Positive results were also returned from Peckover ward kitchen tap, which was traced to a calorifier – again, remedial action was taken and the re-test results were clear.

Ventilation

The Trust's requirements are managed by the Estate's team with oversight from the AE (ventilation).

M.A.T. (External ventilation contractor) were appointed to carry out the 2018 critical ventilation verifications across the site in accordance with the HTM.

The pharmacy aseptic suite ventilation system was cleaned, dampers tested and AHU serviced. This work was verified – no issues were identified and will be completed in September.

Design and specification for the ventilation system upgrade for NICU was tendered 31.05.18 and the order has been raised to Dalair Ltd for the supply of the Air Handling Unit as an enabling order to minimise lead time to delivery for this critical component, scheduled for completion by the end of November. This project will required NICU to be decanted to another ward.

Plans to upgrade the ventilation in Sterile Services are in progress, as in order to maintain their accreditation they require a certificate of compliance. There are currently issues with this compliance and external advice has been sought and a design has been drawn up and is awaiting approval.

Decontamination

The Trust has a decontamination committee with oversight from the appointed AE (decon), again, decontamination is a sub-committee of HICC and provides assurance in the from of a newly developed report to HICC.

In accordance with HTM 01-06 and ISO BS EN 15883 the Trust is required to check water quality Weekly, Quarterly and Annually. With the exception of the annual tests all samples are collected in house an sent for testing using the testing facilities/laboratories of ALS Limited.

Endoscopes should be rinsed after the disinfection stage to remove any residual chemical toxicity. The rinse-water should be free from extraneous material, both inorganic and organic, including microorganisms, which could compromise the patient. Weekly total viable counts (TVCs) are made on the final rinse-water. This water is collected from the EWD bowl/chamber, it will have passed through the water treatment system and internal pipework of the machine. The TVC results will give an indication of the water treatment system performance and microbial colonisation of the EWD pipework. Below can be seen a guide

explain how to interpret the results obtained with actions that may be required in the event of a TVC result in excess of 10 cfu 100 ml.

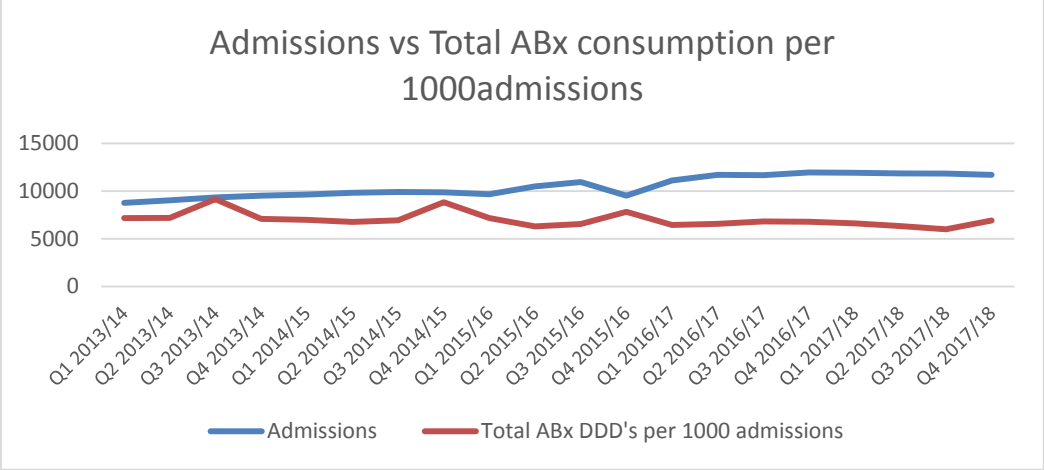
Cleaning for Credits audits provide assurance and information regarding estates' issues. A deep clean programme is planned for this year and estates' repair work is included as part of the work schedule.

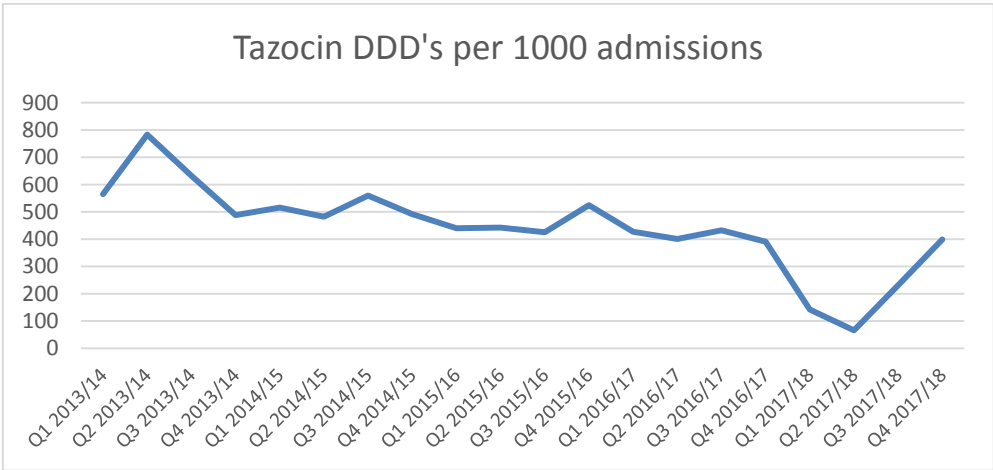
5.0 Criteria 3 - Antibiotic usage

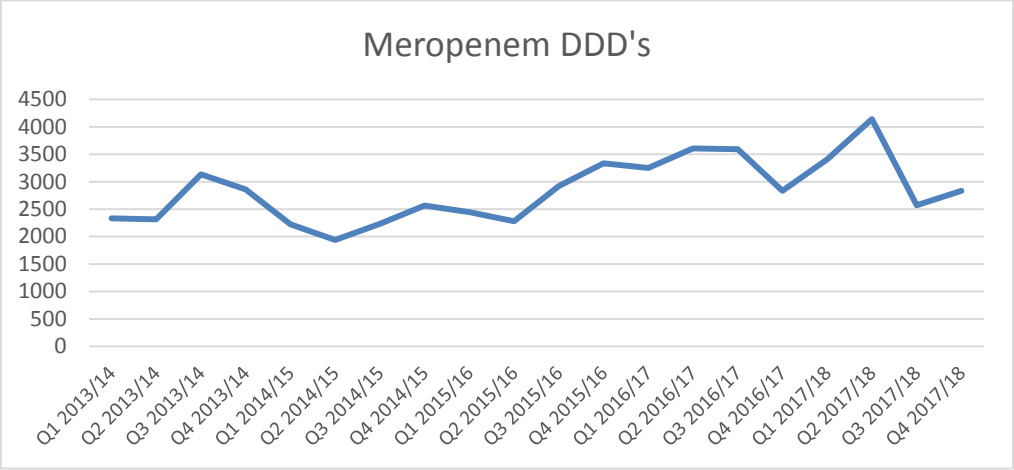
The Trust has 0.5 WTE antibiotic pharmacist who sits within the pharmacy budget. They are members of the IP&C team who attend the HICC committee, RCA and outbreak meetings. They also play an active part in *C.difficile* ward rounds and work closely with our consultant microbiologists to improve antibiotic prescribing. They also are involved in the running of the community OPAT service.

CQUIN targets 2017/18 achieved in relation to reduction in total antibiotic consumption, piperacillin-tazobactam consumption, and carbapenem consumption.

- CQUIN target 2017/18 achieved for review by appropriate grade of staff within 24-72 hours of antibiotic initiation:



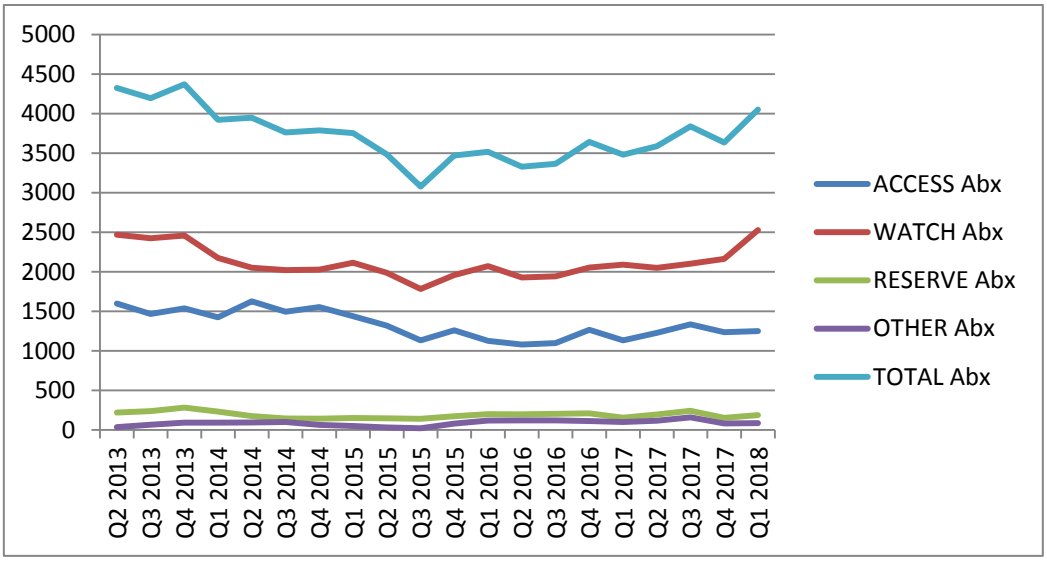




	Number of patients	Number of antibiotics	Number of IV antibiotics	Evidence of review < 72 hours	%age	Reviewed by appropriate member of team	%age	Target %age
Q1	30	43	40	40	93	39	91	25
Q2	52	73	64	66	90	60	82	50
Q3	39	49	41	48	98	45	92	75
Q4	31	39	32	39	100	37	95	90

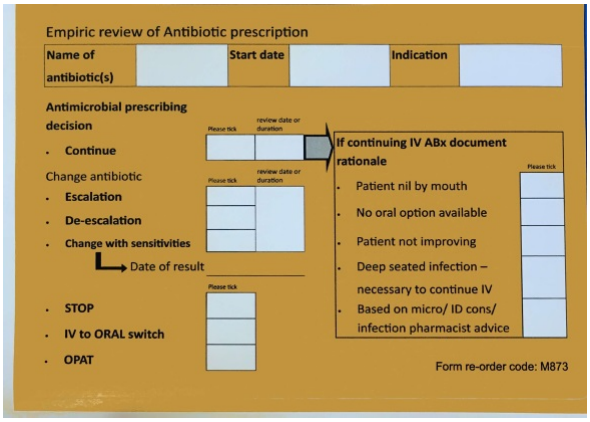
Going forward to 2018/19 the target will be more difficult to achieve:

- Consumption targets include a continuing reduction in total antibiotic consumption and carbapenem consumption, but also an increase in the proportion of ACCESS antibiotics utilised (modified from the World Health Organisation) - currently there is a limited utilisation of this group of antibiotics.



- More detail will be required to be documented in the patients' health records at point of antibiotic review, including documentation of antimicrobial prescribing decisions.

  Antibiotic review sticker developed to achieve this - investment and participation from medical staff required to be successful with implementation:



The Antimicrobial Stewardship group currently consisting of two Consultant Microbiologists and 0.5 WTE Antimicrobial Pharmacist. There is a designated antibiotic pharmacist employed by Pharmacy (0.5 WTE) who incorporates antibiotic stewardship as 50% of the job role; during this reporting period it has been recognised that additional resources have been required for this activity and a business case to increase this post to 1. 0WTE has been approved and this post is now being advertised.

Due to the limited availability of an antimicrobial pharmacist during 2017/18 the contribution to the antimicrobial stewardship programme was also limited:

- The Consultant microbiologists contribute to ward-focused antimicrobial stewardship with their participation in the ICU MDT (multi-disciplinary team), the Haematology MDT, the diabetic foot clinic and providing daily ad-hoc telephone clinical advice to the clinicians.
- An additional Consultant Microbiologist (or Infectious diseases specialist) is required to support the antimicrobial stewardship programme and the Trust is discussing the resources required for this with the service provider EPA.
- *C.difficile* Ward round: The ICD Lead Consultant Microbiologist and the IPC Nurse perform weekly multidisciplinary wardrounds for all inpatients with *C. difficile* infections and colonisation.

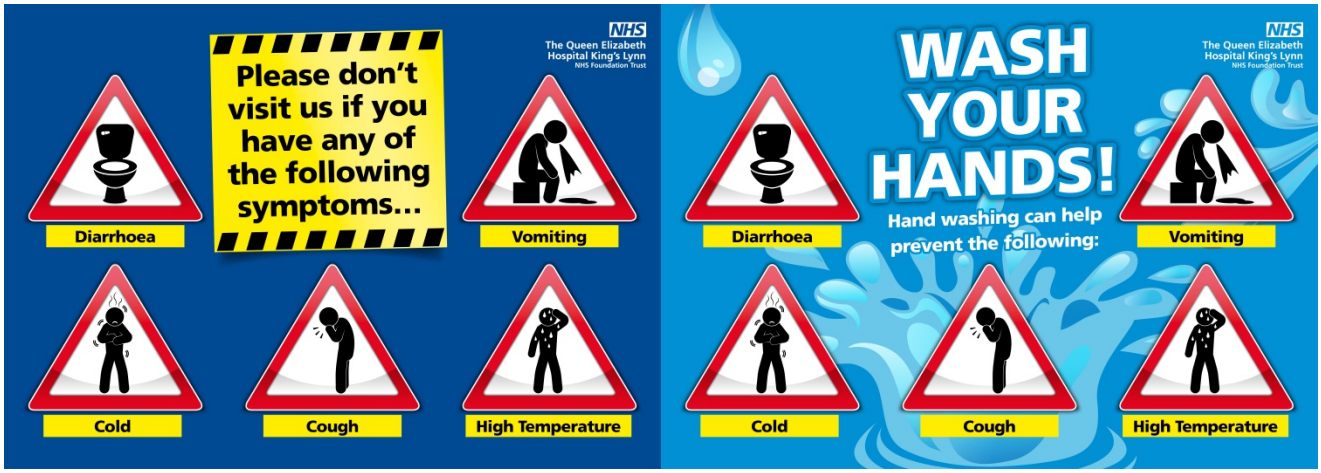
6.0 Criteria 4 – Providing Information to service users and acting on concerns

6.1 Patient information

A review of patient information leaflets and updating of the Trust's IP&C external internet site has been undertaken this year. Information leaflets are available to patients and visitors on MRSA, *C. difficile*, Norovirus and CPE. The leaflets are available electronically and in paper form with displays in admission areas and outpatients. These are updated and reviewed regularly and provide advice on prevention, management and treatment of infections.

6.2 Winter awareness campaign

The IP&C team and Communications department worked together to produce a winter campaign giving advice and information about infections during winter, this included Influenza and Norovirus. Banners and posters were displayed around the hospital and hand hygiene was encouraged at the front entrance with sinks in place to promote handwashing on entering the building:



6.3 Communication with patients with infections

The IP&C Team use a system that identifies patients with infections (alert organisms) such as MRSA, *C. difficile*, Norovirus, Influenza etc. Once results are imported the IP&C team visit the ward concerned to relay information to clinical staff and document the advice given. The team are also available to provide support for patients, relatives and clinical staff should this be required. For patients that have been discharged, the team send a letter to inform GPs of any results that may require attention.

The IP&C Team also have close links with other acute trust IP&C teams and community partners to share information relevant to the care of individual patients as well as local outbreaks that could impact on care in other organisations.

7.0 Criteria 5 - Prompt identification of people with Infections and Prevention of Spread.

7.1 Identification of patients with infections.

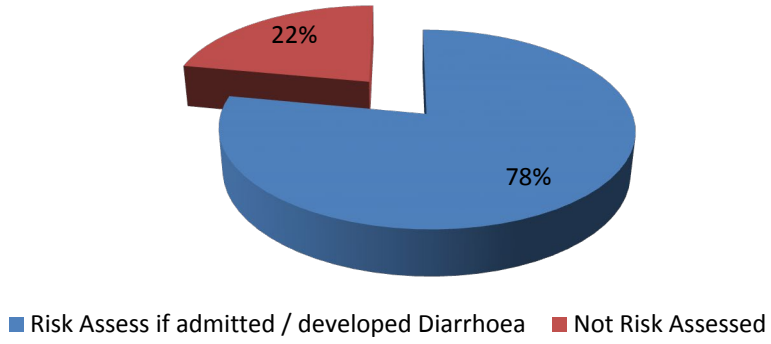
The IP&C Team use a system called ICNET that is linked to both Laboratory systems and Patient Centre. This system imports patients' results on an hourly basis and allows the team to act and identify patients that require treatment and medical review. This also assists in the surveillance of infections throughout the Trust and the wider community and allows the IP&C Team to assess risk and manage both individuals and groups of patients within the Trust, using isolation facilities effectively, advising on the correct IP&C precautions and monitoring any outbreaks that may or have occurred. New laboratory testing methods have meant that upgrades to this system have been required this year to include the new PCR testing for all stool specimens sent for Microbiology. The IPC team is looking at new ways of working with

James Paget Hospital and the Norfolk and Norwich University Hospital to share an upgraded ICNET system across all three trusts.

7.2 Assessment of patients with risk factors for infections

7.2.1 Diarrhoea & Vomiting (D&V) risk assessment

A D&V risk assessment tool is used across the Trust to assist in the management of patients that develop or are admitted with diarrhoea and/or vomiting. The tool allows staff to identify risk factors for infections such as *C. difficile* and viral gastroenteritis (including Norovirus). This tool assists with the ongoing management of patients and allows the effective use of isolation rooms by identifying patients that are at a higher risk. Compliance with using the tool has been audited as part of the annual audit of stool charts and further training and awareness in its use has been implemented throughout the year. The chart below illustrates the number of patient's assessed using D&V assessment tool.

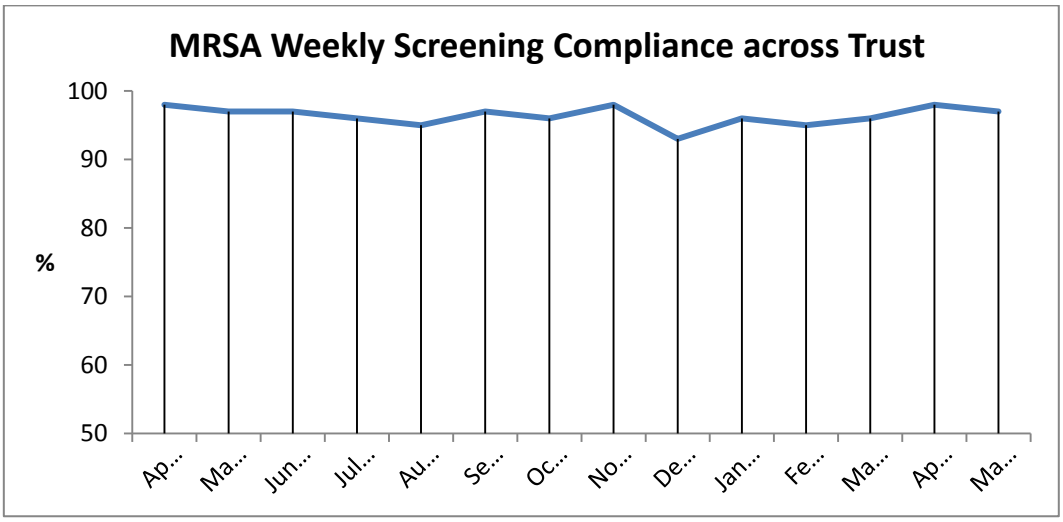


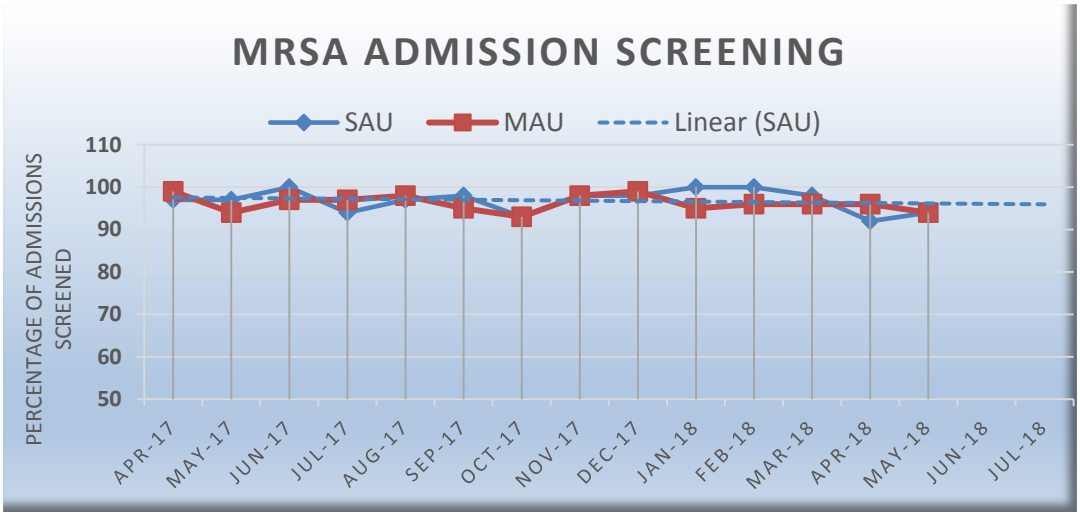
In order to improve compliance the IP&C team have undertaken further training and awareness regarding this. A&E and other admission areas have a large stock of forms so they are able to assess patients on admission, which helps with the identification of patients requiring isolation. When the IP&C team are called reading suspected infectious patients they request the form is completed prior to review from the team.

7.2.2 MRSA Screening

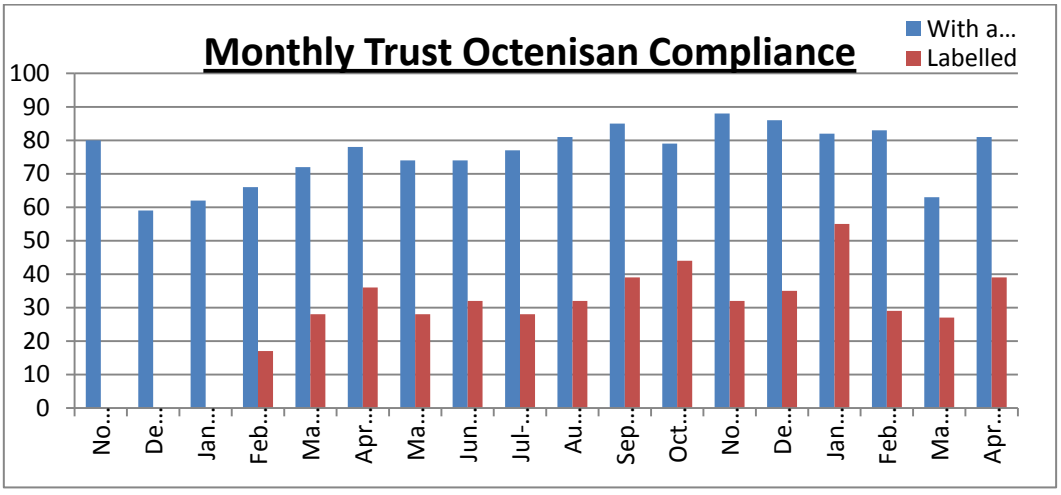
MRSA screening is undertaken on all patients with screening on admission for unplanned (emergency) admissions and as part of the pre-assessment process for planned (elective) admissions. In addition patients are screened for MRSA weekly and this is monitored via the weekly quality dashboard.

Both admission screening and weekly screening remain above 90%:

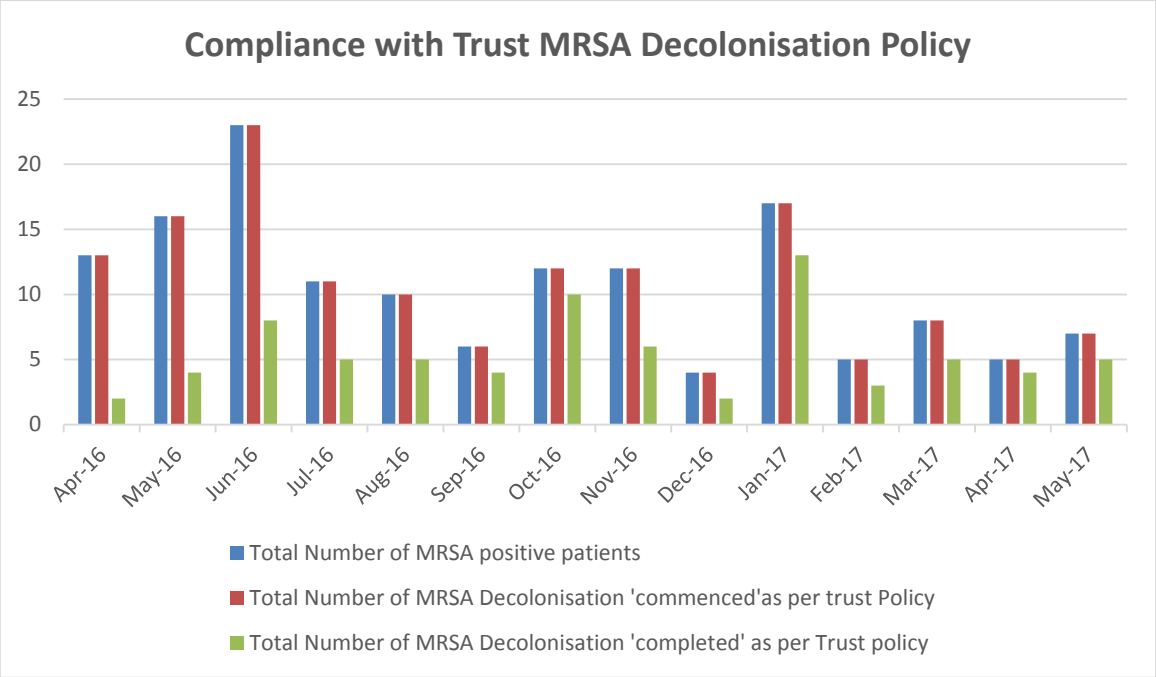


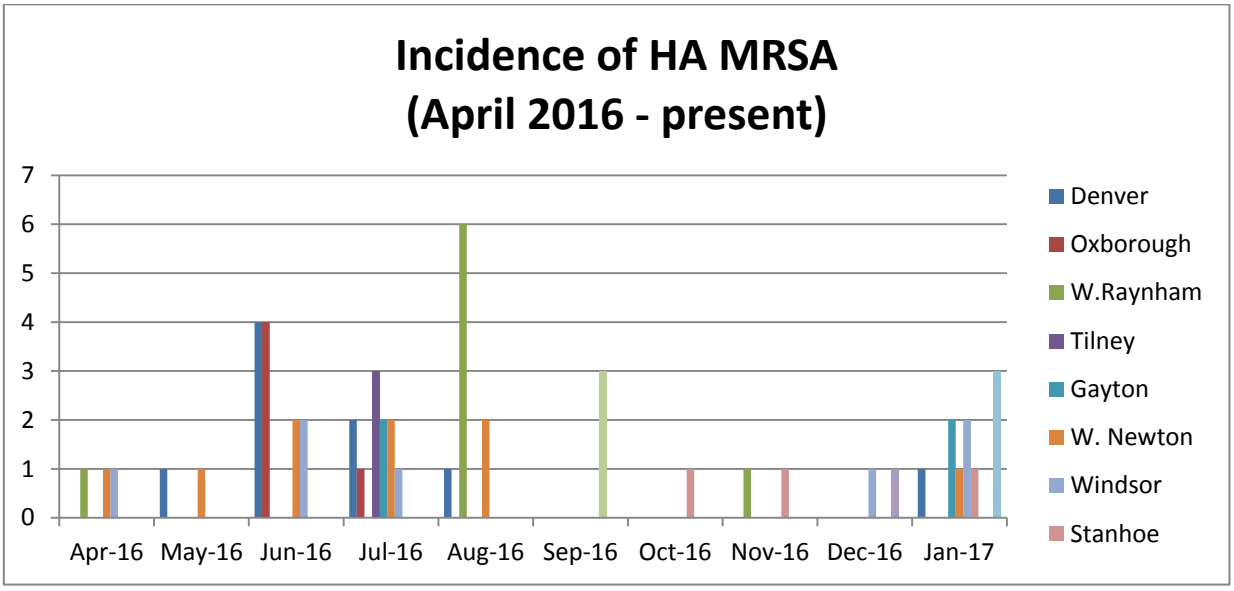


In addition to weekly screening all inpatients are offered Octenisan body wash for the duration of their stay as a measure to prevent MRSA acquisition and invasion into the blood stream. Admission areas are excluded from this and compliance is monitored via audit on a monthly basis. The implementation of this programme in 2015 has reduced the numbers of inpatients that acquire MRSA colonisation whilst in the Trust. Compliance with the use of Octenisan has steadily increased this year:



MRSA treatment compliance is also audited and patients that screen positive to MRSA and are colonised are prescribed topical decolonisation. All patients are followed up and compliance with the full course of treatment is audited. This is fed back to Ward Managers, Matrons and Clinicians.



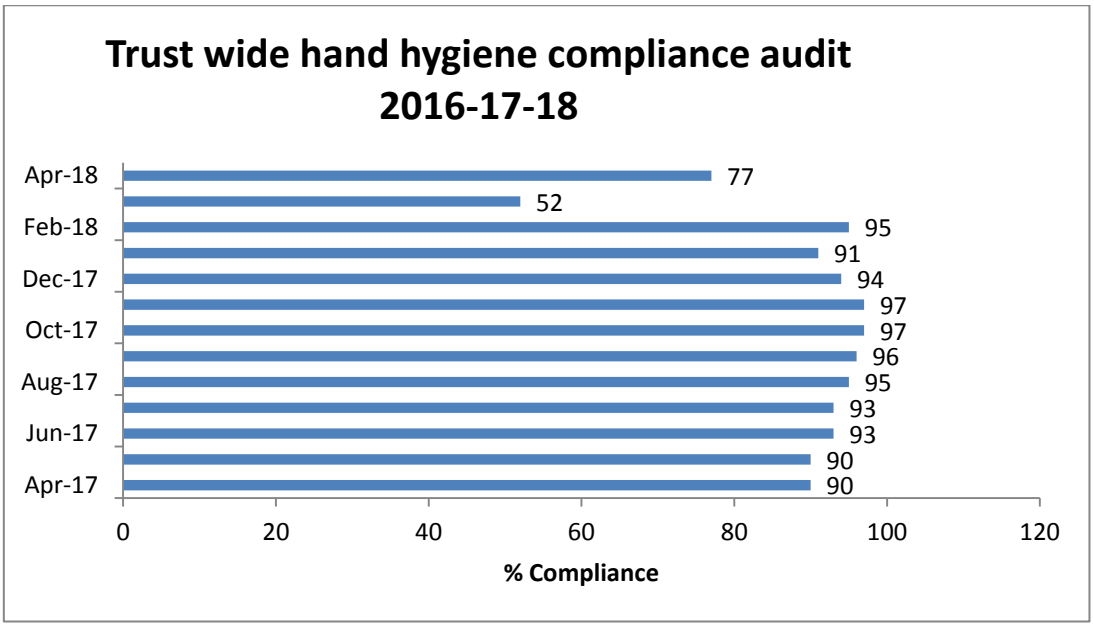


8.0 Criteria 6 - Systems to ensure all care workers are aware and undertake responsibilities for IP&C

8.1 Hand Hygiene

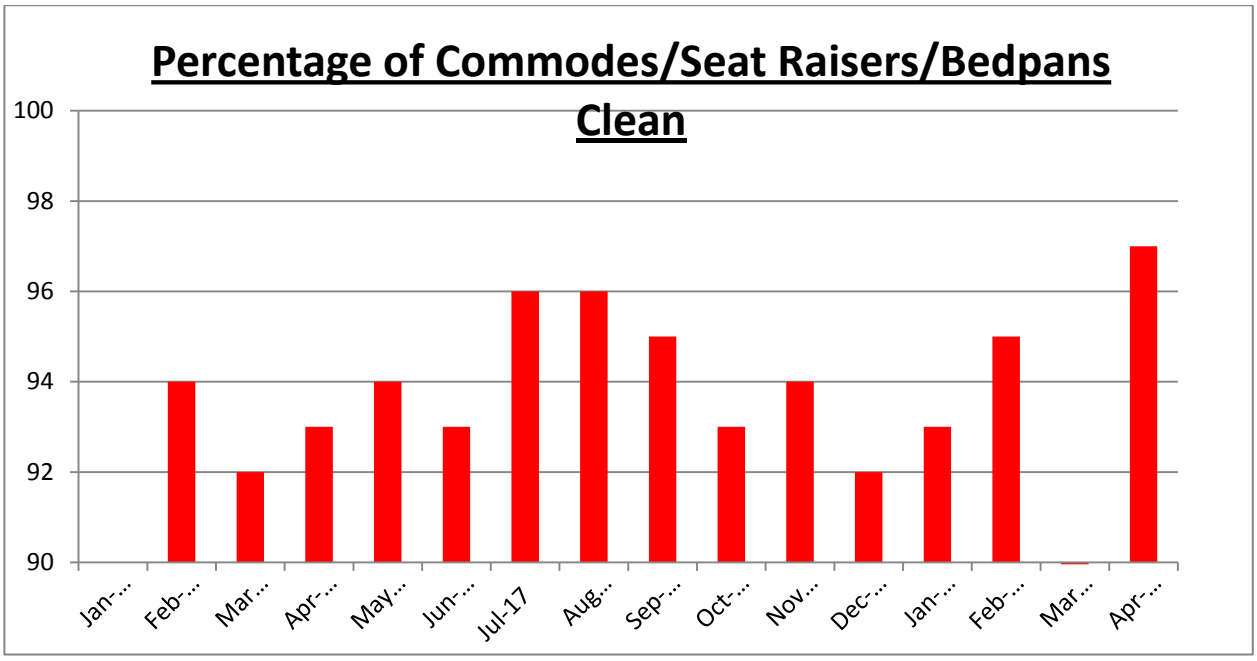
Hand hygiene remains the key intervention for preventing infections. As a key performance indicator, hand hygiene audits are undertaken by the IP&C team every two weeks on all adult medical and surgical in-patient wards. This data is reported on the weekly Quality dashboard for the Trust and is shared with Ward Managers, Matrons and Clinical Directors.

During 2017/8 the Trust has driven compliance with 'bare below elbows' and hand hygiene in response to *C. difficile* and Influenza outbreaks. A check and challenge process has been implemented in which staff at all levels are encouraged to actively challenge and remind each other of the importance of hand hygiene. Executive Team support has been crucial in raising the importance of this across the Trust and Executive walk rounds have helped in role modelling and raising awareness.



8.2 Commode and bed plan cleaning

The cleanliness of high risk items such as commodes and bed pans is key to preventing the spread of enteric organisms such a *C. difficile* and Norovirus. The IP&C team undertake two weekly audits on all inpatient areas (medicine and surgery) this is reported as part of the weekly quality dashboard and results are fed back to the ward at the time of audit. Compliance with this has consistently improved since these audits commenced in 2015.



March data not available as audits not undertaken due to IPC workload

8.3 Supportive measures

Supportive measures are implemented on a ward if concerns are raised around infections rates ie two or more *C. difficile* cases in a 28 day period or on-going Norovirus transmission. They are also used if the ward is consistently under performing in audits such as poor hand hygiene or poor environmental decontamination. The Supportive measures programme includes extra auditing, education and support from the IP&C Team. The aim is for the ward to understand where concerns are and provide actions to improve standards – ownership of their own IP&C practice.

These measures have been used on a number of areas in the past year including those where *C. difficile* outbreaks and PIIs have occurred and this has provided assurance that standards in these areas have improved and sustained.

8.4 IP&C Dashboard Data

An IP&C monthly dashboard is updated at the start of each month and the data forms part of the monthly board report and is shared with all managers. Each ward area has its own separate dashboard with information to share with ward staff. There is also an outpatient's dashboard which includes Radiology and other clinical areas.

Example ward dashboard:

Ward	C4C	Environmental	HH	Commode	Octenisan	ANTT numbers	MRSA screening	C Diff Toxin	MRSA Bact	MRSA Colonisation	E Coli Bact	MSSA Bact	Noro HA	Clinell Wipes	Stool chart completed daily
A&E	97	96	63	100	N/A	33	N/A	0	0	0	0	0	0	14	N/A
CDS	93	No Audit	No Audit		N/A	13	N/A	0	0	0	0	0	0	6	N/A
CCU/ITU	97	No Audit	94	100	N/A	61	100	0	0	0	0	0	0	16	N/A
Elm	88	83	64	100	52	16	98	0	0	0	0	0	0	3	33
NICU	94	100	88		N/A	16	N/A	0	0	0	0	0	0	9	N/A
Castleacre	91	98	100		N/A	23	N/A	0	0	0	0	0	0	5	N/A
Denver	87	92	87	100	90	15	100	0	0	0	1	0	0	4	68
Gayton	93	No Audit	78	100		15	96	0	0	0	0	0	0	10	43
Oxborough	95	87	74	100	94	13	100	1	0	0	0	0	0	10	69
Marham	93	95	78	100	60	20	99	0	0	0	0	0	0	8	60
MAU	96	95	58	100	N/A	15	96	0	0	0	0	0	0	7	8
Necton	95	86	73	96		20	97	0	0	0	0	0	0	6	No Audit
Rudham	96	98	100		N/A	17	N/A	0	0	0	0	0	0	5	N/A
SAU	88	83	68	100	N/A	18	98	0	0	0	0	0	0	4	14
Shouldham	95	99	82	88	92	12	92	0	0	0	0	0	0	9	66
Stanhoe	98	95	75	90	64	20	97	0	0	1	0	0	0	16	13
Terrington	92	96	44	100		15	88	0	0	0	0	0	0	13	38
Tilney	98	91	94	100	70	11	97	0	0	0	0	1	0	10	12
W Newton	96	No Audit	82	100	93	16	94	1	0	1	0	0	0	7	11
W Raynham	95	No Audit	74	100	81	16	99	0	0	0	0	0	0	5	31
Leverington Esc	95	89	54	89	45	1	84	0	0	0	0	0	0	1	22
Windsor	96	87	87	100	94	19	88	4	0	0	0	0	0	9	19
Mar-18															

8.5 Education

Mandatory training for IP&C has continued throughout this year and the significance of the outbreaks within the Trust has been highlighted as part of these sessions. In addition this year, bespoke training sessions have been undertaken in certain areas. For example a full study day was undertaken for Stanhoe Ward staff and this included training on the use of cleaning wipes, a mock Coroner's Court and feedback on root cause analysis findings. The domestic team have also received IP&C training, including the importance of their role in IP&C. Training in the correct usage of products such as cleaning wipes and cannulation packs has been undertaken with the support of the suppliers of products.

Ad hoc training has also taken place and has included guidance in sending stool samples, isolation precautions, correct usage of personal protective equipment and Octenisan.

ANTT training is included as part of the IV study day and is led by the Practice Development Nurse (PDN) team and the IT training package is available on the Trust's intranet site and includes documents to measure and confirm competencies.

The NHSI IP&C Nurse has also supported the Trust by providing a master class training session for the Matrons exploring their roles and responsibilities in relation to IP&C. This was then disseminated to Ward Managers by means of a presentation undertaken at the Nursing and Midwifery Board by the Lead IP&C Nurse.

The DIPC has also undertaken an IP&C awareness session with the Board, as well as providing regular updates on the Trust's current IP&C status.

Clinical practice is audited using high impact intervention tools (HII's) and ANTT documentation for assurance on compliance. In addition the IP&C team undertake bespoke audits to support wards that are highlighted with either higher than usual numbers of infections or concerns raised re practice. These include environmental, PPE compliance, hand hygiene, isolation and cleaning of clinical equipment.

9.0 Criteria 7 - Provide adequate isolation facilities

In total the Trust has 515 beds, 53 (11%) of these are single rooms and most of these are without ensuite toilet facilities. In comparison, the percentage of single-bed rooms as a proportion of total available beds in England and Wales is currently above 36%. (https://www.gov.uk/government/news/mixed-sex-breaches-hit-a-record-low). This makes managing the isolation of patients across the Trust very challenging. In order to use the available single rooms most effectively the IP&C undertake a daily review of all the single rooms across the Trust as well as patients under isolation precautions within bays. Using risk assessments these are RAG rated to allow effective management of the most high risk patients. This is shared with the site team on a daily basis.

The limited number of single side-rooms (isolation facilities) and the lack of doors in bays have contributed to the ability to isolate symptomatic patients and limiting transmission of Clostridium difficile and airborne pathogens (e.g. influenza) in a timely manner.

During the past year this has been difficult as there were high numbers of patients with Influenza throughout Jan 2018 to March 2018. In order to isolate effectively, cohort bays were set up for patients with confirmed results as well as those awaiting results.

A number of times throughout the last year Stanhoe Isolation Unit (for *C. difficile* patients) was extended to seven or twelve beds due to the high number of patients within the Trust with confirmed *C. difficile.* This area was also deep cleaned in July 2017 when Stanhoe was identified as one of the wards with *C. difficile* transmission.

Wards closed to admissions due to infection this year (note wards not closed for whole month(s) but number of days within that month) :

Ward	Infection	Date
Stanhoe	C. *difficile*	July 17 and Sept 17
Windsor	C. *difficile*	July 17
Elm/Denver/SAU	C. *difficile*	Sept 17
W Newton	C. *difficile*	Jan 18
Necton	Influenza	Feb 18
W Raynham	Influenza	Jan 18
Windsor	Influenza	Jan 18

10.0 Criteria 8 - Laboratory Support

Laboratory services for the Trust are provided by the Easter Pathology Alliance (EPA). The EPA is a partnership between the Norfolk and Norwich University Hospital (NNUH), James Paget University Hospital (JPUH) and The Queen Elizabeth Hospital, King's Lynn. The microbiology laboratory is based at NNUH. Microbiology support is from EPA, with two Consultant Microbiologists based here at this hospital.

Over the weekend microbiology and infection control advice is provided on an on call basis via EPA. Virology support is based at the NNUH laboratory through EPA and out of hours virology advice cover is shared with Virologists at Cambridge University Hospitals NHSFT.

Microbiology has repatriated a number of tests during 2017. These include a six day fully comprehensive Mycobacterium Tuberculosis (Tb) service where initially the Tb culture component was a sent away test. This allows the IP&C team to act on results quickly and reduce cost of testing for the Trust.

With Microbiology undergoing a technological revolution, the department has also added real time on site molecular testing for Carbapenemase-resistant micro-organisms. The department also now offers all Helicobacter testing on site. Following the approval of the business case for real time molecular testing for enteric pathogens, the department is offering this state of the art service to its users. The key benefits offered by this methodology include significantly more sensitive methods compared to traditional culture methods, detection of additional pathogens (VTEC) currently not identified through traditional culture methods and significantly faster turnaround times (improved from three - five days to the next working day).

EPA Microbiology laboratory has decided to discontinue the glutamate dehydrogenase (GDH) test in the *Clostridium difficile* testing algorithm. The GHD is a very sensitive but is a poorly specific assay for *C. difficile*. Since the introduction of *C. difficile* PCR to detect toxigenic strains as the first test of the two tests screening protocol, the clinical utility of GDH became doubtful and redundant. The new the algorithm and how to interpret the results was presented and explained to the clinicians (already from 2016) and is part of their Trust IP&C induction and mandatory training.

From September 2017, the Legionella pneumophila antibody testing service was stopped. The antibody test is no longer a recognised method for the diagnosis of Legionella disease by centres in the United Kingdom and Wales. Most rely on the urinary antigen detection method only.

During the MRSA outbreaks and IP&C challenges that occurred last year, additional samples from the staff MRSA mass screenings were processed over weekends and all requested MRSA

specimens were sent for whole genome sequence. During the influenza season, additional respiratory PCR runs for respiratory viruses were performed due to increased number of tests required and the demand for faster turnaround time.

The laboratory is receiving a high number of microbiology samples from the hospital that have pre-analytical errors (e.g. missing ward name, missing hospital number, NHS number, missing clinician/requester and missing clinical details). The Trust's pre-analytical error rate is approximate 15% (in comparison to the NNUH which has approx. 2%). Those pre-analytical errors usually happen when laboratory requests are handwritten. Such errors are expected to cease when an electronic request system (example electronic request on ICE) is implemented. Notwithstanding assurance that the ICE electronic request system should have been implemented at the Trust within 2017, the organisation still uses handwritten requests. This has become a matter of serious concern and was escalated to the Medical Director. The Medical Director has liaised with the relevant clinical teams and highlighted the importance of correctly labelling specimens and continues to be actively monitored. A date for the implementation of electronic requesting in the Trust is to be confirmed.

Specimen reception: The EPA is looking into standardisation of sample reception processes across the Network. Estimated time to completion: 31/12/18.

11.0 Criteria 9 - IP&C Polices

A number of policies have been updated this year and ongoing review of all polices is planned for the coming year. In addition, a new policy on IP&C operational management has been introduced and includes guidance for the Trust Site team on the management of patients with infections and a guidance list to assist with the use of isolation facilities.

In addition to a review, some polices are being rewritten in light of the issues that have been identified from the recent outbreaks. The cleaning and disinfection of the environment policy is currently being reviewed and will include guidance for cleaning using red/amber/green criteria depending on the level of risk associated with the patient's infective status. The domestic team are implementing method statements, schedules and assurance measures to determine and evaluate the standards of cleaning undertaken by their team. The nursing teams are undertaking a review of the cleaning undertaken by housekeeping and clinical staff to ensure clarity of roles and responsibility, oversight and monitoring are in place.

A full list of polices is available on the Trust intranet site and can be accessed by all staff.

12.0 Criteria 10 - Occupational Health

Flu – The flu vaccination figure for frontline staff for 2017/18 was 79%, which was the best result the Trust has achieved to date. The Trust received 100% payment for the CQUIN.

A high level of engagement was provided by 'peer vaccinators' and 'drop in' clinics occurred each day to support all shift patterns and weekends. There was also a 'mobile trolley service' visiting wards and departments. The Occupational Health department will start its preparation for this coming season's campaign this month.

In relation to the national programme to improve 'Health and Wellbeing' a Trust employee has taken on the responsibility of being the Health and Wellbeing Coordinator and will support the Trust to deliver improvements in staff health and wellbeing.

The Trust also achieved 100% payment for the Healthy Foods CQUIN.

Hepatitis B

- Since the mid-2017 the UK has experienced a shortage of hep b vaccine due to global manufacturing issues. In response to the shortage, PHE developed temporary recommendations on hep b vaccine use including risk-based prioritisation of vaccine, dose-sparing and deferral of boosters.
- We following this advice along with the advice from the JCVI. This change will be reflected in the next version of Chapter 18 of the Green Book: Immunisation against Infectious Disease.
- To date we have been able to order and receive stock with no problem.
- Hep b vaccine remained available for those at highest immediate risk, i.e. PHE priority groups 1-3, including vaccine for post-exposure vaccination and for pre-exposure vaccination of high risk groups such as healthcare staff undertaking exposure prone procedures.
- From spring 2018m hep b vaccine became available for individuals in priority group 4.
- Please refer to the PHE document February 2018 – plan for phased re-introduction of hepatitis B vaccine for lower priority groups – implications for NHS and non-NHS occupational health providers.

Measles

- Measles vaccine is contained with the MMR vaccine and is available in OH for those employees unable to provide sufficient evidence of immunity. Two doses of the vaccine administered one month apart are considered sufficient to assume immunity. All employees in regular patient contact are required to provide evidence of immunity to measles. Satisfactory evidence of protection would include documentation of: Having received 2 doses of MMR, or a positive antibody test for measles.

Needlestick Injuries

Over April 2017 to March 2018 we had 3 staff members who were commenced on post exposure prophylaxis (PEP) all 3 were able to discontinue PEP following conformation on the source bloods (high risk patient/incident – source bloods when tested – no BBV's detected)

Month	Number
April	7
May	7
June	10
July	13
August	8
September	9
October	9
November	7
December	9
January	10
February	8
March	6

13.0 Priorities and strategy for coming year:

- Strengthen IP&C team, including infrastructure (ICNET System updates and surveillance software) and manpower to undertake surveillance and analysis within the IP&C Team.
- On-going work on antibiotic prescribing with the wider health economy.
- Improve and sustain standards, methods and assurance around all aspects of cleaning.
- Recruit to vacancies in the IP&C team and Pharmacy teams, and consider the options for increase in resource required for consultant Microbiology activity.
- Work to improve clinical standards of IP&C across the Trust to ensure consistency in all areas.
- Continue to raise awareness of IP&C and encourage ownership of responsibilities within all staff roles.
- Undertake deep clean programme across the Trust using a decant area to facilitate repairs, deep cleaning and HPV usage.
- Replacement of NICU ventilation system.
- Undertake collaborative work with the CCG to reduce numbers of gram negative BSIs across the region.
- Continue to work with outside parties and regulators to improve standards of IP&C across the Trust and reduce rates of *C. difficile* and other alert organisms.
- Prepare for 2018/19 influenza (flu) including implementation of POC testing onsite
- IT updates including electronic prescribing and requests.
- Review of current isolation facilities and requirements for QEHKL