

Board of Directors (in Public)

Item 2.2a

Subject: Infection Prevention & Control Annual Report
Date of Meeting: Tuesday 28th July 2020
Prepared by: Nicola Best, Infection Prevention Nurse
Presented by: Dr Raph Perry, Medical Director & Deputy CEO
Purpose of Report: To Note

BAF Ref	Impact on BAF
1.1,1.2	None

1. Executive Summary

This report details the infection prevention and control arrangements and discusses the achievements that have been made to prevent healthcare associated infections (HCAIs) during the financial year 2019/20

This paper provides assurances that surveillance systems and audit and education programmes are in place, to monitor and prevent healthcare associated infections.

The initial preparation and response to the Covid 19 pandemic are described.

2. Background

The prevention and control of HCAIs is an important part of both the patient safety and clinical quality agendas. The Trust has a responsibility to ensure that appropriate arrangements are in place to protect patients, staff and visitors against the risk of acquiring a HCAI, as detailed in the *Health and Social Care Act (2008)*. There is also a requirement to produce an annual report on Trust activities, in relation to infection prevention and to make this available to the public. The report is provided below and will be made available on the Trust website.

3. Covid-19: Response and Preparedness

The first UK case of coronavirus in the Covid 19 pandemic presented on January 29th.

The trust had been preparing for the coronavirus pandemic from early January 2020. Plans were in line with national and regional guidance and a clear governance structure was established.

The emergency planning structure was established and a Covid19 response team put in place. There is daily operational feedback meeting at 07.30 chaired by the CEO where gold command decisions are shared with a wide range of staff. There is a strong executive presence and daily issues are addressed with the clinical and non-clinical teams.

A gold command meeting (Executive and Senior Medical & Nursing Leaders) takes place every day at 08.15 in the conference room. Various additional staff are in attendance as required. There is a daily corporate communication updating all staff with decisions and information over actions.

A coronavirus update and guidance link is prominent on the internet and updated daily with local regional and national guidance.

Staff testing was available from 26th March.

Plans were developed in line with national guidance to stop elective non urgent clinical work by April 15th and release capacity to support the region with critical care and ward beds. Staffing numbers and sickness are being closely monitored.

Further detailed information will be available in the Q1 20/21 report.

4. Conclusion

The surveillance programme for infections has continued and indicates that Trust attributable infections remain relatively low. Audit and education programmes are in place and work will continue in 2020/21 to ensure improvements are made and the annual forward plan is fulfilled.

5. Recommendations

The Board of Directors is asked to note the contents of the report.

Infection Prevention and Control Annual Report 2019/2020

1 Infection Prevention and control Arrangements

Infection Prevention Team (IPT)

The Director of Infection Prevention and Control (DIPC) for the Trust is Dr Raph Perry.

There are 2 specialist nurses currently in post (Total 1.8wte):
Nicola Best (0.8wte) and Lynn Trayer –Dowell (1wte).

There is a designated Infection Prevention doctor, Dr Tim Neal (2 sessions per week).
In addition there is clinical microbiology support provided by 2 microbiologists on a rotational basis who are on site 3 days a week.

There is the provision for some administrative support (0.3 wte)

Infection Prevention Committee

The Infection Prevention Committee (IPC) meets quarterly and is chaired by the DIPC. Membership is multi-disciplinary and includes the governance manager, senior clinicians and nursing staff and representatives from different clinical areas. There are 2 sub-groups of the committee : Water safety and Decontamination.

Infection Prevention Link Staff

Every ward has nominated nursing staff who act as infection prevention 'links' for their clinical area.
Meetings are held every other month.

Information Technology

A surveillance software system (ICNET) is used by the infection prevention team as part of a joint project with Royal Liverpool University Hospital and Aintree University Hospital.

2. Surveillance

Information on all patients colonised, or infected with, specific "alert" organisms is collected and data is generated monthly and used by the Infection Prevention Committee to monitor performance and trends with regard to HCAs.

Data is also collected on patients with certain bloodstream infections (bacteraemias) and reported to a healthcare associated infection (HCAI) national system.

2.1 MRSA Bacteraemias (Blood stream infections)

1 case against a target of 0.

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Number of LHCH attributable cases per year	0	0	0	1	0	1

Although this has been attributed to the Trust, a post infection review was performed which indicated that this infection was unavoidable. The patient had been transferred from another Trust with infective bacterial endocarditis and had had previous positive MRSA samples. The patient was on appropriate therapy.

2.2 Methicillin sensitive Staphylococcus aureus (MSSA) Bacteraemias (Blood stream infections)

The number of bacteraemias has increased. Patient reviews have been undertaken which indicate that not all the bacteraemias were avoidable e.g. 3 where the probable cause was endocarditis. Reviews of individual cases have been performed and shared with the relevant divisions to improve practice where indicated.

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Number of LHCH attributable cases per year	11	8	10	8	8	11

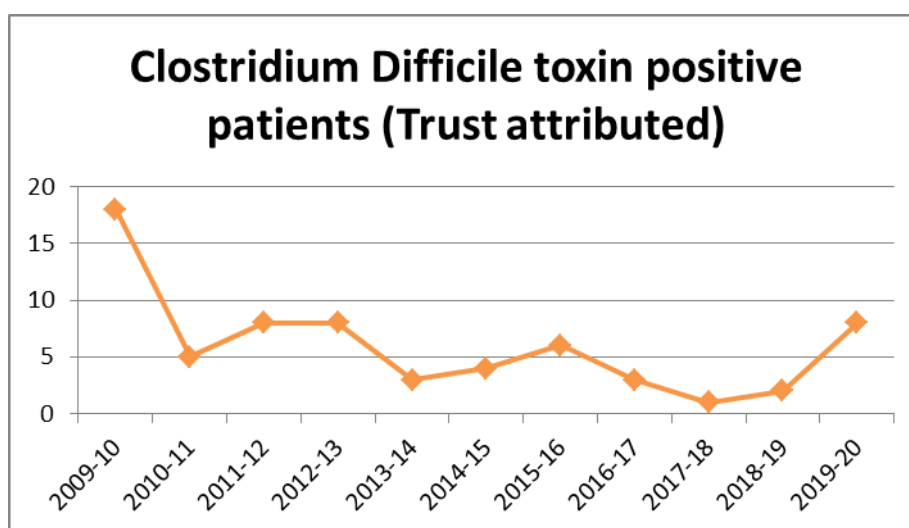
2.3 Gram Negative Bacteraemias (Blood stream infections)

Overall there has been a small increase in the numbers of this group of infections caused by this group of bacteria. Patient reviews have been undertaken to identify the probable causes of these infections. In some cases this could not be ascertained but in others was found to be due to a variety of reasons including urinary tract infections and abdominal infections. The patient reviews have been shared with the relevant divisions to improve practice if indicated.

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
E. Coli	7	11	9	7	7	3
Klebsiella species	Not previously reported			4	2	6
Pseudomonas aeruginosa	Not previously reported			5	1	3

2.4 Clostridium Difficile Toxin positive cases

The number of Trust attributed cases of C. difficile infection (toxin positive) is 8 against a trajectory of 4. 3 of these patients relate to an outbreak on Critical care in May. A multi-disciplinary meeting was called immediately when these cases were identified and an action plan developed and implemented. There were no additional cases following this. Individual patient reviews were performed for other cases and action plans produced in conjunction with clinical staff to address any issues identified

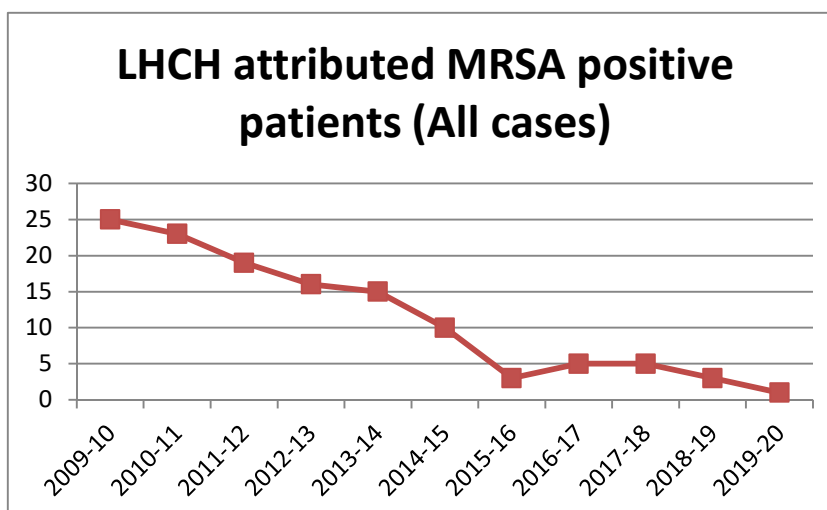


2.5 Methicillin Resistant Staphylococcus Aureus (MRSA) -All cases including non-blood stream infections

The total number of patients with MRSA are monitored, this includes patients who are colonised with MRSA or who have an infection at any site.

96 patients were identified with MRSA however the vast majority were identified prior to admission or as part of the admission screening programme.

There was 1 patient with MRSA attributable to the trust.



2.6 Carbapenemase Producing Enterobacteriaceae (CPE)

A number of patients, known to be CPE positive, were admitted from other Trusts and additional patients were found to be CPE positive when they were screened on admission to this Trust. Only 3 patients were identified with CPE after admission i.e. designated as Trust acquired. There were no apparent links between these patients.

2.7 Norovirus

Although some patients were transferred into this Trust who had had suspected Norovirus either in the community or in neighbouring Trusts, no patients with new isolates of Norovirus were identified at this Trust and there were no outbreaks.

2.8 Influenza

27 patients were identified with influenza throughout the year.

Some were patients who were already exhibiting symptoms when they were admitted from the community or before they were transferred into LHCH from other Trusts. However 17 patients may have acquired influenza whilst inpatients, they were all nursed on one particular ward at the same time. Following diagnosis they were all isolated and cared for with droplet isolation precautions.

2.9 COVID 19

12 patients tested positive for SARS coV2 in March.

Attribution	Number
Community Onset – positive specimen prior to hospital admission or 2 days or less after admission	8 patients
Hospital Onset –Indeterminate healthcare associated First positive specimen 3-7 days after admission	1 patient

Hospital onset –Definite healthcare associated First positive specimen 15 or more days after admission	3 patients
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The Infection Prevention nurses were involved in; surveillance, fit testing, PPE (Personal protective clothing) supply and distribution, protocol development and providing guidance and advice to staff, visitors and patients.

Specific plans to prevent the spread of this infection have been developed and will be monitored by the Infection Prevention Committee. The action plans, guidelines and protocols will continually be reviewed throughout the year, in line with new information available and any new guidance issued.

3. Audit Activity

3.1 Hand Hygiene

Clinical areas perform and submit weekly hand hygiene audits to the clinical audit department. Areas should submit 3 audits for their own area each month and one for their peer review ward. Some areas do not always complete the required numbers of audits each month and this has been fed back to the relevant managers and Heads of Nursing. Areas where non-compliance has occurred have also been highlighted to the managers and Heads of Nursing.

Compliance levels for the Trust, by month are given below.

Observational	percent	number
Hand hygiene performed at appropriate time and correct method used	99.4%	6840
Hand hygiene performed at appropriate time but incorrect method used	0.5%	34
Hand hygiene not performed at appropriate time	0.1%	4

3.2 Other audits

A number of other audits have been performed throughout the year. Results and actions/recommendations have presented to the IPC and also given to individual areas where relevant. The audits include:

Audit	Performed by:
MRSA and S. aureus screening	IPNs
Screening for CPE	IPNs
Weekly Critical Care screening	IPNs
Decolonisation prior to cardiac surgery	IPNs
Hand gel availability	IPNs
Isolation	IPNs
Compliance with clean trace monitoring	IPNs
Waste management in clinical areas	IPNs with Ward staff
Sharps disposal	IPNs with Ward staff
Decontamination of equipment	IPNs with Ward staff
Linen handling	IPNs with Ward staff
Kitchens	IPNs with Ward staff
Compliance with decolonisation treatment	IPNs
Bedspace cleanliness	IPNs and Domestic supervisors
Peripheral Intravascular line insertion & care	Ward staff
Urinary catheter insertion & care	Ward staff
Endoscope decontamination	Theatre staff
Compliance with water safety procedures including: Governance and Management responsibilities Water Sampling	Independent contractors on behalf of the estates department

Planned preventative maintenance Usage Evaluation Operational procedures	
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4. Education and Training

Education and training with regard to infection prevention and control was provided by the Infection Prevention Team as part of:

Session	Input from IP Nurses and Frequency
Corporate Induction	Face to face session Every month
Mandatory Training	Electronic Workbook- Updated annually Face to face sessions as requested
Nurse preceptorship programme	2x per year Face to face session
Care Certificate programme	3 x per year Face to face session
Volunteer induction programme	3 x per year Face to face session
Medical Staff Induction programme	2 x per year Face to face session
Anaesthetist induction programme	3 x per year Face to face session
Ward based updates	As required
Fit Testing	Ad hoc Face to face sessions on the wards

5 Environmental Hygiene

Monitoring scores

Monitoring of environmental cleanliness is performed by the hygiene supervisors on a monthly basis and results are fed back to IPC.

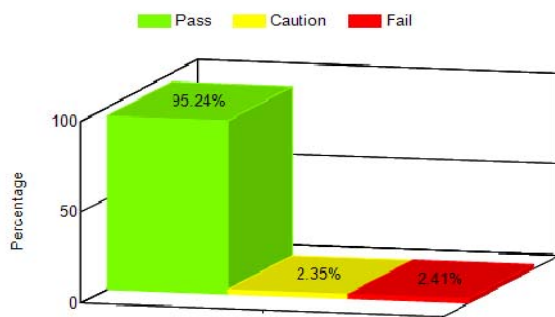
Results are generally very good (usually exceeding the stated target of 95%) with any identified problems rectified immediately.

Clean Trace System

The Clean trace system is throughout the Trust. This provides an objective measurement of cleanliness in the clinical area using a swabbing system and is used to monitor equipment cleanliness rather than the general environment.

The programme is co-ordinated by the IPNs and performed monthly by the ward staff in conjunction with the IPNs.

Trust wide results for all area/equipment monitored over the year have been compiled below.



Measurements 1658, Pass 2579, Fail 40

When a problem is identified i.e. the expected standard of cleanliness has not been reached this is rectified immediately. Results are fed back to ward managers and the relevant Heads of Nursing in a monthly report so that they can identify any trends.

Enhanced Environmental Decontamination

Decontamination of the patient environment using Ultraviolet-C has been utilised on Critical Care throughout the year. Additional training has been provided to hygiene staff and staff from theatres and Cath Lab, in order to extend the use of this throughout the Trust.

6. Antimicrobial stewardship

A number of audits have been performed by the antimicrobial pharmacists this year including:

Antibiotic prescribing audits, audits of non-compliance and surgical prophylaxis.

Data has also been collected and submitted as per CQUINN requirements.

A working group has been reconvened, chaired by the Director of Infection Prevention and Control.

Education has been provided by the antimicrobial pharmacist to junior doctors as part of their induction programme and by the microbiologist to medical staff on audit days

7. Surgical Site Infection prevention

A working group to look at all aspects of the prevention of surgical site infection has been re-established. Additional surveillance data has been collated. A standard post infection review form was developed to review all patients who developed a deep sternal wound infection following cardiac surgery. The patient reviews have been completed with the tissue viability nurses, matrons and lead nurse for the surgical division and have been shared with the surgeons. Issues raised in these patient reviews have been collated and will be reviewed by the SSI group and the surgical division.

8. Water Safety

The Water Safety Group is a sub-group of the Infection Prevention Committee and meets quarterly. Ongoing actions to maintain water safety continue; including a water testing programme for Legionella and Pseudomonas aeruginosa, flushing and maintenance programmes. Audits have been performed by independent contractors who are experts in the field of water safety and a number of areas of non-compliance with current guidelines have been identified, an action plan has been developed to address any issues. Training has been provided for members of the water safety group.

9. Decontamination

The multi-disciplinary decontamination group has not met in accordance with the terms of reference. An independent engineer was contracted to do an audit of the Trust decontamination processes and arrangements in February. An audit report has been compiled which identified some gaps in the

decontamination arrangements. The group will meet throughout the coming year to address all the issues raised.

10 Sepsis

There has been an improvement in the management of sepsis with the principal KPIs either achieved or significantly improved. The most clinically important KPI, antibiotic delivered within one hour, is being consistently achieved. There remain issues with EPR that make collection of blood culture data appear delayed. Usage of the screening tool and the sepsis bundle has improved and screening fails are circulated to the individuals concerned.

The lead for sepsis Dr Al-Rawi continues to lead the sepsis group to ensure continuous improvement of the care of patients with sepsis at LHCH. The group comprises Dr Al-Rawi, Dr Nistal de Paz, (consultant microbiologist), the infection prevention nurses, the sepsis audit analyst, outreach nurses, EPR representation and ITU staff

The objectives have been clarified and simplified using MEWS scoring. MEWS ≥ 5 and suspicion of infection do not need screening and should be treated within one hour preferably using the sepsis bundle. Two consecutive MEWS ≥ 3 and suspicion of infection need the screening tool completing and if high risk treated within one hour. There is a national drive to use NEWS2 scoring rather than MEWS however the sepsis group and the infection prevention committee consider that this is not the best tool for our specific patient population. Discussions with commissioners have led to LHCH continuing to use MEWS with NEWS2 being monitored and applied to transfer patients.

Plans for optimisation of EPR workflow have been completed other than making the collection of blood culture timing to be a mandatory field. Pop up reminders for the screening tool when trying to prescribe sepsis antibiotics off bundle; a tick box for MEWS greater than 5 to eliminate the need for the screening tool; automatically open the sepsis bundle on completion of high risk screening are all functional.

The drive now is to increase further the use of the screening tool and ensure all KPIs can be measured via EPR. The mortality from sepsis remains low. The weekly and year to date screening data is presented in the executive harm report. High risk screens are identified and the KPIs presented for that subgroup. Data is fed back to the wards and areas and a clear line of responsibility established. Any fails of the KPIs are reviewed by the sepsis lead or the medical director to ensure accuracy and appropriateness.

There is a continued education program to deliver teaching sessions for junior doctors outreach and hospital coordinators. Trust wide reminders through screen savers and desktop backgrounds continue. There is a new sepsis eLearning package which is included in mandatory training for clinical staff.

Summary

There has been good progress made within the field of infection prevention and control during 2019/20 however further work is required to improve in some areas.

In order to continue to maintain progress and reduce the risks of HCAI a forward plan for 2020/2021 has been developed and progress against this plan will be monitored throughout the year by the Infection Prevention Committee.

The impact of the Covid 19 pandemic will be described through board assurance