

Board of Directors (in public)

Item 2.1

Subject: IPC Annual Report
Date of Meeting: 31st May 2023
Presented by: Nicola Best; Professor David Wright
 obo Dr Raphael Perry – Medical Director/DIPC
Purpose of Report: To Note

BAF Reference	Impact on BAF
1.1; 1.2	Potential Patient Harm

Level of assurance (please tick one) To be used when the content of the report provides evidence of assurance					
✓	Acceptable assurance Controls are suitably designed, with evidence of them being consistently applied and effective in practice	<input type="checkbox"/>	Partial assurance Controls are still maturing – evidence shows that further action is required to improve their effectiveness	<input type="checkbox"/>	Low assurance Evidence indicates poor effectiveness of controls

1. Executive Summary

This report details the infection prevention and control arrangements, annual report and discusses the achievements that have been made to prevent healthcare associated infections (HCAIs) during the financial year 2022/23.

This has continued to be a challenging period for the infection prevention team because of the ongoing demands related to the COVID-19 pandemic, in addition to all the other requirements in the annual programme. The infection prevention team are involved in many different areas, issues and initiatives across the Trust and have limited resources available to meet the demands. However, despite this most of the objectives in last year's forward plan have been met and HCAI rates remain relatively low.

This paper provides assurances that audit, monitoring and education programmes are in place to prevent healthcare associated infections. Also that there is a robust surveillance system in place to monitor infections which has ensured that any issues that have arisen have been addressed in a timely manner.

2. Background

The prevention and control of HCAs 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. This paper provides such a report and will be made available on the Trust website. The annual report is attached to this report.

3. Conclusion

The surveillance programme for infections has continued and indicates that overall, Trust attributable infections remain relatively low, and progress has been made in a number of areas. A new forward plan is being developed and will be submitted to the Infection Prevention Committee to ensure that work will continue in 2023/24 to ensure improvements.

4. Recommendations

The Committee is requested to note the contents of this report.

Infection Prevention and Control Annual Report

1. Infection Prevention and Control arrangements

Infection Prevention Team (IPT)

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

The Infection Prevention Specialist nurse provision for the Trust is currently 2.6 (wte) consisting of:

A lead Infection Prevention Nurse who is also assistant DIPC (1.0 wte)

A part time Infection Prevention Nurse (0.6wte)

A nurse has also been appointed in a development role (1.0 wte)

There is an administrative support role for Infection Prevention and surveillance (1.0 wte)

There is a designated Consultant Microbiologist support for clinical microbiology and antimicrobial stewardship, with 2 sessions also designated specifically for Infection Prevention.

A surveillance software system (ICNET) is used by the IPT as part of a joint project with Royal Liverpool University Hospital, Aintree University Hospital and Clatterbridge Centre for Oncology.

IPT Development

The newly appointed nurse has undertaken 2 specialist modules in Infection prevention and control.

The administrative assistant is currently undertaking a City and Guilds qualification in business and administration.

Infection Prevention Committee

The Infection Prevention Committee (IPC) meets quarterly and is chaired by the DIPC. Membership is multi-disciplinary and includes:

Infection Prevention Nurses

Consultant Microbiologist

Matrons for Surgery, Medicine and Critical Care

Critical Care Infection nurse specialist

Pharmacist

Consultant anaesthetist

Consultant surgeon

Consultant cardiologist

Estates Manager

Facilities Manager

Decontamination lead

Occupational Health representative

There are 3 sub-groups which report into the committee: Water Safety Group, Decontamination Group and Antimicrobial Stewardship Group.

The IPT also attend meetings and contribute to other groups within the Trust

Group	Frequency
Health and Safety Committee	Quarterly
Cleaning Group (Chair)	Monthly
Surgical site infection Group (Chair)	Bi-monthly
Emergency Planning Group	Quarterly
Product Evaluation Group	Quarterly
Critical Care Delivery Group	Quarterly
Theatre Group	Monthly
Senior Nurse Meetings	Monthly
Outbreak meetings	Ad hoc
Patient infection review meetings	

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 (Healthcare associated infections).

Data is also collected on patients with certain bloodstream infections (bacteraemias) and reported to the national HCAI data collection system.

2.1 MRSA Bacteraemias (Blood stream infections)

There have been 0 cases of MRSA bacteraemia

	2019-20	2020-21	2021-22	2022-23	Target/Threshold (Internal)
Number of LHCH attributable cases per year	1	0	0	0	0

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

There has been a slight decrease in the number of MSSA bacteraemias.

Reviews of individual cases have been performed in conjunction with relevant clinical staff, sources of the infections were noted to be drains, intravascular devices and surgical site infections. The reviews were shared with the relevant divisions to improve practice when issues were identified.

Learning points have also been shared with the IPC.

	2019-20	2020-21	2021-22	2022-23	Target/Threshold (Internal)
Number of LHCH attributable cases per year	11	11	8	7	8

2.3 Gram Negative Bacteraemias (Blood stream infections)

The numbers of infections caused by these groups of bacteria have increased, which is reflected in trends nationally. Targets were set by NHSE which were based on the Trust's previous year's performance and so were very challenging. The threshold for E. coli bacteraemias was not exceeded however those related to Klebsiella and Pseudomonas aeruginosa bacteraemias were exceeded this year. However national benchmarking data obtained, showing annual bacteraemia rates per 100,000 bed days, indicates that LHCH is in the lowest quartile of Trusts for E coli bacteraemias and the second lowest quartile for Klebsiella infections.

Patient reviews have been undertaken with the clinical teams to identify the probable causes of these infections. In some cases, these could not be ascertained but in others the bacteraemias were found to be due to urinary tract infections, chest infections and abdominal infections. Not all the infections were classed as avoidable.

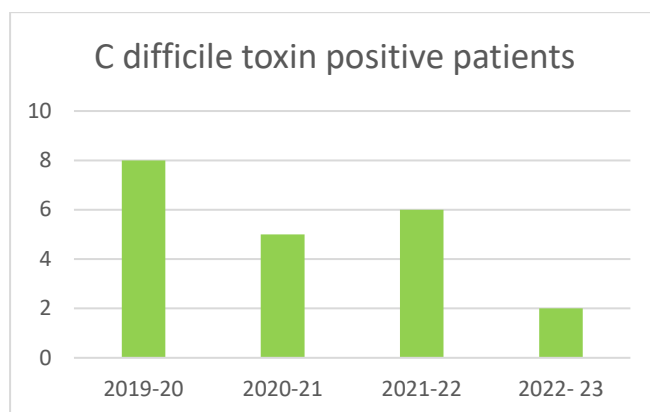
The patient reviews have been shared with the relevant divisions to improve practice where indicated and when learning points were identified.

	2019-20	2020-21	2021-22	2022-23	Target/Threshold
E. Coli	3	6	7	6	6
Klebsiella species	6	0	2	6	1
Pseudomonas aeruginosa	3	3	0	4	1

2.4 Clostridioides Difficile Toxin positive cases

There was a decrease in the number C. Difficile toxin positive patients. The target set by NHS England of not more than 9 cases per year has been achieved. Benchmarking data comparing the rates of infection per 100,000 bed days across Trusts nationally indicates that LHCH has had one of the lowest rates of infections this year (in the lowest 5% of Trusts).

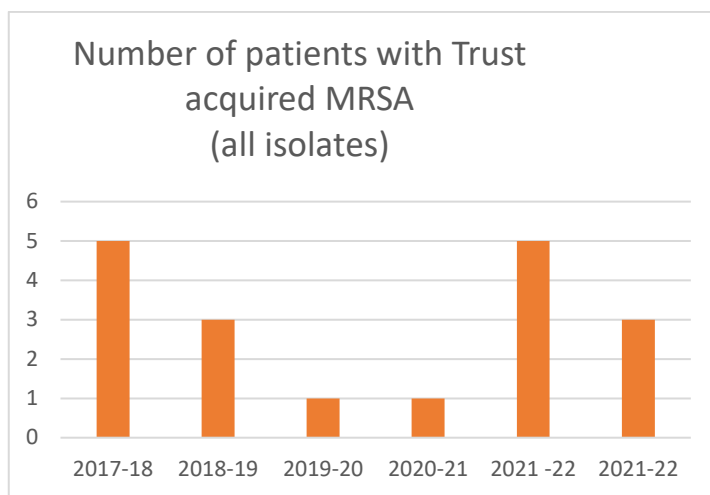
Two patients were identified. Individual patient reviews were conducted for all cases and learning points related to documentation and appropriate sampling have been discussed at governance meetings and at the IPC.



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.

Seventy-five patients were identified with MRSA however the vast majority were identified prior to admission or as part of the admission screening programme only 3 were designated as Trust acquired. All patients were treated and cared for with appropriate precautions.



2.6 Carbapenemase Producing Enterobacteriaceae (CPE)

There were 27 patients with CPE within this financial year however only 5 of them are designated as Trust acquired. The patients were reviewed and isolated according to guidelines and there did not appear to be a connection between the patients.

2.7 Norovirus

There were no patients identified with Norovirus

2.8 Influenza cases

There were 22 patients identified with influenza, which is an increase from last year.

The majority of these were diagnosed on admission although 2 patients were diagnosed sometime after admission and therefore the infections were potentially Trust acquired. However, the patients did not overlap and there were no identified outbreaks.

2.9 COVID 19

203 patients tested positive for SARS CoV2 from April 22– March 23, this was either via a lateral flow device or a laboratory based PCR test.

The testing regime changed throughout the year and so less patients were being tested overall. Asymptomatic screening of patients was reduced significantly, in accordance with national guidelines.

All patients were isolated and cared for with appropriate precautions, in accordance with guidelines.

The details on the attribution of cases is given below, using the national definitions.

Onset Categories	Number of Patients
Community-Onset – First positive specimen date \leq 2 days after admission to trust (CO)	151

Hospital-Onset Indeterminate Healthcare-Associated – First positive specimen date 3-7 days after admission to trust; (HI)	24
Hospital-Onset Probable Healthcare-Associated - First positive specimen date 8-14 days after admission to trust; (HP)	15
Hospital-Onset Definite Healthcare-Associated – First positive specimen date 15 or more days after admission to trust. (HD)	13

5 separate outbreaks occurred across the Trust during this time period, on Birch Ward, Cedar Ward and Acute Cardiac Unit.

Action plans were developed to address these at the time and regular updates provided via the Trust command structure.

The oversight and decision making related to the pandemic was addressed by means of a command and control structure (Gold, Silver, Bronze) which incorporated infection prevention. The command structure ensured that all national and regional guidelines and requirements were reviewed, and the ongoing Trust plans were monitored.

The Infection Prevention team provided specific input and support to many aspects of the plan including; surveillance, outbreak monitoring and reporting, contact tracing, PPE (Personal protective clothing), audits, protocol development and patient pathways.

They also provided guidance and advice to both staff, visitors and patients.

3. Audit Programme

An audit programme is in place for the infection prevention nurses to ensure compliance with policies and standards. Results and actions/recommendations have presented to the IPC and also given to individual areas where relevant. The audits include:

Audit	Schedule	
Infection Prevention Precautions	6 monthly April 2022 January 2023	<p>Infection prevention audits are performed in all clinical areas within the Trust by the IPNs in conjunction with members of ward staff. The audits cover different aspects of infection prevention including; decontamination and cleanliness, equipment, waste disposal, sharps handling and linen handling.</p> <p>Overall compliance across the Trust ranged from 89% to 98%.</p> <p>Feedback and an action plans were given to each area.</p>

MRSA pathway	July 2022	All aspects of the MRSA pathway were audited for MRSA positive patients, there was good compliance overall with all interventions scoring 95-100%
Screening for CPE and Critical Care screening	3 x per year	Specific patients should be screened for CPE and there is a weekly screening programme for Critical Care. Audits indicated some improvement with results generally above 90%.
Decolonisation prior to cardiac surgery	Quarterly	Decolonisation treatment should be given to all patients prior to cardiac surgery to help prevent surgical site infections. It was identified in audit results that some patients did not receive this. Following education, reaudits and feedback compliance has increased to 92%
Isolation facilities	August 22	An audit of all facilities across the Trust was undertaken. It was identified that siderooms and facilities in different areas were all of different standards. A grading system was introduced to ensure that patients requiring isolation were placed in the most appropriate area. Some facilities will be upgraded as part of refurbishment programmes
Patient compliance and satisfaction with decolonisation treatment	January 2023	The IPNs undertook a survey and feedback exercise on patient involvement with the decolonisation programme for patients who are given the treatments to use at home pre-operatively. 36 patients were interviewed, 97% understood the rationale for the intervention and had undertaken the decolonisation regime as instructed.
PPE use	Quarterly	Observational audits were carried out of compliance with mask wearing, glove and apron use. Compliance was generally good., >90%.
Surgical site Infection prevention bundle: Hair removal Skin prep Surgical prophylaxis Dressing removal	Quarterly	Aspects of the SSI prevention bundle were audited for patients undergoing cardiac surgery and compliance was usually very good i.e. 95-100% apart from one intervention, which was appropriate hair removal. Compliance remained low, despite some improvement to 61%. Work is going to ensure the standard is met.

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Additional Audits are also performed on relevant wards/departments by Matrons and ward staff

Audit	Performed by:
Peripheral Intravascular line insertion & care	Matrons and Ward staff
Urinary catheter Insertion and Care	Matrons and Ward staff
Cleanliness of area and equipment	Matrons

Hand Hygiene

Clinical areas perform and submit 2 hand hygiene audits per month via an electronic audit system.

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.

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
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	4 x per year Face to face session
Medical induction programme	2 x per year Face to face session
Volunteer Induction	4x per year Face to face session

Masters programme- Safe from Harm	1x per year Face to face session
Ward based updates	Ad hoc sessions throughout the year

Corporate induction is provided by the education team, including hand washing and aseptic non touch technique.

5. Environmental Hygiene

A Cleaning Group has been convened with membership including IPT, Hygiene supervisors. Matrons and Estates department. This group oversees an audit and monitoring programme in accordance with the National Standards for Cleanliness, including both clinical and non-clinical items. Best practice is that the audits are carried out by a multi-disciplinary group and the programme states that this should happen at least once per month for all wards/areas.

130 multi- disciplinary audits have been performed across the Trust, with areas being allocated a star rating depending on the result achieved, the majority were 4 or 5 star ratings.

There has been demonstrable improvement in areas and some improvement work has been undertaken when issues have been identified e.g., the dirty utility rooms on Critical care

Additional monitoring of environmental cleanliness in all areas by the hygiene supervisors has continued throughout the year on a monthly basis. Results are generally very good (usually exceeding the stated target of 95%) with any identified problems rectified immediately.

Enhanced Environmental Decontamination

Decontamination of the patient environment using Ultraviolet-C has been used across the Trust throughout the year. Electronic learning has been introduced to improve compliance with annual updates for staff.

6. Antimicrobial stewardship

Antimicrobial Stewardship is managed by the multidisciplinary Antimicrobial Stewardship group which has both an executive lead, the Chief Executive and Director of Infection Prevention and Control, and an operational lead, the lead antimicrobial pharmacist. The group has quarterly meetings in place, with secretarial support and representation from microbiologists and an infection specialist nurse. Together the group are responsible for antimicrobial stewardship practice, from public health campaigns to prescribing interventions across the Trust. The group is also due to include both surgical and medical representation to ensure that various clinical parties are involved in the foundation of Trust stewardship programmes.

The Trust have two clinical microbiologists available for both virtual and physical ward rounds with both the infection specialist nurse and antimicrobial lead pharmacist and these

rounds are conducted three times a week across all ward areas, namely the critical care wards. During these ward rounds, antimicrobial stewardship practice is promoted whilst prescribing advice and prescriber feedback is given.

7. Surgical Site Infection prevention

An SSI group has been established in the Trust, with bi monthly meetings and multi-disciplinary membership including; Infection Prevention Team (IPT), Tissue viability team (TVT), Consultant surgeon, Head of Nursing, Matrons for the divisions, Surgical Care Practitioner, Theatre Manager and information analyst. The Head of Improvement has also been invited so that information and learning from national projects such as GIRFT (Getting it right first time) can be integrated into the group's work.

The group oversees an audit programme and ongoing action plan

Surveillance data and information on patients with SSI is essential to enable effective monitoring and drive improvement projects. The IPT developed a business case to improve the surveillance systems and worked with colleagues in the EPR and Digital systems team to implement a new electronic system which was introduced in July 2022. Further improvements have been made following the introduction.

Data on rates of SSI has been presented to the IPC and Surgical governance meetings. The rates appear to be higher than those at Trusts with similar patient groups and work will continue to reduce the infection rates and benchmark with other Trusts.

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.

The water sampling programme did identify that some water outlets on the Critical Care unit were positive for Pseudomonas aeruginosa. Remedial actions were taken, and an independent risk assessment specifically related to P. aeruginosa was commissioned and undertaken in March 2023.

An additional action plan will be developed following receipt of the report.

There have been reviews related to water safety as part of all the capital build projects to ensure safety standards are maintained in all new builds.

9. Decontamination.

The Decontamination Service at LHCH has had a successful 12 months with a JAG Audit having been carried out on the 11th August 2022 with 'Amber/Green Status'. There were minimal risks identified with the highest risk being a lack of weekly 'Automatic Control Testing' on the endoscopy washers. This was quickly rectified and is now an established process as part of Business as Usual. The next JAG audit is planned for August 2023. There have been issues with quoracy within the Decontamination Assurance Group, but a recent review supports a more robust approach with regular reporting from the team. A Business Case is being prepared to enhance the Decontamination Team through the addition of an

apprentice to support the decontamination and transportation of TOE (Transoesophageal Probes) around the site.

The multi-disciplinary decontamination assurance group will continue to meet monthly moving forward with support from the Authorising Engineer and the relatively newly appointed Authorised Person (LHCH Building Services Engineering Manager)

The team are moving to an electronic track and trace system which is part of a regional tender exercise to standardise the systems which will further support mutual aid in the event of any issues e.g., equipment failure or unsatisfactory water samples.

10. Intravascular (IV) Access Devices

An IV access team has been established to co-ordinate the insertion and care of IV access devices and to ensure that the most appropriate devices are selected for the patients. The team are made up of a lead consultant, ANPs (advanced nurse practitioners) and the Critical Care infection nurse. The team members are not solely dedicated to IV access but perform this role alongside their main role. Education, surveillance and audit has been provided by the team

Documentation of the insertion and care and also ongoing monitoring of all IV devices has been highlighted as an issue in a number of patient reviews. The information in the electronic patient record has all been reviewed and a number of changes and improvements made.

11. Summary

This has been a challenging year for the infection prevention team because of the many and varied demands on the service. However, despite this, most of the objectives in last year's forward plan have been met and there has been progress in some areas.

In order to continue to maintain progress and reduce the risks of HCAI a forward plan for 2023/2024 has been developed and progress against this plan will be monitored throughout the year by the Infection Prevention Committee.

Appendix 1

Infection Prevention and Control – 2023/24			
Aim	What we are trying to achieve	Actions	How will we demonstrate improvements
To prevent transmission of highly resistant organisms and health care associated infections (HCAI).	Highly resistant or “alert” organisms are detected and monitored and infection prevention standards adhered to in order to prevent the transmission of HCAI.	<ul style="list-style-type: none"> To ensure there is a robust surveillance and reporting system for all highly resistant organisms. To ensure the antimicrobial stewardship programme is completed. To ensure there is an education programme for all staff To ensure a robust audit and monitoring programme is in place to demonstrate compliance with infection prevention precautions is maintained Hand Hygiene products and signage across the Trust will be reviewed and replaced 	<ul style="list-style-type: none"> There will be no outbreaks. All patients with “alert” organisms are cared for with appropriate precautions There will be compliance with the antibiotic policy. There will be audits performed as detailed in the audit programme and good compliance demonstrated with infection prevention measures
To reduce levels of avoidable Trust attributable bacteraemias, including MSSA	All bacteraemias are monitored and numbers of avoidable infections reduced.	<ul style="list-style-type: none"> To ensure a robust process for reviewing all bacteraemias to identify any issues or lessons learned and improve practice where relevant. 	<ul style="list-style-type: none"> To reduce the numbers of avoidable bacteraemias.
To ensure there is a high level of environmental cleanliness in the patient environment	High levels of cleanliness of patient environment and equipment are maintained	<ul style="list-style-type: none"> To establish a comprehensive multi-disciplinary audit programme. To ensure the cleaning group meets regularly to ensure review and monitoring of all areas. 	<ul style="list-style-type: none"> 5-star hygiene ratings will be achieved and displayed across the Trust.

	A Trust wide multi disciplinary audit programme with scores and ratings issued for each department	<ul style="list-style-type: none"> To introduce a new monitoring method for measuring cleanliness of equipment. To collate patient feedback on the cleanliness of the hospital 	<ul style="list-style-type: none"> Audit results will be available for all areas Patient feedback will demonstrate high levels of satisfaction with cleanliness
To reduce Surgical site infections	<p>An effective surveillance programme for monitoring surgical site infections is in place.</p> <p>Surgical site infection rates are reduced.</p>	<ul style="list-style-type: none"> To produce robust surveillance data . The SSI group to complete an annual action plan and audit programme for the SSI prevention bundle To benchmark data and practice with other Trusts 	<ul style="list-style-type: none"> Regular reports will be produced via the electronic SSI system. SSI rates will be reduced. Compliance with SSI bundle, including decolonisation and prophylaxis will be increased .
To reduce infections related to Intravenous Access devices.	Increased adherence to standards for care of IV access and reduction in bacteraemias associated with IV access.	<ul style="list-style-type: none"> The IV working group to develop and oversee an action plan including: To complete an education programme relating to care for midlines and PICC lines. <p>To continue surveillance of central line related infections.</p>	<ul style="list-style-type: none"> Increased compliance with documentation and review. Improved level of competence associated with IV care. Reduction in central line infections and bacteraemias associated with IV access.

		To ensure improvement of all documentation related to IV access devices.	
To reduce infections related to urinary catheters	<p>Accurate data related to the rates of urinary tract infections (UTI) and their treatment and management</p> <p>Reduction in rates of avoidable UTI</p>	<ul style="list-style-type: none"> • To review products related to catheterisation and compliance with NICE guidelines • To review competencies related to catheterisation and to ensure all relevant staff have completed competencies 	<ul style="list-style-type: none"> • Accurate data related to avoidable UTI will be produced • New suitable products will be introduced • Compliance with competency programme for catheterisation • Numbers of avoidable UTI will be reduced

Audit Programme 2023 - 24

Audit	Person(s) Responsible	Schedule	Reporting to
Hand hygiene	Ward managers	Twice monthly	Infection Prevention Committee (IPC)
Isolation – Review of Facilities	IPT	Annually	IPC
Isolation of patients	IPT	6 Monthly	IPC
Cleanliness Standards	Hygiene supervisor, IPT, Matron	Monthly	IPC/Cleaning Group
Environmental decontamination – Use of Ultraviolet -C	IPT	6 monthly	IPC/Cleaning Group
IP General standards Waste disposal/Sharps disposal/Linen handling/Decontamination of equipment/Cleanliness	IPT/Link staff	6 monthly	IPC
Antimicrobial prescribing and testing for UTIs	Antimicrobial pharmacist/IPT	Quarterly	Drugs and Therapeutic Committee and IPC
Urinary catheter insertion and care	Ward managers/Matrons	Monthly	IPC
COVID 19 Screening	IPT	Bi Monthly	IPC
PPE	IPT	Monthly	IPC
Critical Care Weekly Screening	IPT	Quarterly	IPC
CPE screening	IPT	Quarterly	IPC
MRSA screening	Clinical Audit /IPT	Quarterly	IPC

MRSA pathway	IPT	6 Monthly	IPC
Clostridium difficile policy	IPT	Annually	IPC
Decolonisation prior to cardiac surgery	IPT	Quarterly	IPC/SSI Group
SSI bundle	IPT	6-monthly	IPC/SSI Group
Peripheral Line Insertion and Care	Matrons	Monthly	IPC committee
Water safety	Estates manager/Hydrop	6 monthly	IPC and H&S committee
Endoscopy audit	IPT	Annually	Decontamination group
Compliance with antimicrobial policy	Pharmacist	Quarterly	Antimicrobial Group