Board of Directors Item

Liverpool Heart and Chest Hospital NHS
NHS Foundation Trust

Infection Prevention and Control Annual Report 2016/17

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Infection Prevention and control Nurse Specialists

Date: April 2017

Background

The prevention and control of healthcare associated infections (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.
This report details the infection prevention and control arrangements and discusses the achievements that have been made in reducing healthcare associated infections (HCAIs) during the financial year 2016/2017. It also sets out a forward plan for the year 2017/2018.

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 has been an increase in the provision of consultant microbiology sessions from October 2016. There is a designated Infection Prevention doctor, Dr Tim Neal (2 sessions per week).In addition there is clinical microbiology support provided by 2 consultant microbiologists on a rotational basis.

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

An antibiotic pharmacist works part time with the infection prevention team.

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 3 sub-groups of the committee : Water safety, Antibiotic prescribing and Decontamination. The reporting arrangements and inter-related membership is detailed in Appendix 3.

A separate report on the committee and its effectiveness against its terms of reference has been compiled and is included in Appendix 2.

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

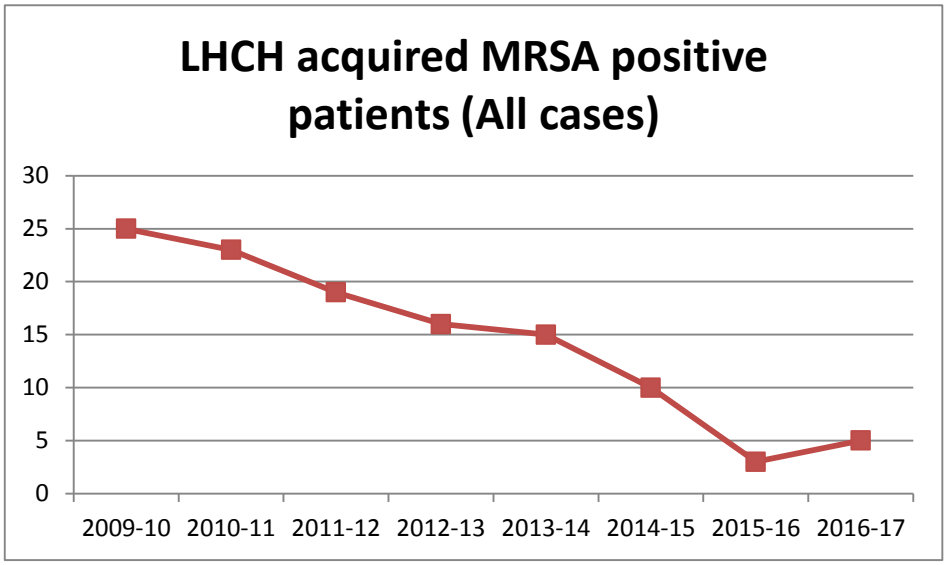
The surveillance software system (ICNET) used by the infection prevention team has been upgraded this year as part of a joint project with Royal Liverpool University Hospital and Aintree University Hospital. Work is ongoing to create interfaces with other Trust systems to allow more comprehensive and efficient data collection and reporting.

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 HCAIs.
Data is also collected on patients with certain bloodstream infections (bacteraemias) and reported to a healthcare associated infection (HCAI) national system. This will be extended in 2017/18 to include additional bacteraemias.

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. However reviews of all patients indicate that the vast majority of patients are admitted with MRSA i.e. they do not acquire it whilst an inpatient at LHCH.
The overall number of patients acquiring MRSA within the Trust remains at a low level (5) and generally relate to patients who are colonised, not infected.



MRSA Bacteraemias (Blood stream infections)

There were 0 patients identified with an MRSA bacteraemia.

	2012-13	2013-14	2014-15	2015-16	2016-17
Number of LHCH attributable cases per year	0	1	0	0	0

Methicillin sensitive Staphylococcus aureus (MSSA) Bacteraemias

There has been a slight increase in the number of Trust attributable MSSA bacteraemias. All were reported to the HCAI surveillance scheme in line with mandatory requirements. Reviews of patients were undertaken and these indicated that generally the causes were complications following cardiac surgery, mainly surgical site infection (SSI). A working group has been convened to address the prevention of SSI . (see section 6)

	2012-13	2013-14	2014-15	2015-16	2016-17
Number of LHCH attributable cases per	1	8	11	8	10

year					

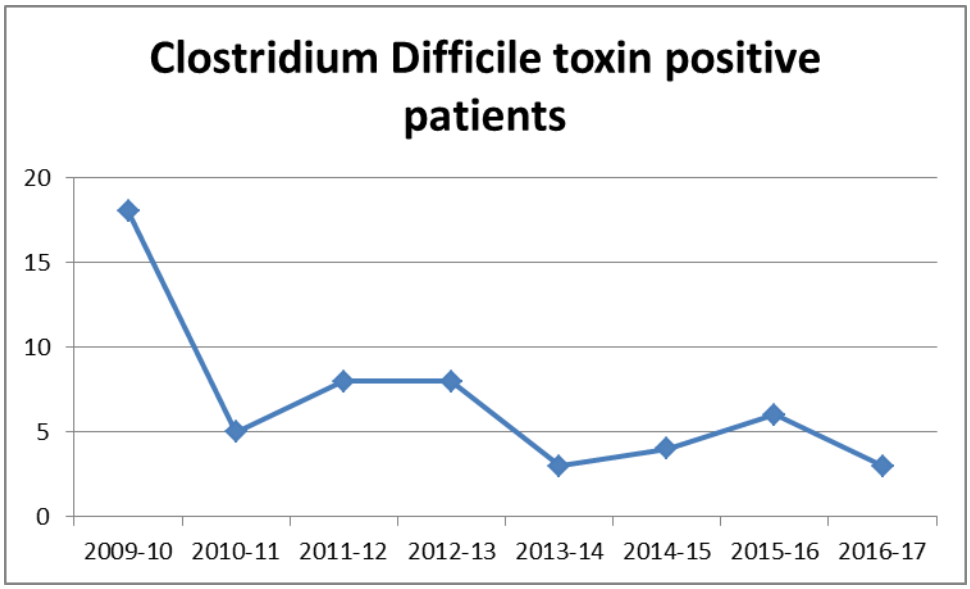
E. coli Bacteraemias

All cases of E. coli bacteraemias have been reported to the HCAI surveillance scheme in line with mandatory requirements. There has been a slight decrease this year. Patient reviews were undertaken to identify the probable causes.
In some cases this could not be ascertained but in others was found to be due to a variety of reasons. A target has been introduced for 2017/18 to reduce the numbers of E. coli bacteraemias across the health economy covered by Liverpool CCG and this Trust will participate in any regional programmes to address such targets.

	2012-13	2013-14	2014-15	2015-16	2016-17
Number of LHCH acquired cases per year	8	7	7	11	9

Clostridium Difficile- Toxin positive cases

The number of Trust acquired cases of C. difficile infection (toxin positive) remains low, with 3 patients identified. All cases were reported to the national surveillance scheme in line with mandatory reporting schedules. Root cause analyses were performed in all cases and action plans produced in conjunction with clinical staff to address any issues identified.
None of the cases appeared to be linked and additional testing (ribotyping) did not identify any commonalities.



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. However only 3 patients were identified with CPE after admission i.e. designated as Trust acquired. There were no apparent links between these patients.

Norovirus

Although some patients were transferred into this Trust who had had Norovirus in neighbouring Trusts no patients with new isolates of Norovirus were identified at this Trust.

Influenza

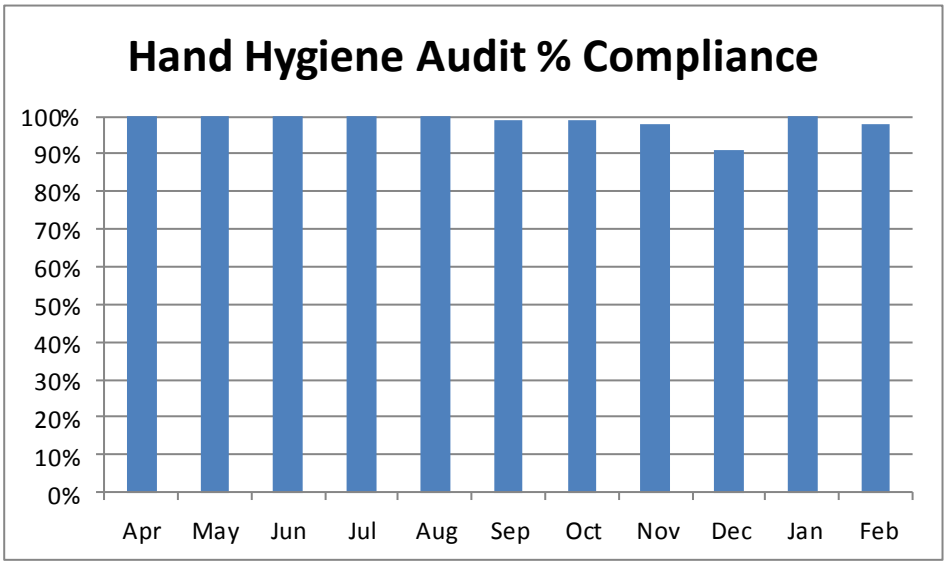
1 patient was identified with Influenza B in January on Cherry ward. No other cases identified.

An outbreak of influenza occurred in March. 1 patient was identified with Influenza A on Birch ward. This patient was initially cared for in a bay prior to the diagnosis being made. 2 other patients later tested positive for Influenza A. Actions taken when the first patient was identified included moving contacts to siderooms, prophylactic antivirals prescribed for contacts and deep cleaning of affected areas.
Positive and suspected patients were cared for with droplet isolation precautions. No further spread was identified after the actions were initiated.

3.Audit Activity

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 fedback 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.



Antibiotic Prescribing

An antimicrobial prescribing group has been established which is a sub-group of the Infection Prevention Committee, the members include the antibiotic pharmacist, senior clinicians and the infection prevention team.
Weekly antibiotic ward rounds conducted by the antibiotic pharmacist and consultant microbiologist have been commenced on a trial basis.

Audits performed this year include:
Surgical Prophylaxis
Antibiotic indication and compliance with the formulary
Antibiotic stop/review dates
Antibiotic consumption.

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
MRSA care pathway	IPNs
Screening for CPE	IPNs
Hand gel availability	IPNs
Isolation	IPNs
C difficile policy	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
Central line insertion and care	Anaesthetists
Peripheral Intravascular line care	Ward staff
Urinary catheter care	Ward staff
Endoscope decontamination	Theatre staff
Compliance with water safety procedures	Independent contractors on behalf of the estates department

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	Market Place stall or face to face session Every month
Mandatory Training	Electronic Workbook Update annually Face to face sessions as requested
Nurse preceptorship programme	Twice a year Face to face session & Practical workshop
HCA pathway/ Care Certificate	Twice a year Face to face session
Volunteer induction	3x per year Face to face session
Doctor Induction	3 x per year Face to face session
Access to medicine	2 x per year Face to face session
Anaesthetist induction	3 x per year Face to face session
Aseptic non touch technique	4x per year Face to face session
Ward based updates	As required

5.Environmental Hygiene

Monitoring scores

Monitoring of environmental cleanliness is performed by the domestic staff monthly and results are fedback to IPC.
Results are generally very good (usually exceeding the stated target of 95%) with any identified problems rectified immediately.

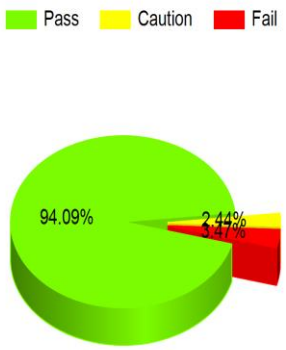
PLACE assessment

The PLACE (Patient Led Assessment of the Care Environment) inspection was performed in April 2016. A multi-disciplinary team consisting of patients/volunteers and members of staff, including the infection prevention nurse, assessed the hospital environment according to criteria laid out by the NHS commissioning board. The results were good with the Trust performing above the national average in all areas.

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..

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



Measurements:1760. Pass:1656. Caution:43. Fail:61

The programme has shown an overall improvement in cleanliness over time, in most areas. When a problem is identified i.e. the expected standard of cleanliness has not been reached this is rectified immediately. Results are fedback to ward managers and the relevant Heads of Nursing in a monthly report so that they can identify any trends.

New technology

A business case has been compiled and presented to the Capital Control Group regarding additional resources to decontaminate the patient environment using a mobile unit which generates Ultraviolet-C.

6. Surgical Site Infection working group

An assessment of the Trust policies, practices and assurances against national and international guidelines related to the prevention of surgical site infection has been undertaken by the infection prevention team. Following this a working group was convened to review all

recommendations and oversee any additional audit programmes and action plans required. Members of the group include a cardiac surgeon, consultant microbiologist, the infection prevention nurse, the tissue viability nurse and matrons for surgery, theatre and critical care. The first meeting took place in March 2017 and additional monthly meetings will be held until the audit programme and all identified actions have been completed.

7. Risk of Mycobacterial infections in Cardiac Surgery

The Trust has participated in an ongoing national review, commenced in 2015 and led by Public Health England, into the risk of *Mycobacterium chimaera* infection following cardiac surgery. A number of actions had already been taken by the Trust including; changes to decontamination processes, water filtration, traceability of machines, a water testing schedule and the purchase of new heater coolers.

A new algorithm has been produced and circulated to guide clinicians to ensure the accurate diagnosis of these infections.

A national notification exercise to inform specific patients of the risk of infection with *Mycobacterium chimaera,* following cardiac surgery, was initiated by Public Health England and commenced in March 2017. This is being been led by the division of Surgery.

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8. Water Safety

The water safety plan continues to be monitored by the Water Safety Group and the Infection Prevention Committee. The water sampling regimes for Legionella and Pseudomonas aeruginosa continues and actions have been taken when any abnormal results have been identified. Audits have been performed by independent contractors who are experts in the field of water safety and some issues have been identified which will be addressed in the coming year.

9. Sepsis

In response to new national guidelines the sepsis protocol has been revised and a new sepsis screening tool developed to identify patients at risk of sepsis. This screening tool was introduced into EPR in January 2017.

A new sepsis awareness campaign to educate staff about the screening tool, the revised sepsis definitions, and the treatment and management of sepsis was launched across the Trust, led by Dr Al Rawi (Consultant Intensivist). The programme included; educational sessions for senior clinicians on audit days, training and simulation exercises for junior doctors and advanced nurse practitioners and training sessions incorporated into induction days. The sepsis campaign was also highlighted on the intranet and on screensavers across the Trust.

Audit data on compliance with specific aspects of sepsis management i.e. blood culture collection and antibiotic administration has been collected throughout the year and presented to Trust committees. Work is ongoing by the information team to refine the audit data in accordance with the new definitions and to also collate additional data related to compliance with the use of the new sepsis screening tool.

Summary

There has been some progress made within the field of infection prevention and control during 2016/17, 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 2017/2018 has been developed (Appendix 1) and progress against this plan will be monitored throughout the year by the Infection Prevention Committee

Appendix 1 Infection Prevention and Control – Forward Plan 2017-2018 Liverpool Heart and Chest hospital NHS Foundation Trust

		Person(s) Responsible	Target Date
1. Surveillance	• To continue with continuous alert organism surveillance and generate monthly reports of figures against trajectories • To report to mandatory surveillance scheme in accordance with national requirements • To monitor bacteraemias caused by MSSA and E.coli and ensure patient reviews are performed • To monitor bacteraemias caused by other Gram negative organisms • To monitor central line related infections	IPT IPT IPT/Clinical staff IPT IPT	15th every month 15th every month 15th every month Monthly Monthly Monthly
2. Surgical Site Infection (SSI)	• To continue the ongoing surveillance project on rates of SSI following coronary artery bypass graft surgery and valve replacement surgery • To ensure that all audits and actions proposed by the Surgical site working group are completed • To participate in research proposals regarding surgical site dressings and wound closure	IPT/ Tissue viability nurses Clinical staff/Theatre staff/IPT Tissue Viability nurses/IPNs IPN	Ongoing 30th September 2017 31st October 2017
4.Assurance framework	• To assess the Trust using the HCAI assurance framework and generate monthly reports to the Clinical Commissioning group	IPT	15th of every month
5. Environmental Hygiene	• To continue system of monitoring environmental cleanliness • To continue Clean Trace monitoring programme • To ensure a robust monitoring programme for ward/department managers	Support services manager IPT/Ward Managers Heads of Nursing	Monthly Monthly 31st August 2017

6. Education and training	• To provide training for all new staff and annual updates for staff in IP and C according to Trust's Learning Needs Analysis	IPT	Ongoing
7. Policies	• To review and update all policies as necessary	IPT	Ongoing
8. Theatres	• To ensure ventilation is monitored annually in each theatre and reported to the IPC • To carry out planned preventative maintenance and replacement of air handling units as scheduled	Estates Manager	31st March 2018
9 Water Safety	• To continue with the Water Safety plan and continue to monitor and improve compliance with flushing of outlets • To ensure appropriate education is delivered to members of the water safety group • To develop a robust annual water testing schedule	IPT/Estates manager	Ongoing
10. Sepsis	• To ensure comprehensive data is collected regarding compliance with sepsis screening and management • To improve compliance with the sepsis bundle	Information team Sepsis lead	Monthly 31st March 2018
11. Antibiotic stewardship	• To review and update the antimicrobial policy • To review and update antimicrobial stewardship and audit programme	Consultant microbiologist/pharmacist	31st July 2017
12. E. coli bacteraemias	• To participate in regional programmes related to the reduction in E coli bacteraemias, as advised by Liverpool CCG • To review all practices related to urinary catheter insertion and care.	IPT	

IP and C Audit Programme 2017-18

Audit	Person(s) Responsible	Schedule	Reporting to
Hand hygiene (1) Observational (2) Facilities and standards	Ward managers	Weekly	Infection Prevention Committee (IPC)
Isolation	IPT	Annually	IPC
Cleanliness (Domestic)	Domestic Supervisors	Monthly	IPC
Decontamination process -endoscopy	Decontamination Lead	Annually	Decontamination Steering Group
Waste disposal Sharps disposal Linen handling Decontamination of equipment	IPT/Link staff	6 monthly	IPC
Antimicrobial prescribing	Antimicrobial pharmacist/Microbiologist	As detailed in the antibiotic stewardship programme	Drugs and Therapeutic Committee.IPC
MRSA screening	Clinical Audit /IPT	6 monthly	IPC
MRSA pathway	IPT	Annually	IPC
Clostridium difficile policy	IPT	Annually	IPC
Compliance with central line bundle	Theatre staff/Critical care staff	Quarterly	IPC
Peripheral line and urinary catheter care	Ward managers/IPT	Monthly	IPC
Water safety	Estates manager	6 monthly	IPC and H&S committee
Prevention of surgical site infection (SSI)	Theatre staff/IPT/Pharmacy/ward staff	As directed by the SSI working group	IPC
MSSA screening and decolonisation	IPT	6 monthly	IPC
CPE screening	IPT	Quarterly	IPC
Transfer of patients with alert organism	IPT	Annually	IPC

Appendix 2

Subject: Annual Report of Infection Prevention Committee 2016/17

1.Executive Summary

The committee has met 4 times in the past year. Details of work overseen by the Committee is provided in the preceding report and annual forward plan.

2. Delivery of Objectives

A summary of progress against each of the agreed objectives is shown below.

ToR Ref	Objective	Evidence to Support Delivery
3.1	To provide strategic direction and planning pertaining to all issues related to infection prevention & control within the Trust.	Annual plan, audit programme, reporting systems.
3.2	To support the infection prevention team and the ADN's in their activities.	Audits as detailed in attached report
3.3	To ensure infection prevention and control policies and protocols are developed, implemented, monitored and updated by the appropriate leads within the Trust.	Policies updated and approved at IPC Surveillance Policy CPE policy IP& C theatre policy Clostridium difficile policy Isolation policy TSE policy Care and Insertion of Urethral catheters
3.4	To advise the Trust on the best means for the education and training of hospital staff to ensure successful implementation of policies and protocols and that staff are aware of their roles and responsibilities relation to infection prevention and control	Training provided as detailed in attached report
3.5	To develop and implement an annual programme of work against which progress will be report to the Committee, as per the agreed reporting schedule.	Annual plan attached
3.6	To produce quarterly DIPC reports and annual infection prevention report, and submit these to Trust Board	Quarterly DIPC reports produced Annual Infection Report attached
3.7	To receive regular reports on	

	surveillance, key quality indicators and any serious untoward incidents related to infection prevention and control and ensure that robust delivery plans are in place to address emerging issues.	Surveillance reports produced for each IPC meeting.
3.8	To co-operate with the other Trust Committees e.g. Health and Safety to ensure that exemplary infection prevention and control practices are applied consistently across the Trust.	Joint membership of IPN and Senior Nurses at both IPC and Health and Safety Committee
3.9	To monitor and evaluate infection prevention and control practice and performance at divisional level receiving quarterly divisional reports on related issues	Some reports received by divisions. To be reviewed by Heads of Nursing.
3.10	To develop the appropriate partnerships with external agencies necessary for improving infection prevention and control practice	Meetings with commissioners and other Trusts

3. Membership

The attendance of a number of members has not always met the required standard. The chair will contact relevant members to reiterate the importance of attendance at these meetings.

4. Sub Committees

There are three sub-groups that report to the Infection Prevention Committee, the Water Safety Group, Antibiotic group and Decontamination Steering Group. The Infection Prevention Committee has received reports and minutes from these sub groups.

5. Conduct of Meetings

A workplan agreed at start of year and meetings / agenda are appropriately scheduled to meet the work plan

Reports and papers are consistently issued ahead of the meeting, although sometimes not within 5 working days.

There is an action logging process maintained to ensure actions clearly recorded and followed through.

6. Terms of Reference

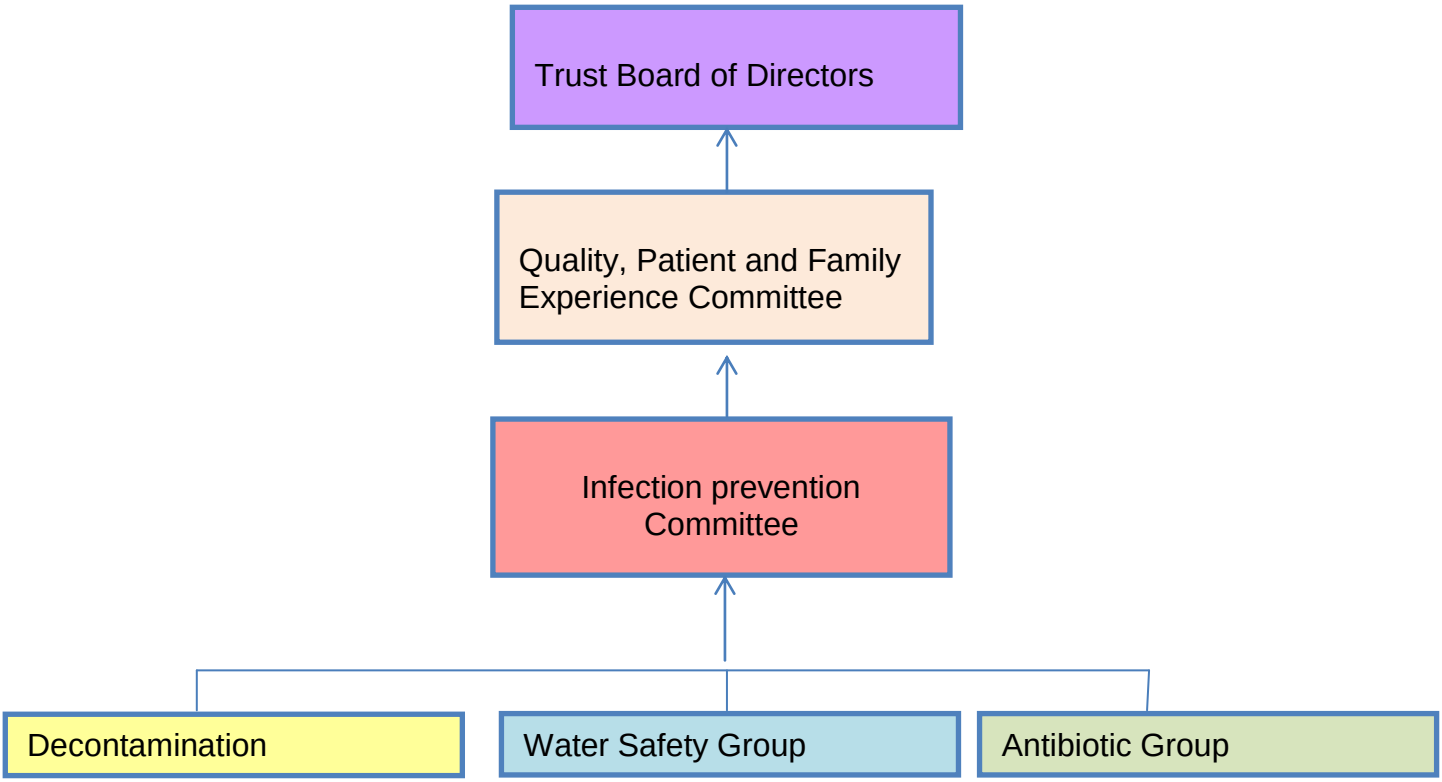
The Committee has reviewed its Terms of Reference

7. Recommendations

The Board of Directors is asked to receive assurance that overall the Infection Prevention Committee has operated effectively during 2016/17

Appendix 3

Infection Prevention Committee Representation and Reporting Structure



DIPC						
Consultant Microbiologist						
IPN						
Deputy Director of Nursing						
Estates manager						
Pharmacist						
Theatre Matron						
Critical care manager/matron						
Head of Nursing- surgery						
Head of Nursing-medicine						
Service manager						
Consultant representatives						
Health and safety advisor						