

Board of Directors (in Public) Item 6.4

Subject: Infection Prevention and Control Quarterly Report
Date of meeting: 25th July 2017
Prepared by: Nicola Best - Infection Prevention Nurse Specialist
Presented by: Dr Nigel Scawn – Associate Medical Director

BAF Ref	Impact on BAF
1.2,1.3	None

1. Executive Summary

This paper provides information and an update on infection prevention and control issues for the period 1st April – 30th June 2017.

2. Background

High standards of infection prevention and control are essential to ensure that people who use health care services receive safe and effective care. The *Health and Social care Act 2008: Code of Practice on the prevention and control of infections* identifies that good organisational processes and a robust assurance framework are essential to ensure effective infection prevention.

In order to demonstrate that infection prevention is integrated into the assurance framework one recommendation is that the Board of Directors receives regular updates from the infection prevention and control team, including information on alert organisms, outbreaks, cleanliness standards and audit information. This report provides such an update.

3. Issues

3.1 Surveillance and Alert organisms

3.1.2 Mandatory reporting of Bacteraemias and C Difficile infections

There is a requirement that bacteraemias (blood stream infections) caused by certain bacteria and also *Clostridium difficile* infections are monitored and reported to Public Health England on a monthly basis. These cases are also reported to the Clinical Commissioning Group monthly.

	Number of cases April – June 17 (Year to Date) Attributable to Trust	Target for 2017/18	Comments
MRSA bacteraemias (Bloodstream)	1 (1)	0	A multi –disciplinary PIR (Post infection review) was completed. See appendix.
Staphylococcus	3 (3)	Mandatory	For 1 patient the probable cause

aureus (MSSA) bacteraemias-		reporting but no targets assigned	was a line related infection (this patient also had an MRSA bacteraemia) For the other patients the cause was not identified.
E. coli bacteraemias-	4 (4)	Mandatory reporting. A national and regional reduction target of 10% from 2015/16 baseline of 9.	Reviews indicated that the probable cause was a urinary tract infections for 2 patients. 1 patient had a perforated bowel and in the other case the cause was not definitively identified
Clostridium difficile infection (C. difficile toxin positive)	1 (1)	≤ 4	See section 3.1.2.1
Clostridium difficile infection (C. difficile gene positive only)	0 (0)	No targets assigned	

3.1.2.1 Clostridium difficile

The patient was a surgical patient and was cared for on Oak ward.

A patient review has been undertaken and areas for improvement and learning points have been identified and shared with relevant area and relevant staff, these included; ensuring documentation is completed correctly, that samples are taken at the correct time and anti- diarrhoeal medication is not prescribed inappropriately.

3.1.3 MRSA – all cases (Non- bloodstream)

All cases of MRSA in the Trust, including infected and colonised patients, are closely monitored to identify any increased incidence or outbreaks.

Although there have been a number of patients in the Trust with MRSA during this time period these were identified before or on admission. The patient with an MRSA bacteraemia was also colonised with MRSA but this was identified prior to transfer to this Trust.

3.1.4 Carbapenemase Producing Enterobacteriaceae (CPE)

2 new cases were identified, one patient in April and one in June, there were no overlaps with the 2 patients. Both were colonised (positive rectal screen). Both patients were transferred into the Trust but had had a negative screen prior to the positive one. No contact patients were identified as positive.

3.1.5 Vancomycin Resistant Enterococcus (VRE)

19 patients were identified as having VRE positive isolates in this time period. 7 of these designated as Trust acquired i.e. not known to be positive on admission.

The majority of the new isolates were from patients on Critical Care. However this is the only area that routinely tests for colonisation with VRE as part of a weekly screening regime. Therefore it is not always possible to identify where and when the patients acquired VRE.

3.2. Audits

3.2.1 Hand Hygiene

Clinical areas carry out weekly observational audits of hand hygiene in their area, with 1 audit in a peer review ward each month. Some areas have not submitted all the audits, including the peer audits, but this has been raised with the relevant managers and the results have been forwarded to the Heads of Nursing so they can monitor that the audits are performed according to the schedule. Some issues have been identified related to education and training

	April	May
Results of Compliance Audits	99.8%	99.2%
No. of Observations	649	709

3.2.2 Other audits

The infection prevention nurses have performed audits on screening for resistant organisms, use of isolation facilities and documentation in bowel charts. Results have been fed back to the relevant areas and the Infection Prevention Committee.

3.3. Cleanliness

A standard monitoring tool is used by the Hygiene supervisors to assess environmental cleanliness. The target is an overall Trust score of 95%, with an individual score for clinical areas of 95% or above. Hygiene services are achieving above the national cleaning standards of 95% in all patient/clinical areas, except for:

Maple Suite achieved 92% in April – Dust found in some areas during the Refurbishment programme, additional cleaning hours were identified and allocated.

Cath Lab achieved 93% in the staff changing room facilities. The issue was rectified immediately and will be closely monitored.

The overall monitoring scores for the Trust were:

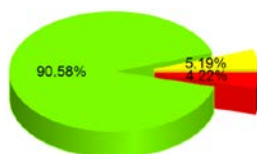
	April	May
Results	96%	99%

3.3.1 Clean Trace

The Clean Trace system helps to assess standards of hygiene and cleaning processes by measuring the amount of adenosine tri-phosphate (ATP) in a sample. This gives an indication of overall biological contamination including microbiological and body fluid residues on surfaces.

Wards and areas monitor identified pieces of equipment every month to check levels of cleanliness. There was slight increase in fails during this time frame. Persistent fails have been key boards, patient chairs, bed frames and dressing trolleys. There has been an increase in fails for clean bed spaces . All fails were cleaned at the time and results fed back to improve cleaning processes for individual pieces of equipment.

Pass Caution Fail



Measurements: 308. Pass: 279. Caution: 16. Fail:13

3.4 Surgical Site Infection Working Group

The multi-disciplinary working group has met in April, May and June. An audit programme has been agreed and a number of audits completed. An action plan has been developed following the initial review and has been updated following the results of some of the audits undertaken. The action plan has been presented to the Infection Prevention Committee.

3.5 Sepsis Update

The new sepsis screening tool has been introduced but there has been variable engagement resulting in patients being treated out with the EPR sepsis bundle. This has meant the monitoring of sepsis KPIs has been difficult.

A working group has been established resulting in a full programme of nurse and doctor training and education, modifications of the EPR data string and continued vigilance of non-sepsis bundle patients.

Improvements in compliance should be evident in the next quarter.

4.0 Conclusion

The surveillance of infections and routine audit data continue to be monitored and work is on-going to ensure the annual programme is fulfilled and a robust audit programme is in place.

The trust has had its first MRSA bacteraemia for over four years. A full PIR has been performed and an action plan developed.

5.0 Recommendations

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

Appendix 1 MRSA BLOODSTREAM INFECTION: POST INFECTION REVIEW TOOLKIT

Toolkit from

Guidance on the reporting and monitoring arrangements and post infection review process for MRSA bloodstream infections (NHS England)

The purpose of this toolkit is to help staff conduct their post infection review in the case of an MRSA bloodstream infection*. Some sections may be more relevant than others, and staff are encouraged to exercise their discretion/clinical judgement in completing the form

Organisation	Liverpool Heart and Chest NHS Trust
Site/Location where the specimen was taken	Liverpool Heart and Chest NHS Trust
Ward/area	CCU
Nature of incident*	MRSA Bacteraemia
Date of incident	Sample taken 7/6/17

1. Write a brief narrative of the incident, including likely source and any underlying clinical, social or behavioural factors of the patient, patient management, outcome.

Patient admitted from Nobles Hospital, Isle of Man following an urgent referral for acute coronary syndrome. Verbal report to capacity team arranging the transfer was that patient was positive for MRSA. Therefore patient admitted to a sideroom on Birch ward on the afternoon of 2/6/17 with isolation precautions. No indication of MRSA status, results or decolonisation treatment in transfer documentation. MRSA screen taken on admission. Cardiac catheters performed on 3/6/17 and severe coronary artery disease identified. Therefore decision made to refer patient for CABG. Commenced on GTN infusion for increasing chest pain and transferred to CCU for monitoring on 4/6/17. MRSA screen results available 6/6/17, patient commenced on decolonisation treatment. Patient became pyrexial and triggered sepsis bundle on 7/6/17, blood cultures obtained, central line inserted, IV antibiotics commenced. Possible focus of infection noted initially as chest but site of peripheral cannula on R arm noted to be tender on 7/6/17 (cannula removed) and later became red/hot to touch on 8/6/17. Blood culture results available 9/6/17, patient reviewed by microbiologist, antibiotics appropriate therefore no changes made. Patient informed of results.

A. CASE DETAILS

1. DCS Case number/reference¹	
1.1 Name of patient (this information can only be accessed locally)	
1.2 Date of Birth (DOB)	1.3 Sex
1.4 Date specimen was taken	
7/6/17	
1.5 Location where the specimen was taken	
CCU	

¹ This number is a unique case identifier that the DCS gives to every case of MRSA bloodstream infection input.

2. Please supply a 'timeline' for patient movement over the last 2 weeks (e.g. admission and discharge dates for inpatient stays, Outpatient or A&E attendances, GP attendances, attendances for dialysis or other therapy,).

Admitted from home to Nobles Hospital – Isle of Man on 30/5/17. Transferred to LHCH on 2/6/17 to Cath Lab and then Birch ward. Transferred to CCU on 4/6/17.

3. Contact with:

- | | |
|---|------------------------------|
| ○ Nursing/residential care/sheltered housing? | n/a |
| ○ Contact with respite care? | n/a |
| ○ Continence clinic? | n/a |
| ○ Podiatry/leg ulcer/diabetic foot clinic? | n/a |
| ○ Other organisation relevant to the case | Nobles Hospital, Isle of Man |

4. Any medical conditions relevant to this case of MRSA bloodstream infection?

Coronary artery disease
Chest Infections (previous MRSA bacteraemia)

5. Other relevant co-morbidities

COPD, osteoarthritis, Bowel resection, segmented pulmonary embolism (2016)

6. Likely outcome from this episode prior to the patient being infected with an MRSA BSI?

Inpatient, awaiting CABG

B. SCREENING FOR INFECTION/COLONISATION

7. For admitted patients, and in line with national MRSA screening guidance and your local protocols, was the patient eligible to be screened for MRSA colonisation prior to, on or during admission?

Patient should have been screened on admission

8. If so, were they screened?

Yes on 2/6/17

9. If yes, and the patient tested positive for MRSA colonisation, was decolonisation prescribed?

Decolonisation prescribed when positive sample result from LHCH was reported on 6/6/17

10. Was the recommended decolonisation process followed by the patient?

Yes

11. Please supply relevant screening and decolonisation history.

Information from Nobles Hospital in Isle of Man

Positive for MRSA a number of times. Recent results:

December 2016 MRSA screen positive. MRSA bacteraemia. Treatment given.

February 2017 MRSA screen positive, decolonisation treatment given

8/4/17 MRSA screen positive- unknown if decolonisation treatment given

30/5/17 MRSA screen positive – decolonisation treatment not given

LHCH

2/6/17- MRSA screen positive, decolonisation prescribed 6/6/17

9/6/17 R arm/cannula site MRSA negative, Toe ulcer MRSA positive

12. Was the patient aware of any previous MRSA colonisation/infection?
Yes. Patient stated numerous positive screens during previous hospital admissions
13. Could any deficiencies in screening have contributed to the incident?
No

C. DEVICES USED IN RELATION TO PATIENT

14. Please list any devices used in a prior period relevant to this case in the events that led to the infection.

Device	Date of insertion	Date of removal	In line with local policy, was the device:	
PVC	Unknown	03/6/17	Inserted in Nobles- no documentation available	
PVC	3/6/17	6/6/17	Insertion documented /care bundle compliant. Some gaps with ongoing documentation	
PVC	4/6/17	7/6/17	Insertion not fully documented. some gaps with VIP scores/care plan	
Central line	7/6/17		Insertion and care documented- compliant	

15. Please provide a summary of any deficiencies in device usage that may have contributed to this incident

D. ANTIMICROBIAL THERAPY

16. During the patient pathway under review, was the patient prescribed any antibiotics?
Commenced on antibiotics on the day blood cultures were taken 7/6/17 for suspected sepsis.
16a. If yes, which antibiotics were prescribed? (you may wish to consider noting details of the prescribers and the dates of the prescriptions)
INSERT ANTIBIOTICS PRESCRIBED
Teicoplanin IV 800mg commenced 7/6/17 Gentamicin 330mg commenced 7/6/17
17. Was the appropriate antibiotic type prescribed?
Yes
17a. Was the appropriate dosage prescribed?
Yes
18. If no, could this have been a contributory factor for the MRSA BSI?
n/a

E. SKIN INTEGRITY

19. Did the patient have any breach in skin integrity (e.g. pressure sores/ulcers, leg ulcers, eczema)?
Old pressure ulcer on toe (healed). MRSA positive 9/6/17
19a. If there was a surgical wound, were any of the correct surgical processes not followed using optimal practice?
Had cardiac catheters as emergency 3/6/17. Documented in notes that aseptic technique used and correct skin prep applied.
19b. If a chronic wound, was it appropriately managed?
n/a
19c. If a chronic wound, was it colonised with MRSA?
20. Could any deficiencies in the management of skin integrity have contributed to the incident?
No

F. RISK FACTORS FOR TRANSMISSION

21. Is there any evidence of new colonisation by MRSA during the period of care that led to the current MRSA BSI?
No
22. Was the patient appropriately isolated?
Yes, isolated on admission
23. Any other factors that may have contributed to transmission?
No. No evidence of transmission within the Trust. All cases of MRSA in May/June were not Trust acquired.

G. HAND HYGIENE

24. Was there evidence of any deficiencies in hand hygiene compliance in the areas of the pathways of care during this period?
Audit done 5/6/17 100% compliance
24a. If "YES", please provide details.

H. OTHER FACTORS

25. Were there any deficiencies in environmental or equipment cleaning during this period, and could these have contributed to this incident?
Environmental cleaning score for CCU for May 96%. Clean Trace Audit of Equipment for May = 100%
26. Were there any other factors (avoidable or unavoidable) relating to this patient's overall management that could have contributed to the incident?
26a. If "YES", please provide details
27. If "YES", could these have been avoided?

I. ORGANISATIONAL ISSUES

28. Were staff to patient ratios appropriate or at least in line with local agreement in the areas where this patient was managed prior to the incident?
Yes

29. Were there any specific issues with staffing capacity during the period prior to this incident?
No
30. Were there any likely deficiencies of training in infection control in the areas covered by the patient pathway of care?
Infection prevention & control module, mandatory training 95%

J. GOVERNANCE ISSUES

31. Is there evidence from any of the organisations responsible for the patient's care:
<ul style="list-style-type: none"> Of formal and informal audits of relevant clinical practice being undertaken and used to drive improvement? Of processes in place to check effectiveness of clinical practice controls e.g. additional spot checks, use of safety thermometer, intentional walk rounds by matron/lead nurse/board member? That ownership of infection prevention and control is evident in individual staff members, teams and management structures and mandated within their governance structures and processes when undertaking PIR/RCAs/Serious Incidents?
<p>Senior nurse walkabouts.</p> <p>Infection prevention and control audits.</p> <p>Essential Care standard assessments</p>
32. Is there evidence of infection control policies for the relevant issues identified and have these been reviewed in accordance with the organisation's requirements?
<p>Isolation, MRSA, Infection Prevention and Control policies.</p> <p>Peripheral Intravascular policy under review</p>

33. Summary to inform development of action plan for learning outcomes

<i>Using the boxes below, please provide summary of factors A to J.</i>	<i>Were any of the factors contributing to the infection identified in this section?</i>	<i>Using the free text boxes below, please state whether the factors that contributed to the infection could have been prevented.</i>	<i>Recommended actions agreed to prevent recurrence.</i>	<i>If examples of sub-optimal practice have been detected, but did not contribute to this infection, please insert details here. Please indication what corrective action is being/has been taken.</i>
Agreed contaminant	No			
A - Case details	Yes	Information required from transferring hospital	See action plan	
B – Screening for Infection/colonisation	Yes	Possibly should have started on decolonisation sooner – dependant on information available	See action plan	
C – Devices	Yes	Gaps in	See action plan	

		documentation		
D – Antimicrobial therapy	No			
E - Skin Integrity	No			
F – Risk factors for Transmission	No			
G – Hand Hygiene	No			
H – Other factors	No			
I – Organisational issues	No			
J - Governance	Yes	Gaps in audit framework	See action plan	

K. STATEMENT OF GOOD PRACTICE

34. Are the patient and appropriate relatives/carers fully aware of this incident?
Yes. Infection prevention nurse and microbiologist discussed this with the patient on the day the result was obtained.
35. PLEASE SUMMARISE THE LEARNING OUTCOMES FROM THIS POST INFECTION REVIEW (using the free text box below)
See appendix 2

L. AFTER CONDUCTING THE POST INFECTION REVIEW, THIS CASE SHOULD BE FINALLY ASSIGNED

Assigned organisation is (please tick <u>one</u> box):	
Acute trust <input checked="" type="checkbox"/>	No agreement between CCG and trust <input type="checkbox"/>
CCG <input type="checkbox"/>	Decision by DPH if Case referred for arbitration (select trust or CCG) <input type="checkbox"/>

Appendix 2 Action Plan- MRSA Bacteraemia 6/17

Action	Person(s) Responsible	Date	Review/Update
To feedback results of PIR to Isle of Man infection prevention team.	Nicola Best	30/6/17	
To review transfer information collected by capacity team. To add additional structured questions reading decolonisation and screening history	Mary Johnson/Nicola Best	31/7/17	
To explore the use of alerts on the electronic transfer form currently under development	Nicola Best/Paula Fagin	31/7/17	
To audit Trust documentation of peripheral cannulae	Ward Managers/IPT	7/7/17	
To review thresholds for decolonisation of patients	IPT	7/7/17	
To ensure monthly audits related to care and insertion of peripheral cannulae are completed and reports forwarded to the Infection Prevention Committee.	Ward managers/Matrons/HONs	31/7/17	
To ensure policy related to peripheral intravascular lines is reviewed and re-ratified.	Clinical practice facilitator/Nicola Best	31/7/17	
To ensure summary of PIR is circulated and discussed at divisional governance meetings	HONs	31/7/17	