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1. Carriage, Infection and clearance

1.1 Carriage

MRSA is carried at the same sites as meticillin sensitive *Staphylococcus aureus* (MSSA). The nose is the most common site of carriage with perineum, groin, axillae and throat being other common sites.

Staphylococcus aureus including MRSA is also likely to be carried on areas of inflamed skin such as eczema / dermatitis and any wounds such as leg ulcers and pressure sores.

In addition the presence of a medical device which breaches the normal body defences such as peripheral venous cannulae or urinary catheters, will predispose to *Staphylococcus aureus* carriage at that site.

1.2 Infection

As distinct from carriage, infection implies an invasive process to a greater or lesser degree and some degree of tissue inflammation. The common infections caused by *Staphylococcus aureus* including MRSA are skin infections such as boils and impetigo, cellulitis, osteomyelitis and infective endocarditis. In the healthcare setting *Staphylococcus aureus* often cause infection related to medical devices such as IV lines.

1.3 Clearance

Staphylococcus aureus carriage is normal for many people but in healthcare it can be useful to attempt to clear carriage with topical antimicrobials (Decolonisation therapy). Patients colonised with MRSA should normally be prescribed decolonisation therapy unless there is a clear indication not to. Sometimes people who were carriers of MRSA may lose carriage spontaneously, especially where the only site of carriage was a wound that has healed; or following decolonisation therapy. For the purposes of infection control management previously colonised patients can be regarded as clear if they have three clear screens from all appropriate sites taken at least one week apart and while not receiving topical or systemic antibiotic therapy that would suppress the growth in culture.

2. Admission Screening Process

MRSA screening consists of:

- The identification of patients at higher risk of MRSA colonisation by clinical risk assessment (CRA)
- The use of swabs from sites of usual MRSA carriage to detect carriage

2.1 Screening process by patient group

Patient group	Process
All adult emergency admissions except maternity and mental health	1. CRA 2. MRSA screening samples
All adult elective admissions with at least overnight stay anticipated	1. CRA 2. MRSA screening samples
All admissions to ward 9	If not performed for the admission in pre-assessment 1. CRA 2. MRSA screening samples
All admissions and transfers to ITU	1. CRA 2. MRSA screening samples
Patients transferred to paediatrics from another hospital	MRSA screening samples
Patients transferred to maternity from another hospital	MRSA screening samples
Paediatric admissions other than transfers from another hospital	Not screened
Admissions to mental health	Not screened
Admissions to community hospitals	Not screened

2.2 The clinical risk assessment (CRA)

Obtain answers to the 3 CRA questions

1. Has the patient previously been identified as MRSA positive (check clinical alert sheet on notes and flag on TrakCare)

2. Is the patient currently resident in a care home, institutional setting or transferred from another hospital?

3. Does the patient have a wound or device present e.g. Leg Ulcer, Pressure Sore, Hickman Line, PVC, urinary catheter?

If the answer is yes to any of these questions assume the patient to be MRSA positive and manage accordingly pending the results of MRSA screening samples.

2.3 MRSA screening samples

These are taken from all patients admitted to acute adult wards except maternity, and all paediatric and adult transfers from other hospitals.

Sites to be included in an MRSA screen:

- Nose swab (both anterior nares sampled using one swab)
- Perineum swab
- Throat swab (if patient will not accept perineal sampling or this is impractical for other reasons)
- Wound swab(s)
- Urine if patient is catheterized when admitted
- Sputum if the patient is expectorating

2.4 MRSA screening in pre-admission unit

Patients attending the pre-admission clinic for procedures that will require at least an overnight stay will be screened using the CRA and MRSA screening samples.

If a patient is negative for MRSA from their original pre-admission screen, and there is still a full negative response from the CRA questions including no previous history of MRSA, then this will be applicable for 18 weeks from their last pre-assessment screen.

If a patient has screened negative for MRSA at pre-assessment, but is positive for any of the CRA questions, then this will only be applicable for 8 weeks from their last pre-assessment screen. Any patient with a positive response to their CRA question will be assumed to be more at risk of acquisition.

2.5 Management of colonised patients undergoing elective surgery

Colonised patients undergoing elective surgery should be offered decolonisation therapy applied either pre-operatively or peri-operatively. Peri-operative decolonisation should be commenced two or three days prior to the date of surgery in order to effectively suppress microbial load and reduce the risk of infection.

If antimicrobial prophylaxis is needed for the procedure this should be adjusted to include cover for MRSA as specified in the NHS Borders Antimicrobial Guidelines for hospitals available at:
http://intranet/resource.asp?uid=2845

3. Staff screening

This is very seldom necessary but may be useful when unexplained acquisition of MRSA occurs within NHS Borders patients and personnel. The decision to screen will be agreed with senior medical and nursing staff within the involved division. The process will be co-ordinated by Occupational Health and the Infection Prevention Control Team. Staff found to be MRSA positive will be seen and counselled by a member of Occupational Health staff. The appropriate decolonisation treatment will be prescribed and provided, and follow up screening organised.

Occupational Health will advise when it is appropriate to return to work.

4. Management of MRSA colonised patients in inpatient areas in BGH and Community Hospitals (excluding mental health)

General Measures

4.1 Hand hygiene

Hand hygiene (either hand washing or application of alcohol gel) is the single most important measure for prevention of transmission of MRSA in clinical settings.

Please refer to Standard Infection Control Precautions and NHS Borders Zero Tolerance Hand Hygiene Policy.

4.2 Placement

Patients colonised with MRSA should be nursed in a single room. The room should be identified as one being used for isolation and the door remain closed unless risk assessment shows that this compromises patient care. Any such assessment should be documented in the unitary record.

Appropriate infection control precautions should be clearly identified using correct signage.

If single room with appropriate infection control precautions is not available, colonised patients may be managed within a bay on advice from the Infection Prevention and Control Team (IPCT).

4.3 Management of newly identified MRSA positive patients

The Infection Control Team will tag newly identified MRSA positive patient case notes with a Clinical Alert sticker and add an electronic alert on Trakcare and ICNet.

4.4 Contact screening of newly identified cases of MRSA colonisation

Identification of MRSA colonisation or infection in patients some time following admission will often imply transmission within the ward. It may then be appropriate to screen contacts of the index case to prevent further transmission within the ward. When new cases such as these are identified the need for contact screening will be considered by the IPCT in discussion with ward staff.

4.5 Decolonisation of the MRSA positive patient

The usual approach should be to use topical decolonisation on patients colonised with MRSA who are admitted to hospital as this appears to reduce the risk of MRSA infection during their admission. There may be factors such as skin sensitivity or multiple wounds which would make it less applicable in a particular patient.
An attempt should be made to decolonise patients known to be positive with MRSA. Please remember that, as with any other procedure in hospital, any proposed investigation or treatment should be adequately explained and discussed with the patient and/ or their relatives, and that they have the right to decline such intervention.

4.6 Informing a patient that they are colonised with MRSA

In the first instance this should be undertaken by a member of the Medical/ Nursing staff caring for the patient. However, after this the IPCT are happy to speak to patients/ relative if this is deemed appropriate or further questions/ help is required.

Relatives should only be informed with the agreement/ knowledge of the patient. For children, the parents/ guardian will be informed. Colonised patients and where appropriate their relatives/carers should be offered written information on MRSA.

4.7 Transfer to another ward within the hospital

Transfer of MRSA affected patients to other wards should be minimised to reduce the risk of spread, but this should not compromise other aspects of the patient's care, such as rehabilitation. In all cases, it is the responsibility of ward and clinical staff to inform relevant departments of a patient's MRSA status well in advance of transfer.

Specific measures

4.8 Personal protective equipment (PPE)

Glove and apron (disposable)

Must be worn, by all staff in contact with patient. Gloves and apron must be removed before leaving the patient surroundings. Wearing gloves does not preclude the need for hand washing.

Masks and eye protection

Should be worn if procedures are to be undertaken in which there is judged to be a significant risk of splashing of blood/body fluids or when the patient is unable to control cough and sputum is colonised.

4.9 Visitors

Visitors should be advised to follow instructions on the precautions signage.

4.10 Crockery and cutlery

Use normal utensils. Wash in dishwasher.

4.11 Linen

Treat as infected. For personal laundry follow any local arrangements in place. Change linen and clothing on a daily basis.

4.12 Waste

Should be treated as clinical waste i.e. placed in a yellow clinical waste bag.

4.13 Equipment

Decontaminate all patient equipment with 1,000ppm Actichlor Plus solution or Tristel Fuse.

4.14 Fans

Portable fans should not be used close to a patient known to be MRSA positive.

4.15 Slings

Single patient use slings should be used.

4.16 Other equipment

Items of healthcare equipment in direct contact with the patient (e.g. stethoscopes, BP cuffs) should, where possible, be dedicated for that patient during their hospital stay. Such items should be appropriately decontaminated or disposed of after the patient is discharged.
Decontaminate all equipment with 1,000ppm Actichlor Plus or appropriate dilution of Tristel Fuse solution.

Cleaning

4.17 Routine and Terminal cleaning

The patient's furniture, floors and touch surfaces should be cleaned with 1,000ppm Actichlor Plus or appropriate dilution of Tristel Fuse solution. Ensure laundering of curtains.

5 Transfer, discharge and movement of MRSA colonised and infected patients to theatre, diagnostic areas and outpatients.

MRSA infection / colonisation should not interfere with the management of the patient. When visiting a diagnostic or therapeutic department, the department must be informed, in advance, so that appropriate infection control measures can be implemented.

5.1 Diagnostic Investigations, Theatre and DPU

Staff of the receiving department should be made aware of the patient's MRSA status, so that infection control measures for that department can be implemented.

Occlude any lesions whenever possible with an appropriate dressing.

Chairs/trolleys should be decontaminated with 1,000ppm Actichlor Plus or Fuse after transfer or use. If a patient is being transferred on their bed, both bed and linen should be clean prior to transfer.

Patient should spend the minimum time in the department, being sent for when the department is ready and not left in a waiting area with other patients.

Equipment and the number of staff attending should be kept to a minimum.

Surfaces with which the patient has had direct contact should be decontaminated with 1,000ppm Actichlor Plus or Fuse.

MRSA colonised patients do not need to be placed at the end of a theatre list and can be recovered in the main recovery areas.

5.2 Discharge of MRSA colonised patients

The General Practitioner and other health care agencies, including Ambulance Services, involved in the patient's care should be informed of MRSA colonisation. N.B. All ambulance services have their own MRSA policies.
The ward nurses should inform community nurses where ongoing care is required.

MRSA carriers will not normally require special treatment after discharge from hospital. Advice may be obtained from the IPCT if patients due for transfer or discharge are undergoing topical MRSA eradication therapy.

Patients and their carers should be fully informed about their MRSA status prior to discharge and reassured that their healthy relatives and contacts are not at risk. Advice may be sought from the Infection Prevention & Control Team if patients or their carers identify contacts that may be at risk due to their own health, e.g. contacts with lowered immunity or chronic skin lesions.

Patients should be advised that they should inform staff at any future hospital admission that they have previously been identified as carriers of MRSA.

Patients who have died colonised or infected with MRSA do not require to be placed in body bags for this reason as they do not pose a risk to mortuary staff, patients' relatives, or undertakers.

5.3 Outpatients

Colonised patients attending out-patient appointments should attend as normal and not segregated. Gloves and aprons should be worn by staff if performing a clinical examination.

6. MRSA DECOLONISATION TREATMENT

Decolonisation treatment will last 5 days. It will normally be applied to inpatients at BGH found to be colonised with MRSA, usually at the direction of the IPCT, but may also be initiated by the inpatient team. Normally a maximum of only two consecutive treatments will be given in a particular admission, but contact IPCT for advice.

6.1 Topical decolonisation treatment

1. Apply Mupirocin (Bactroban) nasal ointment three times a day to the inner surface of the nostrils (use a cotton wool bud to enhance application). If the patient's MRSA strain is resistant to mupirocin, alternative treatment will be discussed with ward staff by IPCT

2. Apply daily 4% Chlorhexidine cleansing solution instead of soap. Rinse off and towel dry

3. Chlorhexidine cleanser should also be used twice weekly as a shampoo whilst on the decolonisation treatment (hair conditioner may be used for the final rinse)

4. Alternative treatments are available for patients whose skin cannot tolerate chlorhexidine, for further information contact the IPCT

5. The patient should use chlorhexidine 0.2% mouthwash two times daily

The patient's bed linen (and night wear if possible) should be changed daily during the decolonisation treatment.

Alternative products are available for patients with chlorhexidine allergy or sensitivity. Contact the IPCT for advice if needed.

6.2 Post-decolonisation screening

- This should be commenced no sooner than 48 hours after the treatment regime has been completed

- If patient commences or remains on antibiotic treatment active against MRSA, delay screening until 48 hours after antibiotics have been discontinued

- Mark specimen 'MRSA clearance screening'

- If any screen is positive, consult the IPCT who will reassess the need for further treatment.

For the purposes of infection control management previously colonised patients can be regarded as clear if they have **three clear screens** from all appropriate sites taken at least one week apart and while not receiving topical or systemic antibiotic therapy that would suppress the growth in culture.

A negative screen following decolonisation does not guarantee that the patient will not recolonise at a later date. The patient record/ notes continue to alert of the history of MRSA carriage.