

Management & Control of Meticillin-Resistant *Staphylococcus aureus*

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22 May 2019	May 2024	13

Purpose

These guidelines aim to:

1. Ensure that patients colonised or infected with Meticillin-Resistant *Staphylococcus aureus* (MRSA) receive effective and appropriate care
2. Minimise the risk of transmission of MRSA

Who should read this document?

These guidelines are applicable to all staff, including Ministry of Defence (MOD) personnel; contractors, those employed on a fixed term contract; honorary contract; agency or locum staff, and students affiliated to educational establishments and volunteers.

Key Messages

MRSA is usually transmitted on the hands of Health Care Workers. Certain clinical conditions, such as pneumonia or exfoliating skin disease, increase the risk of extensive environmental contamination with subsequent increase in hand-borne transmission and the potential for airborne spread.

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The Trust is committed to creating a fully inclusive and accessible service. Making equality and diversity an integral part of the business will enable us to enhance the services we deliver and better meet the needs of patients and staff. We will treat people with dignity and respect, promote equality and diversity and eliminate all forms of discrimination, regardless of (but not limited to) age, disability, gender reassignment, race, religion or belief, sex, sexual orientation, marriage/civil partnership and pregnancy/maternity.

An electronic version of this document is available on Trust Documents. Larger text, Braille and Audio versions can be made available upon request.

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Guidance

Management & Control of Meticillin-Resistant *Staphylococcus aureus*

Summary

This document is divided into two parts. The first details the basic requirements and responsibilities of members of staff. From this are cross-referenced guidelines and procedures that may be required in certain circumstances. The second details procedures relevant to the management and control of Meticillin-Resistant *Staphylococcus aureus* (MRSA).

- The most effective means of preventing cross infection and colonisation with MRSA is patient isolation combined with good hand hygiene and clinical practice.
- As from March 2014, national guidance on meticillin-resistant *Staphylococcus aureus* (MRSA) screening has recommended a move away from universal screening of all admissions to a local risk assessment-based process. Local guidance is based on the National One Week (NOW) prevalence audit of MRSA screening report performed in 2010 to assess compliance with MRSA screening policy in the NHS in England. Screening is limited to patients at high risk of poor outcome from MRSA infection and those most likely to be colonised (i.e. high prevalence groups). These patient groups are outlined in Appendix 1.
- In certain circumstances, the Infection Prevention and Control Team (IPCT) may also recommend screening of patients who have been in contact with a case of MRSA or as part of the investigation of hospital-acquired cases of MRSA.
- Colonised patients should be offered MRSA decolonisation treatment and followed up with further screening.
- Prior to invasive procedures, all patients known to have been MRSA colonised at any time in the past should receive topical MRSA decolonisation therapy as well as Teicoplanin prophylaxis in addition to normal prophylaxis before any procedure where such antibiotic cover is indicated.
- On admission, all patients known to have been MRSA colonised at any time in the past should receive topical MRSA decolonisation therapy and be managed with Standard Precautions pending the result of their admission MRSA screen
- Locally virtually all strains of MRSA are resistant to quinolones (e.g. levofloxacin) and are usually resistant to erythromycin, and frequently clindamycin. The use of such agents will not only be ineffective for MRSA infections but may lead to the uncovering of unidentified colonisation and increase the risk of subsequent infection.

Guideline Objectives

These guidelines aim to:

1. Ensure that patients colonised or infected with MRSA receive effective and appropriate care
2. Minimise the risk of transmission of MRSA.

Background

Meticillin-resistant *S. aureus* (MRSA) is a bacterium that is resistant to antibiotics that would traditionally be used to treat *S. aureus* infections. This can make infections more difficult to treat due to a limited choice of antibiotics. Whilst MRSA is capable of causing serious and life-threatening infections, it is generally carried in the nose or the skin without causing any harm. Where MRSA is isolated without evidence of infection this is called colonisation. Patients will be identified as being colonised or infected with MRSA through screening swabs or routine microbiological investigation.

Epidemic strains of MRSA (EMRSA) have a propensity for transmission and have been particularly implicated in cross-infection. In the United Kingdom, EMRSA-15 and EMRSA-16 are the commonest strains. By far the most important route of transmission of MRSA from one patient to another is via the hands of healthcare workers. Other routes of transmission include via contaminated equipment, airborne (e.g. in dust containing skin scales) or droplets from a patient with MRSA respiratory tract infection. Colonised healthcare workers represent another potential source of MRSA for patients.

The most effective means of preventing cross infection and colonisation with MRSA is patient isolation combined with good hand hygiene and clinical practice. Another key strategy in controlling MRSA is to screen patients, instigate contact precautions and prescribe decolonisation therapy. As from March 2014, national guidance on meticillin-resistant *Staphylococcus aureus* (MRSA) screening has recommended a move away from universal screening of all admissions to a local risk assessment-based process. Local guidance is based on the National One Week (NOW) prevalence audit of MRSA screening report performed in 2010 to assess compliance with MRSA screening policy in the NHS in England. Screening is limited to patients at high risk of poor outcome from MRSA infection and those most likely to be colonised (i.e. high prevalence groups). These patient groups are outlined in Appendix 1.

In certain circumstances, the IPCT may also recommend screening of patients who have been in contact with a case of MRSA or as part of the investigation of hospital-acquired cases of MRSA. Consideration should be given to the re-screening of patients found to be negative on admission and who remain in hospital for a prolonged length of time. All patients who have been colonised in the past, even if successfully decontaminated, should be considered colonised on subsequent re-admissions until the result of screening swabs are available. These patients should receive topical MRSA decolonisation therapy and be managed with Standard Precautions pending the result of their admission MRSA screen. It should be noted that subsequent antibiotic treatment may lead to the uncovering of unidentified colonisation.

Key Principles

Responsibility

- Infection control is everyone's responsibility and depends upon members of staff maintaining their own high standards and those of their fellow workers

Mode of transmission	<ul style="list-style-type: none"> • The predominant means of spread of MRSA is via the hands of Health Care Workers. Effective hand hygiene can reduce the spread of MRSA as well as other nosocomial pathogens, especially as part of an integrated infection control programme.
Clinical hygiene	<ul style="list-style-type: none"> • A high standard of hand hygiene, aseptic technique and a regularly cleaned clinical environment and equipment are important
Contact Precautions	<ul style="list-style-type: none"> • To reduce the risk of staff transmitting MRSA Contact Precautions must be observed when caring for colonised/infected patients, ie disposable gloves and plastic aprons whilst in contact with patients or their immediate surroundings
Patient Isolation	<ul style="list-style-type: none"> • Patients at high risk of disseminating MRSA should be managed in standard isolation. Ideally all MRSA colonised patients should be nursed in Standard Isolation, but where clinical risk assessment indicates this not to be appropriate, colonised patients may be nursed on the open ward with full Standard Precautions
Patients who should be isolated include	<ul style="list-style-type: none"> • Patients with MRSA-infected wounds, especially if extensive and suppurating • Patients with MRSA pneumonia • MRSA-colonised patients with exfoliative skin disorders (eg eczema and psoriasis)
Patient groups to be screened on admission and isolated if possible pending the result	<ul style="list-style-type: none"> • Patients known to have been colonised in the past (these are identifiable by a Clinical Alert on their clinical notes and on the Alert function of iPM) • Patients admitted from other hospitals and long term care facilities including nursing homes • Following decolonisation treatment
Environmental cleaning	<ul style="list-style-type: none"> • During admission, the patient environment should receive a twice-daily enhanced detergent clean • After transfer or discharge of an infected/colonised patient, the patient environment should be thoroughly deep cleaned with detergent and water. There should be a special emphasis on cleaning 'patient-touch' surfaces. Curtains should be changed.
MRSA decolonisation	<ul style="list-style-type: none"> • MRSA decolonisation should be attempted on in-patients or prior to elective admission. If a colonised patient is discharged the primary care team should be informed of the colonisation status and advice on further

decolonisation therapy. It should be noted that treatment of infected patients will not necessarily eliminate carriage.

Staff colonisation and infection

- Permanently colonised staff have been implicated in transmission and screening may be required in specific circumstances (please see 'Procedure for the Management of Hospital Staff Colonised with MRSA'). Staff may also be found to be colonised with MRSA during routine microbiological investigation. Staff colonised with MRSA will be managed according to the 'Procedure for the Management of Hospital Staff Colonised with MRSA' They will be offered decolonisation therapy and managed by the Occupational Health and Wellbeing Department with advice from the IPCT. Staff should usually not return to work until at least 48 hours of decolonisation therapy has been completed.
- Staff with clinical MRSA infections will be treated with appropriate antibiotics and should not return to work until asymptomatic. Occupational Health and Wellbeing and the IPCT will decide when the member of staff can return to work.
- Staff with local skin infections, such as nail fold infections or impetigo, should not work in clinical areas, unless the lesions are adequately covered. Even if not infected with MRSA, such skin conditions are at risk of subsequent MRSA infection and further transmission.

1 Principles

MRSA is usually transmitted on the hands of Health Care Workers. Certain clinical conditions, such as pneumonia or exfoliating skin disease, increase the risk of extensive environmental contamination with subsequent increase in hand-borne transmission and the potential for airborne spread.

2 Prevention

Prevention is based on rigorous hand hygiene before and after contact with patients and their potentially contaminated environments (see 'Hand Hygiene Guidelines'). Hands should be washed with soap and water at the start and end of clinical duties, when hands are visibly soiled or potentially contaminated and following the removal of gloves. Hand decontamination with alcohol-based rub should be performed between each patient contact (in line with the WHO Five Moments for Hand Hygiene), when hands are not visibly soiled. This approach will interrupt the transmission of all nosocomial pathogens not just MRSA.

3 Responsibilities

This policy relies heavily on staff taking responsibility for infection control and accepting that they are the principle route of transmission. From this it follows that it is every staff member's responsibility and duty to adhere to a meticulous hand washing strategy and assist the IPCT in

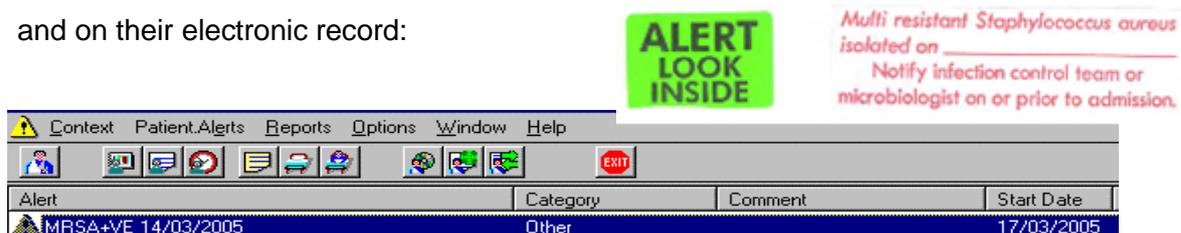
identification of patients at high risk of disseminating MRSA and to isolate them appropriately. The responsibilities necessary for the management and control of MRSA are outlined below.

3.1 Responsibilities of all staff

Control of MRSA depends on all staff accepting responsibility for maintaining a high standard of infection control in their practices and reminding others of their responsibilities. These are as follows:

- All staff should comply with this policy for all patients colonised or infected with MRSA
- All staff should be familiar with the practices referred to in this policy, including standard isolation procedures and screening procedures
- All staff should be familiar with Trust guidelines on hand decontamination as described in the 'Hand Hygiene Guidelines'. It cannot be emphasised too strongly that this is how the vast majority of nosocomial infections will be prevented
- If there is any doubt about infection control procedures staff should consult their line manager or a member of the IPCT
- Staff should ensure they are up to date with infection control training by attending education sessions provided by the IPCT, including mandatory updates. If more training would be helpful the Team should be contacted
- Staff should avoid patient contact if they have skin lesions such as paronychia, eczema, or psoriasis unless the lesions are adequately covered. Further advice may be obtained from Occupational Health and Wellbeing, the IPCT or the Department of Dermatology
- Staff responsible for the admission of patients should check the Clinical Alerts on the patient's notes and electronic record (iPM alert triangle). Patients with previous MRSA colonisation will have an 'Alert' sticker on their notes:

and on their electronic record:



The screenshot shows a software window with a menu bar (Context, Patient Alerts, Reports, Options, Window, Help) and a toolbar with various icons and an 'EXIT' button. Below the toolbar is a table with the following data:

Alert	Category	Comment	Start Date
MRSA+VE 14/03/2005	Other		17/03/2005

If these are present, a risk assessment for standard isolation precaution should be performed, decolonisation treatment should be started and a set of screening swabs taken

- Staff should ensure screening swabs are taken promptly from patients when requested by the IPCT
- Occasionally staff may be required to submit screens for MRSA carriage. Those identified as being colonised with MRSA will be referred to the Occupational Health and Wellbeing Department and offered decolonisation therapy. Please see 'Procedure for the Management of Hospital Staff Colonised with MRSA' for further details.

3.2 Responsibilities of the Infection Prevention and Control Team

Whenever possible, all MRSA-colonised patients will be visited and followed up by the IPCT. The IPCT will:

- Respond to newly identified cases of MRSA, prescribe topical MRSA decolonisation therapy in accordance with an approved Patient Group Direction and mark the patient's notes and electronic record (iPM alert triangle) with an alert marker
- Communicate results of MRSA colonisation or infection to the ward staff and the patient. A 'Patient Passport', which contains relevant patient information, will be given to the patient and the IPCT will also be available to discuss the result with relatives and visitors if requested
- Complete and insert a Care Plan in the patient's nursing notes
- Ensure staff are aware of and comply with this policy
- Audit and assess the effectiveness of this policy and infection control practices in general
- Undertake prospective, targeted surveillance and feedback the result to relevant stakeholders
- Assist ward staff in patient risk assessment for the use of standard isolation or contact precautions
- Inform Occupational Health and Wellbeing of colonised or infected staff and provide expert advice on their management as necessary. This will include an assessment of the risk a colonised staff member poses to others.
- Inform the primary care team if a patient is discharged before a positive first isolate result is available and advise on decolonisation.

3.3 Responsibilities of Ward Manager

The ward manager is responsible for ensuring that all members of staff, patients and visitors adhere to good infection control procedures and as such should:

- Emphasise the need to maintain good hand hygiene and support initiatives to improve compliance with hand hygiene policy, including monthly Hand Hygiene Audits
- Encourage staff to attend infection control training sessions
- Support the ward Infection Control Link Practitioner and allow them at least two hours of protected time per week to perform infection control-related duties
- Ensure staff check all admissions for Clinical Alerts on the patient's notes and electronic record (iPM alert triangle) for evidence of previous MRSA colonisation. If these are present,

a risk assessment for standard isolation precautions should be performed, decolonisation treatment should be started and a set of screening swabs taken

- Comply with this policy for all patients colonised or infected with MRSA. All such patients should receive a full MRSA screen and be risk assessed for Standard Isolation precautions. If the patient has pneumonia, a wound infection (especially if suppurating) or an exfoliating skin condition, they should be cared for in Standard Isolation (see page 11)
- Ensure staff observe 'Contact Precautions' when attending the patient or their immediate surroundings (page 11)
- Inform relevant hospital staff of the colonisation status
- Ensure the patient receives decolonisation or therapeutic treatments as prescribed or advised by the IPCT or medical staff (page 12)
- Liaise closely with the IPCT with regards to the ongoing management of MRSA-colonised patients
- Adhere to admission, transfer and discharge protocols as outlined in the Policy for the Admission, Transfer and Discharge of the Infected Patient (see page 16)
- Screen patients as directed by this policy and the IPCT
- Ensure the patient has access to the 'Patient Passport', which contains relevant patient information
- Communicate the MRSA-colonisation status of individual patients on discharge to district nursing, community hospital nursing or nursing home team as appropriate
- Assist the IPCT and the Occupational Health and Wellbeing Department in their efforts to control MRSA
- Perform Post-Infection Review (PIR) of any MRSA bacteraemia in their clinical area
- Report the findings of PIRs and action any recommendations made
- Ensure monthly Saving Lives audits are performed for all invasive devices (e.g. urinary catheters, peripheral and central venous catheters)
- Attend outbreak meetings in their clinical area.

3.4 Responsibilities of the Matron

The Matron is responsible for ensuring that all members of staff, patients and visitors within their area adhere to good infection control procedures and as such should:

- Emphasise the need to maintain good hand hygiene and support initiatives to improve compliance with hand hygiene policy, including monthly Hand Hygiene Audits on all their wards
- Encourage staff to attend infection control training sessions
- Support the ward Infection Control Link Practitioners in their area and allow them at least two hours of protected time per week to perform infection control-related duties
- Liaise closely with the IPCT with regards to the ongoing management of MRSA-colonised patients
- Assist the IPCT and Occupational Health and Wellbeing in their efforts to control MRSA
- Participate in PIR of any MRSA bacteraemia in their clinical area
- Report the findings of PIRs and ensure recommendations are implemented
- Ensure monthly Saving Lives audits are performed for all invasive devices (e.g. urinary catheters, peripheral and central venous catheters) in all wards in their area
- Attend outbreak meetings in their clinical area.

3.5 Responsibilities of Doctor in Charge of Patient

- Medical staff responsible for the admission of patients should check the Clinical Alerts on the patient's notes and electronic record (iPM alert triangle) for evidence of previous MRSA colonisation. If these are present, a risk assessment for standard isolation precautions should be performed, decolonisation treatment should be started and a set of screening swabs requested.
- Assist the Ward Manager in assessing the risk the patient poses to others and isolate as appropriate.
- Practice good infection control procedures as laid down in this and associated policies.
- Inform the patient of the situation and provide information regarding its management as required.
- Inform relevant hospital staff of the colonisation status.
- Prescribe MRSA decolonisation treatment, after successful treatment of any MRSA infection, when not done by the IPCT.
- Prior to transfer of a colonised/infected patient to another hospital, notify the receiving clinician at the receiving hospital.

- On transfer back to primary care inform the patient's General Practitioner of the patient's colonisation status and advise on plans for further screening and decolonisation treatments.

3.6 Responsibilities of the Occupational Health and Wellbeing Department

The management of members of staff who are colonised or infected with MRSA is the responsibility of the Occupational Health and Wellbeing Department. The Occupational Health and Wellbeing Department will:

- Accept referrals of employed staff or staff being considered for employment who are colonised or infected with MRSA
- Ensure that screening and treatment programmes are carried out in accordance with appropriate protocols
- Obtain consent for and perform staff screening which can be performed using a code to ensure confidentiality
- With the IPCT, provide expert advice to individual members of staff about the screening process
- Refer for a specialist Dermatology or Ear, Nose and Throat opinion as necessary
- Prescribe MRSA decolonisation therapy
- Contact the General Practitioner of staff prescribed systemic decolonisation therapy
- Conduct follow-up screening staff
- Advise Service Lines of any restrictions on an employee's clinical duties
- Ensure staff have access to relevant MRSA patient information leaflets, available from the IPCT
- Consider individual referrals to an appropriate counselling service or to group debriefing sessions.

3.7 Responsibilities of relatives and visitors

Relatives and visitors should be encouraged to visit patients. Those who wish to discuss issues related to MRSA and isolation care should be referred to the IPCT who will meet with them and/or provide appropriate written information.

- Visitors are expected to comply with good infection control practice and are encouraged to practice hand decontamination as outlined in the Hand Hygiene Policy

- For patients nursed under Standard Isolation, visitors must decontaminate their hands before and after contact with the patient, their immediate surroundings and on leaving the room
- The wearing of gloves and apron is not required unless relatives and visitors are assisting with the nursing of the patient or visiting other patients on the same day
- Patients and visitors may challenge staff about hand decontamination. They should be able to do this without concern that it will adversely affect their clinical management or relationships with staff.

4 Procedures

4.1 Prevention of spread of infection between patients

The main mechanism of transmission of MRSA is on the hands of staff and this can be interrupted by good hand hygiene

Secondary modes of transmission include airborne and via fomites. The following procedures are intended to minimise transmission.

4.2 Standard Isolation Procedures

The reasons for isolation must be explained to the patient and their visitors. This is particularly important for children and their parents.

- **Hand-washing.** All staff and visitors must decontaminate their hands before and after contact with the patient, their immediate surroundings and on leaving the room.
- **Gloves.** Health care workers must wear disposable gloves when in contact with potentially colonised skin, secretions and surroundings. Gloves should be removed and disposed of prior to leaving the patient's room. Hands should be washed with soap and water following glove removal.
- **Plastic apron.** A disposable plastic apron should be worn when clothing is likely to come into contact with colonised/infected patients or their surroundings. The apron should be removed and disposed of prior to leaving the patient's room.
- **Linen.** Linen should be treated as infected.
- **All waste.** All waste, including household, should be treated as clinical waste.
- **Stethoscopes.** Stethoscopes should be wiped with a detergent or alcohol wipe after each patient use.
- **Cleaning.** The patient environment, including all 'patient-touch' surfaces, including bed frames, should be cleaned with detergent solution twice-daily. After discharge, the room should be thoroughly deep cleaned with water and detergent and the Ward Manager should assess the cleanliness of the fittings.

- **Death.** No special precautions are required when handling the deceased.

4.3 Contact Precautions

Contact precautions are to be used as an adjunct and not a replacement to good hand hygiene. Contact precautions reduce hand and clothing contamination and are intended for all staff having contact with colonised or infected patients and their immediate surroundings. **Meticulous hand hygiene and contact precautions must be employed not only when in contact with patient but also their surroundings.**

For contact with colonised skin, secretions or the surrounding environment:

- Disposable gloves
- Disposable plastic apron.

Procedures at particularly high risk include:

- Dressing wounds
- Draining urinary catheter bags or surgical drains
- Manipulating vascular cannulae
- Manipulating tracheostomies.

After use, discard gloves and apron **AND** perform hand washing with soap and water.

In general, other than observing good hand hygiene practice, visitors do not need to follow the same precautions unless they have certain conditions (e.g. open and suppurating wounds) or if they are assisting with the nursing care of a patient.

4.4 Cleaning

All clinical equipment must be cleaned according to manufacturer's recommendations and in line with the Trust's Decontamination Guidelines and Procedures.

5 Admissions, Discharges and Transfers

5.1 Recognition of patients at high risk of MRSA colonisation

The following patients are at high risk of carrying MRSA: patients previously colonised with MRSA; patients who have been resident within the last six months in long stay healthcare facilities, including other hospitals and nursing/residential homes; transfers from another hospital, healthcare workers and patients with a wound, ulcer or indwelling device that was present before admission to hospital.

For these patients, the following steps should be taken:

- A full set of MRSA screening swabs should be taken regardless of screen results from other hospitals
- If at high risk of shedding MRSA, i.e. has pneumonia, exfoliative skin condition or suppurating wound infection, the patient should be admitted to standard isolation
- Other patients at risk of MRSA colonisation should be admitted to isolation if facilities exist. Such patients are at a lower risk of transmitting MRSA and prioritisation for isolation should reflect this.

5.2 Elective admission of known MRSA carriers

- All elective high-risk admissions are screened for MRSA (see Appendix 1). The management of colonised patients undergoing invasive procedures will include prescribing topical decolonisation therapy and appropriate anti-MRSA prophylactic antibiotics. Details of screening protocols can be found in:
 - Protocol for screening of elective patients for MRSA
 - Protocol for elective pre-operative MRSA screening of patients undergoing orthopaedic surgery involving joint replacement and/or other prosthetic material
 - Protocol for elective pre-operative screening of vascular graft patients for MRSA
 - Protocol for screening elective patients for MRSA and Meticillin-Susceptible *S. aureus* (MSSA).

5.3 Discharge of MRSA colonised patients

- Ward staff should ensure that on discharge all relevant staff are aware of the patient's MRSA status (e.g. General Practitioners, District Nurses, Residential/Nursing Home staff) and should recommend follow-up treatment as appropriate (e.g. when and where to screen and what decolonisation therapy to use). This should be based on advice received from the IPCT.
- Reference to the patient's MRSA status should be made in the discharge notes/letter by the doctor in charge of the patient.
- If discharged to a nursing/residential home, the home's senior nursing staff should be made aware of the MRSA status by the ward manager. Rarely should this hamper the patient discharge.
- If the patient is discharged before a first MRSA isolate positive result is available, the primary care team caring for the patient will be informed of the result by the Infection Prevention and Control Team and advised on decolonisation.

5.4 Transfer to another Hospital or Long Term Care Facility

- It is generally not necessary to screen patients before inter-hospital transfer.
- If the receiving hospital requests screening, contact the IPCT.

- It is the responsibility of the ward manager to inform the receiving ward's nursing and ambulance staff of the patient's MRSA status and the medical staff to inform the receiving doctors or General Practitioner.
- Surfaces that come into direct contact with the patient during transfer, such as stretchers, should be cleaned with detergent and water after use. Ambulance staff are not required to take specific precautions over and above normal contact precautions and good hand hygiene.

5.5 Transfer of colonised/infected patients within the hospital

- Transfer of patients colonised or infected with MRSA should be avoided if possible.
- There should be clear communication between departments about the patient's MRSA status and transfer should only proceed when the receiving area are fully prepared.
- Skin lesions should be covered with occlusive dressing. No other special precautions are required.
- Infected/colonised patients may attend clinical service departments for necessary investigations or treatments.
- Measures to reduce the risk of MRSA transmission should be taken. The colonised patient should be last on any list, avoid excessive waiting in the Department and surfaces exposed to the patient or their potentially contaminated secretions should be wiped down after use with water and detergent.
- Clinical areas such as Physiotherapy, Occupational Therapy, Radiology and Theatres should have their own local protocols for managing patients colonised or infected with MRSA.

6 Tests for colonisation

6.1 Sites

MRSA screening should be performed when the decision to admit is made and the admitting ward should screen as part of the routine admission procedure. In general patients will be screened by a three-site (nose, throat and groin/perineum) broth enrichment culture using the MRSA 'Triple Swabs'.

The additional following sites should be sampled when colonisation is being investigated:

- Lesions or sites of abnormal skin including ulceration, eczema, pressure areas, and sites of insertion of intravascular cannulas, suprapubic catheters, tracheostomies, drains or Percutaneous Endoscopic Gastrostomies. The umbilicus should also be sampled in neonates
- Sputum if a productive cough
- Urine if a urethral catheter in situ

- A vaginal swab should normally only be taken if there is a vaginal operative lesion or from a mother of a colonised neonate.

When the decision is made that a rapid result would be clinically beneficial, patients should be screened using the Polymerase Chain (PCR) Reaction method.

A nose swab should be performed using the red-topped swabs. If swabs arrive in Microbiology by 13:00 a results should normally be available by the end of the same working day. All swabs processed by PCR are also routinely cultured.

6.2 When to sample

As from March 2014, national guidance on meticillin-resistant *Staphylococcus aureus* (MRSA) screening has recommended a move away from universal screening of all admissions to a local risk assessment-based process. Local guidance is based on the National One Week (NOW) prevalence audit of MRSA screening report performed in 2010 to assess compliance with MRSA screening policy in the NHS in England. Screening is limited to patients at high risk of poor outcome from MRSA infection and those most likely to be colonised (i.e. high prevalence groups). These patient groups are outlined in Appendix 1.

In certain circumstances, the IPCT may also recommend screening of patients who have been in contact with a case of MRSA or as part of the investigation of hospital-acquired cases of MSRA. Consideration should be given to re-screening of patients found to be negative on admission and who remain in hospital for a prolonged length of time.

Swabs used to sample skin sites should first be moistened with sterile saline and then rubbed repeatedly over the sample site. Swabs should be placed in the supplied transport medium if (appropriate) and sent to the microbiology laboratory.

This may not apply to pre-operative screening where local policies should be consulted.

Treatment should not be delayed pending assessment of the exact sites of carriage and topical decolonisation treatment will generally be prescribed without waiting for the results of a full MRSA screen.

A full set of post-decolonisation swabs should be taken 72 hours after completing the course (see Appendix 1). If this screen is negative, then two further swabs should be taken at weekly intervals. Once three negative screens have been obtained, colonisation can be considered to have been cleared or reduced to a safe level. Under normal circumstances, standard precautions and enhanced cleaning should remain in place until the patient has three negative screens. If any of these screens are positive, a further round of decolonisation therapy should normally be prescribed and the process repeated. If this fails to eradicate colonisation, further rounds of treatment are unlikely to be successful. However, further courses may be recommended by the IPCT in certain circumstances.

6.3 Submission of specimens

Specimens should be sent to the laboratory with a request form clearly marked 'MRSA screen' and must be differentiated from clinical specimens as the two are processed differently.

7 Topical treatment of colonisation

For the majority of patients, the IPCT will prescribe topical MRSA decolonisation therapy (mupirocin and 4% chlorhexidine) in accordance with an approved Patient Group Direction (PGD). It is the responsibility of the attending clinician to consider whether the prescription is issued after assessment of the clinical state of the patient, concurrent therapy and potential adverse reactions and drug interactions that may arise. There are certain patient groups excluded from the PGD, particularly children under 16 years of age, and it is the responsibility of the attending clinical team to prescribe decolonisation therapy for these patients.

If the MRSA is reported as 'Mupirocin-Resistant', if the patient is allergic to mupirocin or chlorhexidine, or if deviation from the recommendations below is considered, the management of the patient should be discussed with a Consultant in Medical Microbiology or the IPCT. Likewise, if a patient is identified as having persistent colonisation (e.g. throat), contact the IPCT or a Consultant Microbiologist for advice (see below).

Generic name	Propriety name	Usual dose	Notes
4% chlorhexidine	Hibiscrub	Daily for five days	Apply directly to skin as liquid soap on a wet sponge or flannel & lather well prior to rinsing
4% chlorhexidine	Hibiscrub	Shampoo on days one and five of treatment. Other bathing products may be used after chlorhexidine	Rinse hair with normal shampoo after applying chlorhexidine to scalp
Mupirocin	Bactroban nasal ointment	Apply thrice daily for five days	Place a pea-sized amount of ointment on the squamous portion of each nostril and massage gently upwards.

A full set of post-decolonisation swabs should be taken 72 hours after completing the course (see Appendix 1). If this screen is negative, then two further swabs should be taken at weekly intervals. Once three negative screens have been obtained, colonisation can be considered to have been cleared or reduced to a safe level. If any of these screens are positive, a further round of decolonisation therapy should normally be prescribed and the process repeated. If this fails to eradicate colonisation, further rounds of treatment are unlikely to be successful. However, further courses may be recommended by the IPCT in certain circumstances.

As MRSA carriage may persist at a low level all previously colonised/infected patients should be considered as persistently colonised on readmission until proven otherwise.

Isolation precautions should only be discontinued on the advice of the IPCT. A patient is generally considered to be MRSA-negative after three consecutive negative screens. Patients previously known to be colonised who are readmitted to hospital are generally considered to be MRSA-negative after one negative screen after admission. Clinical Alerts on patient's notes or the electronic record (iPM alert triangle) should only be added or removed by the IPCT and will be considered on an individual patient basis.

8 Systemic treatment of colonisation

Under certain circumstances, the use of systemic antibiotics may be considered necessary to eradicate carriage of MRSA. Situations may include:

- Persistent colonisation of patients (e.g. throat carriage) associated with implication in ongoing transmission during an outbreak or recurrent invasive infections
- Persistent colonisation of staff (e.g. throat carriage) associated with implication in ongoing transmission during an outbreak or recurrent invasive infections.

The decision to prescribe systemic antibiotics to eradicate MRSA should be taken on a case-by-case basis in consultation with a Consultant Microbiologist and advice on the appropriate regimen should always be sought from a Consultant Microbiologist. Systemic treatment should be given in conjunction with a topical decolonisation regimen.

9 MRSA colonised/infected patients requiring surgery

In general, it is safe to proceed with invasive procedures in patients colonised with MRSA, as long as they receive topical decolonisation therapy and anti-MRSA prophylaxis at the time of the procedure. However, for some MRSA-colonised patients, it may be appropriate to attempt decolonisation prior to the procedure. This particularly applies to patients undergoing joint replacement, orthopaedic surgery involving other prosthetic material or vascular surgery and may be achieved by the prescription of decolonisation therapy with confirmation of MRSA decolonisation before admission. In certain cases, decolonisation before an operation may not be justifiable due to the clinical urgency of the procedure, prolonged postponement of the operation or an inability to achieve decolonisation, and clinical judgement should always be used. Even if decolonisation is achieved, the patient should still be managed as if they were still colonised at the time of operation. Therefore, any patient who has been colonised with MRSA at any time in the past who is undergoing a surgical or other invasive procedures should receive:

- a) topical decolonisation therapy as above for 48 hours prior to surgery and continue until 72 hours after surgery (i.e. a total of 5 days)
- b) a single dose of Teicoplanin 400 mg at induction if anti-staphylococcal prophylaxis is indicated. This should be in addition to standard prophylaxis regimen as outlined in the surgical prophylaxis policy.

Details of screening protocols can be found in:

- Protocol for screening of elective patients for MRSA
- Protocol for elective pre-operative MRSA screening of patients undergoing orthopaedic surgery involving joint replacement and/or other prosthetic material
- Protocol for elective pre-operative screening of vascular graft patients for MRSA
- Protocol for screening elective patients for MRSA and Meticillin-Susceptible *S. aureus* (MSSA).

Sites of colonisation, such as pressure sores and skin ulcers, should be covered with an occlusive dressing before leaving the ward. The case should be placed at the end of the list and the theatre cleaned after the procedure. No other special precautions are necessary.

10 Management of MRSA in the community

The risk of serious MRSA infection in the community is small. Standard infection control procedures and common sense are still required. The majority of MRSA control measures are intended to prevent cross-infection of vulnerable hospitalised patients. In the community, basic hygiene alone is usually sufficient.

10.1 Nursing procedures

Follow the Hand Hygiene Policy. Wear disposable gloves and use an alcohol rub when in contact with potentially colonised skin, secretions and their immediate surroundings. If contamination of clothes or uniform is likely a disposable apron should be worn during these procedures.

10.2 Waste disposal

No special precautions are required.

10.3 Risk of spread

The risk of serious infections or outcomes from MRSA is low in healthy people in the community. There is therefore no need to restrict normal social contact with colonised patients.

10.4 Nursing and Residential Homes

Nursing and Residential Homes should be able to look after any MRSA colonised patient with simple hygiene measures and if appropriate simple isolation procedures. If there is any doubt contact the Public Health England.

11 Management of hospital staff colonised with MRSA

For full details of the management of members of staff colonised with MRSA, please refer to the 'Procedure for the Management of Hospital Staff Colonised with MRSA'.

MRSA-colonised staff will usually be identified from clinical specimens or as part of an investigation of patients with hospital-acquired MRSA. The IPCT will normally be the first to be aware of staff colonised with MRSA and will inform the Occupational Health and Wellbeing Department, who will assume responsibility for follow-up and treatment, with advice from the IPCT. Regular communication between the Occupational Health and Wellbeing Department and the IPCT is essential for the optimal management of each case of MRSA-colonised staff.

Screening of staff will normally be carried out as part of an investigation of patients with hospital-acquired MRSA. The decision to screen will be made by a Staff Screening Panel following advice from the Director of Infection Prevention and Control, IPCT or a Consultant Microbiologist. Screening will be limited to staff who have provided clinical care to the affected patient(s). A list of these staff will be drawn up by the senior medical and nursing teams for the clinical area. Screening of staff will be carried out by the Occupational Health and Wellbeing Department in collaboration with the Modern Matron or Ward Manager of the clinical area involved. There is generally no indication for pre-employment screening for MRSA.

Staff found to be carrying MRSA will be managed by the Occupational Health and Wellbeing Department. Occupational Health and Wellbeing will assess whether referral for a specialist Dermatology or Ear, Nose and Throat opinion is necessary and will prescribe topical and or systemic decolonisation therapy. Systemic decolonisation therapy will involve close liaison between the Occupational Health and Wellbeing Department, the IPCT and a Consultant Microbiologist. Under normal circumstances the prescription for systemic decolonisation therapy will be issued by the Occupational Health and Wellbeing Department. Systemic treatment should be given in conjunction with a topical decolonisation regimen.

11.1 Work restrictions

In general, staff will be required to remain off work for the first 48 hours of any course of decolonisation therapy. This will be treated as paid sick leave according to the Trust's Sickness Absence Policy:

'7. Absence from duty required under Health and Safety, Control of Infection or other procedures.'

If the Trust requires an employee to refrain from attending duty for these reasons, the absence will be treated as paid sick leave and will not count towards an individual's entitlement to occupational sick pay. Managers should liaise closely with Control of Infection, the OHU or Personnel Department as appropriate'

Longer periods of absence may be considered necessary by the Occupational Health and Wellbeing Department and the IPCT under certain circumstance, such as an uncontrolled exfoliating skin condition (e.g. eczema or psoriasis), where there is clear epidemiological evidence of transmission associated with the member of staff.

Any colonised member of staff must be deemed fit for work by the Occupational Health and Wellbeing Department and IPCT prior to return to work and must pay particular attention to hand hygiene.

The management of persistently colonised members of staff will be decided on a case-by-case basis by the Service Line Lead or Matron, in conjunction with the Occupational Health and Wellbeing Department and the IPCT. If a definitive opinion on the management of individual staff member cannot be agreed, advice will be sought from the Medical Director, Director of Nursing or Director of Operations as appropriate.

12 Prudent use of Antibiotics

Appropriate antibiotic will help to prevent the emergence and spread of antibiotic resistance. Excessive use of antibiotics promotes the spread of existing strains of MRSA though reduction in colonisation resistance and by giving resistant strains a survival advantage in the hospital environment.

Antibiotic use will be based on local antibiotic guidelines. See **Plymouth Area Joint Formulary** and **Antibiotic Guidelines** on Trustnet. Further advice can be obtained from a Consultant Microbiologist or the Antibiotic Pharmacist. In general:

- Narrow spectrum antibiotics are preferred to the broad-spectrum groups.

- Prophylactic antibiotics must only be used in defined situations where the benefit has been proven.
- The choice of antibiotic(s) will normally be governed by local information about trends in antibiotic resistance or a known sensitivity of the organism, as detailed in the current Trust Antibiotic Guidelines.
- The use of antibiotics will be regularly audited.
- The Medical Microbiologists and Pharmacists will provide support for prudent antibiotic prescribing. This process will be led by the Consultant Microbiologist lead for antibiotics and the Antibiotic Pharmacist. This will be based on an annual programme of work to promote prudent antimicrobial prescribing.

13 Other relevant Policies and Guidelines

1. Protocol for screening of elective patients for MRSA
2. Protocol for elective pre-operative MRSA screening of patients undergoing orthopaedic surgery involving joint replacement and/or other prosthetic material
3. Protocol for elective pre-operative screening of vascular graft patients for MRSA.
4. Protocol for screening elective patients for MRSA and MSSA
5. Procedure for the Management of Hospital Staff Colonised with MRSA.
6. Hand Hygiene Guidelines
7. Decontamination Guidelines and Procedures
8. Linen Services Guidelines.
9. Outbreak Policy for Clinical Areas.
10. Handling of Cadavers Guidelines.

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11. Jog S, Cunningham R, Cooper S, Wallis M, Marchbank A, Vasco-Knight P, Jenks PJ. Impact of preoperative screening for MRSA by real-time PCR in patients undergoing cardiac surgery. *Journal of Hospital Infection* 2008; 69: 124-130.
12. Department of Health; Chief Executive Bulletin, 1-7 December 2006. Available at: <http://www.dh.gov.uk/assetRoot/04/14/11/63/04141163.pdf>
13. Department of Health, 2009. Health and Social Care Act 2008. Code of Practice for the NHS on the prevention and control of healthcare associated infections and related guidance. Available at http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_093762

As from March 2014, national guidance on meticillin-resistant *Staphylococcus aureus* (MRSA) screening has recommended a move away from universal screening of all admissions to a local risk assessment-based process. Local guidance is based on the National One Week (NOW) prevalence audit of MRSA screening report performed in 2010 to assess compliance with MRSA screening policy in the NHS in England. Screening is limited to patients at high risk of poor outcome from MRSA infection and those most likely to be colonised (i.e. high prevalence groups). These patient groups are outlined below.

High- and medium-risk elective patients

Patients admitted for the following high-risk procedures should be screened:

- cardiac surgery (pre-op assessment)
- thoracic surgery (pre-op assessment)
- upper GI surgery (pre-op assessment)
- vascular surgery (pre-op assessment)
- orthopaedics (pre-op assessment)
- neurosurgery, including spinal surgery (pre-op assessment)
- colorectal surgery (pre-op assessment)
- hepato-biliary surgery (pre-op assessment)
- plastic surgery (pre-op assessment)
- breast surgery (pre-op assessment)
- general surgery (pre-op assessment)
- renal transplant surgery (pre-op assessment)
- cardiology (pre-op assessment)
- haemodialysis (quarterly on Haemodialysis Unit and also screened for Meticillin-Susceptible *S. aureus* (MSSA))
- pre-insertion of central line (ad hoc as required and also screened for MSSA).

Details of screening protocols can be found in:

- Protocol for screening of elective patients for MRSA
- Protocol for elective pre-operative MRSA screening of patients undergoing orthopaedic surgery involving joint replacement and/or other prosthetic material
- Protocol for elective pre-operative screening of vascular graft patients for MRSA
- Protocol for screening elective patients for MRSA and Meticillin-Susceptible *S. aureus* (MSSA).

The management of colonised patients undergoing invasive procedures will include prescribing topical decolonisation therapy and appropriate anti-MRSA prophylactic antibiotics. Please refer to local protocols for individual surgical procedures.

Admission to ward (if not screened pre-admission or during current admission)

Patients admitted to the following wards and clinical areas who have not been screened pre-admission or during current admission should be screened (**note all patients admitted to these wards should be screened regardless of speciality**):

- Cardiology and Cardiothoracis
- Stem Cell Transplant Unit, Haematology and Oncology
- Vascular surgery and Urology
- Hepatology
- Plastic surgery
- Renal
- Neurosurgery and spinal surgery
- Orthopaedics, the Joint Replacement Unit and Trauma
- Hepatobiliary surgery
- Colorectal surgery.

Admission to ward (regardless of previous screens)

Patients admitted to the following wards should be screened regardless of previous screens:

- Critical Care Unit (currently Penrose and Pencarrow)
- Joint Replacement Unit.

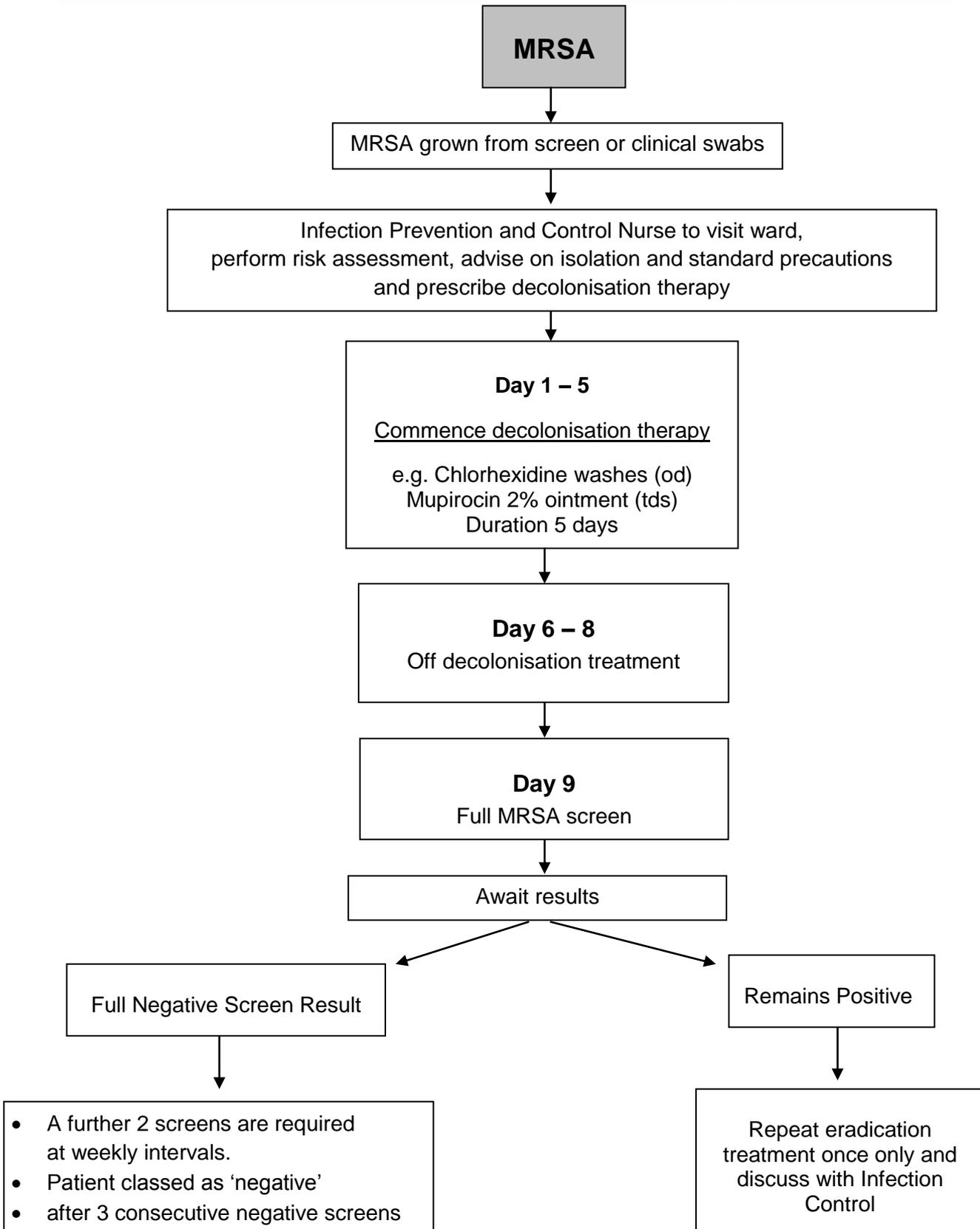
High prevalence (Elective and Emergency)

Patients in the following groups should be screened on admission to any ward:

- patients previously colonised with MRSA
- nursing/residential home residents
- transfers from another hospital
- healthcare worker
- patients with a wound, ulcer or indwelling device that was present before admission to hospital

Additional screens may be requested by the IPCT on a case-by-case basis, for example as part of the management of individual or clusters of infection. Consideration should be given to re-screening of patients found to be negative on admission and who remain in hospital for a prolonged length of time.

This risk assessment will be regularly reviewed by the IPCT and amended according to changes in the local epidemiology of MRSA and other appropriate factors (e.g. ward moves by clinical specialities). Please contact the IPCT on xtn. 32115 for the latest version.



Antibiotic treatment advice for patients with clinical infections can be obtained from a Consultant Microbiologist