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1. Introduction

Meticillin Resistant *Staphylococcus aureus* (MRSA) originates from the 1960s, when there was a national increase in *Staphylococcus aureus* infections. The organism is known for causing skin colonisation and infections in addition to other deep-seated infections. The fight to combat these infections with antibiotics has led to their resistance, hence its name. Due to its resistant nature, MRSA can be expensive to prevent, combat and control; the Scottish Government Health Department (SGHD) has recognised this and reducing MRSA rates within healthcare settings and implementing measures to stop its transmission is a top priority in all health boards throughout the UK.

2. Risk Factors and Mode of Transmission

The normal habitat of *Staphylococcus aureus*, including MRSA, is on human skin, particularly in the nose. *Staphylococcus aureus* will either be sensitive to meticillin (Meticillin Sensitive *Staphylococcus aureus*) or resistant to meticillin (Meticillin Resistant *Staphylococcus aureus* (MRSA)). The bacteria may present itself on a person’s skin without them being aware of it and it may be of little risk to that individual. The individual may be described as an asymptomatic carrier. This is known as MRSA colonisation. Clinical infection with MRSA (including MRSA bacteraemia/blood infection) occurs either from the persons own resident MRSA colonisation or by cross-infection from another person. Persons who are at risk from clinical infection are those who are immunocompromised in some way, this is why it is important to identify if an individual is colonised with MRSA on admission to hospital to minimise the risk and spread of infection to themselves and other patients.
Any *Staphylococcus aureus* (MSSA or MRSA) infection that is positive of [Paton-Valentine Leukocidin (PVL)](http://www.documents.hps.scot.nhs.uk/about-hps/hpn/pvl-guidance.pdf) should be highlighted to the Infection Control Team. PVL is a dangerous toxin that is produced by *Staphylococcus aureus* strains if they carry the gene containing a genetic code for this toxin. This strain is dangerous and difficult to treat as it kills and destroys the white blood cells. Whilst PVL strains are rare, their serious effects and increasing prominence must not be underestimated.


There are two main types of spread. Endogenous spread and Exogenous spread. Endogenous Spread – when someone is colonised with MRSA, they may spread it from an area of colonisation to another part of their body such as an open wound and cause an infection. While being colonised with MRSA may have had no effect on the individual, the risk of self infection could cause harm.

Exogenous Spread – when MRSA is spread from person to person. This can be via many routes; staff hands, dust, skin scales, environment and equipment. All health care workers and staff have a part to play in minimising this risk. Spread to another person may cause either colonisation or infection.

The most common risk factors of being colonised or acquiring an MRSA infection are

- Presence of an open wound and/or other dermatology problems
- Presence of invasive devices (e.g. catheter)
- Prolonged hospital stay
- Several admissions to hospital over a short period of time
3. Background to Screening

In April 2009, the SGHSCD announced the implementation of a National MRSA Screening Programme in Scotland. The initial policy was based on the interim report of the MRSA Screening Pathfinder Programme published in April 2009. Further studies carried out in 2010 established that the application of a simple Clinical Risk Assessment (CRA) tool, comprising three questions, allowed specific targeting of a small proportion of patients (around 10%) for swab screening using two anatomical sites (nose and perineum). The CRA approach also offers the opportunity to apply a consistent risk-based approach to pre-emptive management of patients at high risk of colonisation and infection.

Admission screening by CRA allows for the early identification of patients who are colonised or are at high risk of being colonised, and allows them to be pre-emptively managed with the appropriate infection prevention and control precautions while swab results are awaited. This protocol supersedes all previous versions of the national MRSA screening protocol, and represents a minimum level of screening which the Scottish Government Health and Social Care Directorate (SGHSCD) expect NHS boards to undertake.

Throughout this document, ‘MRSA screening’ refers to the two stage process of universal application of the CRA screening, followed by swab-based screening of those judged to be at risk based on response to the CRA questions or cared for within one of the high impact specialties. Swab screening refers to swabbing two minimum anatomical sites, the nose and perineum and if present, wound sites, devices or CSU if catheterised.
4. Aims of Screening

The aim of screening patients for MRSA is to identify patients that are colonised or infected with the organism (colonisation carries a fifteen-fold increase in the risk of invasive MRSA infection). These patients can then be managed appropriately to reduce the risk of self-infection and of transmitting the organism to other patients.

The CRA is a first-line screen, which identifies a small subset of patients who then proceed to second-line swab-based (microbiological culture) screening.

These measures aim to reduce the negative impact that MRSA has on patients and the additional burden on healthcare resources.

4.1 Who should be screened, when they should be screened and how they should be screened?

MRSA screening applies to patients for the duration of their care within an acute hospital, that is to say upon admission and then possible transfers that take place during their care. This means that a patient may require going through the MRSA screening process more than once when receiving their care.

Table 1 sets out the requirements for patients upon their original admission and Table 2 sets out the requirements should patients are transferred during their care.
Table 1: Inpatient Admissions

<table>
<thead>
<tr>
<th>Type of admission</th>
<th>When should they be screened?</th>
<th>How should they be screened?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective patients to high impact specialties</td>
<td>At pre-assessment or if not then on admission to hospital (within 24 hours of admission, and certainly prior to the elective procedure, whichever comes sooner)</td>
<td>CRA and then two body site swabbing (nasal and perineal plus wounds/devices and CSU if catheterised)</td>
</tr>
<tr>
<td>Elective patients to non-high impact specialties</td>
<td></td>
<td>CRA and if they answer yes to at least one question, two body site swabbing (nasal and perineal plus wounds/devices and CSU if catheterised)</td>
</tr>
<tr>
<td>Emergency patients to high impact specialties</td>
<td>On admission to hospital, within 24 hours of admission. It is not recommended that screening is undertaken in Accident and Emergency.</td>
<td>CRA and then two body site swabbing (nasal and perineal plus wounds/devices and CSU if catheterised)</td>
</tr>
<tr>
<td>Emergency patients to non-high impact specialties</td>
<td></td>
<td>CRA and if they answer yes to at least one question, two body site swabbing (nasal and perineal plus wounds/devices and CSU if catheterised)</td>
</tr>
</tbody>
</table>

Note: CRA stands for Culture and Resistance Analysis.
Table 2: Patients transferred during their care

<table>
<thead>
<tr>
<th>Type of transfer</th>
<th>When should they be screened?</th>
<th>How should they be screened?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer into a high impact specialty (from any source other than another high impact specialty)</td>
<td>If the patient has been screened in the previous 48 hours (this admission) then there is no requirement to rescreen.</td>
<td>N/A</td>
</tr>
<tr>
<td>Transfer from one hospital into another hospital regardless of the specialty</td>
<td>Any transfer direct from an external hospital should be immediately screened on admission.</td>
<td>CRA and then two body site swabbing (nasal and perineal plus wounds/devices and CSU if catheterized)</td>
</tr>
<tr>
<td>Transfer from one high impact specialty to another high impact specialty in the same hospital</td>
<td>There is no requirement to undertake another screen.</td>
<td>N/A</td>
</tr>
<tr>
<td>Transfer from one non-high impact specialty to another non-high impact specialty in the same hospital</td>
<td></td>
<td></td>
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4.2 Elective Admissions

The impact of MRSA infection in surgical specialties can be serious. Therefore, screening of all elective surgical patients should be undertaken prior to hospital admission.

Certain surgical specialties (vascular/cardiothoracic/orthopaedic) require a CRA screen followed by nasal and perineal swabbing, wounds or devices screening and CSU if catheterised, regardless of the CRA outcome.
For all other elective patients, that are expected to stay overnight, they require to undertake the CRA and will only have will have swabs and samples sent if appropriate.

As screening takes place at the Pre-Assessment Department, when the patient attends their appointment, the results will be checked on the laboratory system by the Pre-Assessment nurses and if required decolonisation should be started. Please contact the Infection and Control Team if assistance is required.

If an elective patient fails to have their screen taken during the pre-admission phase, they should follow the same protocol as emergency admissions.

### 4.3 Emergency Admissions

All emergency admissions to acute hospitals, that are expected to stay overnight, should be assessed using the CRA and if they answer yes to one of the questions then they should undertake a nasal and perineal swab, wound/device swab if presenting with a wound/device and CSU if catheterised.

**All patients admitted to or transferred to a high impact speciality**

These units include:

- Intensive care (ICU)/Surgical High Dependency (SHDU)/Medical High Dependency (MHDU)
- Orthopaedics
- Renal Medicine
- Vascular/Cardiothoracic Surgery
Patients admitted to or transferred into a high impact speciality should be screened using the CRA (to assist in patient placement) and should also have nasal and perineal swabs, open wound swab if present and a CSU if catheterised, taken (regardless of the CRA responses).

**If patients are transferred after admission and a screen has already been taken in the last 48 hours in a lower impact speciality, further swabs in a high impact speciality do not require to be retaken.**

Patients in critical care areas have the highest risk of MRSA transmission and infection due to the invasive nature of their care. Patients admitted directly to critical care areas will have an admission screen completed on arrival to the ward/unit and weekly screens throughout their stay on the ward/unit. This screening again requires being a nasal and perineal swab, wound swab if present, device if present and a CSU if catheterised.
4.4 Renal Medicine

Patients who attend the renal unit for dialysis have a high risk of MRSA bacteraemia due to the presence of invasive devices and increased healthcare interventions/attendances. All patients on fistula should be screened for MRSA on the first admission to the renal unit and prior to the creation of any further invasive device. Any patient who attends the renal unit that has been admitted to another ward as an inpatient should be screened at ward level; it is the responsibility of the ward staff to ensure this.

4.5 Exclusions

Patients admitted to the following specialties are considered to be at low risk of MRSA colonisation/infection and do not require to be screened under the terms of the national programme.

- Mental Health/Psychiatry
- Maternity / Obstetrics
- Pediatrics
- Day Case/23 Hour patients

Please note these exclusions only apply to patients admitted to the above specialties. Mental health/psychiatry, maternity/obstetrics or pediatric patients should not be excluded if they are being cared for in another included specialty.

Day case/23 hour care patients do not require undertaking a CRA screening on admission, however if a decision is made to keep them in hospital overnight then a CRA should take place.
4.6 Patients out on pass

Patients on ‘overnight pass’ or weekend release should not be rescreened when readmitted if the entire period of hospital attendance is regarded as a single episode of patient care.

5. Administration of the CRA

Administration and recording of the CRA is part of the nursing admission/booking process (appendix 3); patients with a positive answer to at least one of the CRA questions will proceed to nasal and perineal swab screening, plus wound/device swabs or CSU (if appropriate).

For every patient, the answer to the three CRA questions should be sought:

1. Has the patient any previous history of MRSA colonisation or MRSA infection at any time in the past?
2. Is the patient currently resident in a care home or institutional setting (e.g. prison, homeless hostel), or transferred from another hospital (either within or out with own NHS Board)?
3. Does the patient have a wound/ulcer or invasive device which was present before admission to this hospital? Please note a wound is a skin break and an invasive device is a device which temporarily enters the skin, resulting in a skin break.
The following sources of information are likely to be more robust than patient recall, and are recommended for unconscious or confused patients:

1. Data from laboratory systems for previous history of MRSA colonisation/infection (Please use if unsure)
2. Source of admission other than from own home from Patient Administration System or other documentation
3. Physical inspection for wounds and invasive devices

On occasions, no information may be available on one or more of the CRA questions, and there may be no strong indications either way from other observations or information to infer a likely answer. A ‘not known’ answer is statistically much more likely to be negative than positive in such situations, and should normally be handled as a negative response.
A positive answer to one or more of the CRA questions indicates two actions:

1. Proceed to nasal and perineal swab screening, wound or device swabbing if present and a CSU sample if catheterised.
2. Take pre-emptive action to minimise risk of further transmission of MRSA e.g. isolation in a single room, or cohort nursing with other MRSA risk patients pending swab results.

The full completion of the nursing Infection Control Risk Assessment (Appendix 3) should be placed into the nursing notes and the resulting patient status and actions should be documented also in the patient’s notes.

After administering the CRA, the patient will be in one of two categories:

- Low risk of MRSA colonisation – no further action currently required
- Manage the patient as if MRSA positive (Until results are known)

The actions required for managing the patient as MRSA positive (Until results are known)

- Take the MRSA screening swabs (nasal and perineal, wounds/devices if present and CSU if catheterised)
- Patient placement-isolated in single room
- Contact precautions immediately started
- If isolation is unachievable then a patient cohort can be considered with other high risk MRSA possible patients. This should only be done in conjunction with the Infection and Prevention Control Team.
6. Swab Screening

Sample collection is the responsibility of the staff member running pre-assessment clinics or admitting the patient. A training resource has been developed by NES and is available via the following link:


The nasal sample should be taken from the anterior nares (nose), of both nostrils onto one swab and the perineal swab taken from the perineum. If there are clinical reasons for not taking a perineal swab, or if the patient refuses, please contact the IPCT for further advice.

6.1 Patient consent and collecting the swabs

Please note that privacy and comfort should be assured before commencing screening.

Patients eligible for swab screening (either by positive response to CRA questions or due to admission to a high impact specialty) should be provided with a patient information leaflet (See Appendix 5) and given the opportunity to read the leaflet and discuss fully with clinical staff. Clinical staff should emphasize that MRSA screening detects colonisation – not infection – and that patients may receive decolonisation as a result of a positive screen.

Verbal consent to have the swab taken should be sought from the patient prior to screening. Patients are free to decline consent and therefore must be managed as positive.

The following procedure should be employed to obtain a nasal, perineal, wound or invasive device swab for MRSA culture. The following process is required for testing;
1. Sterile swabs for culture in Ames medium or charcoal medium (single sterile tipped applicator swab/plastic outer transport case with transport medium). **Check expiry date.**

2. Request Laboratory test required via OrderComms or hand write specimen request form

3. Plastic specimen bag

Before collection hand hygiene should be performed and then disposable gloves and disposable apron should be donned.

Please note that of all body sites being swabbed the perineum should always be the last in the swabbing sequence.
6.2 Collection Procedure – nasal swab

1. If patient has nasal discharge ask them to clear the discharge by blowing his/her nose into tissue.
2. Do not attempt to clear the discharge with swabs as this may be excessively traumatic.
3. Open and remove sterile tipped swab applicator from transport casing.
4. Taking care to avoid other contact with swab, insert the swab approximately 1-2 cm (approx ¾ inches) into the first nostril next to the nasal septum.
5. Rotate the swab against the anterior nasal mucosa for 3 – 5 seconds.
6. Using the same swab, repeat for the other nostril.
7. Carefully place used swab back into transport tube and secure.

6.3 Collection Procedure – perineal swab

1. Ask the patient to loosen their clothing
2. Open and remove sterile tipped swab applicator from transport casing.
3. Taking care to avoid other contact with swab, rotate the swab against the perineal skin (the area between the anus and external genitalia) for 3 – 5 seconds.
4. Carefully place used swab back into transport tube and secure.

6.4 Wound swab

If a patient presents with a wound which is open then a swab must be taken to test for MRSA infection. The wound swab must be taken after the wound has been cleaned.

If a wound swab is positive for MRSA staff must liaise with the Infection Prevention and Control Nurse for further advice. A nasal and perineal swab (if
not already done on admission) should then be taken at this time to assess for skin colonisation.

MRSA isolated from non-inflamed skin or ulcers, or from other sites where there are no clinical indications of infection implies MRSA carriage/colonisation rather than infection and should be managed without antibiotic treatment.

Skin wounds that demonstrate signs of infection and are MRSA isolated may require a course of antibiotic therapy. Advice should be sought from the Microbiologist as to the best and most appropriate line of treatment.

6.5 Urine/Sputum Samples

MRSA isolated from urine or from sputum is usually representative of colonisation; however, infections should still be treated with antibiotics. Antibiotic sensitivities will be shown on the patients laboratory result; other underlying conditions must also be taken into account before prescribing treatment. Advice can be sought from the Prevention of Infection Control Team or the Microbiologist.
6.6 For all swabs (Not OrderComms):

1. Fill in appropriate patient details as requested or affix patient label on outer aspect of transport tubes. Ensure recording of date and time swab was collected as well as the location (either ward, pre-admission clinic etc).

2. Complete the specimen request form as per local laboratory protocol. This would normally include the following information:

- Name Age
- Date of Birth
- CHI number if available.
- Location: ward / Pre-assessment clinic etc
- Anatomical site of swab (nasal, perineum, wound)
- Test request: culture and sensitivity
- Purpose / rationale: MRSA screening [it is important to define this clearly as a screening swab, either on the generic form or through use of a dedicated MRSA screening form]
- Date and time sample collected
- Antibiotics currently prescribed Reason for admission

3. Place swab specimens and laboratory request form in specimen bag and secure.
6.7  For all swabs (OrderComms):

Please follow guidance as per OrderComms training.

7. What laboratory test will be undertaken on screening samples?

The samples should be tested using chromogenic agar. MALDI-TOF is used to test for Staphylococcus aureus. Mupirocin resistant strains should be referred to the Consultant Microbiologist. The laboratory testing protocol is shown in Appendix 2.

8. When is a patient considered MRSA positive?

The MRSA confirmed positive patient has laboratory confirmed MRSA colonisation or infection during, or within 18 weeks, prior to the hospital admission in question, without subsequent evidence of decolonisation or cure.

For the purposes of this policy however, a patient on admission is managed “as if MRSA positive” (and therefore should be isolated where possible) if they fulfill one or more of the following criteria:

- Patients answering ‘yes’ to any of the three CRA questions
- Patients with positive answers to any of the three CRA questions based on direct observation, laboratory data, case note record or admissions records
- Patients identified as colonised at a pre-admission or outpatient clinic and not successfully decolonised before admission.
9. **Antimicrobial Prescribing**

Appropriate and responsible antimicrobial prescribing is an essential element of any programme attempting to control MRSA. Advice should be sought from the Infection Prevention and Control Doctor, the Antimicrobial Pharmacist or Microbiologist before treatment is prescribed. See the **Antibiotic Policy** for further information.

Duration of therapy will vary depending on individual response to treatment. It is recognised that MRSA infection may relapse, particularly following short course therapy, in deep-seated infections and where there is a non-removable focus of infection.

MRSA infections will generally receive a longer course of antibiotic therapy than MSSA.

Deep seated infections with MRSA will be treated for longer and patients with a non-removable source of infection may need long term suppressive therapy.

For uncomplicated MRSA infections of the skin and soft tissues, and for respiratory or urine infections, a shorter course of antibiotics may be given depending on their severity.

10. **What should happen to patients who are confirmed by laboratory test as MRSA positive?**

Patients that have been identified as MRSA positive by laboratory confirmed testing of a screening swab or clinical specimen should be isolated and the Infection Prevention and Control Team (IPCT) will individually risk assess to consider decolonisation treatment. This is undertaken using the MRSA Decolonisation Risk Assessment form (Appendix 6).

These patients should also be provided with information providing details on MRSA colonisation and their decolonisation treatment. They should be provided with an opportunity to discuss the implications of their diagnosis with a trained member of staff and their clinical team.
11. Decolinisation

The aim of decolinisation is to reduce the burden of MRSA carried by the patient at a time when they are undergoing invasive procedures and are at most risk. A second aim is to reduce the likelihood of cross-transmission of MRSA from patient to patient. All patients identified as MRSA positive by any swab or screening should be considered for decolonisation. Decolonisation is undertaken according to current local guidelines.

12. Decolinisation in Hospital

- Patient is identified as MRSA positive by swab screen taken on admission to hospital or specialty.
- Agreement to commence decolonisation treatment should be obtained from the patient and clinician.
- MRSA positive patients should receive nasal Mupirocin, three times daily for five days and should bathe daily for 5 days using Stellisept body wash.
- If the patient remains in hospital, the second swab screening sample should be taken at least two days after completion of the decolonisation treatment.
- If the results of the second screen are positive, a second course of Mupirocin, three times daily, and Stellisept body wash, daily, for five days should be again given.
- If the patient remains in hospital, the third screening sample should be taken two days after completion of the second decolonisation treatment.
- If the results from the third screening sample are positive, the patient should be referred to the Consultant Microbiologist.
12.1 Decolonisation prior to admission

1) Patient identified as MRSA positive by swab screen taken at pre-admission clinic.

2) Decolonisation treatment should be sent to the patient. Home decolonisation treatment using Mupirocin and Stellisept body wash should be used as per protocol for inpatient decolonisation.

Patients with positive pre-admission swab screen are called back to the pre-admission clinic or GP after completion of the decolonisation treatment to be rescreened if appropriate. Again there is a requirement to ensure full decolonisation by having 3 clear negative swabs taken 48 hours apart.

Adverse reactions to decolonisation treatment should be reported using existing protocols.
13. Screening of Patients in Contact with MRSA patients

Patients who have been in contact with patients who have had an MRSA positive result (for example, in the same room) should be risk assessed using the NHS Dumfries and Galloway Contact Patients Risk Assessment (Appendix 4).

If any of the criteria is met, the patient should be screened using a nasal and perineal swab, device or wound if present and a CSU if catheterised. This does not apply to cohorted rooms. The room does not require being isolated. Transmission based precautions should only be applied to the positive patient, if he/she remains in the room. The room/bed spaces do not need to be blocked. The risk assessment should be kept in the patient’s notes with the result recorded. If the patient gets a positive result, please contact the Infection Prevention and Control Team.
14. Isolation

MRSA positive patients should be isolated wherever possible. If isolation is not possible (e.g. due to lack of rooms), MRSA positive patients should be cohorted. Isolation and cohorting are defined below and should be undertaken according to the HPS National Infection and Prevention Control Manual.

**Isolation:** Patient is placed in a single room with hand washing facilities, ideally with en-suite toilet and shower where available. Isolation should be undertaken according to the HPS National Infection and Prevention Control Manual.

**Cohorting:** Patient is placed in a room and cared for by dedicated nursing staff along with other patients who are MRSA screen positive. Cohorting should be undertaken according to the HPS National Infection and Prevention Control Manual.

15. **Staphylococcus Aureus Bacteraemia (SAB)**

MRSA (as with meticillin sensitive *Staphylococcus aureus* (MSSA)) isolated from a normally sterile site should always be regarded as a significant infection e.g. from blood, CSF, joint aspirate and intra-operative tissue specimens.

When MRSA is isolated from blood an underlying focus of infection will be sought by the Infection Prevention and Control Team. An MRSA blood infection is known as a *Staphylococcus aureus* bacteraemia (SAB).

In patients with a bacteraemia, whether it is sensitive or resistant to Meticillin, if there is a removable intravascular device which will not jeopardise clinical care, consideration to the removal of this devise must be given. It is essential to involve surgical specialities when there are deeper foci of infection e.g. infected orthopaedic devices, prosthetic values.

Adherence with the Peripheral Venous Cannula (PVC) Bundle, Central Venous Catheter (CVC) Bundle and Catheter Associated Urinary Tract Infection (CAUTI)
Bundle, must be upheld to reduce the incidence of *Staphylococcus aureus* bacteraemia.

**16. Procedure for Healthcare Staff**

When attending to a patient who is known to be MRSA positive:

- Put on gloves and apron before entering the room/bay. Gloves only need to be worn for hands on patient care and during procedures. Gloves and aprons are not required for social contact.
- Take into the room the minimum items of equipment i.e. syringe, needle, bottles and sharps box with tray.
- Do not sit on the patient's bed when you are in the room.
- Remove gloves and apron and place in the clinical waste bag.
- Decontaminate hands.
- Collect your equipment, clean the equipment and leave the room.
- Any reusable equipment that has come into direct contact with the patient should be wiped clean with general purpose detergent wipes before moving on to your next patient.
- Use the alcohol hand rub outside the room before going on to your next patient.

Cleaning of equipment and application/removal of Personal Protective Equipment (PPE) should be done prior to, and upon completion, of task.
17. General Points for Acute and Community Practice including Care Homes

- Patient clothing and bed linen should be changed daily
- Linen should be managed in accordance with the National Infection Control Manual.
- Designate patient equipment when possible
- Keep equipment to a minimum
- Treat all waste as clinical. Clinical waste should be disposed of in accordance with local policy
- Patients requiring Occupational Therapy/Physiotherapy appointments should be seen at the end of the working session if possible.
- Isolation signs should be put in situ
- Best practice suggests that the door to the isolation room is kept closed whenever possible. However, patient exclusion and anxiety levels of the patient should be taken into account. The door must remain closed during bed making and clinical care but it is acceptable to have the door open at other times.
- Strict application of hand hygiene

18. Advice for Potering Staff and AHP’s

Porters collecting patients should decontaminate hands before entering the room. Aprons and gloves are not necessary as no direct patient care is provided. If contact with the patient's clothing is anticipated, an apron should be worn to protect the uniform. This does not require to be worn when transporting the patient. Use the same trolley or chair for the return journey if possible. After the patient has returned to the ward the trolley or chair must be cleaned down with a detergent impregnated wipe before being used for other patients. Hands must be decontaminated after dealing with the patient and after cleaning the trolley.

Domestic staff should follow their current policy which is written in conjunction with Infection Control.
19. Visitors to MRSA Positive Patients

When visiting MRSA patients:

- There is no need for visitors to wear gloves/and or aprons unless they are directly involved with patient care.
- If visiting other patients in the hospital, visitors should be encouraged see these people first and visit the MRSA patient last.
- Visitors should be asked to decontaminate their hands upon entering the ward or patients room/bay and when leaving after visiting.
- Visitors should not sit on the patients bed
- It is routinely perfectly safe for anyone to visit an MRSA positive patient; if visitors are immune suppressed in any way or have open wounds/existing health problems they should see the nurse in charge and advice can be sought from the Infection Prevention and Control team.
- Visitors should not be informed of the patient’s diagnosis without patient consent. They should only be informed of isolation precautions to be taken.
20. Discharge/Transfer of MRSA Positive Patients

If the patient is discharged to a nursing, residential or convalescent home, the medical and nursing staff should be informed in advance. Carriage/colonisation of MRSA is not a contradiction to the transfer of a patient to one of these units. Routine isolation of MRSA positive patients in this care setting is not necessary; however, risk assessment and careful consideration to patient placement should be given. **If a treatment course needs to be completed this should be specified in the GP discharge letter or discharge summary.**

Patients discharged to their own home will not normally require special treatment after discharge from hospital. Patients who are sent home on decolonisation treatment/antibiotics should be followed up by their GP and this should be specified in the discharge summary.

Patients should be informed that they are no risk outside of hospital to healthy relatives or others.

Patients transferred to a community hospital after acute care should continue the management of decolonisation and isolation within this facility until eradication is complete. Patients admitted directly from the General Practitioner to a community hospital, do not require to undertake a CRA but if the patient has a history of MRSA then the IPCT will contact the hospital to manage and give advice on a case by case basis.

20.1 Ambulance Bookings

Minimising the risk of Healthcare Associated Infection (HAI) for patients is a priority for the Scottish Ambulance Service. Staff are dedicated to the well being of all patients and receive guidance and education on infection prevention and control; for example by practicing regular hand hygiene and cleaning equipment in between patient use.
MRSA patients can travel with other patients in an ambulance as long as MRSA colonisation/infection is contained. MRSA patients who are heavy skin shedders or who have an open weeping wound should travel alone.
Figure 2-1: Complete patient pathway for all admissions

Pre-admission

- Patient attends clinic:
  - Yes
    - Clinical Risk Assessment undertaken patient responds yes to one question
      - Yes
        - Patient admitted directly to ward
      - No
        - Nasal or Perineal Swab screen positive
          - Yes
            - Patient admitted to open ward
          - No
            - Decision centre initiated
              - Yes
                - Decision centre successful
              - No
                - Decision centre unsuccessful

- No
  - Patient admitted to isolation/hospital

On admission

- Patient admitted directly to ward:
  - Yes
    - Clinical Risk Assessment undertaken patient responds yes to one question
      - Yes
        - Patient admitted to isolation/hospital
      - No
        - Nasal or Perineal Swab screen positive
          - Yes
            - Patient admitted to open ward
          - No
            - Patient admitted to isolation/hospital

- No
  - Decision centre initiated
    - Yes
      - Decision centre successful
    - No
      - Decision centre unsuccessful

Discharge
Appendix 2

FLOWCHART FOR MRSA SCREENING SWABS

- **MRSA MEDIA CONTROLS**
  - **POSITIVE:** NCTC 10427 _S. aureus_ (MRSA)
  - **NEGATIVE:** ATCC 29213 _S. aureus_ (MSSA)

- Inoculate half MRSA plate with swab/GSU (10μl)
- Incubate at 35-37°C. Aerobic 18-24 hrs. Read at ≥ 18hrs

- **Pink/Mauve colonies on plate**
  - Perform a MALDI ID
  - _S. aureus_
    - Not previously isolated OR
    - Previously isolated ≥ 12 weeks ago

- **No Pink/Mauve colonies on plate**
  - **NOT S. aureus**
  - Isolated previously in last 12 weeks
  - Set up a: MHA + FOX
    - _FOX S_
    - _FOX R_
    - _MRP_

- _S. aureus_ isolated in Apex, record MTS & order Vitek AST VMRSA (only 1 isolate per patient screen required for Vitek AST, perform Cefoxitin disc for other related samples)
- Keep isolate Long Term

- Report as MRSA isolated once complete on Vitek (Cefoxitin R) & ensure all sensitivities are suppressed

- **MRSA BENCH**
  - Phone ward
  - Photocopy report for Duty Microbiologist and Infection Control

Zone sizes should be measured in Antibiotic Dept using calibrated digital callipers.
## Appendix 3

**INFECTION CONTROL RISK ASSESSMENT**

**NHS Dumfries & Galloway**

### MRSA Risk Assessment

**Clinical Risk Assessment Questions**

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the patient had any previous history of MRSA colonisation or infection?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the patient currently resident in care/institutional settings (including prisons, homeless), or transferred from another hospital (for acute settings only)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the patient have a wound/ulcer i.e. one or more breaks in the skin or an indwelling medical device which was present before admission? i.e. invasive device which temporarily enters the body.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### CPE Risk Assessment

**Clinical Risk Assessment Questions**

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has the patient had any previous history of CPE colonisation or infection?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has the patient been transferred from another hospital outside Scotland (excluding Cumberland Infirmary, Carlisle) or has a history of admission outside Scotland (excluding Cumberland Infirmary, Carlisle) in the last 12 months? (including holiday dialysis patients)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has the patient had Renal Dialysis outside Scotland in the last 12 months?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Other infection control risk factors

<table>
<thead>
<tr>
<th>Type of Infection Screen</th>
<th>Precautions</th>
<th>Specimen</th>
<th>Date Sent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhoea- Known infection or unknown cause</td>
<td>Yes</td>
<td>No</td>
<td>Contact</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vomiting- Known infection or unknown cause</td>
<td>Yes</td>
<td>No</td>
<td>Contact</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory infection with productive cough</td>
<td>Yes</td>
<td>No</td>
<td>Droplet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Other type of infection, please contact Infection Control Team

<table>
<thead>
<tr>
<th>Neutropenic</th>
<th>Yes</th>
<th>No</th>
<th>Protective</th>
</tr>
</thead>
</table>

### Signature

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
</table>

**Version 4**

**Revised on 14/07/2016**
Appendix 4

Quick Ref 6 – MRSA Risk Assessment for all Contact Patients

MRSA RISK ASSESSMENT FOR ALL CONTACT PATIENTS
This must be completed for any patient who has been a contact of a confirmed MRSA +ve patient for more than 24 hours.

<table>
<thead>
<tr>
<th>Patient Details:</th>
<th>Date of Admission:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affix patient ID label here</td>
<td>Ward/Clinical Area:</td>
</tr>
</tbody>
</table>

Contact Risk Assessment

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunosuppressed or likely to become so due to treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence of indwelling devices – PVC, Urinary Catheter, PEG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient in high risk area – orthopaedics, renal, cardiothoracic, vascular, intensive care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The patient has one or more breaks in the skin or has an active skin condition (or is being admitted for any other dermatology reason)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If the patient meets any of the above criteria a contact screen should be completed. MRSA screening swabs:

- Nasal
- Perineal
- Wound Swabs
- CSU

Screening and Result

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Screen Complete</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date and Signature</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Screen Result</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date and Signature</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Follow Up

- If positive:
  - In-Patient: Consider decolonisation regime and isolate with contact precautions
Appendix 5

Where can I get more information?
If you have any questions about MRSA screening, please ask a member of staff. For more general information about MRSA, please visit www.hps.scot.nhs.uk.

This leaflet is available in other languages as well as in large print in Braille (English only) and on audio tape. An "easy read" version is also available.
To ask for a copy of this leaflet in another language or format, please either ask a member of staff or contact our communications officer at:
3rd Floor, Meridian Court 5 Colville Street Glesgen, G2 9SE.
0141 200 1100

Other language options and the "easy read" version are available from the HPS website:
http://www.hps.scot.nhs.uk/healthcare/mrsa/screeningpatientinformation.aspx

In Scotland, hospitals that treat emergency patients and carry out operations are introducing MRSA (methicillin resistant Staphylococcus aureus) screening. Screening is just one of the ways we are working to tackle infections such as MRSA in hospitals. This leaflet will give you some more information on MRSA screening and what it means to you. Your hospital can also give you more information about MRSA. Please ask your doctor or nurse if you have any questions.

What is MRSA?
MRSA is a common bacterium. It stands for meticillin resistant Staphylococcus aureus. Staphylococcus aureus is a common type of bacterium that can live on your skin and not cause harm, but can sometimes cause a number of common infections. Usually, having staphylococcus aureus in your nose or on your skin will not harm you, as the bacterium is not normally a risk to healthy people. People who carry this bug (even if they do not have any symptoms) can no longer be treated by meticillin (a type of antibiotic),

but we can treat it by using a body wash and a cream for your nose. It is estimated that around 5% of all patients who are admitted to hospital have the MRSA bacterium on their skin or in their nose already even though they may not feel well.

How is MRSA spread?
MRSA is mainly spread from person to person through hand contact. This is why washing your hands and using alcohol based hand gels are so important. Good hand hygiene is one of the most important and effective ways of stopping the spread of MRSA.

What is screening and why is it being done?
MRSA screening involves identifying and testing patients who are admitted to this hospital so we can see if the MRSA bacterium is more likely to cause an infection in people who are unwell, which may be as important to identify people in a hospital who have MRSA or their body before it can cause harm or spread to others. If we can identify those patients who have MRSA on their body when they come into the hospital, we can make sure that they receive the best and most appropriate care.

Who do you test for MRSA?
If you stay overnight in hospital and are identified as at risk we will test you for MRSA.

How will you take my sample?
A member of hospital staff will collect a sample by taking a swab from your nose and your perineum (the area between the anus and the genitalia) using a cotton bud. This is usually painless and only slightly uncomfortable. We will respect your privacy and dignity at all times when we are taking these samples.

What happens if you find MRSA in my sample?
We can treat MRSA. Treatment is not always appropriate for everyone. Your doctor will discuss the most appropriate care with you. Please speak to your doctor or nurse if you are worried about any part of your treatment. If you have MRSA, we will usually care for you separately from other patients.

Who can I contact if I have any questions about MRSA screening or MRSA in general?
Please ask a member of staff.
### Appendix 6

#### MRSA Decolonisation Patient Risk Assessment

<table>
<thead>
<tr>
<th>Date positive specimen:</th>
<th>GP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Practice:</td>
</tr>
<tr>
<td>Ch:</td>
<td></td>
</tr>
<tr>
<td>Date form Completed:</td>
<td></td>
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</tbody>
</table>

**Relevant Medical History/Skin Conditions**

<table>
<thead>
<tr>
<th>MRSA Positive:</th>
<th>Nasal Screen</th>
<th>Mupirocin:</th>
<th>Sensitive</th>
<th>Resistant</th>
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</table>

**Previous MRSA History/Decolonisation**

<table>
<thead>
<tr>
<th>Discussed with IPCD:</th>
<th></th>
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<tbody>
<tr>
<td>Decolonisation Commenced:</td>
<td>Yes</td>
</tr>
<tr>
<td>Decolonisation Treatment:</td>
<td>Stelisept</td>
</tr>
<tr>
<td></td>
<td>Mupirocin</td>
</tr>
<tr>
<td></td>
<td>Chlorhexidine</td>
</tr>
</tbody>
</table>

**Comments**

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MRSA Decolonisation Patient Risk Assessment